

## Accounting (ACC)

### ACC 1150

#### Fundamentals of Business Math

3

\* Prerequisite(s): MAT 0950 or equivalent

Designed for the business student as a review of mathematical principles, techniques, computations, and their applications to business problems. Topics include: checking accounts and bank reconciliations, percents, solving for the "unknown," discounts, markups and markdowns, payroll, simple interest, discounting notes, present and future value, depreciation, inventory, taxes, insurance, stocks and bonds, annuities, sinking funds, and calculator procedures. Lab access fee of \$25 applies. Canvas Course Mats \$85/McGraw applies

### ACC 1750

#### Applied Accounting

4

\* Prerequisite(s): Appropriate placement scores or (ENGL 1005 or ENGL 1010 with a grade of C- or higher)

Designed for non-accounting majors in Executive Assistant and Paralegal. Provides comprehensive coverage of the accounting cycle for services and merchandising organizations. Topics include: Journalizing, posting, financial statements, closing, accounting systems, internal control, accounts receivable, accounts payable, inventory control, and payroll. Taught in a computer environment. Lab access fee of \$25 for computers applies.

### ACC 2010

#### Financial Accounting

3

\* Prerequisite(s): ENGL 1010 or ENGL 1005 or higher with a minimum grade of C-, MAT 1010 or higher with a minimum grade of C-, or appropriate test scores.

\* Corequisite(s): ACC 1150 recommended if required for your degree

Teaches concepts and methods underlying preparation of financial statements utilizing generally accepted accounting principles (GAAP). Includes the accounting cycle; income determination for service and merchandising operations; and the reporting of assets, liabilities, and owner's equity for sole proprietorships and corporations. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies.

### ACC 2020

#### Managerial Accounting

3

\* Prerequisite(s): ACC 2010

Focuses on the methods and tools used to generate information for decision making by managers within an organization and integrates decision-making throughout the course. Addresses five primary topics: determining the cost of products, services, and segments of the organization; short-term/long-term role of planning in management; the control function of management. May be delivered hybrid and/or online. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies

### ACC 2110

#### Principles of Accounting I

3

\* Prerequisite(s): ENGL 1010 or ENGL 1005 or higher with a minimum grade of C-, MAT 1010 or higher with a minimum grade of C-, or appropriate test scores.

Teaches basic accounting methods and tools for business decision making. Incorporates financial and managerial accounting to provide basic understanding of generally accepted accounting principles (GAAP). Applies analytical tools to assess profitability, relevant costs, and investment decisions. Canvas Course Mats of \$115/McGraw applies.

### ACC 2120

#### Principles of Accounting II

3

\* Prerequisite(s): ACC 2110 with a B- or higher

Teaches technical accounting concepts from both financial and managerial accounting. Includes generally accepted accounting principles (GAAP) to support understanding of the accounting cycle and financial statements. Includes managerial accounting topics such as costing methods, budget preparation, and performance evaluation tools. Canvas Course Mats of \$115/McGraw applies.

### ACC 2125

#### Introduction to the Accounting Profession

1

Teaches topics related to the accounting profession, including career options in accounting, certifications in accounting (CPA, CMA, CIA, CFE, etc.), ethics in the profession, current issues in accounting, professional standards, and professionalism skills. Discusses the educational requirements for the accounting undergraduate and graduate degrees.

### ACC 2250

#### Accounting for Entrepreneurs

3

Addresses accounting issues from the perspective of an entrepreneur or small business owner. Includes choice of business entity, payroll preparation, internal control systems, and the basic application of applicable income and sales taxes. Teaches accounting software to classify, record, summarize, and report transactions and to generate financial statements.

### ACC 2500

#### Data Analytics in Accounting

3

\* Prerequisite(s): ACC 2110 with a B- or higher or ACC 2010 with a B- or higher

\* Prerequisite(s) or Corequisite(s): ACC 2120 or ACC 2020

Introduces data analytics and data visualization tools and techniques in accounting. Provides hands-on experience in analyzing accounting data, creating visuals, and interpreting results using various data analytics and visualization software. Canvas Course Mats of \$85/McGraw applies.

### ACC 2600

#### Business Law and Ethics

3

\* Prerequisite(s): ENGL 1010

\* Prerequisite(s) or Corequisite(s): ACC 2110 or ACC 2010

Examines legal and ethical issues needed to make sound business decisions. Provides an overview of the legal system, constitutional law, ethical decision-making frameworks, business entities, contract law, business crimes and torts, compliance and regulatory issues, agency law, and bankruptcy law.

### ACC 281R

#### Cooperative Work Experience

2 to 8

\* Prerequisite(s): Approval of School of Business Career and Corporate Manager

Designed for accounting majors to provide on-the-job work experience that will utilize the student's skills and abilities in the field of accounting. Requires a portfolio of acquired work experience and enhanced skills. Includes student, employer, and coordinator evaluations; on-site coordinator visits; written assignments; and oral presentations. Provides experience in formulating and completing individualized work experience objectives. A maximum of 3 credits may apply toward graduation. May be graded credit/no credit.

## Course Descriptions

### **ACC 3000** **Financial Managerial and Cost Accounting Concepts**

**3**

\* Prerequisite(s): ENGL 2010, MAT 1010 or higher, and University Advanced Standing

Provide students in computer science and the technologies with knowledge of financial, managerial, and cost accounting concepts and applications. Prepares students to utilize accounting information in making business decisions. May be delivered online. Lab access fee of \$25 for computers applies.

### **ACC 3010** **Intermediate Accounting I**

**3**

\* Prerequisite(s): (ACC 2010 and ACC 2020) or (ACC 2110 and ACC 2120) each with a B- or higher, (MATH 1050, MATH 1055, or MATH 1090) with a C- or higher, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): (MGMT 2240 or MATH 1100), ACC 2125, and (ACC 2500 or IM 2600)

Reviews and expands on fundamental accounting material learned in beginning classes. Covers an overview of the primary financial statements, revenue recognition, and the accounts on the asset portion of the balance sheet. Introduces the Conceptual Framework and current accounting standards to provide a theoretical foundation upon which practical applications are based. Lab access fee of \$25 applies. Canvas Course Mats \$85/McGraw applies.

### **ACC 3020** **Intermediate Accounting II**

**3**

\* Prerequisite(s): ACC 3010, MKTG 220G, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ACC 3300

Addresses debt and equity financing, investments in debt and equity securities, leases, deferred income taxes, employee compensation (payroll and pensions), earnings per share, accounting changes, and error corrections. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies.

### **ACC 3030** **Intermediate Accounting for Non-Accounting Majors**

**3**

\* Prerequisite(s): (ACC 2110 AND ACC 2120) or (ACC 2010 AND ACC 2020) and University Advanced Standing

An intermediate accounting course for non-accounting majors with emphasis on interpretation and use of general-purpose financial statements and the related disclosure notes. Addresses understanding interrelationships among the various financial statements and analyzing the effects of transactions on the financial statements. Analyzes common and significant accounts/transactions, especially those relating to the liability and equity sections of the financial statements. Canvas Course Mats \$66/Wiley applies.

### **ACC 3120** **Internal Auditing**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005), (MATH 1050 or MATH 1055 or MATH 1090 or higher), junior standing, minimum cumulative GPA of 3.0, and University Advanced Standing

Introduces students to the theories of governance, risk, and control concepts; internal auditing standards; audit techniques; and reporting practices. Applicable across disciplines.

### **ACC 312G** **International Internal Auditing**

**3**

\* Prerequisite(s): (ACC 2110 and ACC 2120) or (ACC 2010 and ACC 2020), University Advanced Standing

Introduces students to the international internal auditing standards; global auditing case studies; theories of governance, risk, and control concepts; audit techniques; and reporting practices. Applicable across disciplines.

### **ACC 3300** **Cost Management**

**3**

\* Prerequisite(s): (ACC 2010 AND ACC 2020) OR (ACC 2110 AND ACC 2120) each with a B- or higher and University Advanced Standing

Provides a strategic approach to cost management and the development and use of relevant information for management decision making. Builds a foundation by discussing the various concepts of cost, cost behavior, and cost estimation techniques. Addresses costing of products and other cost objects using job order and process costing, activity-based costing, and cost allocation. Introduces management control topics of budgeting and performance evaluation through variance analysis. Concludes with current topics in cost management. Lab access fee of \$25 for computers applies.

### **ACC 3400** **Individual Income Tax**

**3**

\* Prerequisite(s): (ACC 2110 AND ACC 2120) OR (ACC 2010 AND ACC 2020), and University Advanced Standing

Studies federal individual income taxes. Covers the accounting theory and practices of federal individual income taxation based on a study of the laws, regulations, and income tax decisions. Lab access fee of \$25 for computers applies. Canvas Course Mats \$116/Pearson applies.

### **ACC 3510** **Accounting Information Systems**

**3**

\* Prerequisite(s): (ACC 3010 or ACC 3030) and (ACC 2500 or IM 2600) and University Advanced Standing

Teaches analysis design and implementation of accounting information systems. Emphasizes accounting cycles, internal controls, and computerized environments. Lab access fee of \$25 applies. Canvas Course Mats \$85/McGraw applies.

### **ACC 4030** **Governmental and Not For Profit Accounting**

**3**

\* Prerequisite(s): ACC 3010 or ACC 3030, University Advanced Standing

Covers areas of governmental and not-for-profit accounting and reporting. Includes fund accounting, the budgetary process, governmental financial reporting, not-for-profit organizations, health care organizations, colleges and universities, and public sector auditing. Lab access fee of \$25 for computers applies.

### **ACC 4050** **Financial Statement Analysis**

**3**

\* Prerequisite(s): Matriculation into the Woodbury School of Business, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ACC 3020

Teaches financial statement analysis techniques and practices, such as financial metrics, footnote disclosures, and business profitability. Informs decision making based on practical analysis of financial statement information.

**ACC 4110**

**Auditing**

**3**

\* Prerequisite(s): ACC 312G, University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ACC 3020

Provides an introduction to independent audits of financial statements in accordance with generally accepted auditing standards, the environment in which audits are performed, and professional ethics. Includes basic audit concepts and procedures related to planning, testing internal controls, investigating reported financial results of business process cycles, and required auditor communications. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies

**ACC 4140**

**Advanced Internal Auditing**

**3**

\* Prerequisite(s): Matriculation into the BS Accounting degree program, and University Advanced Standing or Instructor Approval.

Covers advanced topics in the theories of governance, risk, and control concepts; internal auditing standards; and audit techniques.

**ACC 4310**

**Advanced Management Accounting**

**3**

\* Prerequisite(s): ACC 3300, University Advanced Standing

Studies and applies advanced topics in Cost Management such as value chain analysis, activity-based management, and other current topics and issues in management accounting. Teaches the principles of management control including strategic planning, budgeting, performance measurement. Includes active class discussion, case analysis, and student presentations.

**ACC 4400**

**Taxation of Business Entities**

**3**

\* Prerequisite(s): ACC 3400, University Advanced Standing

Provides an introduction and understanding of the construct and application of the federal tax laws. Studies the federal taxation of corporations, partnerships/LLCs, estates and trusts, gifts, and exempt entities based on the laws, regulations, and associated tax decisions. Covers the professional rules, regulations, and ethical considerations imposed on tax professionals. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/Cengage applies.

**ACC 4410**

**Tax Research**

**3**

\* Prerequisite(s): ACC 3010, ACC 3400, Matriculation into the BS Accounting degree program, and University Advanced Standing

Studies theory and practice of tax research as it applies to federal income taxation laws, rules and regulations. Applies ethical considerations and standards to tax practice. Emphasizes computerized tax research techniques which will be explored through cases dealing with administrative aspects of the IRS, court cases, client communications and a wide variety of tax topics.

**ACC 4510**

**Information Systems Auditing**

**3**

\* Prerequisite(s): ACC 3510, ACC 312G, Matriculation into any Woodbury School of Business program, and University Advanced Standing

Provides students a project course covering IT audit and its impact on the financial statement audit. Covers information security, social engineering, and fraud data mining are also covered as they relate to accounting information systems and the associated data. May be delivered hybrid. Lab access fee of \$25 for computers applies.

**ACC 470R**

**Current Topics in Accounting**

**1 to 3**

\* Prerequisite(s): ACC 3010, Matriculation into the Woodbury School of Business, and University Advanced Standing

Provides opportunities for students to become exposed to emerging technology and topics of current interest and demand in Accounting. Topics vary from semester to semester. Repeatable for a maximum of 3 credits toward graduation.

**ACC 481R**

**Internship**

**2 to 8**

\* Prerequisite(s): ACC 3010, Matriculation into the Woodbury School of Business, Approval of Accounting Department Internship Coordinator and University Advanced Standing

Provides accounting majors a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job paid experience commensurate with upper-division classroom instruction. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and oral presentations. May be repeated for a maximum of 6 credits toward graduation. May be graded credit/no credit.

**ACC 490R**

**Accounting Seminar**

**1 to 3**

\* Prerequisite(s): Matriculation into the BS Accounting degree program, Department Chair Approval, and University Advanced Standing

Designed to provide short courses, workshops, and special programs on accounting-related topics. May be repeated for a maximum of 3 credits toward graduation.

**ACC 491R**

**Independent Study**

**1 to 4**

\* Prerequisite(s): Department Chair approval and University Advanced Standing

For bachelor's degree students and other interested persons. Offers independent study as directed in reading, individual projects, etc., at the discretion and approval of the department chairperson. Repeatable for a maximum of 3 credits toward graduation.

**ACC 5020**

**Advanced Financial Accounting**

**3**

\* Prerequisite(s): ACC 3020, Matriculation into the BS Accounting degree program, and University Advanced Standing

Presents accounting concepts and methods for business combinations, foreign currency transactions, foreign statement translation, and partnerships. Canvas Course Mats \$85/McGraw applies.

**ACC 5130**

**Case Studies in Internal Auditing**

**3**

\* Prerequisite(s): ACC 312G

Teaches student to design policies and procedures for internal audit operations by using risk based audit plans and developing audit plans. May be delivered hybrid.

**ACC 5140**

**Fraud Examination**

**3**

\* Prerequisite(s): ACC 3010 and University Advanced Standing

Examines the seriousness of fraud and its impact on business and society. Includes forensic accounting and fraud prevention, detection, and resolution.

**ACC 6020**

**Advanced Financial Accounting**

**Applications**

**3**

\* Prerequisite(s): Admission to Master of Accountancy program

Presents accounting concepts, methods, and applications for business combinations, foreign currency transactions, foreign statement translation, and partnerships. Canvas Course Mats \$85/McGraw applies.

## Course Descriptions

### **ACC 6030**

#### **Financial Accounting and Reporting**

**3**

\* Prerequisite(s): Acceptance into the Master of Accountancy program

Focuses on understanding the nature and financial reporting aspects of complex business transactions such as corporate acquisitions, mergers, and other strategic alliances. Includes accounting for business combinations and the various reporting requirements leading to consolidated financial statements.

### **ACC 6060**

#### **Professionalism and Leadership**

**3**

\* Prerequisite(s): Admission to Master of Accountancy program

Enhances the ability to interact and communicate with others in the professional world. Builds skill development in oral and written communication, interviewing, networking, and leadership. Explores and enhances emotional intelligence. Canvas Course Mats \$49/BlueEQ applies.

### **ACC 6130**

#### **Case Studies in Auditing**

**3**

\* Prerequisite(s): Admission to Master of Accountancy or Master of Business Administration Program

Teaches policies and procedures for internal audit operations by creating risk based audit plans, developing audit objectives, and evaluating audit results.

### **ACC 6140**

#### **Fraud Examination and Forensic Accounting**

**3**

\* Prerequisite(s): Admission to Master of Accountancy or the Master of Business Administration Program

Evaluates the seriousness of fraud and its impact on individuals, businesses and society. Formulates fraud prevention, detection, and resolution methods using cases.

### **ACC 6150**

#### **Information Systems Auditing**

**3**

\* Prerequisite(s): Admission to Master of Accountancy or Master of Business Administration Program

Provides projects covering information systems audit and its impact on the financial statement audit. Covers information security, social engineering, and fraud data mining as they relate to accounting information systems and the associated data.

### **ACC 6250**

#### **Financial Reporting and Analysis**

**3**

\* Prerequisite(s): Acceptance to the MBA program

Discusses financial reporting requirements and choices that impact the evaluation of firm performance and strategy. Examines the role of management and corporate governance in financial reporting. Teaches skills for analyzing financial reports, disclosures, and management communication of financial performance. Focuses on financial reports prepared for external stakeholders to a firm.

### **ACC 6300**

#### **Advanced Data Analytics in Accounting**

**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Covers advanced data analytics, data visualization, and statistical analysis skills and techniques in accounting. Provides an applied approach to financial data analytics, cost accounting, audit analytical procedures, and financial statement analysis. Develops data analysis skills using a variety of software packages. Canvas Course Mats \$85/McGraw applies.

### **ACC 6350**

#### **Management Control Systems**

**3**

\* Prerequisite(s): Admission to Master of Accountancy or Master of Business Administration Program

Evaluates the design of management control systems through case studies to enable the successful implementation of accounting strategies in a variety of for-profit entities. Emphasizes the development of the students' analytical and decision-making skills. Canvas Course Mats \$134/Pearson applies

### **ACC 6400**

#### **Advanced Taxation of Business Entities**

**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Studies the federal taxation of corporations, partnerships/LLCs, estates and trusts, gifts, and exempt entities based on the laws, regulations, and associated tax decisions. Covers the professional rules, regulations, and ethical considerations imposed on tax professionals.

### **ACC 6410**

#### **Tax Research and Procedure**

**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Provides the necessary skills to thoroughly research and analyze a tax problem, as well as to report research analysis and conclusions accurately. Explores computerized tax research methods and the organization of the IRS including the procedural aspects of tax compliance and practice, tax related penalties, professional responsibility and tax ethics.

### **ACC 6420**

#### **Principles of Corporate Tax**

**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Covers accounting theory and practices of the federal income taxation laws, rules and regulations relating to the formation and operation of corporations and S corporations, and their effects upon the corporation's shareholders. Canvas Course Mats \$78/McGraw applies.

### **ACC 6430**

#### **Advanced Corporate Tax**

**3**

\* Prerequisite(s): Admission to Master of Accountancy or Master of Business Administration Program

Assesses the appropriate federal income tax for a corporation based on relevant accounting and business data. Analyzes the tax implications related to the form of entity and the location of the entity.

### **ACC 6440**

#### **Partnership Tax**

**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Examines accounting theory and practices of the federal income taxation laws, rules and regulations relating to the formation and operation of partnerships, and their effects upon partners.

### **ACC 6460**

#### **Estate and Gift Tax**

**3**

\* Prerequisite(s): Admission to Master of Accountancy or Master of Business Administration Program

Examines the law and theory of federal taxation of estates and gifts based on Federal code, I.R.S. regulations, and digest of official income tax decisions.

### **ACC 6500**

#### **Advanced Accounting Information Systems**

**3**

\* Prerequisite(s): Acceptance in the MBA program

Develops the background necessary to plan, design and implement an accounting information system.

### **ACC 6510**

#### **Financial Auditing**

**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Examines current auditing standards for independent audits of financial statements. Explores proposed auditing standards, relevant legislation, and selected contemporary advanced topics in auditing.

**ACC 6540**  
**Professional Ethics in Accounting and Auditing**  
**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Covers professional ethics and ethical dilemmas faced by accountants and auditors. Uses case studies to present ethical dilemmas and violations of the AICPA's Code of Professional Conduct (Code), Generally Accepted Accounting Principles (GAAP), and Generally Accepted Auditing Standards (GAAS). Covers diagnosis of ethical dilemmas and violations of the Code, GAAP, and GAAS. Provides opportunity to work collaboratively to design, prescribe, and communicate effective safeguards and resolutions to ethical dilemmas and Code, GAAP, and GAAS violations.

**ACC 6560**  
**Financial Accounting Theory and Research I**  
**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Introduces the theoretical underpinnings of financial accounting and reporting. Provides an applied research approach to reviewing and mastering intermediate-level financial accounting concepts and procedures. Integrates accounting theory and practical research methodology in the resolution of financial reporting problems.

**ACC 6580**  
**Financial Accounting Theory and Research II**  
**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Expands on the theoretical underpinnings of financial accounting and reporting. Provides an applied research approach to reviewing and mastering advanced-level financial accounting concepts and procedures. Integrates accounting theory and practical research methodology in the resolution of financial reporting problems.

**ACC 6600**  
**Business Law for Accountants**  
**3**

\* Prerequisite(s): Admission to Master of Accountancy Program

Examines contemporary issues in business law, with an emphasis in accountancy. Studies secured transactions, negotiable instruments, business associations, investor protection, consumer protection and government regulation in an increasingly global and interconnected business environment.

**ACC 6610**  
**Financial Statement Research and Analysis**  
**3**

\* Prerequisite(s): Admission to Master of Accountancy or Master of Business Administration program.

Teaches financial statement research and analysis, improving decision making based on theoretical and practical research of financial statement information.

**ACC 679R**  
**Special Topics in Accounting**  
**3**

\* Prerequisite(s): Admission to Master of Accountancy program

Varies from semester to semester. Provides opportunities for students to become exposed to emerging technology and topics of current interest and demand in accounting, taxation, auditing, and accounting information systems. May be repeated for a maximum of 6 credits toward graduation.

**Aerospace Studies**  
**(AERO)**

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**AERO 1000**  
**Leadership Laboratory 1A**  
**.5**

Studies basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility.

**AERO 1010**  
**Leadership Laboratory 1B**  
**.5**

Studies basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility.

**AERO 1100**  
**The Air Force Today**  
**1**

\* Corequisite(s): AERO 1000

Teaches development, organization, and doctrine of the U.S. Air Force. Emphasizes Strategic Force requirements.

**AERO 1110**  
**Aerospace Defense General Purpose and Support Forces**  
**1**

\* Corequisite(s): AERO 1010

Studies U.S. Air Force Defensive Forces, General Purpose Forces, and Tactical Air Forces.

**AERO 143R**  
**Air Force Physical Training**  
**.5**

\* Corequisite(s): AERO 1000

Prepares students for the physical demands placed upon them at Air Force Field Training encampment normally attended between their sophomore and junior years. Provides leadership opportunities and tests a cadet's physical fitness. Repeats are allowed. See advisor for details. May be repeated for a maximum of four credits.

**AERO 2000**  
**Leadership Laboratory 2A**  
**.5**

Teaches fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Increased emphasis on performance level.

**AERO 2010**  
**Leadership Laboratory 2B**  
**.5**

Teaches fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Increased emphasis on performance level.

**AERO 2100**  
**The Developmental Growth of Air Power A**  
**1**

\* Corequisite(s): AERO 2000

Studies development of various concepts of air power employment, emphasizing factors that have prompted research and technological change.

**AERO 2110**  
**The Development and Growth of Air Power B**  
**1**

\* Corequisite(s): AERO 2010

Studies development of various concepts of air power employment. Emphasizes factors that have prompted research and technological change.

**AERO 3000**  
**Leadership Laboratory 3A**  
**.5**

\* Prerequisite(s): University Advanced Standing

Teaches basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Students perform as cadet officers. Emphasizes leadership development.

**AERO 3010**  
**Leadership Laboratory 3B**  
**.5**

\* Prerequisite(s): University Advanced Standing

Teaches basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Students perform as cadet officers. Emphasizes leadership development.

# Course Descriptions

## **AERO 305R**

### **Leadership Laboratory Honor Guard**

**1**

\* Prerequisite(s): University Advanced Standing

Teaches basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Emphasizes leadership development. Students perform as cadet officers. Repeats are allowed. See advisor for details. May be repeated for a maximum of 8 credits.

## **AERO 3100**

### **Management and Leadership A**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces students to the United States Air Force (USAF) and the Reserve Officer Training Corps (ROTC). Includes conflict management, followership, leadership responsibility, officership, and process improvement.

## **AERO 3110**

### **Management and Leadership B**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces students to the United States Air Force (USAF) and the Reserve Officer Training Corps (ROTC). Includes conflict management, followership, leadership responsibility, officership, and process improvement.

## **AERO 3200**

### **Jet Pilot Introduction**

**2**

\* Prerequisite(s): University Advanced Standing

Studies principles of flight and accompanying issues. Introduces meteorology. Presents FARs as they apply to the private pilot. Provides orientation, understanding, and preparation of the US Air Force Undergraduate Pilot Training (UPT).

## **AERO 399R**

### **Academic Internship Leadership Intern Program**

**4**

\* Prerequisite(s): Instructor Approval for Air Force ROTC Cadets only and University Advanced Standing

Provides advanced fundamentals of military leadership, planning, organizing, and team building at various levels of responsibility. May be repeated for a maximum of 4 credits toward graduation. May be graded credit/no credit.

## **AERO 400R**

### **Leadership Laboratory 4A**

**.5**

\* Prerequisite(s): University Advanced Standing

Presents basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Students perform as cadet officers. Emphasizes leadership development. May be repeated for a maximum of 2 credits.

## **AERO 401R**

### **Leadership Laboratory 4B**

**.5**

\* Prerequisite(s): University Advanced Standing

Presents basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Students perform as cadet officers. Emphasizes leadership development. May be repeated for a maximum of 2 credits.

## **AERO 4100**

### **National Security Affairs A**

**3**

\* Prerequisite(s): University Advanced Standing

Studies the military profession, civil-military interaction, and the forming of defense strategy.

## **AERO 4110**

### **National Security Affairs B**

**3**

\* Prerequisite(s): University Advanced Standing

Studies the military profession, civil-military interaction, and the forming of defense strategy.

## **Automation and Electrical Tech (AET)**

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### **AET 1050**

#### **Electrical Math I**

**3**

\* Prerequisite(s): MAT 1010 or Departmental Approval

Utilizes algebraic formulas and methods to solve electrical problems related to DC electrical systems. Covers the calculation of voltage, current, resistance, power, and efficiency for DC circuits. Teaches circuit analysis techniques such as superposition, source transformations, Thevenin's theorem, mesh and nodal analysis. Introduces wire sizing and resistance calculations pertaining to the National Electrical Code. Introduces AC electrical system fundamentals. Software fee of \$20 applies.

### **AET 1060**

#### **Electrical Math II**

**3**

\* Prerequisite(s): AET 1050

Utilizes algebraic formulas and methods to solve electrical problems related to AC electrical systems. Covers the calculation of voltage, current, resistance, reactance, impedance, power, VARs, volt-amperes and efficiency for single phase and three phase AC systems. Applies trigonometry, trigonometric functions, complex numbers, and phasors to circuit analysis techniques. Analyzes sine waves, transformers, transformer connections and power factor for single phase and three phase electrical systems. Introduces three phase balanced systems and faults.

### **AET 1130**

#### **Introduction to Automation**

**2**

\* Corequisite(s): AET 1135, AET 1150, AET 1155

\* Prerequisite(s) or Corequisite(s): AET 1050

Introduces the difference between Engineering and Engineering Technology. Explores career paths in the Electrical Automation Industry. Incorporates engaged learning. Reviews basic DC theory involving voltage, current, resistance, batteries, magnetism, power and the use of digital meters. Covers troubleshooting techniques and applications of DC circuits. Software fee of \$20 applies. Lab access fee of \$45 for computers applies.

### **AET 1135**

#### **Introduction to Automation Lab**

**1**

\* Corequisite(s): AET 1130, AET 1150, AET 1155

\* Prerequisite(s) or Corequisite(s): AET 1050

Reviews basic DC theory involving voltage, current, resistance, batteries, magnetism, power and the use of digital meters. Engages in troubleshooting techniques and applications of DC circuits in a lab-environment.

### **AET 1140**

#### **Applied AC Theory**

**1**

\* Corequisite(s): AET 1145

\* Prerequisite(s) or Corequisite(s): AET 1050, AET 1130, AET 1135, AET 1150, AET 1155

Reviews basic AC theory involving voltage, current, resistance, reactance, impedance, magnetism, power and the use of digital meters. Discusses operation of inductors, capacitors, diodes, and transformers. Discusses troubleshooting techniques and applications of AC circuits.

**AET 1145  
Applied AC Lab  
2**

- \* Prerequisite(s): AET 1130, AET 1135, AET 1150, AET 1155
- \* Corequisite(s): AET 1140
- \* Prerequisite(s) or Corequisite(s): AET 1050

Reviews basic AC theory involving voltage, current, resistance, reactance, impedance, magnetism, power and the use of digital meters. Discusses operation of inductors, capacitors, diodes, and transformers. Engages in troubleshooting techniques and applications of AC circuits in a lab environment.

**AET 1150  
Industrial Logic  
1**

- \* Corequisite(s): AET 1155, AET 1130, AET 1135
- \* Prerequisite(s) or Corequisite(s): AET 1050

Introduces digital logic and relay logic theory and industrial applications of logic circuits. Discusses numbering systems, boolean algebra, circuit simplification techniques, and logic devices such as latches, one-shots, timers, counters, flip flops, and shift registers. Emphasizes the relationship between ladder logic and digital logic and focuses on conversion between both formats. Discusses application and troubleshooting of logic circuits and introduces basic concepts of state machines.

**AET 1155  
Industrial Logic Lab  
1**

- \* Corequisite(s): AET 1150, AET 1130, AET 1135
- \* Prerequisite(s) or Corequisite(s): AET 1050

Applies digital logic and relay logic theory to industrial circuits in a hands-on setting. Utilizes boolean algebra and circuit simplification techniques when building logic circuits. Implements control circuits with relays, logic gates, and other applicable digital devices. Applies troubleshooting techniques to industrial control circuits.

**AET 1250  
Industrial Electrical Code  
2**

- \* Prerequisite(s): (AET 1140, AET 1145) or Department Approval
- \* Prerequisite(s) or Corequisite(s): AET 1060

Covers pertinent topics within the National Electrical Code related to commercial and industrial environments. Covers code related to electrical plans, specifications, wiring and installation methods, feeder load calculations, motor installation, motor controllers, panelboards, hazardous locations, protective devices, and grounding for commercial and industrial applications. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**AET 1280  
Electric Motor Control  
4**

- \* Prerequisite(s): AET 1140, AET 1145
- \* Corequisite(s): AET 1285
- \* Prerequisite(s) or Corequisite(s): AET 1060, AET 1250

Covers installation, troubleshooting, preventive maintenance, and theory on DC/AC motors, generators, and associated industrial control circuitry. Expands on ladder logic, controls, sensors, motor starters, overloads, and electronic devices used to control and protect DC/AC Machines. Describes three phase systems, transformers, and delta-wye connections. Introduces AC variable speed drives. Supports hands-on labs and projects in AET 1285. Software fee of \$20 applies. Lab access fee of \$45 for computers applies.

**AET 1285  
Electric Motor Control Lab  
4**

- \* Prerequisite(s): AET 1140, AET 1145
- \* Corequisite(s): AET 1280
- \* Prerequisite(s) or Corequisite(s): AET 1060, AET 1250

Covers the proper use of tools and test equipment needed to maintain motors and their controllers. Emphasizes the use of schematics, line diagrams, ladder logic, and wiring diagrams. Covers DC/AC, single phase, and three phase motors. Integrates logic design, motor protection, and wiring of motor control centers. Includes the workings of single phase and three phase transformers including delta and wye configurations. Course Lab fee of \$14 for supplies/materials applies. Lab access fee of \$45 for computers applies. Software fee of \$20 applies.

**AET 2010  
Manufacturing Technology  
1**

- \* Corequisite(s): AET 2015

Provides exposure to manufacturing technology and equipment that is used to fabricate industrial components utilizing machine shop technology. Covers safety and basic machining principles on a manual lathe and mill. Presents fundamental concepts of CNC programming and 3D modeling as it relates to a CAD/CAM system. Discusses basics of measuring and cutting tools, and shop mathematics as it relates to manufacturing. Covers fundamental principles from the machinery's handbook.

**AET 2015  
Manufacturing Technology Lab  
2**

- \* Corequisite(s): AET 2010

Provides exposure with a hands-on approach to manufacturing technology and equipment that is used to fabricate industrial components utilizing machine shop technology. Covers safety, and basic machining principles on a manual lathe and mill. Presents fundamental concepts of CNC programming and 3D modeling as it relates to a CAD/CAM system. Discusses basics of measuring and cutting tools, and shop mathematics as it relates to manufacturing. Covers fundamental principles from the machinery's handbook to manufacture and assembly.

**AET 2110  
Industrial Electronics I  
4**

- \* Prerequisite(s): AET 1280, AET 1285, AET 1250
- \* Corequisite(s): AET 2115
- \* Prerequisite(s) or Corequisite(s): AET 2250, AET 2255

Introduces semiconductor theory. Covers the concepts of PN junctions, transistors, voltage amplifiers, operational amplifiers, diodes, power electronics including the theory and operation of industrial solid state thyristor devices, power circuits, integrated circuits and other special semiconductor and industrial electronics. Includes lecture and demonstrations. Course lab fee of \$29 for materials applies. Lab access fee of \$45 for computers applies.

**AET 2115  
Industrial Electronics I Lab  
2**

- \* Prerequisite(s): AET 1280, AET 1285, AET 1250
- \* Corequisite(s): AET 2110
- \* Prerequisite(s) or Corequisite(s): AET 2250, AET 2255

Introduces semiconductor theory. Covers the concepts of PN junctions, transistors, voltage amplifiers, operational amplifiers, diodes, power electronics including the theory and operation of industrial solid state thyristor devices, power circuits, integrated circuits and other special semiconductor and industrial electronics. Includes practical hands-on labs. Software fee of \$20 applies. Lab access fee of \$45 applies.

# Course Descriptions

## **AET 2150**

### **Introduction to Fluid Power Systems**

**2**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

\* Corequisite(s): AET 2155

Covers the fundamentals of hydraulic and pneumatic components and systems used in industrial applications. Studies pumps, motors, directional and flow control valves, cylinders, transmission, and fluids. Emphasizes maintenance, safety, and environmental problems. Examines troubleshooting techniques and blueprint/print reading. Course Lab fee of \$15 for supplies/materials applies. Lab access fee of \$45 computers applies.

## **AET 2155**

### **Introduction to Fluid Power Systems Lab**

**1**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

\* Corequisite(s): AET 2150

Covers the fundamentals of hydraulic and pneumatic components and systems used in industrial applications. Studies pumps, motors, directional and flow control valves, cylinders, transmission, and fluids. Emphasizes maintenance, safety, and environmental problems. Examines troubleshooting techniques and blueprint/print reading. Software fee of \$20 applies. Lab access fee of \$45 applies.

## **AET 2160**

### **Introduction to Industrial Internet of Things**

**2**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

\* Corequisite(s): AET 2165

Introduces smart sensors, safety, and basic electronic components found in variable speed drives. Covers stepper and servo motor integration via Ethernet/IP. Introduces industrial networking principles related to unmanaged and managed switches. Includes lecture and demonstration. Course Lab fee of \$11 for materials applies. Lab access fee of \$45 computers applies.

## **AET 2165**

### **Introduction to Industrial Internet of Things Lab**

**1**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

\* Corequisite(s): AET 2160

Introduces smart sensors, safety, and basic electronic components found in variable speed drives. Covers stepper and servo motor integration via Ethernet/IP. Introduces industrial networking principles related to unmanaged and managed switches. Includes practical hands-on labs. Software fee of \$20 applies. Lab access fee of \$45 applies.

## **AET 2250**

### **Industrial Programmable Logic**

#### **Controllers--PLCs**

**4**

\* Prerequisite(s): AET 1280, AET 1285, AET 1250

\* Corequisite(s): AET 2255

\* Prerequisite(s) or Corequisite(s): AET 2110, AET 2115

Covers the theory, programming, and industrial control system applications of small and medium sized programmable logic controllers (PLCs). Studies basic maintenance, operation, troubleshooting, and programming instructions / techniques for industrial PLCs. Concentrates on interfacing analog and digital I/O to the PLC. Covers human machine interface (HMI) configuration, programming and PLC integration. Includes lecture, demonstration, print reading, and industry examples. Course lab fee of \$90 for equipment applies. Lab access fee of \$45 for computers applies. Canvas Course Mats \$85/McGraw applies.

## **AET 2255**

### **Industrial Programmable Logic**

#### **Controllers--PLCs Lab**

**2**

\* Prerequisite(s): AET 1280, AET 1285, AET 1250

\* Corequisite(s): AET 2250

\* Prerequisite(s) or Corequisite(s): AET 2110, AET 2115

Covers the theory, programming, and industrial control system applications of small and medium-sized programmable logic controllers (PLCs). Examines basic maintenance, programming, and troubleshooting techniques for industrial PLCs. Covers human-machine interface (HMI) configuration, programming, and PLC integration. Includes PLC communications via serial and industrial Ethernet. Includes hands-on labs and projects. Software fee of \$20 applies. Lab access fee of \$45 applies.

## **AET 2270**

### **Industrial Programmable Automation**

#### **Controllers--PACs**

**2**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

\* Corequisite(s): AET 2275

Introduces the theory and application of advanced industrial programmable automation controller (PAC) instructions, user-defined data types, add-on instructions, and advanced programming techniques. Studies PAC programming languages including ladder logic and function block pertaining to industrial control applications. Covers theory related to PAC integration of devices to variable speed drives, analog / digital sensors, and encoders. Includes advanced Human Machine Interface (HMI) programming concepts and introduces basic concepts of programmable safety relays. Includes lecture and demonstration. Course lab fee of \$90 for equipment applies. Lab access fee of \$45 for computers applies.

## **AET 2275**

### **Industrial Programmable Automation**

#### **Controllers--PACs Lab**

**1**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

\* Corequisite(s): AET 2270

Covers the implementation and application of advanced industrial programmable automation controller (PAC) instructions, user-defined data types, add-on instructions, and advanced programming techniques. Develops PAC programs using ladder logic and function blocks to control systems and machines. Covers PAC integration of devices to variable speed drives, sensors, and encoders. Implements advanced human-machine interface (HMI) programming. Integrates programmable safety relays into class projects. Includes hands-on labs and projects. Software fee of \$20 applies. Lab access fee of \$45 applies.

## **AET 2280**

### **Process Control Instrumentation**

**2**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

\* Corequisite(s): AET 2285

Covers basic theory on measuring process variables such as temperature, pressure, level, and flow. Discusses open loop and closed loop control including PID loops. Introduces instrumentation maintenance, installation, and device specifications. Discusses basic calibrations, safety instruments and standards, classified areas, and intrinsically safe systems. Presents competency in process and instrumentation diagrams (P&ID). Covers HART and modbus communications in industrial instrumentation.

## **AET 2285**

### **Process Control Instrumentation Lab**

**1**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

\* Corequisite(s): AET 2280

Implements process control instrumentation on class projects. Integrates open loop and closed loop control including PID loops with industrial instrumentation and a PLC. Explores basic calibrations, safety instruments and standards, classified areas, and intrinsically safe systems. Implements process and instrumentation diagrams (P&ID) on industrial systems. Integrates HART and modbus communications into applicable industrial projects. Covers programming and troubleshooting of industrial instruments in a hands-on environment. Course lab fee of \$90 applies. Lab access fee of \$45 applies.

**AET 281R  
Cooperative Work Experience****1 to 8**

\* Prerequisite(s): Approval of Department Chair

Provides paid on-the-job work experience that relates to the electrical and automation field. Implements and executes goals/learning objectives based on the job description from their work assignment. Reports on goals and learning objectives at the end of the experience. Work experience, the related class, and enrollment are coordinated by the AET Cooperative Coordinator. May be graded credit/no credit. May be repeated for a maximum of 16 credits toward graduation

**AET 285R  
Cooperative Correlated Class****1**

\* Prerequisite(s): Approval of Department Chair

Designed to identify on-the-job problems and to remedy those problems through in-class discussion and study. Focuses on preparing for, participating in, and utilizing the experiences available from working in a cooperative education/internship program. May be graded credit/no credit. May be repeated for a maximum of 8 credits toward graduation.

**AET 2900  
Capstone Project****3**

\* Prerequisite(s): AET 2010, AET 2015

Integrates the concepts of Automation and Electrical Technology curriculum into a semester-long project that will be designed, built, and presented at the Engineering Technology Fair.

**AET 291R  
Special Topics in Industrial Systems****3**

\* Prerequisite(s): AET 2250, AET 2255, AET 2110, AET 2115

Explores special topics in the electrical, power, and automation fields. Offers topics depending on demand and industry needs. May be repeated for a maximum of 6 credits toward graduation. Lab access fee of \$45 applies.

## **American Indian Studies (AIST)**

**AIST 180G (Cross-listed with: ANTH 180G) SS  
Introduction to American Indian Studies****3**

Provides an overview of modern and historical American Indian communities in the United States. Explores political and historical issues of major tribes and Indian communities by region. Provides students with information and perspectives on key social and cultural issues: spirituality, relations with the Federal government, notable individuals, art, literature, dance, media, health, education and activism.

**AIST 327G  
Indians of Utah****3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Investigates the history of Utah's five principal cultural groups from the pre-Columbian period to the present. Considers how economic processes, cross-cultural influences, and changing Federal and State policies have shaped American Indian communities and individuals in and around Utah. Examines how identity and culture in native communities have been defined and redefined through the processes of migration (both native and non-native), conquest, assimilation efforts, and cultural persistence.

**AIST 3360  
American Indian Education Policy****3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Discusses the Federal Indian Policies that dictated the educational philosophies and practices of native people. Offers a historic overview of Indian education from first contact with European settlers through contemporary American Indian/Alaskan Native education. Examines the effects of Federal Indian Policies related to the use of boarding schools and the long-term effects the experience had on Native students.

**AIST 358G  
American Indian Health Policy****3**

\* Prerequisite(s): ENGL 2010, University Advanced Standing, and one of the following: POLS 1000, POLS 1100, HIST 1700, HIST 1740, HIST 2700, HIST 2710

Explores the history, political economy, and epidemiology of American Indian health issues in the United States. Examines the effects of the pandemics brought by the European conquest, the changing Native views and practices in health, the Federal government's practical and legal assumption of responsibility for Native health, and the development of the administration and organization for Native health. Considers modern health issues ranging from diabetes to domestic violence, and the policy responses to them.

**AIST 3590  
American Indian Law****3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and (POLS 1000 or POLS 1010 or POLS 1100) and University Advanced Standing

Introduces students to the important and unique body of law known as American Indian Law. Covers the history of federal Indian law and policy; the federal-tribal relationship; tribal sovereignty and self-government; state authority in Indian country; Indian religion and culture; concepts of property in Indian law; and hunting, fishing, and water rights.

**AIST 3600  
American Indian Policy and Tribal Government****3**

\* Prerequisite(s): ENGL 2010 or instructor approval and University Advanced Standing

Examines American Indian law in treaties, statutes, case law, regulations, and executive orders. Analyzes various policy approaches to the federal trust relationship, tribal sovereignty over internal affairs, civil jurisdiction over tribal lands, management of natural resources of tribal lands, and cultural preservation. Studies the traditional and modern forms of various Indian tribal governments.

**AIST 3810  
Precolumbian America****3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and AIST 180G and University Advanced Standing

Examines evidence of the first Americans, origins of agriculture, and development of cultures and civilizations in North, Central, and South America. Surveys the most recent archaeological research on major American societies, emphasizing the balance between Native and Euro-American perspectives on history and science. Examines the effects of the European conquest of the Americas on Native populations and cultures, and on global historical processes.

**AIST 3830  
Indians of the Great Plains****3**

\* Prerequisite(s): (HIST 1700 or HIST 2700 or HIST 2710 or AIST 180G) and (ENGL 1010 or ENGH 1005) and University Advanced Standing

Surveys the histories of native communities of the Great Plains. Emphasizes geopolitical relations of the eighteenth and nineteenth centuries and the conditions of resistance to conquest. Highlights the identification and use of primary sources, both for scholarly activity and making sources available to native peoples.

**AIST 3850  
The Struggle for Self-determination  
American Indians 1891 to present****3**

\* Prerequisite(s): (HIST 1700 or HIST 2700 or HIST 2710 or AIST 180G) and (ENGL 1010 or ENGH 1005) and University Advanced Standing

Surveys American Indian history from the Wounded Knee Massacre of 1891 to the present. Examines how American Indians shifted from armed conflict to the employment of legal and political strategies for achieving self-determination.

## Course Descriptions

### **AIST 4600** **Contemporary American Indian Political and Social Issues**

**3**  
\* Prerequisite(s): (AIST 358G or AIST 3600) and University Advanced Standing

Surveys current research and perspectives on contemporary American Indian issues. Utilizes a seminar approach in which each student will prepare summaries of books and articles to be distributed to the other class members. Includes identity, political activism, historiography, health, political, and cultural issues.

### **AIST 490R** **Special Topics in American Indian Studies**

**3**  
\* Prerequisite(s): ENGL 2010 and [POLS 1000 or POLS 1100 or HIST 1700 or HIST 1740 or (HIST 2700 and HIST 2710)] and University Advanced Standing

Explores special topics in American Indian Studies and related subjects. Examples of special topics may include health, specific tribal communities, education, political issues, the humanities in Native culture, economic and community development, comparative studies, social science perspectives, or other areas of student and faculty interest. May be repeated for a maximum of 6 credits.

## **American Studies (AMST)**

### **AMST 2000** **HH** **Introduction to American Studies**

**3**  
Introduces students to the interdisciplinary study of American culture. Employs insights and approaches from literature, history, art, sociology, anthropology, and political science. Analyzes a variety of texts and artifacts. Explores selected themes and issues central to American Studies.

### **AMST 300R** **Topics in American Studies**

**3**  
\* Prerequisite(s): University Advanced Standing

Uses an interdisciplinary approach to study various topics and themes in American Studies. Topics might include Western American Culture, Nature and Culture, Popular Culture in America, Mass Media in America, etc. May be repeated for up to 6 credits toward graduation.

## **Anthropology (ANTH)**

### **ANTH 101G** **SS** **Social Cultural Anthropology**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005 with a grade of C+ or higher

Introduces students to the variability of human behavior cross-culturally and provides an understanding of the holistic approach to human behavior. Explores interrelationships, in a variety of cultural contexts, between beliefs, economic structures, sexuality, eating habits, ecology, politics, living arrangements, psychology, symbolism, and kinship. May be delivered hybrid.

### **ANTH 1020 (Cross-listed with: BIOL 1500)** **SS** **Biological Anthropology**

**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and (ANTH 101G or BIOL 1010)

For students with special interests in Anthropology or the Life Sciences. Studies fossils and living primates, primate biology and behavior. Surveys humanoid fossils. Investigates human evolution and variations of basic biology as it pertains to human development. Stresses the importance of the distribution and diversity of humankind.

### **ANTH 103G** **SS** **World Prehistory**

**3**  
Introduces the archaeological record of human prehistory. Explores the earliest fossil remains, and follows the development of humans throughout prehistory. Examines techniques used by archaeologists to find, recover, date, and analyze prehistoric artifacts.

### **ANTH 180G (Cross-listed with: AIST 180G)** **SS** **Introduction to American Indian Studies**

**3**  
Provides an overview of modern and historical American Indian communities in the United States. Explores political and historical issues of major tribes and Indian communities by region. Provides students with information and perspectives on key social and cultural issues: spirituality, relations with the Federal government, notable individuals, art, literature, dance, media, health, education and activism.

### **ANTH 2880** **Introduction to Theory and Ethnography**

**WE**  
**3**  
Provides foundational skills for analytic reading and writing in anthropology. Explores how to apply theory to ethnographic data. Teaches how to write argumentative essays that engage with anthropological texts.

### **ANTH 3000 (Cross-listed with: LANG 3000)** **Language and Culture LH**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005, (ANTH 101G or any foreign language 2010 course), Sophomore status, and University Advanced Standing

Introduces cultural linguistics. Analyzes features of human languages that make possible semantic universality. Examines distinction between phonetic and phonemic units. Explores relationship between language and culture. Studies how language shapes culture and how culture shapes language.

### **ANTH 3050** **Intro to Ethnomusicology**

**3**  
\* Prerequisite(s): University Advanced Standing

Introduces a comparative study of music traditions from a variety of cultural settings. Presents concepts and research methods of ethnomusicology. Provides opportunities to develop skills of listening, observation, analysis, and demonstration. Utilizes ethnography, archaeology, and personal observation.

### **ANTH 3150** **Culture Ecology and Health**

**3**  
\* Prerequisite(s): University Advanced Standing

Examines reciprocal roles of culture, environment, and disease in human health. Covers nutrition, stress, and traditional non-Western treatments. Explores cultures' use of their own global medicine to sustain health and welfare.

### **ANTH 3200** **Food and Culture**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores the complex relationships between food, culture, and human action. Examines the cultural underpinning of human nutrition. Discusses the selected social, cultural, medical, political, and ideological uses of food. Examines the symbolism of food to better understand taboo, fasting and feasting, class and social stratification, sacrifice, hosting, cannibalism, and narrative grotesque.

**ANTH 3210****Islam in the Modern World****3**

\* Prerequisite(s): University Advanced Standing

Explores the different ways anthropologists have studied Muslim social life, including attempts to apply Muslim ethical frameworks to the domains of finance, politics, leisure, and the modern domestic sphere. Addresses the variety of ways Islam is practiced and interpreted. Covers Islam in Africa, the Middle East, Central and Southeast Asia, Europe and the United States. Explores issues in interfaith relations, such as the challenges Muslims face when living in a Christian-majority society.

**ANTH 3260****Archaeological Method and Theory****3**

\* Prerequisite(s): University Advanced Standing

Explores the history, goals, theories, and methods of anthropological and archaeological research, especially as influenced by the natural sciences. Examines variations in prehistoric human behavior by analyzing the physical remains of ancient peoples throughout diverse time periods and geographical locations.

**ANTH 3300****Culture Development and International Aid****3**

\* Prerequisite(s): University Advanced Standing

Provides an overview of the anthropological study of international development. Analyzes development practices and anthropological critiques of these practices. Explores the way anthropological approaches can increase the likelihood of development project success. Explores peasant studies and the many concerns of rural development. Discusses poverty and how it relates to economic, social, and political development. Appraises ways to ameliorate poverty and the role of governmental and non-governmental organizations in the process.

**ANTH 3315****Great Basin Archaeology****3**

\* Prerequisite(s): University Advanced Standing

Investigates the prehistoric and ethnographic peoples of the Great Basin of North America through the study of their archaeological remains. Examines how the analysis of ancient technology, subsistence, skeletal material, rock art, settlement patterning, the environment, and archaeological theory shapes our understanding of cultures in the region. May include a field trip to an archaeological site.

**ANTH 3340****Peoples and Cultures of Mexico****3**

\* Prerequisite(s): University Advanced Standing

Explores the people and cultures of Mexico. Discusses borders and immigration, indigenous cultures, rural/peasant societies, urban societies, and historical/political issues specific to Mexico. Emphasizes awareness of cultural relativity and global connectivity among the diverse peoples of Mexico.

**ANTH 3350****Andean Prehistory****3**

\* Prerequisite(s): ANTH 101G and (ENGL 2010 with a minimum grade of C+) and (ANTH 103G or instructor approval) and University Advanced Standing

Offers an updated synthesis of the development, key achievements, material, organizational and ideological features of pre-Hispanic cultures of the Andean region of western South America. Spans around 12,000 years of pre-Hispanic cultural developments, from the earliest hunters-gatherers to the Spanish conquest of the Inca Empire. Focuses on the modern nation of Peru with an emphasis on the Paijan, Cupisnique, Chavín, Paracas, Nasca, Gallinazo Moche, Recuay, Tiwanaku, Wari, Cajamarca, Sicán, Chimú, and Inka.

**ANTH 3360****Contemporary Issues in American Culture****3**

\* Prerequisite(s): University Advanced Standing

Examines key aspects of contemporary American culture. Discusses American values and popular culture, ethnicity, gender, childhood, food, reproduction, technology, crime, and globalization. Highlights aspects of American culture that may not be explored in other Behavioral Science curricula.

**ANTH 3365****Gender and Sexuality****3**

\* Prerequisite(s): University Advanced Standing

Examines theories on the biological and cultural construction of sex and gender. Covers how different communities organize their lives around gender distinctions and sexual practices. Utilizes anthropological theories to analyze cultural practices and concepts pertaining to the following: differences between men and women, perceived sexual deviance and accepted sexual practices, non-binary people and third genders. Explores the way contradictory gender norms coexist and compete within the same culture.

**ANTH 3370****History and Ethnography of Andean Societies****3**

\* Prerequisite(s): University Advanced Standing

Explores the social and cultural processes that characterize the societies that descend from the Inca Empire--Bolivia, Ecuador, and Peru--as they have developed since the Spanish invasion. Discusses contemporary political, economic, and social problems in these countries in the context of global society.

**ANTH 3400****Myth Magic and Religion****3**

\* Prerequisite(s): University Advanced Standing

Explores the many aspects of religion, including its history, diversity, and how it relates to social science studies. Examines terms such as myth, magic, religion, ritual and shamanism, among others. Covers how these terms are used to discuss religious and spiritual practices around the world.

**ANTH 3420****Andean Religion****3**

\* Prerequisite(s): University Advanced Standing

Explores religion prior to the Spanish conquest in the countries that were part of the Inca Empire--Bolivia, Ecuador, and Peru. Surveys the nature of Catholicism that was recreated after colonial conquest. Discusses the contemporary religious issues of Andean societies, such as secularity, and how Andean religious categories differ from categories that guide academic research on religion.

**ANTH 3450****Shamanism and Indigenous Religion****3**

\* Prerequisite(s): University Advanced Standing

Explores the religious systems of indigenous peoples, particularly those which have been called shamanic. Focuses on the classical study of shamanism and the literature on indigenous shamanism. Locates the study of shamanism within a social context that includes social relational and political economic contexts of the groups within which shamanism is found. Poses questions of how shamanism is different from the expanding world religions and compares and contrasts shamanism with non-shamanic indigenous religions. Analyzes at the current marketing of shamanism in New Age contexts.

**ANTH 3460****Anthropology of Mormonism****3**

\* Prerequisite(s): University Advanced Standing

Explores how an anthropological approach can enable a more in-depth comprehension of Mormonism as a religious tradition and cultural phenomena.

## Course Descriptions

### **ANTH 3480** **Global Christianity**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores the key issues that have arisen in the literature that explores Christianity from an anthropological perspective. Examines the development of Christianity from its historical origins to its current status as a "world religion." Discusses how Christianity becomes relevant to different cultural contexts in the modern world. Analyzes Pentecostal, Evangelical Protestant, Eastern Orthodox, and Catholic forms of Christianity.

### **ANTH 3500** **Discourse Semiotics and Representation**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores classical theoretical positions on representation, meaning, discourse, and poetics. Examines performance of culture and the implications of performance theory for scientific epistemology and methodology. Surveys recent work by anthropologists who grapple with these theoretical concerns in empirical research in a range of global settings.

### **ANTH 3550** **Memory and History**

**3**  
\* Prerequisite(s): University Advanced Standing

Studies how societies remember and represent their past and present in various contexts. Examines how societies employ different senses of temporality in these processes. Explores the relationships with historiography and ethnohistory and how anthropologists and historians have dealt with these issues.

### **ANTH 3560** **Peace Violence and Human Morality**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores the cultural patterning of violence and nonviolence. Draws on theories of human values and ethics to understand how people morally justify different types of violent action, such as riots, genocide, warfare, and ritual violence. Explores cultural processes of pacifism, self-sacrifice, and reconciliation.

### **ANTH 3660** **Globalized Society**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores the development and reactions to globalization. Traces the formation of community of nation-states and multilateral agencies called "global society." Explores the implications of global society for peoples far removed from this sphere of social organization. Provides an understanding of the world in which nation-states and their citizens are enmeshed.

### **ANTH 3700** **Culture Psychology and Mental Health**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores interrelationships of individual personality to elements of Western and non-Western sociocultural systems. Examines relations of sociocultural contexts to self, motives, values, personal adjustment, stress and pathology using case histories and ethnography. Discusses the idea of self and personality, normality and deviance, and mental health and mental illness across social and cultural boundaries.

### **ANTH 3720** **Applied Anthropology**

**3**  
\* Prerequisite(s): ANTH 101G, ENGL 2010, and University Advanced Standing

Surveys the ethics and methods used by applied anthropologists. Surveys a range of areas where applied work is performed, including development anthropology, anthropology and health, industrial anthropology, anthropology and marketing, etc. Also explores the political, social, and theoretical implications of applied work.

### **ANTH 3750** **Bioarchaeology**

**3**  
\* Prerequisite(s): [(ANTH 1020 or BIOL 1500) and (ENGL 2010 with a minimum C+ grade) or Instructor approval] and University Advanced Standing

Focuses on the biological and contextual study of human remains recovered from archaeological sites. Presents an updated synthesis of bio-archaeological science dealing with the study of the human skeleton to reconstruct patterns of biological stress, infectious disease, lifestyle and physical activity, diet, violent death, and genetic relationships in the past. Temporal coverage principally falls on the last 10,000 years of history, and the spatial scope is global. Involves the dynamic nature of skeletal tissues and the influences of environment and culture on human variation. Acquired skills will be of value to any students interested in skeletal studies including archaeology, bioarchaeology, paleopathology, forensic science, vertebrate biology, biomedical sciences, and behavioral science.

### **ANTH 3830** **Biology and Culture**

**3**  
\* Prerequisite(s): (ANTH 101G or ANTH 1020) and (ENGL 2010 with a minimum grade of C+) and University Advanced Standing

Explores the interactions of nature and nurture as a complex whole, rather than as mutually exclusive possibilities or separate streams of influence. Includes a significant research project.

### **ANTH 3850** **Ethnographic Methods WE**

**3**  
\* Prerequisite(s): ANTH 101G and University Advanced Standing

Examines the utility of ethnographic research techniques for answering different research questions. Formulates research ethics protocols. Engages in participant observation research and teaches techniques for recording observations in field notes. Employs ethnographic writing genres to compose reports on original research. Develops skills in qualitative interview techniques and the analysis of qualitative data.

### **ANTH 3870** **Political Anthropology**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores anthropological theories of politics and power in relation to human events and social institutions. Provides a critical history of anthropological approaches to understanding processes of regulating and controlling populations, of justifying and executing power, of coaxing populations into self-governance, and of disciplining deviance. Analyzes political processes in non-state societies and the workings of nation-states.

### **ANTH 4120** **History of Anthropological Thought**

**3**  
\* Prerequisite(s): ANTH 101G and (ENGL 2010 with a minimum C+ grade) and University Advanced Standing

Surveys anthropological thought, theory and its philosophical roots from the nineteenth to the twentieth centuries. Focuses on the concepts and theoretical paradigms deployed in different social and intellectual conjunctures, as well as on the major debates that have formed the field and separated it from other social science disciplines.

### **ANTH 4130** **Contemporary Theory and Debates**

**3**  
\* Prerequisite(s): ANTH 101G, ANTH 4120, and University Advanced Standing

Explores social theory and other disciplines. Surveys current debate through exploration of the conceptual apparatuses that are deployed and the issues that motivate current research. Analyzes contemporary anthropological writings.

**ANTH 4310**  
**Kinship and the Family**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores anthropological thinking on familial relationships and uses theoretical concepts to analyze a variety of kinship practices. Covers the history of the anthropology of kinship. Evaluates the adequacy of different anthropological approaches to kinship for understanding the distinct ways humans organize themselves into family groups.

**ANTH 475R**  
**Current Topics in Anthropology**  
**1 to 3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Presents selected topics in Anthropology and will vary each semester. May be repeated for a maximum of 15 credits toward graduation.

**ANTH 482R**  
**Archaeological Field Methods Practicum**  
**1 to 9**

\* Prerequisite(s): University Advanced Standing

Introduces students to archaeological field technique and a critical approach to the methods by which archaeology is conducted. Provides involvement in all phases of field excavation, lab processing, curation and preservation of archaeological remains, and data analysis. Provides students with hands-on training in archaeological research. May be repeated for a maximum of 27 credits. May be graded Credit/No Credit.

**ANTH 490R**  
**Independent Studies**  
**1 to 3**

\* Prerequisite(s): For Behavioral Science Bachelor Degree students only; Instructor approval and University Advanced Standing

For qualified students who wish to undertake a well-defined project or directed study related to an area of special interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. Projects may include writing a publishable paper, passing a competency exam, producing an annotated bibliography, an oral presentation, or other options as approved by instructor. May be repeated for a maximum of 6 credits.

**Apprentice (APPR)****APPR 281R**  
**Cooperative Work Experience**  
**1 to 8**

\* Corequisite(s): APPR 285R

Designed for electrical construction apprentice majors. Provides paid, on-the-job work experience in the student's major. Work experience, the correlated class and enrollment are coordinated by the Cooperative Coordinator. Includes student, employer and coordinator evaluations, on-site work visits, written assignments and oral presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be graded Credit/No Credit.

**APPR 285R**  
**Cooperative Correlated Class**  
**1**

\* Corequisite(s): APPR 281R

Designed for electrical construction apprentice majors. Identifies on-the-job problems and provides remediation of those problems through in-class discussion and study. Includes the study of identifying and maximizing service opportunities. Students register for this class with approval of the Cooperative Coordinator. Includes lecture, guest speakers, video tapes, role playing, case analysis, oral presentation and written assignments. Completers should be better able to perform in their field of work or study.

**Architecture (ARC)****ARC 1010**  
**Classical Architecture Workshop**  
**3**

Provides an understanding of the fundamental principles and language of architecture. Instructs in the design principles that inform classical architecture which are found in the order, proportion, archetypal geometry, and patterns found in nature and the cosmos. Creates a solid foundation for learning and applying architecture's vocabulary and syntax to compose poetic and meaningful buildings.

**ARC 2110**  
**Architecture Studio I**

**4**  
\* Prerequisite(s): EGDT 1020 and ARC 1010 with a grade of C- or higher

Introduces the classical theories of architectural language, design, and craftsmanship in a hands on studio setting. Focuses on the classical vocabulary of the built environment. Investigates the forms, spaces, and ordering systems of design. Produces hand drawings in orthographic, perspective, and axonometric views. Illustrates light through shade and shadows. Applies understanding of classical building forms in the design of increasingly complex projects. Develops skills in traditional rendering and presentation techniques.

**ARC 2210**  
**Architecture Studio II**  
**4**

\* Prerequisite(s): EGDT 1020, ARC 1010, and ARC 2110 with a grade of C- or higher

Exposes students to architectural site analysis and the process of evaluating a particular locations physical, historical, and cultural characteristics to inform design. Develops a building project of significant merit by measuring and documenting a selected site. Analyzes the complex elements of a site such as varying topography, watercourses, vegetation, habitats, weather patterns, and historical data to guide design decisions. Researches elements to determine the building placement, orientation, form and material selection.

**ARC 2220**  
**Construction Documents and Specifications**  
**3**

\* Prerequisite(s): EGDT 1020 and EGDT 1100 with a grade of C- or higher

Prepares for the Construction Documents Technician (CDT) industry certification using standard software to complete working drawings for the architectural, civil, MEP, and structural industries. Develops a project manual and outline specifications, which coordinate with the working drawings of a commercial design.

**ARC 3110**  
**Architecture Studio III**  
**6**

\* Prerequisite(s): Matriculation to the B-Arch Program and University Advanced Standing.

Immerses students into the architecture studio culture and a design thinking environment. Emphasizes the fundamental design skills with attention on site and precedent. Requires research of a site and program necessary to develop cultural, theoretical, environmental, and historical contexts. Follows a Project based approach with a final presentation to a professional jury.

## Course Descriptions

### **ARC 3120**

#### **Architectural Graphic Communication**

**3**

\* Prerequisite(s): Matriculation to the B-Arch Program and University Advanced Standing

Enables the student to confidently communicate design ideas to others. Includes involvement in producing complex 3D models and renderings of various project types. Combines traditional drawing techniques and contemporary software to complete assignments and projects.

### **ARC 3130**

#### **Codes and Construction Law**

**3**

\* Prerequisite(s): EGDT 2100, EGDT 2610 both with a grade of C- or higher and University Advanced Standing.

Explores the modern building codes and how they affect building design and construction. Examines written specifications and the various jurisdictional requirements for architectural works. Provides in-depth information about the preparation and content necessary for a set of construction documents. Defines and explains the several types of construction contracts, bidding requirements, methods of specifying, substitutions, instructions, and warranties.

### **ARC 3210**

#### **Architecture Studio IV**

**6**

\* Prerequisite(s): ARC 3110 with a grade of C- or higher and University Advanced Standing.

Engages in the essential pre-design processes of a project type. Includes the assessment of client and user needs, space analysis, and examination of project site. Follows a project based approach with a final presentation to a professional jury.

### **ARC 3220**

#### **Passive Environmental Systems**

**3**

\* Prerequisite(s): Matriculation to the B-Arch degree program, University Advanced Standing.

Examines the principles of environmental systems design and the building envelope's affect on occupant comfort. Investigates passive heating and cooling strategies, natural ventilation, solar geometry, daylighting, climate considerations, thermal comfort, and mechanical systems.

### **ARC 3230**

#### **Global History of Architecture to 1700 WE**

**3**

\* Prerequisite(s): Matriculation to the B-Arch degree program, University Advanced Standing.

Explores the history of architecture and urbanism from a global perspective, beginning with the first settlements to roughly 1700 AD. Analyzes buildings and their surroundings through different methods of interpreting history. Presents that architecture is the result of complex interrelationships dealing with aesthetic, cultural, contextual, symbolic, religious, social, economic, political, technological, behavioral, and ecological issues.

### **ARC 4110**

#### **Architecture Studio V**

**6**

\* Prerequisite(s): ARC 3210 with a grade of C- or higher and University Advanced Standing.

Produces an architectural design as part of an interdisciplinary team. Integrates a complex architectural program and associated needs of a user. Utilizes collaboration between disciplines such as mechanical, civil, and electrical engineering. Follows a project-based approach with a final presentation to a professional jury.

### **ARC 4120**

#### **Active Environmental Systems**

**3**

\* Prerequisite(s): ARC 3220 and University Advanced Standing

Investigates the principles of environmental systems design and the building envelope's affect on occupant comfort and life safety. Investigates HVAC systems, indoor air quality, lighting, communication, security, fire protection, acoustics, vertical transportation, electrical, and plumbing systems.

### **ARC 4130**

#### **Global History of Architecture Since 1700 WE**

**3**

\* Prerequisite(s): ARC 3230 with a grade of C- or higher. Matriculation to the B-Arch degree program, and University Advanced Standing

Explores the history of architecture and urbanism from a global perspective beginning with the first settlements since 1700 AD. Analyzes buildings and their surroundings through different methods of interpreting history. Explores architecture's complex interrelationships dealing with aesthetic, cultural, contextual, symbolic, religious, social, economic, political, technological, behavioral, and ecological issues.

### **ARC 4210**

#### **Architecture Studio VI**

**6**

\* Prerequisite(s): ARC 4110 with a grade of C- or higher and University Advanced Standing

Immerses students in the design of an architectural work to fulfill a community need. Encourages networking with community leaders and citizens. Employs project components such as client interviews, research methods, and interdisciplinary study. Explores a complex architectural program and associated needs of the community.

### **ARC 4220**

#### **Building Envelope and Science**

**3**

\* Prerequisite(s): ARC 4120 with a grade of C- or higher and University Advanced Standing

Introduces modern architectural materials, methods of construction, and building enclosures including steel, concrete, curtain walls, high-performance materials, and thermal and moisture barriers. Evaluates the inclusion of sustainable systems to save energy and reduce the carbon footprint in building construction.

### **ARC 4230**

#### **Capstone Project Research**

**3**

\* Prerequisite(s): ARC 4210 with a grade of C- or higher and University Advanced Standing  
\* Corequisite(s): ARC 4510, ARC 4540

Applies investigative, pre-design, and research skills towards an independent capstone project. Integrates critical thinking while developing an architectural building program, assessing client-user needs, selecting a project site, analyzing environmental and climatic concerns, understanding building code requirements, analyzing the immediate site context and historic fabric, and planning for site specific zoning regulations.

### **ARC 4510**

#### **Architecture Studio VII**

**6**

\* Prerequisite(s): ARC 4210 with a grade of C- or higher and University Advanced Standing

Applies design skills through an architectural work which integrates critical and abstract thinking. Researches building systems, life safety considerations, building envelope, financial, cultural & environmental balance, and construction documentation skills.

**ARC 4520****Architectural Theory****3**

\* Prerequisite(s): ARC 3210, with a grade of C- or better and University Advanced Standing

Surveys contemporary architectural thought and theory. Focuses on key figures, movements, and texts. Provides an overview of the principal theories that have informed or undermined architecture of the past four decades. Considers the changing role of theory with respect to practice. Provides a set of questions, techniques, and tools for criticism and self-reflection.

**ARC 4530****Culture and Behavior in Architecture****3**

\* Prerequisite(s): ARC 4110 with a grade of C- or better and University Advanced Standing

Examines the relationship between architecture, culture, history, economics, and humanity. Explores varying cultures and human behaviors and how they represent and manifest themselves in the built environment.

**ARC 4540****Architecture Professional Practice****3**

\* Prerequisite(s): ARC 4210 with a grade of C- or higher and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ARC 4510, ARC 4230

Examines the fundamentals of running and managing an architectural firm including project management, finances, working with consultants, stakeholder considerations, and ethical issues. Prepares for the Architectural Registration Exam (ARE).

**ARC 459R****Special Topics in Architecture****3**

\* Prerequisite(s): Matriculation to the B-Arch degree program and University Advanced Standing.

Provides exposure to emerging technologies, techniques of design and construction, and the craft of building lasting high quality structures. Varies each semester with a different topic. May be repeated for a maximum of 6 credits towards graduation.

**ARC 4610****Architecture Studio VIII****7**

\* Prerequisite(s): ARC 4510 with a grade of C- or higher and University Advanced Standing

Applies design skills through an architectural work which integrates critical and abstract thinking. Researches building systems, life safety considerations, building envelope, financial, cultural and environmental balance, and construction documentation skills.

**Art (ART)****ART 1010****Introduction to Visual Arts****3****FF**

Develops an appreciation of the visual arts by investigating the elements and principles of art, art criticism, art production, and the history of art. Includes written critiques and assignments. Requires students to identify works of arts and describe their significance in writing. May be delivered hybrid.

**ART 1020****Basic Drawing for Non-Majors****3****FF**

For non-majors. Introduces basic drawing techniques and stresses fundamentals of observation-based homework. Includes practice and skill building. Investigates basic black and white media such as graphite and charcoal. Requires sketchbook, in-class and home work assignments.

**ART 1050****Photography I****3****FF**

Emphasizes the use of camera operation, including aperture and shutter speed adjustments to control exposure, depth of field, lenses, and camera format. Teaches how to see photographically, using elements of composition and lighting to make stronger images.

**ART 1110****Drawing I****3**

\* Prerequisite(s): Major in Art and Design or Art Education

For Art and Design and Art Education majors. Introduces fundamental drawing concepts and media. Emphasizes mastery of basic drawing principles and integration of these principles into a personal drawing style through exposure to a variety of structured drawing experiences.

**ART 1120****2D Design****3**

\* Prerequisite(s): Major in Art and Design or Entertainment Design or Art Education or Digital Media

Introduces skills, techniques, and materials associated with two-dimensional design fundamentals. Researches a variety of media, techniques, and subjects, exploring perceptual and descriptive possibilities regarding design both as a developmental process as well as an artistic end. Provides experience in a range of traditional and non-traditional design media. Projects and critiques examine integration of both visual elements and principles of design according to contemporary standards. Canvas Course Mat \$36/Cengage applies.

**ART 1130****3D Design****3**

\* Prerequisite(s): ART 1120

Presents a survey of the history and main lines of development and influential factors in three dimensional design. Examines important designers, firms, and decisive turning points in the history of three dimensional design. Emphasizes planning, purpose, and function through project oriented assignments. Teaches proper use of tools and materials. Course fee of \$45 for materials applies.

**ART 1210****Observational Drawing****3**

Provides students with essential drawing skills necessary for the correct representation of space. Introduces multiple linear perspective drawing methods, visualization, tonal drawing, and rendering skills. Studies perspective and spatial representation in a historical context.

**ART 1220****Perspective Drawing****3**

\* Prerequisite(s) or Corequisite(s): ART 1210

Studies essential perspective drawing skills necessary for the representation of 3-dimensional forms in space. Introduces multiple linear perspective drawing methods, visualization, and rendering skills. Studies perspective and planar representation in a historical context.

**ART 1340****Sculpture I****3****FF**

Introduces methods and techniques of figurative clay sculpture. Students will construct armatures and build clay head and anatomy studies from the model. Includes firing and finishing techniques. Course fee of \$72 for materials applies.

**ART 1350****Ceramics I****3****FF**

Studies clay as an expressive medium. Emphasizes techniques of working with clay, including hand building, wheel throwing, glazing, and firing. Course lab fee of \$50 for materials applies.

**ART 1400****Graphic Computer Applications****3**

Introduces concepts and software related to visual communication and the creation and reproduction of art. Teaches how to create and modify digital images using Adobe Photoshop. Also teaches basic design skills using Adobe Illustrator. Teaches basic page layout skills using InDesign. Covers basic software used in visual communications. Lab access fee of \$35 for computers applies.

# Course Descriptions

## **ART 1410** **Typography I** **3**

\* Prerequisite(s): ART 1400. For DGM majors: DGM 1110, DWDD 1430.

\* Prerequisite(s) or Corequisite(s): ART 1120

Teaches the principles of typographic design and communication, type selection, and type terminology. Addresses typographic history and the use of typography in contemporary design including its relationship to layout and grid structure. Teaches skills to allow students to professionally set type using industry standard software. Lab access fee of \$35 for computers applies.

## **ART 1420** **Graphic Design I** **3**

\* Prerequisite(s): ART 1400. For DGM majors: DGM 1110 and DWDD 1430.

\* Prerequisite(s) or Corequisite(s): ART 1120

Provides an understanding of basic principles needed for effective visual communication. Presents a survey of graphic design theory and practice. Introduces graphic design processes for creative problem solving, production and critique. Lab access fee of \$35 for computers applies.

## **ART 1630** **Introduction to Landscape Painting** **3**

Teaches landscape painting and drawing techniques through direct exposure to area sites. Explores interior and exterior landscapes. Studies color, shape, relationships, light, and space. Emphasizes individual interpretation of subject matter using a variety of media. Community members welcome.

## **ART 1650** **Watercolor** **3**

Studies materials, techniques, and compositional methods of watercolor painting at a beginning level. Teaches the application of basic techniques for the use of transparent watercolor materials. Includes lecture/demonstration and studio time for application and evaluation. For majors and non-majors.

## **ART 1750** **Intro to Digital Imaging** **3**

\* Prerequisite(s): Major in Art and Design or Art Education

Emphasizes the use of camera operation, including lens, aperture, and shutter speed adjustments to control exposure and depth of field. Teaches how to see photographically, using elements of composition and lighting to make stronger images. Uses digital captures as the primary focus. Also covers how to light and photograph 2D and 3D artworks as well as create reference photos. Required DSLR or SLR cameras. Lab access fee of \$35 applies.

## **ART 1790** **Dark Room Techniques** **3**

\* Prerequisite(s): ART 1750

Introduces photography majors to traditional dark room processes, including development and printing methods. Teaches imagery through negative manipulation, diffusion, toning, and multiple exposure. Course fee of \$19 for equipment applies.

## **ART 1810** **Introduction to Interior Design** **3**

For individuals wishing to develop interior design skills, be employed in the interior design industry, or develop their own interior design business. Overviews the interior design profession, client profiles and the design process. Covers principles and elements of design, evaluating design, color and lighting, fabric and pattern coordination. Studies American architecture and furniture styles, history and identification, and current design trends.

## **ART 1820** **Interior Space Design** **3**

For individuals wishing to develop interior design skills, be employed in the interior design industry, or develop their own interior design business. Covers aesthetic and functional home design and space planning, "presentation" drafting and presentation techniques, "universal design," quality furniture selection, and furniture arrangements. Includes kitchen design, architectural details, background materials, color fabric construction and selection. Includes lecture, guest speakers, videos, in-class labs and field trips. Completers have prepared floor plans, color and selection boards, and make client presentations.

## **ART 1830** **Residential Interior Design** **3**

For individuals wishing to develop interior design skills, be employed in the interior design industry, or develop their own interior design business. Covers conceptualizing, designing, specifying and presenting residential interior client presentations. Includes business practices, building codes, portfolio preparation and advanced interior design concepts. Completers will have knowledge to be competent at mid-level interior design positions.

## **ART 200R** **Art and Design Lecture Series** **1**

\* Prerequisite(s): Declared Art and Design major

Offers weekly lectures exploring art and design. Addresses art education, art history, ceramics, drawing, graphic design, illustration, painting, photography, and sculpture. May be repeated for a maximum of 4 credits toward graduation. Course fee of \$50 for support applies.

## **ART 2100** **Teaching Art for Children FF** **3**

Introduces concepts and techniques to teach children art in the home, community, or schools based on state and national art teaching and learning standards. Includes community-based and multicultural engagement, materials management, and content appropriate for young learners. Assists students to become independent, creative, and productive learners as they acquire the knowledge, skills, and experience to teach children ages 5–12. Course Lab fee of \$23 for materials applies.

## **ART 2110** **Drawing II** **3**

\* Prerequisite(s): (ART 1110 or ART 1020) and ART 1120

Emphasizes continued mastery of drawing principles and further integration of these principles into a personal drawing style. Provides exposure to a variety of structured drawing experiences. Introduces color drawing media into vocabulary and application in works created.

## **ART 219R** **Special Topics** **1 to 3**

Elective course for Art and Design students. Presents seminars and workshops from experts in industry. May range from a single weekend to a full semester. Repeatable for offerings of different content. A maximum of 3 credits may apply toward graduation. Lab access fee of \$15 for computers applies.

## **ART 2220** **Imagination and Visual Literacy** **3**

\* Prerequisite(s): ART 1210 and ART 1220

Teaches visual problem solving skills that enable students to effectively find, interpret, evaluate, use, and create images that are original in concept. \$25 course fee for support applies.

## **ART 2230** **Illustrative Media and Techniques I** **3**

\* Prerequisite(s): ART 1120, ART 1210, ART 1220

Introduces the practice, study, and application of a variety of oil painting techniques used in the production of illustration art. Explores the development of mixed media processes and techniques using oil paint in combination with other materials and media will be explored.

**ART 2240**  
**Illustrative Media and Techniques II**

**3**  
\* Prerequisite(s): ART 1120, ART 1210, ART 1220

Introduces the study, practice and application of aqueous painting media used in the production of illustration art. Focuses on acrylic, gouache, casein or watercolor painting techniques. In addition, develops mixed media processes and techniques in combination with aqueous painting media.

**ART 2250**  
**Gestural Drawing**

**3**  
\* Prerequisite(s): ART 1210 ART 1220

Introduces the drawing of basic shapes and forms used to create solidly-constructed, animated characters. Emphasizes understanding and communicating movement of the human form as shapes and drawing imaginatively. Course fee of \$100 applies for support.

**ART 2260**  
**Digital Painting I**

**3**  
\* Prerequisite(s): ART 1120, ART 1210, ART 1220, ART 1400

Introduces the digital illustrator/painter to the application of various animation software programs such as basic raster, vector, and 3D. Lab access fee of \$35 for computers applies.

**ART 2270**  
**Figure Drawing I**

**3**  
\* Prerequisite(s): ART 1210, ART 1220

Studies the anatomy of the human figure; dynamics, posing and motion. Emphasizes figure-drawing skills such as extreme foreshortening, perspective and drawing the gestural motion of the human form. Uses live models (draped and/or undraped). Course Lab fee of \$120 for support applies.

**ART 2280**  
**3D Modeling**

**3**  
\* Prerequisite(s): ART 1110 or 1210, ART 1120, ART 1400

Teaches basic techniques of computer software 3D modeling, focusing primarily on Polygon and Subdivision Surface workflows. Includes basic lighting, surfacing, and rendering techniques. Software fee of \$23 applies Lab access fee of \$35 for computers applies.

**ART 2340**  
**Sculpture II**

**3**  
\* Prerequisite(s): ART 1340 or Department Approval

Teaches intermediate techniques of clay sculpture, including armature construction, base relief, figurative sculpture based on human and animal forms. Develops the skills to create a sculpture from clay model to finished piece. Course fee of \$40 for materials applies.

**ART 2350**  
**Ceramics II**

**3**  
\* Prerequisite(s): ART 1350 or Department Approval

Teaches intermediate and advanced techniques of wheel throwing, hand-building, and glazing. Emphasizes clay as an artistic medium. Includes decoration of clay shapes with engobes, slip, glaze, overglazes, etc. Develops the skills to create a quality finished ceramic piece. Requires students to provide all materials and equipments except wheels. Course fee of \$60 for materials applies.

**ART 2400**  
**Production Design**

**3**  
\* Prerequisite(s): ART 1110, ART 1120, ART 1400, ART 1410, ART 1420, formal acceptance to Associate of Applied Science in Graphic Design (AAS) Program by portfolio review, or department approval.

Introduces production techniques used in the graphic design industry. Includes the practical application of learned technical skills through design projects. Lab access fee of \$35 for computers applies.

**ART 2430**  
**Branding I**

**3**  
\* Prerequisite(s): ART 1110, ART 1120, ART 1400, ART 1410, ART 1420, formal acceptance to Associate of Applied Science in Graphic Design (AAS) Program by portfolio review, or department approval.

Addresses concepts relating to branding campaigns. Teaches research skills and the influence they have on the creation of brand identities. Teaches brainstorming, conceptual skills, and the use of industry-standard software for the design and production of an identity system. Lab access fee of \$35 for computers applies.

**ART 2440**  
**Motion Graphics I**

**3**  
\* Prerequisite(s): ART 1110 or ART 1210, ART 1120, ART 1400, declared Entertainment Design (AAS), or formal acceptance to Associate of Applied Science in Graphic Design (AAS) Program by portfolio review, or department approval

Teaches basic principles and techniques of 2D animation with an emphasis on typography. Includes discussion of creative problem solving in time-based media. Includes learning 2D industry software to render video and audio. Software fee of \$23 applies. Lab access fee of \$35 for computers applies.

**ART 2480**  
**UI/UX Design I**

**3**  
\* Prerequisite(s): ART 1410, ART 2400

Teaches basic principles and techniques of interface design for the Web. Includes discussion of usability and information architecture to solve client needs. Includes learning HTML tags and CSS styling, image preparation for the Web, and using Adobe Dreamweaver to create and upload web-ready files. Lab access fee of \$35 for computers applies.

**ART 2620**  
**Color Theory**

**3**  
\* Prerequisite(s): ART 1120

Explores the principles of color theory as related to the visual arts. Introduces theories of color, color systems, and the psychology of color through a sequence of exercises and projects.

**ART 2630**  
**Painting I**

**3**  
Investigates the character and techniques of oil painting at a beginning level. Emphasizes several approaches (both traditional and modern) on a variety of surfaces.

**ART 2640**  
**Painting II**

**3**  
\* Prerequisite(s): ART 2630, (ART 1120 and ART 2620 recommended)

Presents advanced traditional and non-traditional oil painting techniques. Emphasizes the techniques for personal exploration. Encourages development of individual style and approach to the media.

## Course Descriptions

### **ART 2680 Printmaking I**

**3**

\* Prerequisite(s): ART 1110 or ART 1020

Introduces fine art printmaking and focuses on beginning techniques, processes, and materials. Explores the role of traditional and contemporary printmaking as a fine art medium. Focuses on the development of personal and individual imagery, craftsmanship, the use of tools and materials, and printmaking terminology. Includes intaglio printing and relief printing. Course Lab fee of \$32 applies.

### **ART 2700 Photography II**

**3**

\* Prerequisite(s): ART 1790

Extends skills and principles learned in Introduction to Photography. Continues the exploration of light and composition through personal expression to make stronger images. Emphasizes technical control of exposure, development, and aesthetic presentation in the context of the Zone System. Teaches processes of archival printing and presentation. Emphasizes use of large format cameras. Course fee of \$19 for equipment applies.

### **ART 2710 Documentary Photography**

**3**

\* Prerequisite(s): ART 1750

Teaches the art of telling stories through lens based media. Studies how to take a story from concept to publication. Explores methods of publication of imagery in magazines, newspapers, web sites, social media, annual reports, etc. Uses historical documentary references to inform contemporary ways of telling a story. Includes the use of still and moving imagery. Course Lab fee of \$19 for equipment applies.

### **ART 2720 Color Photography**

**3**

\* Prerequisite(s): ART 1750

Introduces color photography and color theory using digital photography and Adobe Photoshop as well as inkjet printing and scanning. Explores cross processing and other development manipulations. Discusses development of color photography and color perception as applied to specific themes. Encourages creativity and personal expression. Lab access fee of \$35 for computers applies.

### **ART 2730 Photographic Lighting I**

**3**

\* Prerequisite(s) or Corequisite(s): ART 2720

Teaches the basic skills needed to control and manipulate light as a tool for the photographer in communication of artistic vision. Explores different lighting sources and investigates the effects of direction, quality and quantity. Emphasizes flash photography, tungsten, and natural lighting. Studies photographic studio, location, and mixed lighting techniques. Covers processes and concepts through slide presentations, readings, critiques and class discussions. Course Lab fee of \$19 for equipment applies.

### **ART 2815 Historical Architecture and Interior Design FF**

**3**

Studies interior design and its development and change through historical styles from prehistoric civilizations through the Victorian Era. Identifies major historical period styles, major architects, and designers. Covers furniture, lighting, and surface materials.

### **ART 281R Art and Design Internship 1 to 6**

\* Prerequisite(s): Departmental Approval

Combines classroom theory with related, practical job experience. Provides students work experience as employees of a business, agency, or institution while enrolled in classes related to their career/major. Allows for individualized course content with students setting objectives in concert with their internship advisor and their workplace supervisor. Requires pre-approval by the area coordinator and department internship advisor. Offers variable credit determined by the number of hours worked per week. May be repeated for a maximum of 6 credits towards graduation. May be graded credit/no credit.

### **ART 2825 Modern Architecture Interiors and Furnishings**

**3**

\* Prerequisite(s): ART 1810

Studies interior design and its development through historical styles from the Arts and Crafts movement to Deconstructivism. Covers architects, designers, textiles, lighting and surface materials.

### **ART 291R Independent Study**

**1 to 3**

\* Prerequisite(s): Sophomore and above students only

Provides an opportunity for second year and above students to do individual research and experimentation within the areas of the Art and Design Program. Limited to advanced work beyond that which can be completed in existing available classes. Requires that a proposal be submitted and approved by the department prior to enrollment. May be repeated for a maximum of three credits toward graduation.

### **ART 3005 Ceramic History Trends and Practices WE**

**3**

\* Prerequisite(s): ART 1350, ART 2350, and University Advanced Standing; or department approval

Investigates important movements, approaches, cultures, and techniques in the history of ceramic production. Studies artists, trends, and issues in contemporary ceramics.

### **ART 300R Special Topics in Art 1 to 3**

\* Prerequisite(s): University Advanced Standing; formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, and department approval

Addresses emerging topics, issues, and developments related to the visual arts. Includes lectures, demonstrations, and studio time for application and evaluation. Encourages development of personal style in relation to the topic. May be repeated for a maximum of 9 credits toward graduation.

### **ART 311R Drawing III**

**3**

\* Prerequisite(s): ART 2110 and University Advanced Standing; or department approval

Continues the exploration of the technical skills and conceptual development of drawing as a creative medium. Focuses on the mastery of drawing skills and includes demonstrations, lectures and active participation in the critical process. Emphasizes cultivating personal expression and independent serial work. May be repeated for a maximum of 6 credits toward graduation.

**ART 3210**  
**Narrative Illustration****3**

\* Prerequisite(s): ART 2230 or ART 2240, ART 2260, ART 2270, matriculation into the BFA in Art and Design Illustration emphasis or the BFA in Entertainment Design, or department approval, and University Advanced Standing.

Provides experiences in creating mood through visual elements and controlling the pictorial space. Emphasizes composition, creativity and technical ability. Addresses narrative illustration and visual storytelling. Course fee of \$20 for support applies.

**ART 3220**  
**Conceptual Illustration****3**

\* Prerequisite(s): (Matriculated into the BFA in Arts and Visual Communication: Illustration emphasis) and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ART 2270

Introduces conceptual illustration and problem solving through the use of visual symbols, metaphors and icons. Course fee of \$20 for support applies.

**ART 322R**  
**Advanced Rendering of Forms and Surfaces****3**

\* Prerequisite(s): ART 2240 and University Advanced Standing; formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, or department approval

Studies the accurate depiction of light, shadow, and reflectivity. Focuses on realistic rendering of various objects, textures, and surfaces. Develops advanced skills with a variety of media that may include traditional and/or digital drawing and painting media. May be repeated for a maximum of 6 credits toward graduation.

**ART 3240**  
**Head Drawing****3**

\* Prerequisite(s): ART 2270, matriculation into the BFA in Art and Design Illustration emphasis or the BFA in Entertainment Design, or department approval, and University Advanced Standing.

Develops proficiency in rendering the human head in a variety of approaches and techniques. Addresses geometric and planar construction, proportion, lighting, features, and expression. Course Lab fee of \$93 for support applies.

**ART 324R**  
**Childrens Book Illustration****3**

\* Prerequisite(s): (Matriculated into the BFA in Art and Design: Illustration emphasis) and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ART 2230 or ART 2240

Teaches the processes and techniques used in the execution of children's book illustrations. Emphasizes stylizing, simplifying, exaggerating forms, and organizing pictorial space. Focuses on the art of narrative storytelling and continues the study of media and techniques relative to storybook illustration. May be repeated for a maximum of 6 credits toward graduation.

**ART 3250**  
**Environment Design****3**

\* Prerequisite(s): ART 2240, ART 2260, matriculation into the BFA in Art and Design Illustration emphasis or the BFA in Entertainment Design, or department approval, and University Advanced Standing.

Develops and improves skills in designing, rendering, and painting environments and landscapes for use in illustration, animation, video games, and film.

**ART 325R**  
**2D Animation for Illustration****3**

\* Prerequisite(s): (ART 1110 and ART 1400) or (DAGV 1300 and DAGV 130L), and University Advanced Standing; formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, or department approval

Provides the student of illustration a firm foundation to create simple to moderately complex 2D animations. Develops skills using animation basics including tweening, squash and stretch, anticipation, staging and timing. May be repeated for a maximum of 6 credits toward graduation. Lab access fee of \$35 for computers applies.

**ART 3260**  
**Digital Painting II****3**

\* Prerequisite(s): ART 2260, matriculation into the BFA in Art and Design Illustration emphasis or the BFA in Entertainment Design, or department approval, and University Advanced Standing.

Focuses on creating quality digital paintings/illustrations in a studio setting. Studies the more subtle features of the software applications. Practices advanced conceptual and problem solving skills. Lab access fee of \$35 for computers applies.

**ART 3270**  
**Digital Illustration****3**

\* Prerequisite(s): ART 1110, ART 1400, ART 2260 and University Advanced Standing; formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, or department approval

Develops advanced skills in producing pixel-based, computer-generated artwork for use as illustrations and other graphic communications. Emphasizes digitally painted images created from scratch rather than the creation of images produced through the digital manipulation of existing, found, or photographic resources. Develops conceptually based and communicative images that will be a vital aspect of each course project. Employs industry-standard software, and techniques including layers, compositing, channels, selection masks and color adjustments. Lab access fee of \$26 for computers applies.

**ART 3280**  
**3D Texturing and Rendering****3**

\* Prerequisite(s): ART 2260, ART 2280, and University Advanced Standing; formal acceptance to the BFA in Art and Design: Illustration emphasis or the BFA in Entertainment Design, or department approval.

Teaches techniques in texturing, lighting, and rendering of 3D models and scenes with a special emphasis upon aesthetics and composition. Includes texture painting, UV mapping, and HDRI lighting in addition to the standard techniques. Software fee of \$23 applies. Lab access fee of \$35 applies for computers.

**ART 328R**  
**Painting the Human Head****3**

\* Prerequisite(s): ART 3240 and University Advanced Standing; formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, or department approval

Continues the development of rendering skills acquired in ART 3240 (Head Drawing). Emphasizes mixing flesh tones, managing values, and investigates a variety of approaches to painting the human head. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$93 for computers applies.

## Course Descriptions

### **ART 334R** **Sculpture III** **3**

\* Prerequisite(s): ART 2340 and University Advanced Standing; or department approval

Investigates studio problems based on concepts applied to various three-dimensional materials. Places special emphasis on the development of individual expression in the students chosen medium. Encourages the development of individual style and exploration of alternative media. May be repeated for a maximum 6 credits toward graduation. Course fee of \$27 for materials applies.

### **ART 335R** **Ceramics III** **3**

\* Prerequisite(s): ART 2350 and University Advanced Standing; or department approval

Continuation of concepts developed in Ceramics I and II. Addresses advanced skills in hand building, wheel throwing, glaze formulation and kiln firing. May be repeated for a maximum of 6 credits toward graduation. Course lab fee of \$60 for materials applies

### **ART 3420** **Typography II** **3**

\* Prerequisite(s): ART 2400, ART 2430, University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval.

Develops advanced skills in the use of typography and layout. Examines editorial practices and executes designs that are appropriate for the intended audience. Teaches industry-standard page layout software. Lab access fee of \$35 for computers applies.

### **ART 3440** **Motion Graphics II** **3**

\* Prerequisite(s): ART 2280, ART 2440, and University Advanced Standing; formal acceptance to the BFA in Art and Design: graphic design emphasis or the BFA in Entertainment Design, or department approval.

Teaches principles and techniques of 3D animation with an emphasis on typography. Includes discussion of creative problem solving in time-based media. Includes learning 2D and 3D industry software to render video with audio. Software fee of \$23 applies. Lab access fee of \$35 for computers applies.

### **ART 3450** **Branding II** **3**

\* Prerequisite(s): ART 2400, ART 2430, University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval.

Teaches concept and theory behind brand identity and package design. Covers how to conduct research to ensure designs are conceptually appropriate and targeted. Includes creation of collateral that supports campaign criteria. Lab access fee of \$35 for computers applies.

### **ART 3480** **UI/UX Design II** **3**

\* Prerequisite(s): DWDD 1600, University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval.

Teaches advanced principles and techniques to develop interactive experiences. Includes discussion of usability and user-centered design to solve client needs. Includes learning user interface (UI) and user experience (UX) design principles. Lab access fee of \$35 for computers applies.

### **ART 3500** **Secondary Art Education Methods I WE** **3**

\* Prerequisite(s): ART 1110, ART 1120, University Advanced Standing, and Matriculation into Art Education or department approval.

Introduces students to the materials, methods, and resources related to teaching middle school and high school visual arts. Emphasizes the characteristics and components of a quality art program. Designed for the art education major pursuing teacher licensure for grades 7-12. Course Lab fee of \$16 for materials applies.

### **ART 3510** **Secondary Art Education Methods II WE** **3**

\* Prerequisite(s): University Advanced Standing. Art Education Majors Only.

Investigates theories and models of curriculum development in the visual arts for middle school and high school students. Includes implementation of curriculum development, unit/lesson planning, and evaluation strategies in the visual arts. Prepares prospective art teachers to plan, organize, and promote quality art programs and curricula. Course Lab fee of \$22 for materials applies.

### **ART 361R** **Figure Drawing II** **3**

\* Prerequisite(s): ART 2270 and University Advanced Standing; formal acceptance to the BFA in Art and Design: Illustration emphasis or the BFA in Entertainment Design, or department approval.

Presents skills and techniques related to drawing the human figure. Uses live models (draped and undraped). May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$150 for support applies.

### **ART 363R** **Painting III** **3**

\* Prerequisite(s): ART 2640 and University Advanced Standing; or department approval

Introduces theoretical issues in contemporary painting and their application to personal approaches to painting. Emphasizes individual problem solving and independent growth within a conceptual setting. May be repeated for a maximum of 6 credits toward graduation.

### **ART 364R** **Figure Painting** **3**

\* Prerequisite(s): (ART 361R, matriculated into the BFA in Art and Design: Illustration emphasis program or area coordinator approval) and University Advanced Standing

Explores fundamental methods and techniques of oil painting from the figure using live models (draped and undraped). Emphasizes mastery of representational depictions of the figure. Includes themes of abstraction, interpretation, and narrative uses of the figure. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$150 for support applies.

### **ART 366R** **Life Drawing** **3**

\* Prerequisite(s): ART 1110, ART 1120, or department approval and University Advanced Standing

Studies fundamental human anatomy, structure, value representation, proportion, shape, and gesture from a fine arts vantage point in a range of drawing media. Draws from observation of live models (clothed and unclothed). Serves as a foundation for advanced courses in drawing and painting the human form as found in traditional, modern, and contemporary fine arts movements. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$135 applies.

**ART 367R  
Printmaking II**

**3**  
\* Prerequisite(s): (ART 1110 or ART 1020), ART 2680, University Advanced Standing, or department approval

Continues to develop, enhance, and create proficiency in printmaking skills through intermediate techniques, processes, and materials. Establishes the role of traditional and contemporary printmaking as a fine art medium. Includes challenging and complex projects with more advanced technical skills than Printmaking I. Strengthens the development of personal and individual imagery, including the importance of craftsmanship, the usage of additional tools/materials, and an expanding printmaking vocabulary. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$34 for materials applies.

**ART 368R  
Printmaking III**

**3**  
\* Prerequisite(s): (ART 1110 or ART 1020), ART 2680, University Advanced Standing, or departmental approval

Continues the exploration of fine art printmaking through advanced techniques, processes, and materials including the mixing/printing of color inks and multiple plate registration. Strengthens the development of personal and individual imagery, including the importance of craftsmanship, the usage of new tools/materials, and an expanding printmaking vocabulary. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$34 for materials, equipment applies.

**ART 369R  
Contemporary Figure Painting**

**3**  
\* Prerequisite(s): (ART 366R or ART 2270), ART 2630, and University Advanced Standing; or department approval. ART 2620 recommended.

Studies the human form from a fine arts vantage point at an advanced level in various painting media (oil, acrylic, mixed, etc.). Explores historical and contemporary modes of media/image use and interpretation in conceiving and expressing the human form in a range of stylistic contexts. Painting is done from observation of live models (draped and undraped). Course Lab fee of \$135 applies.

**ART 371R  
Historical Photographic Processes**

**3**  
\* Prerequisite(s): University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval

Teaches alternative photographic processes with an emphasis on early photographic printing techniques. Includes preparation and exposure of paper using various alternative techniques through a variety of hands-on projects. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$50 for equipment applies.

**ART 3730  
Photographic Lighting II**

**3**  
\* Prerequisite(s): University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval

Focuses on product lighting and camera techniques. Develops artistic skill through the creation of images that can be used in commercial settings, specifically in advertising. Course Lab fee of \$19 for equipment applies.

**ART 3740  
Fine Art Photography WE**

**3**  
\* Prerequisite(s): ART 1750 and University Advanced Standing; formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, or department approval

Integrates previously taught image-making skills, and encourages students to further develop their personal vision through a more developed project. Examines contemporary trends, styles, and critical issues through slide presentations, readings, critiques, critical writing and class discussions. Course Lab fee of \$19 for equipment applies.

**ART 3750  
Advanced Digital Imaging**

**3**  
\* Prerequisite(s): ART 2720 and University Advanced Standing; formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, or department approval

Integrates Photoshop as a development and manipulation tool for image making. Investigates technical concerns of digital workflow, capture, and output for commercial and fine art applications. Strong emphasis on using Photoshop as a creative tool in personal artistic expression. Discusses more advanced uses of selection tools, color correction, layer and channel manipulations. Teaches processes and concepts through slide presentations, readings, critiques and class discussions. Lab access fee of \$35 for computers applies.

**ART 3800  
Low-Fire Ceramics**

**3**  
\* Prerequisite(s): ART 1350, ART 2350, and University Advanced Standing; or department approval

Explores low-temperature clay and glazing techniques, as well as the practical and aesthetic considerations of their use. Addresses the operation and maintenance of electric kilns. Course lab fee of \$60 for materials applies.

**ART 3810  
Ceramic Technologies**

**3**  
\* Prerequisite(s): ART 1350, ART 2350, and University Advanced Standing; or department approval

Teaches proper practices in the ceramic studio. Includes kiln operation, maintenance and design, basic clay and glaze formulation, understanding ceramic materials, ceramic tool making, and studio practices and safety. Course Lab fee of \$60 applies.

**ART 382R  
Sculpting the Human Form**

**3**  
\* Prerequisite(s): [(ART 1110 or ART 1020), ART 1130, ART 1340] and University Advanced Standing

Teaches sculpting principles and techniques related to the human form. Explores skeletal and muscular anatomy studies through the creation of an écorché sculpture. Sculpting will be done from live models (clothed and unclothed) to improve observation and rendering skills. Emphasizes armature design and creation. May be repeated for a maximum of 6 credits toward graduation. Course lab fee of \$72 for illustration applies.

**ART 411R  
Drawing IV**

**3**  
\* Prerequisite(s): (ART 311R or department approval) and University Advanced Standing

Emphasizes individual exploration in a variety of drawing media. Variably engages "process" as a creative methodology. Continues with conceptual development of drawing as a creative medium. Encourages active participation in the critical process and refinement of a personal approach to the medium. May be repeated for a maximum of 6 credits toward graduation.

## Course Descriptions

### **ART 421R** **Advanced Illustration**

**3**

\* Prerequisite(s): (Matriculated into the BFA in Art and Design: Illustration emphasis program) and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): ART 3220

Provides advanced studies in producing a senior level portfolio. Encourages students to find a personal style and voice in communicating images. Requires advanced problem solving skills and advanced abilities in the creation of images. May be repeated for a maximum of 6 credits toward graduation. Course fee of \$50 for support applies.

### **ART 4250** **Character Design**

**3**

\* Prerequisite(s): ART 3240, ART 361R, and University Advanced Standing; formal acceptance to the BFA in Art and Design: Illustration emphasis or the BFA in Entertainment Design, or department approval.

Teaches how to create original and compelling character designs for use in film, video games, graphic novels, and children's books. Lab access fee of \$35 for computers applies.

### **ART 4260** **Concept Design**

**3**

\* Prerequisite(s): ART 3250, and University Advanced Standing; formal acceptance to the BFA in Art and Design: Illustration emphasis or the BFA in Entertainment Design, or department approval  
\* Prerequisite(s) or Corequisite(s): ART 4250

Teaches how to create original and compelling concept designs and environments for use in film, video games, graphic novels, and children's books.

### **ART 4270** **Sequential Illustration**

**3**

\* Prerequisite(s): ART 3210, ART 3260, and University Advanced Standing; formal acceptance to the BFA in Art and Design: Illustration emphasis or the BFA in Entertainment Design, or department approval.

Studies the practice and execution of drawings and lettering in pencil, ink or digital mediums to create visual narratives in sequence, commonly referred to in popular culture as comics or graphic novels. Lab access fee of \$35 for computers applies.

### **ART 4280** **3D Rigging and Animation**

**3**

\* Prerequisite(s): ART 3280, ART 3440, ART 361R, and University Advanced Standing; formal acceptance to the BFA in Art and Design: Illustration emphasis or the BFA in Entertainment Design, or department approval  
\* Prerequisite(s) or Corequisite(s): ART 4250

Teaches the process of rigging for 3D motion and posing of characters and objects for animated films and games. Studies principles of character animation and motion capture. Software fee of \$23 applies.

### **ART 4290** **3D Sculpting**

**3**

\* Prerequisite(s): ART 3240, ART 3280, ART 361R, and University Advanced Standing; formal acceptance to the BFA in Art and Design: Illustration emphasis or the BFA in Entertainment Design, or department approval  
\* Prerequisite(s) or Corequisite(s): ART 4250

Teaches 3D digital sculpting techniques needed to create finished 3D illustrations and/or 3D assets to be used as reference for 2D illustration. Studies model detailing, texture mapping, lighting, and rendering of 3D computer reference or as standalone 3D illustration. Software fee of \$23 applies. Lab access fee of \$35 applies for computers.

### **ART 4360** **Mold Making and Casting**

**3**

\* Prerequisite(s): ART 1120, ART 1130, ART 2340, and University Advanced Standing; or department approval

Covers the basic process of casting and the construction of molds. Emphasizes the use of molds in the development of sculptural ideas. Course lab fee of \$70 for materials applies.

### **ART 4370** **Hand Building Ceramics**

**3**

\* Prerequisite(s): ART 1350 and University Advanced Standing; or department approval

Designed for students interested in three-dimensional art forms. Emphasizes hand building design and techniques in creating both sculptural and vessel projects in water-based clay. Teaches advanced methods of coil, slab, and pinch construction. Utilizes slump molding, rolled slab, cylinders, and molds in creation of finished clay products. Course lab fee of \$50 for materials applies.

### **ART 443R** **Design Studio**

**3**

\* Prerequisite(s): ART 3420, ART 3450, and University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval

Addresses emerging topics, issues, and technology relevant to graphic design. Addresses these issues through research and collaborative project development. May be repeated for a maximum of 6 credits toward graduation. Lab access fee of \$35 applies for computers.

### **ART 4440** **Motion Graphics Studio**

**3**

\* Prerequisite(s): ART 3440, and University Advanced Standing; formal acceptance to the BFA in Art and Design: graphic design emphasis or the BFA in Entertainment Design, or department approval

Addresses emerging topics, issues, and technology relevant to motion design. Addresses these issues through research and collaborative project development. Software fee of \$23 applies. Lab access fee of \$35 for computers applies.

### **ART 4480** **UI/UX Studio**

**3**

\* Prerequisite(s): ART 3480, and University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval.

Addresses emerging topics, issues and technology relevant to UI/UX design. Addresses these issues through research and collaborative project development. Lab access fee of \$35 for computers applies.

### **ART 4490** **Portfolio II**

**3**

\* Prerequisite(s): ART 341R, ART 343R, and University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval

Presents advanced instruction in the execution of a variety of graphic design projects (advertising, collateral, editorial, package and web design) aimed at building an exit portfolio. Assists students to improve and refine their portfolios in preparation for employment. Provides students the skills to develop a brand identity for themselves to further enhance their employability. Software fee of \$20 applies. Lab access fee of \$25 applies for computers.

**ART 463R  
Painting IV**

**3**  
\* Prerequisite(s): ART 363R and University Advanced Standing; or department approval  
Emphasizes independent and creative development as a painter. Provides an opportunity for students to solidify and expand their ideas while working within a class context. May be repeated for a maximum of 6 credits toward graduation.

**ART 466R  
Advanced Life Drawing**

**3**  
\* Prerequisite(s): (ART 366R or ART 2270), and University Advanced Standing; or department approval  
Studies fundamental human anatomy, structure, value representation, shape and gesture from a fine arts vantage point at an advanced level. Explores historical and contemporary modes of media/image use and application in conceiving and expressing the human form in a range of stylistic contexts. Includes observational drawing of live models (clothed and unclothed). Serves as a platform for advanced development in drawing the human form in a range of drawing media as found in traditional, modern and contemporary fine arts movements. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$150 for Illustration applies.

**ART 468R  
Printmaking IV**

**3**  
\* Prerequisite(s): (ART 1110 or ART 1020), ART 2680, University Advanced Standing, or departmental approval  
Expands the exploration of fine art printmaking through advanced techniques, processes, and materials. Continues to view the role of traditional and contemporary printmaking as a fine art medium. Includes more challenging and complex projects with more advanced technical skills than in Printmaking I, II, & III. Encourages the ability to detect and diagnose printing errors and to collaborate with peers in the making and critiquing of artworks. Strengthens the development of personal and individual imagery, including the importance of craftsmanship, the usage of new tools/materials, and an expanding printmaking vocabulary. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$34 for materials applies.

**ART 470R  
Figure Drawing III**

**3**  
\* Prerequisite(s): (ART 361R, Art and Visual Communication BFA Students, or Instructor approval) and University Advanced Standing  
Offers a senior-level drawing experience, emphasizing drawing from imagination. Continues skill development in proper character structure and scene layout. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$125 for support applies.

**ART 471R  
Photographic Illustration**

**3**  
\* Prerequisite(s): University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval  
Develops skills in illustrating concepts through photographic processes. Encourages students to work through assignments from their own personal emphasis of commercial or fine art image making styles. Explores contemporary trends, styles, and critical issues through slide presentations, readings, critiques and class discussions. Focuses on the development of interpretation and conceptual image making. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$19 for equipment applies.

**ART 474R  
Advanced Photo Studies**

**3**  
\* Prerequisite(s): University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval  
Integrates all previous image making skills acquired into the students' visual vocabulary. Encourages students to further develop their own personal vision through more developed projects. Examines contemporary trends, styles, and critical issues through slide presentations, readings, critiques and class discussions. Investigates needed skills in running a business as a commercial and Fine Art photographer. Emphasizes conceptual image making. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$19 for equipment applies.

**ART 475O  
Exploratory Photographic Processes**

**3**  
\* Prerequisite(s): University Advanced Standing; formal acceptance to Bachelor of Fine Arts (BFA) Program by portfolio review, or department approval  
Explores deconstruction of the image in both a formal and conceptual process. Analyzes liquid emulsions, mixed media, encaustic, and alternative surfaces and materials. Examines the possibilities of the image beyond two-dimensional traditional photography. Course Lab fee of \$19 for equipment applies.

**ART 481R  
Art and Design Internship**

**1 to 6**  
\* Prerequisite(s): University Advanced Standing; formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree and departmental approval  
Combines classroom theory with related, practical job experience. Students works as employees of a business, agency, or institution while enrolled in classes related to their career/major. Course content is individualized with students setting objectives in concert with their internship advisor and their workplace supervisor. Internship enrollment must be pre-approved by the area coordinator and department internship advisor. Number of hours worked per week will determine number of credits granted. May apply a maximum of 6 credits toward graduation. May be graded credit/no credit.

**ART 482O  
Professional Practices for the Visual Arts I  
WE**

**1**  
\* Prerequisite(s): University Advanced Standing; declared Art & Design major; junior or senior status or department approval  
For Art and Design majors. Covers business topics related to visual arts professions, including standard policies and procedures, basic contracts and pricing methods, trade customs, ethical standards, and general business practices.

**ART 483O  
Professional Practices for the Visual Arts II  
WE**

**1**  
\* Prerequisite(s): University Advanced Standing; declared Art & Design major; junior or senior status or department approval  
For Art and Design majors. Introduces students to legal topics relevant to professions in the visual arts, including the principles of copyright, trademark, and contract law, as well as policies and laws that impact the production of creative work.

**ART 484O  
Professional Presentation for the Visual  
Arts WE**

**1**  
\* Prerequisite(s): University Advanced Standing; declared Art & Design major; junior or senior status or department approval  
For Art and Design majors. Covers topics related to preparing work for presentation and marketing work within visual arts professions, including building a professional website, preparing a professional portfolio, getting work ready for exhibition, and advertising/marketing work.

## Course Descriptions

### ART 4850

#### Professional Writing for the Visual Arts WE 1

\* Prerequisite(s): University Advanced Standing; declared Art & Design major; junior or senior status or department approval

For Art and Design majors. Focuses on the development of advanced writing skills for visual arts professionals, including writing artists statements, biographies, critiques, critical reviews, exhibition labels, and content for social media platforms. Also focuses on understanding and tailoring communication for specific audiences.

### ART 4890

#### Senior Seminar 3

\* Prerequisite(s): University Advanced Standing; Senior status and formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, or department approval

For Art and Design majors. Covers standard policies and procedures used in the creation and marketing of visual arts. Includes estimating, pricing, trade customs, ethical standards, contracts, and other legal rights and issues. Explores job opportunities and self-employment options for visual artists.

### ART 491R

#### Independent Study 1 to 3

\* Prerequisite(s): University Advanced Standing, formal acceptance to the Art and Design Bachelor of Arts (BA), Bachelor of Science (BS), or Bachelor of Fine Arts (BFA) degree, and department approval

Provides an opportunity for upper division students to do individual research and experimentation within the areas of the Art and Design Program. Study is limited to advanced work beyond that which can be completed in existing available classes. A proposal must be submitted and approved by the department prior to enrollment. May be repeated for a maximum of 3 credits toward graduation.

### ART 4990

#### Senior Studio 3

\* Prerequisite(s): University Advanced Standing, Senior status, formal acceptance to the Art and Design Bachelor of Arts (BA) or Bachelor of Science (BS), and department approval

For Art and Design majors with senior status. Combines and integrates concepts, methodologies and skills developed in previous Art and Design course work, through the completion of a comprehensive project. Requires students to develop their own project/portfolio in consultation with a faculty advisor. Finished projects will demonstrate individual student skills and interests.

### ART 499R

#### BFA Project WE 3

\* Prerequisite(s): University Advanced Standing; Senior status and formal acceptance to Bachelor of Fine Arts (BFA) program by portfolio review or department approval

Focuses on the development and execution of a gallery exhibition or professional portfolio. Includes collaborative work with a gallery/museum professional in preparation of the exhibition's public viewing. May be repeated for a maximum of 6 credits toward graduation. Lab access fee of \$26 for computers applies.

## Art History (ARTH)

### ARTH 2710

#### Prehistoric Through Gothic Art History 3

FF

Covers major trends in Western art from the Paleolithic period to the Gothic era, including elements of political, religious, cultural, literary, and philosophical elements as they impacted the development of art. Canvas Course Mats \$60/Cengage applies

### ARTH 271H

#### Prehistoric Through Gothic Art History 3

FF

Covers major trends in Western art from the Paleolithic period to the Gothic era, including elements of political, religious, cultural, literary, and philosophical elements as they impacted the development of art.

### ARTH 2720

#### Renaissance Through Contemporary Art History 3

FF

Covers major trends in Western art, from the Renaissance through the Modern era, including elements of political, religious, cultural, literary, and philosophical elements as they impacted the creation of art. Canvas Course Mats \$60/Cengage applies.

### ARTH 272H

#### Renaissance Through Contemporary Art History 3

FF

Covers major trends in Western art, from the Renaissance through the Modern era, including elements of political, religious, cultural, literary, and philosophical elements as they impacted the creation of art. Canvas Course Mats \$60/Cengage applies.

### ARTH 2800

#### Introduction to Art History Research and Methodology WE 3

\* Prerequisite(s): ARTH 2720 (ARTH 2710 recommended), ENGL 1010 or ENGH 1005

Develops needed skills to research in various fields related to the visual arts. Teaches how to prepare and organize a research paper. Focuses on historical methodologies. Studies critical reading, thinking, and writing. It is strongly recommended that students take this class by their second year or before taking upper-division Art History courses.

### ARTH 300R

#### Special Topics in Art History 3

\* Prerequisite(s): ARTH 2710 or ARTH 2720 and University Advanced Standing

Explores topics within art and architectural history. Topics will change each semester to reflect the research activities and interests of the instructor (e.g., "The History of Victorian Art & Design", "The History of Rococo Painting & Sculpture"). May be repeated for a maximum of 6 credits toward graduation.

### ARTH 3010

#### History of Design and Visual Arts 3

\* Prerequisite(s): ARTH 2710, (ENGL 1010 or ENGH 1005), (Art and Design Sophomore status or departmental approval), and University Advanced Standing

Presents a history of graphic design, illustration, and photography apart from the study of traditional art history. Explores the impact of major movements, technologies, and innovations on present-day graphic design. Includes lectures, group projects, and field trips.

### ARTH 3015

#### Ancient Art of Egypt and the Near East 3

\* Prerequisite(s): ARTH 2710 (ARTH 2720 recommended), (ENGL 1010 or ENGH 1005), and University Advanced Standing

Studies the art and architecture of ancient Egypt and various cultures of the Mesopotamian region. Explores the broader cultural, historical, and religious events and developments of the cultures and periods covered. Includes lectures and class discussions.

### ARTH 3020

#### Classical Art and Architecture History 3

\* Prerequisite(s): ARTH 2710 (ARTH 2720 recommended), ENGL 1010 or ENGH 1005, and University Advanced Standing

Studies the art and architecture of Ancient Greece, Etruria, and Rome. Explores the influences on classical culture as well as the influences of Greco-Roman culture over the centuries. Includes lectures and class discussion about classical art within its broad cultural framework.

**ARTH 3030**

**Medieval Art and Architecture History**

**3**

\* Prerequisite(s): ARTH 2710 (ARTH 2720 recommended), ENGL 1010 or ENGH 1005, and University Advanced Standing

Studies major styles, cultural influences, and developments in the arts of the middle ages. After an introduction to the aftermath of the fall of Rome and the rise of Christianity, the Romanesque and Gothic periods are investigated in detail. Includes lecture and class discussions

**ARTH 3040**

**Renaissance Art History**

**3**

\* Prerequisite(s): ARTH 2710 (ARTH 2720 recommended), ENGL 1010 or ENGH 1005, and University Advanced Standing

Studies art and architecture in Italy between 1250 and 1550, and explores artistic style, patronage, historical influences, and broad cultural influences on art. Includes lectures and class discussion on the major art works and artists in Florence, Rome and Venice.

**ARTH 3050**

**Baroque Art and Architecture History**

**3**

\* Prerequisite(s): ARTH 2720 (ARTH 2710 recommended), ENGL 1010 or ENGH 1005, and University Advanced Standing

Studies major art works and artists in Italy, Spain, and France during the 17th Century. Explores the artistic, historical, religious, and broad cultural influences on the art of this period.

**ARTH 3055**

**Northern Baroque Art History**

**3**

\* Prerequisite(s): ARTH 2720, ENGL 1010 or ENGH 1005, and University Advanced Standing

Studies major artists and artworks of northern Europe during the 17th century. Explores the artistic, historical, religious, and broad cultural influences on the art of this period, primarily focusing on artists working in Flanders and the Dutch Republic, as well as those from surrounding northern regions.

**ARTH 3060**

**Nineteenth-Century Art History**

**3**

\* Prerequisite(s): ARTH 2720 (ARTH 2710 recommended), ENGL 1010 or ENGH 1005, and University Advanced Standing

Studies leading artists and movements of the 19th century, emphasizing artistic developments in Europe between 1750 and 1900, primarily in France. Explores the broad historical, social, cultural, and philosophical changes that took place and influenced the visual arts of the century. Includes lecture and class discussions.

**ARTH 3070**

**Modern Art and Architecture History WE**

**3**

\* Prerequisite(s): ARTH 2720, ENGL 1010 or ENGH 1005, and University Advanced Standing

Studies leading artists, artworks, and movements. Explores the broad cultural, historical, and philosophical influences on modern art and architecture. Includes lectures and class discussions on modern art and architecture.

**ARTH 3080**

**History of Architecture**

**3**

\* Prerequisite(s): (ARTH 2710 or ARTH 2720 or B-ARCH degree student with department approval), (ENGL 1010 or ENGH 1005), and University Advanced Standing

Surveys developments in architecture over the centuries, focusing on a variety of periods and leading innovators. Includes the role of technology as well as the broad cultural background in which the architecture was created.

**ARTH 309G**

**Introduction to Non Western Ancient Art**

**3**

\* Prerequisite(s): (ARTH 2710 or ARTH 2720), (ENGL 1010 or ENGH 1005), and University Advanced Standing

Introduces students to the art and architecture of the non-western cultures of East Asia, Southeast Asia, Sub-Saharan Africa, Islam, Oceania and the Americas from before the period of Western Colonialism and domination (the course may focus on all or only one of these areas depending on faculty expertise). Places Non-Western art into its native context and discusses the religious, cultural, political, and philosophical world views in which art and architecture were produced in contrast to Western stereotypes or biases of Non-Western cultures. Canvas Course Mats \$60/Cengage applies.

**ARTH 3100**

**History of American Art and Architecture**

**3**

\* Prerequisite(s): (ARTH 2710 or ARTH 2720 or B-ARCH degree student with department approval), (ENGL 1010 or ENGH 1005), and University Advanced Standing

Studies leading artists, architects and movements in America from the colonial era to the 1950s. Explores the aesthetic, social, political, and technological changes that impacted the development of art and architecture in America, with an emphasis on the styles and movements of the nineteenth and twentieth centuries. Includes lecture and class discussions.

**ARTH 3110**

**The History of Illustration WE**

**3**

\* Prerequisite(s): University Advanced Standing

Surveys the history of illustration as visual communication. Discusses major movements and the influence of technological advancements in printing and broadcast media on the field of illustration. Focuses primarily on the period from 1860 to the present.

**ARTH 3120**

**History of Contemporary Art**

**3**

\* Prerequisite(s): (ARTH 2710 or ARTH 2720), (ENGL 1010 or ENGH 1005), and University Advanced Standing

Studies themes and trends related to contemporary art. Explores the diverse influences that impacted art from late modernism to the twenty-first century. Emphasis will be given to understanding the pluralism of international contemporary art from the last three decades. Includes lecture and class discussions.

**ARTH 3200**

**The History of Photography**

**3**

\* Prerequisite(s): (ARTH 2710 or ARTH 2720) and University Advanced Standing

Traces the different directions photography has taken since its inception, using the social and cultural environment as a context. Investigates the ever-increasing use of photography by artists in the creative process from the first uses of the camera obscura to the present. Discusses the developments that set the stage for the "invention" of photography and how photography changed the role of artists in the 19th and 20th centuries. Covers documentary photography and the rise of fine art photography as separate art forms.

**ARTH 3300**

**Introduction to Museum Studies**

**3**

\* Prerequisite(s): Students must be a declared Art and Design major (or admittance to class by instructor) and have taken either ARTH 2710 or ARTH 2720, University Advanced Standing.

Introduces students to theoretical knowledge and practical skills needed to work in the museum environment. Teaches the basic functions and operations of museums, as well as art historical connections to these nonprofit organizations.

## Course Descriptions

### **ARTH 3310** **Art Theory and Criticism**

**3**

\* Prerequisite(s): [ARTH 2710 or ARTH 2720 or (HUM 2010 and HUM 2020)] and University Advanced Standing

Examines art theories, explores ideas related to content and understanding the meaning in art by emphasizing interpretation and judgment. Integrates theories and concepts related to both historical and contemporary art history through critical writings and artist statements.

### **ARTH 3400** **Arts Management**

**3**

\* Prerequisite(s): ARTH 2720 and University Advanced Standing

Studies trends, themes, and historical developments related to arts and cultural management. Analyzes the economic, political and social environments in which artists and art organizations operate, including the consideration of legal, ethical, and policy issues. Explores such topics as freedom of expression, arts accessibility, art dealership, corporate partnerships, arts leadership, and globalization of the arts. Investigates the relationships between institutions, businesses, and museums related both to art history and to the contemporary art market.

### **ARTH 350G** **Latin American Art and Architectural History**

**3**

\* Prerequisite(s): (ARTH 2710 or ARTH 2720), (ENGL 1010 or ENGH 1005), and University Advanced Standing

Surveys visual culture of the arts and architecture of Latin America, specifically, Mexico, Central America and South America from its Pre-Columbian roots, through the Colonial Period, Independence, and to contemporary trends in Latin American Art in the 21st century. Concentrates on the complicated interactions between indigenous cultures and imported styles, particularly during the colonial and independence periods, documenting the emergence of a truly unique Latin American identity forged in the synthesis of these sometimes complimentary and often competing cultures.

### **ARTH 400R** **Art History Seminar WE**

**3**

\* Prerequisite(s): ARTH 2710, ARTH 2720, 6-credits upper-division ARTH, (ENGL 1010 or ENGH 1005), and University Advanced Standing

Explores topics within Art and Architectural History. Topics will change each semester to reflect the research activities and interests of the instructor (e.g., "The Life and Art of Michelangelo," "The Current State of Gender Studies in Art History"). May be repeated for a maximum of 12 credits toward graduation.

## **American Sign Language (ASL)**

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### **ASL 1000** **Introduction to the Deaf World**

**3**

Focuses on the nature, make up, and significance of the Deaf-World as a linguistic and cultural minority group. Gives significant attention to the different ways that deaf people form a minority group thereby adding diversity to society at large. Also addresses the diversity within the group and the sociological factors that affect its makeup. Introduces American Sign Language (ASL) and teaches some basic conversational skills. Gives special attention to the differences between the ways hearing and Deaf people construct meanings associated with deaf people. Taught in (or interpreted into) English.

### **ASL 1010** **LH** **Beginning American Sign Language I**

**4**

Introduces American Sign Language (ASL) to students with no previous experience with ASL. Employs an immersion approach to language learning. Emphasizes basic expressive and receptive conversational skills. Includes introduction to American Deaf culture. Requires weekly lab. Canvas Course Mats of \$72/True Way applies. Lab access fee of \$10 applies.

### **ASL 1020** **LH** **Beginning American Sign Language II**

**4**

\* Prerequisite(s): Students should have equivalent knowledge of ASL 1010

Builds on the experiences in ASL 1010. Emphasizes basic expressive and receptive conversational skills through active student participation. Continues introduction to American Deaf culture. Employs an immersion approach to language learning. Requires a weekly lab. Canvas Course Mats of \$72/True Way applies. Lab access fee of \$10 applies.

### **ASL 115R** **ASL Conversation I**

**1**

Offers novice ASL users opportunities to enhance their proficiency in the target language by focusing on production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen comprehension for natural conversational flow. Contrasts with all other first-year courses which must strive to produce mastery of the whole range of language acquisition components. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of conversational opportunities. Increases mastery of lexical items through increased frequency of use. May be repeated for a maximum of 3 credits toward graduation. Taught in ASL.

### **ASL 2010** **LH** **Intermediate American Sign Language I**

**4**

\* Prerequisite(s): Students should have equivalent knowledge of ASL 1020

Reviews and builds upon the grammar and conversation skills learned in the first year courses. Concentrates on understanding and acquiring more advanced conversational proficiency in ASL. Emphasizes the use of various kinds of ASL classifiers in the function of describing objects and in providing locative information. Analyzes Deaf culture with an emphasis on the struggles of this linguistic minority with a majority controlled educational establishment with particular attention to the effects on individual Deaf lives. Canvas Course Mats of \$72/True Way applies. Lab access fee of \$10 applies.

### **ASL 202G** **HH** **Intermediate American Sign Language II**

**4**

\* Prerequisite(s): Students should have equivalent knowledge of ASL 2010

Continues applied conversation use of ASL through literature, narratives, poetry, and creative sign play. Analyzes ASL grammatical principles and Deaf cultural experiences to explore and understand various underlying metaphors found in ASL literature. Requires Deaf community exposure and involvement. Canvas Course Mats of \$72/True Way applies. Lab access fee of \$10 applies.

### **ASL 2030** **Fingerspelling in American Sign Language**

**1**

\* Prerequisite(s): ASL 1020 or equivalent knowledge

Focuses on the patterns of ASL fingerspelling, one of the hardest ASL skills to master. Increases ability to accurately produce and comprehend ASL fingerspelling. Gives attention to the nature and application of fingerspelling within the sociocultural context of the Deaf-World. Taught in ASL.

**ASL 2040**  
**Numbers in American Sign Language**

**1**  
\* Prerequisite(s): ASL 1020 or equivalent knowledge

Focuses on the complex rule systems governing ASL numbers as used in a wide range of settings. Increases ability to accurately produce and comprehend contextually situated ASL numbers. Taught in ASL.

**ASL 2050**  
**Advanced ASL Grammar**

**3**  
\* Prerequisite(s): Students should have equivalent knowledge of ASL 202G

Explores the grammar of ASL focusing on areas typically difficult for English speakers, particularly ASL classifiers. Provides extensive instruction and opportunity for students to improve both comprehension and production through regular interaction. Taught in ASL. Lab access fee of \$10 applies.

**ASL 215R**  
**ASL Conversation II**

**1**  
\* Prerequisite(s): Students should have equivalent knowledge of ASL 1020

Offers lower division/novice ASL users opportunities to enhance their proficiency in the target language by focusing on production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, sharpen comprehension, and develop conversational strategies such as circumlocution and managing a conversation with useful expressions for starting a conversation, gaining time to think, helping interlocutors, seeking agreement, etc. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of production opportunities and defusing concern about new vocabulary and grammar. Increases mastery of lexical items through increased frequency of use. May be repeated for a maximum of 3 credits toward graduation.

**ASL 3000**  
**Technology for Deaf Studies**

**3**  
\* Prerequisite(s): It is recommended that students complete ASL 202G or have equivalent skills acquired through classes elsewhere or other through life experiences.

Examines various forms of media that will help Deaf Studies students succeed in both the pursuit of their academic degrees and in real-world work environments. Draws on the theoretical approaches of the Visual Culture field to explore visual theory, museums, memorials, film and video. Gives in-depth instruction in the use of multiple digital technologies used in higher-level Deaf Studies classes and in work environments associated with Deaf people. Taught in ASL.

**ASL 3050**  
**Advanced American Sign Language**

**3**  
\* Prerequisite(s): It is recommended that students complete ASL 202G or have equivalent skills acquired through classes elsewhere or other through life experiences

Focuses on grammatical and linguistic aspects of ASL, including the following: sign formation, morphological structures, syntactic structures, pronominalization, identification and analysis of subjects and objects, classifiers, depicting verbs, pluralization, time concepts, and social interaction of language and culture within Deaf communities. Lab access fee of \$10 applies.

**ASL 315R**  
**ASL Conversation III**

**1**  
\* Prerequisite(s): (ASL 202G or equivalent knowledge) and University Advanced Standing

Offers intermediate ASL users opportunities to enhance their proficiency in the target language by focusing on production. Centers on discussions from a selected reading list in 'book club' form. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen comprehension for natural conversational flow. Contrasts with all other third-year courses which are more content based. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of conversational opportunities. May be repeated for a maximum of 3 credits toward graduation.

**ASL 3310**  
**Foundations of Interpreting**

**3**  
\* Prerequisite(s): ASL 3050 and University Advanced Standing

Introduces bidirectional (ASL-to-English and English-to-ASL) interpreting between Deaf and hearing people. Studies the profession and skills necessary to be an interpreter. Includes history, models, and professional certification procedures of interpreting; cognitive processes, physical and psychological factors, intercultural communication, ethics, and situational interpreting. Deaf students are encouraged to enroll. This course may be taught as a hybrid.

**ASL 3320**  
**Physiology of Interpreting**

**3**  
\* Prerequisite(s): ASL 202G and University Advanced Standing

Introduces students to skills and processes required to maintain health and wellbeing in the physically demanding and high stress field of interpreting. Develops cognitive, ergonomic, and dual tasking abilities required to interpret without stress or physical injury. Helps students better understand how a healthy lifestyle and developing good habits can improve their skills and prevent injury. Lab access fee of \$10 applies.

**ASL 3330**  
**Cross Cultural Communication and Interpreting**

**3**  
\* Prerequisite(s): ASL 3310 and University Advanced Standing.

Builds on ASL 3310. Focuses heavily on the practice of interpreting with special emphasis on the dimension of intercultural communication. Requires regular skill-building exercises in both consecutive and simultaneous interpretation, both English-to-ASL and ASL-to-English. Deaf students are encouraged to enroll. Taught in ASL. Lab access fee of \$10 applies.

**ASL 3340**  
**Interpreting as a Profession**

**3**  
\* Prerequisite(s): ASL 3310 and University Advanced Standing

Builds on the principles (ASL-to-English and English-to-ASL) for interpreting between Deaf and hearing people taught in Interpreting I. Studies the profession and skills necessary to be an interpreter in more specialized settings such as medical, legal, mental health, and theatre. Includes history, models, and professional certification procedures of interpreting; cognitive processes, physical and psychological factors, intercultural communication, ethics, and situational interpreting. Deaf students are encouraged to enroll. Lab access fee of \$10 applies.

## Course Descriptions

### **ASL 3350** **Consecutive Interpreting**

**3**  
\* Prerequisite(s): ASL 3310, matriculation into the Interpreting Emphasis, and University Advanced Standing

Introduces skills and processes required to produce consecutive interpretations. Focuses on developing basic cognitive, semantic, and dual tasking abilities required to interpret rehearsed and/or spontaneous texts. Teaches to incorporate semantic choice, register, and ethical behavioral decisions and understand how they impact interpretation. Develops sets of technical or field-specific signs and applies these to interpretative work. Includes one-hour per week lab. Taught in ASL. Lab access fee of \$10 applies.

### **ASL 3360** **Simultaneous Interpreting**

**3**  
\* Prerequisite(s): ASL 3350 and matriculation into the Interpreting Emphasis and University Advanced Standing

Introduces skills and processes required to produce simultaneous interpretations. Focuses on transitioning from consecutive interpreting to time-limited simultaneous interpreting. Develops cognitive, semantic, and dual tasking abilities required to interpret spontaneous texts. Teaches and incorporates more advanced semantic choices and negotiation techniques. Works with a variety of audience sizes and types. Teaches how ethics impact behavioral decisions and interpretations. Gives more consideration to developing sets of technical or field-specific signs and applying these to interpretative work. Includes one-hour per week lab. Taught in ASL. Lab access fee of \$10 applies.

### **ASL 3370** **Sign to Voice Interpreting**

**3**  
\* Prerequisite(s): ASL 3360 and matriculation into the Interpreting Emphasis and University Advanced Standing

Introduces skills and processes required to produce conceptually accurate and linguistically appropriate voice interpretations of ASL texts. Develops cognitive, semantic, and dual tasking abilities required to interpret spontaneous texts. Teaches and incorporates more advanced semantic choices and negotiation techniques. Works with a variety of audience sizes and types. Teaches how ethics impact behavioral decisions and interpretations. Gives more consideration to developing sets of technical or field-specific signs and applying these to interpretative work. Includes one-hour per week lab. Lab access fee of \$10 applies.

### **ASL 3380** **Transliteration**

**3**  
\* Prerequisite(s): ASL 3360, matriculation into the Interpreting Emphasis and University Advanced Standing

Introduces skills and processes required to produce conceptually accurate and linguistically appropriate messages using ASL signs in an English word order. Develops cognitive, semantic, and dual tasking abilities required to interpret spontaneous texts. Teaches and incorporates more advanced semantic choices and negotiation techniques. Works with a variety of audience sizes and types. Teaches how ethics impact behavioral decisions and interpretations. Gives more consideration to developing sets of technical or field-specific signs and applying these to interpretative work. Includes one-hour per week lab. Lab access fee of \$10 applies.

### **ASL 3390** **Professional Issues in Interpreting**

**3**  
\* Prerequisite(s): ASL 3310 and University Advanced Standing

Provides students advanced study and skills development in the business and profession of interpreting, decision making while interpreting between Deaf (including Deaf-blind) and hearing populations, and negotiation of the complex and growing field of interpreting. Students develop the understanding of the day to day demands of the work needed become truly professional interpreters. Provides extensive individual feedback. Lab access fee of \$10 applies.

### **ASL 3510** **History of Deaf People to 1817**

**3**  
\* Prerequisite(s): ASL 202G or equivalent knowledge and University Advanced Standing

Explores chronologically to 1817 the formation and treatment of the Deaf community and culture. Emphasizes the rise of deaf education in a European setting and on the links to American Deaf education. Examines perceptions of deaf people and language across this period. Taught in ASL.

### **ASL 3520** **History of Deaf People after 1817**

**3**  
\* Prerequisite(s): ASL 202G or equivalent and University Advanced Standing

Explores the evolution and treatment of the Deaf community and culture emphasizing activities in the United States chronologically from 1817 onward. Emphasizes the rise of oralism, the development of deaf residential schools, the emergence of American Deaf culture and the recognition of ASL as a true language. Taught in ASL.

### **ASL 3530** **Modern Deaf Culture WE**

**3**  
\* Prerequisite(s): (ASL 202G or department approval) and University Advanced Standing

Explores the culture of the American Deaf people following the recognition of American Sign Language as a legitimate, naturally-occurring sign language. Examines constructions of Deaf people as a linguistic minority whose mores, beliefs, values and traditions emanate from a shared worldview that differs markedly from the view usually ascribed to them by others. Taught in ASL with a writing component.

### **ASL 3610** **ASL Literature**

**3**  
\* Prerequisite(s): ASL 3050 and University Advanced Standing

Explores the dynamics of ASL literature and its traditions by studying various genres and ASL storytellers. Uses the similarities and differences in the development of traditional oral literature in other cultures to ASL literature as a tool in discussions and critiques. Covers general narratives and the unique aspects and techniques of telling stories in sign language. Teaches how to critique and to produce ASL literature. Taught in ASL. May be delivered hybrid and/or online.

### **ASL 3710** **Deaf Visual Arts**

**3**  
\* Prerequisite(s): ASL 3050 and (ASL 3510 or 3520 or 3530) and University Advanced Standing

Explores the role of visual arts in the Deaf-World with particular attention to Deaf/View Image Art (De'VIA), whose subject matter and style represent a Deaf worldview and cinema (including popular culture). Examines the historical and current contributions of Deaf artists, actors, and filmmakers. Takes as a reference other art movements stemming from oppression. Studies aims, motivations, and challenges portrayed in various art pieces and cinematic works. Taught in ASL. May be delivered hybrid.

### **ASL 3750** **Deaf Cinema**

**3**  
\* Prerequisite(s): ASL 3050 and University Advanced Standing

Examines the critical role film plays in Deaf culture and the Deaf community. Uses film as a background to critically think about and address key issues that Deaf people encounter in society. Studies various lenses of Deaf themes and Deaf characters in movies, as well as how Deaf people have been involved with creating movies throughout history and contrasts this with the ways film has been a mold for the ideology and identity of Deaf people. Introduces concepts of film composition and critiquing tools. Taught in ASL. May be delivered hybrid.

**ASL 385G**  
**Audism/Linguicism/Oppression**

**3**  
\* Prerequisite(s): [ASL 3050 and (ASL 3510 or ASL 3520 or ASL 3530) or department approval] and University Advanced Standing

Examines oppression in various forms through a comparative study spanning across cultures and communities. Examines the parallels between widely-understood forms of oppression and those specific to the Deaf-World. Fulfills Global/Intercultural graduation requirement.

**ASL 415R**  
**ASL Conversation IV**

**1**  
\* Prerequisite(s): ASL 3050 and University Advanced Standing

Offers intermediate/advanced ASL users opportunities to enhance their proficiency in the target language by focusing on production. Centers on discussions from a selected reading list in 'book club' form. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen comprehension for natural conversational flow. Contrasts with all other upper division ASL courses which are more content based. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of conversational opportunities. May be repeated for a maximum of 3 credits toward graduation.

**ASL 4330**  
**Visual Linguistic Analysis for Interpreters**

**3**  
\* Prerequisite(s): ASL 3350, matriculation into the Interpreting Emphasis and University Advanced Standing

Teaches necessary processing skills related to interpreting from Sign to spoken languages including ability to concentrate and analyze visual linguistic and non-manual markers. Analyzes discourse focusing on context, linguistics and culture. Lab required. Lab access fee of \$10 applies.

**ASL 4360**  
**Legal Interpreting**

**3**  
\* Prerequisite(s): ASL 3350 and matriculation into the Interpreting Emphasis and University Advanced Standing

Provides a conceptual understanding of the American legal system, and the unique cultural challenges related to interpreting for parties within the system. Examines both the law and Deafness and the areas of language and cultural mediation required to effectively facilitate communication between people who are Deaf and people who are hearing in legal settings. Lab access fee of \$10 applies.

**ASL 4370**  
**Ethics for Interpreters**

**3**  
\* Prerequisite(s): ASL 3310 and University Advanced Standing

Provides students advanced study and skills development in ethical decision making while interpreting between Deaf (including Deaf-blind) and hearing populations, including interpreting in Educational, Higher Ed. Legal, Mental Health and Medical situations. Helps students develop the ethical understanding needed to become truly professional interpreters. Provides extensive individual feedback to rapidly improve students' interpreting skills and understanding of the complex nature of interpreting ethics. This course may be taught as a hybrid. Lab access fee of \$10 applies.

**ASL 4380**  
**Applying Interpreting Skills to Coursework--Medical**

**3**  
\* Prerequisite(s): ASL 3350; ASL 3360, matriculation into the Interpreting Emphasis, and University Advanced Standing.

Guides interpreters through skill sets applied to real life classroom lectures, specifically medical and psychology courses offered online through accredited universities. Requires practical application of specific interpreting skills and techniques as well as course preparation and acquisition of course specific knowledge to develop balanced interpreting practices, including both specific applicable skills in interpretation and a broad based liberal arts knowledge to which the skills are applied.

**ASL 4381**  
**Applying Interpreting Skills to Coursework--Law**

**3**  
\* Prerequisite(s): ASL 3350, ASL 3360, matriculation into the Interpreting Emphasis, and University Advanced Standing.

Guides interpreters through skill sets applied to real life classroom lectures, specifically law and justice courses offered online through accredited universities and sample courtroom scenarios. Requires practical application of specific interpreting skills and techniques as well as course preparation and acquisition of course specific knowledge to develop balanced interpreting practices, including both specific applicable skills in interpretation and a broad based liberal arts knowledge to which the skills are applied.

**ASL 4382**  
**Applying Interpreting Skills to Coursework--Education**

**3**  
\* Prerequisite(s): ASL 3350, ASL 3360, matriculation into the Interpreting Emphasis, and University Advanced Standing.

Guides interpreters through skill sets applied to real life classroom lectures, specifically education and other courses offered online through accredited universities. Requires practical application of specific interpreting skills and techniques as well as course preparation and acquisition of course specific knowledge to develop balanced interpreting practices, including both specific applicable skills in interpretation and a broad based liberal arts knowledge to which the skills are applied.

**ASL 4383**  
**Applying Interpreting Skills to Coursework--Community**

**3**  
\* Prerequisite(s): ASL 3350, ASL 3360, matriculation into the Interpreting Emphasis, and University Advanced Standing.

Guides interpreters through skill sets applied to real life classroom lectures and instruction including business, manufacturing and organizational courses offered online through accredited universities. Requires practical application of specific interpreting skills and techniques as well as course preparation and acquisition of course specific knowledge to develop balanced interpreting practices, including both specific applicable skills in interpretation and a broad based liberal arts knowledge to which the skills are applied.

**ASL 439R**  
**Special Topics in Interpreting**

**3**  
\* Prerequisite(s): ASL 3310 and University Advanced Standing

Provides students advanced study and skills development in interpreting between deaf (including deaf-blind) and hearing populations. Focuses on different topics as deemed appropriate (e.g., variety of academic, business, or social contexts). Provides extensive individual feedback to rapidly improve students' interpreting skills and understanding of the complex nature of the interpreting process. Repeatable for a maximum of 9 credits toward graduation. Lab access fee of \$10 applies.

# Course Descriptions

## **ASL 4410**

### **ASL Linguistics**

**3**

\* Prerequisite(s): ASL 3050 and University Advanced Standing

Introduces the linguistic study of ASL, including phonology, morphology, syntax, semantics, and discourse structure. Emphasizes grammatical structures of ASL, including sign formation, pronominalization, identification and analysis of subjects and objects, classifiers, depicting verbs, pluralization, time concepts, and social interaction of language and culture within Deaf communities. Taught in ASL.

## **ASL 4450**

### **Deaf World Discourse**

**3**

\* Prerequisite(s): ASL 3050 and University Advanced Standing

Examines the discourse practices of the Deaf-World. Studies the ways that Deaf people use discursive forms to accomplish specific social aims. Explores the semiotic connections between discursive forms and various Deaf-World identities. Adopts an anthropological bias toward real-world discourse as primary data, and prepares students to do ethnographic fieldwork in the Deaf-World. Taught in ASL.

## **ASL 4520**

### **Deaf People and Disability Studies**

**3**

\* Prerequisite(s): ASL 3050 and University Advanced Standing

Introduces the field of disability studies and shows where Deaf people fit within this field. Explores the historical, social, political, religious, philosophical, and cultural influences that construct and influence the categories of "disability" and "deafness." Examines the complex relation between Deaf and disability rights groups as well as how Deaf persons and persons with disabilities construct their own meanings and identities. Taught in ASL.

## **ASL 4530**

### **Deaf Peoples of the World**

**3**

\* Prerequisite(s): ASL 3530 and University Advanced Standing

Explores the lives of Deaf people in various places around the world. Considers the extent to which the deaf experience is cross-cultural and to what extent it is unique to specific locations. Explores the lifestyles, educational opportunities, political climate and level of community development of deaf people across the globe. Seeks to illuminate areas of overlap and of difference among the worldviews of various communities.

## **ASL 4550**

### **Multicultural Deaf Lives**

**3**

\* Prerequisite(s): ASL 3050 and University Advanced Standing

Focuses on cultural issues, values, behaviors, identities and language of Deaf people from diverse backgrounds. Examines autobiographies, documentaries, films, videos, and academic literature to help understand the contributions and historical development of the emerging majority of the Deaf community that is underrepresented in the United States and the world. Taught in ASL. May be delivered online.

## **ASL 4560**

### **Deaf People and the Law**

**3**

\* Prerequisite(s): ASL 3050 and University Advanced Standing

Focuses on the impact of laws and the legal system in the lives of people who are Deaf and the role such laws and the legal system play in the general understanding of Deafness in the United States. Explores in detail the rights of persons who are Deaf in a hearing world. Taught in ASL.

## **ASL 4610**

### **ASL Literature II**

**3**

\* Prerequisite(s): ASL 3610 and University Advanced Standing

Explores the dynamics of ASL literature and its traditions by studying various genres and ASL storytellers/poets. Covers stories with handshape constraints, poetry, and songs. Taught in ASL. May be delivered hybrid and/or online.

## **ASL 4800**

### **Recent Trends in Deaf Studies Theory WE**

**3**

\* Prerequisite(s): (ASL 3510 or 3520 or 3530) and University Advanced Standing

Explores recent trends in American Deaf culture, including cultural conflicts, tensions, and solutions. Provides a comprehensive study of theories used, including Deaf Gain, in Deaf Studies through analysis of current issues, writings and other media publications, and the expressions of Deaf people themselves. Taught in ASL. Lab access fee of \$10 applies.

## **ASL 4850**

### **Advanced Understanding of Oppression and Audism**

**3**

\* Prerequisite(s): ASL 385G and University Advanced Standing

Examines the various ways in which hearing people oppress Deaf people. Explores different avenues through which society has built a system of privilege based on an audiocentric center. Also examines how certain members of the Deaf community internalize audist constructions of deafness.

## **ASL 4890**

### **Deaf Studies Senior Capstone**

**3**

\* Prerequisite(s): Senior status and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ASL 4800

Engages students in a synthesis and critical review of what they have learned through coursework. Produces a project or thesis reflecting students' knowledge and passionate interests developed in the course of their study as a Deaf Studies major. Taught in ASL.

## **ASL 490R**

### **Special Topics in Deaf Studies**

**1 to 3**

\* Prerequisite(s): ASL 3050 and University Advanced Standing

Presents selected topics in Deaf Studies. Varies each semester. Topics will reflect the interdisciplinary nature of the Deaf Studies field. Projects and evaluation will vary according to the topic. May be repeated for a maximum of 9 credits with different topics.

## **ASL 495R**

### **Independent Study in Deaf Studies**

**1 to 3**

\* Prerequisite(s): For Deaf Studies students only; Instructor approval, Program Coordinator/Department Chair approval, and University Advanced Standing

Provides independent study as directed in reading and individual projects specifically related to the Deaf Studies field at the discretion and approval of the Dean and/or Department Chair. May be repeated for a maximum of 6 credits toward graduation.

# **Astronomy (ASTR)**

## **ASTR 1040**

### **Elementary Astronomy**

**3**

Introduces astronomy and cosmology. Provides a physics-based overview of the solar system, the lives and deaths of stars, galaxies, and the evolution of the Universe. Explores the basic principles of physics and light, the tools of astronomy, and interesting concepts such as the Big Bang and black holes. Canvas Course Mats \$71/Pearson applies

## **ASTR 104H**

### **Elementary Astronomy PP**

**3**

\* Prerequisite(s): MATH 1050 or MATH 1055

As an honors section, this course requires a greater level of engagement and greater level of proficiency on the part of the student. Introduces astronomy and cosmology. Provides a physics-based overview of the solar system, the lives and deaths of stars, galaxies, and the evolution of the Universe. Explores the basic principles of physics and light, the tools of astronomy, and interesting concepts such as the Big Bang and black holes.

**ASTR 1070**  
**Cultural Astronomy in Our Lives**

**3**  
Explores the visible sky as seen with the naked eye. Presents examples of cultural interpretations of the sun, moon, planets and stars, methods of keeping calendars, and changes that occur through the seasons. Studies the motions of the planets, including the earth, and changes in the sky from different latitudes. Investigates how astronomy has impacted the lives of people throughout the ages and around the world. Includes extensive use of the UVU planetarium, nighttime observation, illustrated lectures, and class demonstrations. Canvas Course Mats \$71/Pearson applies

**ASTR 107H**  
**Cultural Astronomy in Our Lives**

**3**  
Explores the visible sky as seen with the naked eye. Presents examples of cultural interpretations of the sun, moon, planets and stars, methods of keeping calendars, and changes that occur through the seasons. Studies the motions of the planets, including the earth, and changes in the sky from different latitudes. Investigates how astronomy has impacted the lives of people throughout the ages and around the world. Includes extensive use of the UVU planetarium, nighttime observation, illustrated lectures, and class discussion.

**ASTR 1080**  
**Life in the Universe**

**3**  
Presents a general introduction to the scientific method of understanding life, its origins, and its place in the universe. Discusses the philosophy governing the scientific view of learning about life. Treats in detail what life is, the adaptability of life and how it evolves, why Earthlike conditions resulted in life as we know it, what other environmental conditions might sustain life, and where life may be found beyond Earth.

**ASTR 2040**  
**Intermediate Astronomy**

**3**  
\* Prerequisite(s): PHYS 2210  
Introduces astronomy and cosmology with an emphasis on the physical principles underlying astronomical phenomena. Provides a physical and mathematical overview of the solar system, the nature and evolution of stars, galaxies, dark matter and dark energy, the large scale structure of the Universe, the Big Bang, and Inflation.

**ASTR 290R**  
**Independent Study**

**1 to 5**  
For students interested in advanced topics in astronomy and cosmology. Students may choose their own course of study under the guidance of an assigned faculty member.

**ASTR 3050**  
**Astrophysics I**

**3**  
\* Prerequisite(s): PHYS 2220, MATH 1220, and University Advanced Standing  
Covers the physics of stars, stellar structure and evolution, and the solar system. Treats in detail the current methods of astronomical data collection and analysis. Discusses the mathematics of the laws of stellar structure and their implications for the birth, life, and death of stars.

**ASTR 3060**  
**Astrophysics II**

**3**  
\* Prerequisite(s): PHYS 2220, MATH 1220, ASTR 3050, and University Advanced Standing  
Covers the physics of galaxies and cosmology. Treats in detail the current methods of astronomical data collection and analysis as it relates to these topics. Discusses the mathematics of the Theories of Relativity and its implications for the origin and structure of the Universe.

**ASTR 4100**  
**Brown Dwarfs and Exoplanets**

**3**  
\* Prerequisite(s): PHYS 2220, MATH 1220, and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): PHYS 3100  
Provides an advanced, calculus-based introduction to the rapidly evolving field of brown dwarfs and extrasolar planets (exoplanets). Includes topics related to the theory of substellar objects, planetary formation, planetary interiors, planetary atmospheres, planetary orbits, and observational methods for detecting and characterizing brown dwarfs and exoplanets.

**ASTR 4350**  
**Research Methods in Astronomy**

**3**  
\* Prerequisite(s): Instructor Approval and University Advanced Standing  
Presents directed topics in research methods in astronomy. Prepares students to conduct astronomy research projects. Emphasizes practical methodologies in measurement, software, error analysis, and statistical analysis. Requires a class project. May require use of specialized astronomical image processing software (e.g., IRAF and PyRAF) and other programming languages. Includes practice producing oral presentations, posters and journal articles using contemporary software and LaTeX.

**Auto Mechanics (AUT)****AUT 1000**  
**Survey of Automotive Technology**

**2**  
An introductory course for those interested in Automotive Technology. Presents basic automotive repair lessons on ignition and fuel systems, brakes, CV joints, and emissions for state inspections. Discusses electrical accessories, computerized engine controls, and chassis components.

**AUT 100L**  
**Survey of Automotive Lab**

**1**  
\* Corequisite(s): AUT 1000

Introductory course for those interested in Automotive Technology. Offers basic automotive repair lab experiences on proper and safe equipment usage, vehicle construction, engine operation, steering and suspension components, brakes, measuring and diagnostic tools. Tool room fee of \$19 for equipment applies.

**AUT 1010**  
**Maintenance and Light Repair**

**2**  
Teaches skills in shop safety and basic skills to prepare students for future automotive technology-related courses and placement in high skill, high paying employment. Includes service information systems, precision measurement, tire and wheel service, bearings, headlamp adjustment, lubricants and fluids, cleaning methods, gaskets and sealants, belts and hoses, cooling systems, and other systems.

**AUT 101L**  
**Maintenance and Light Repair Lab**

**1**  
Develops necessary skills in shop safety and basic maintenance skills. Presents basic maintenance and light repair of vehicle systems. Prepares students for future automotive technology related courses and placement in high skill, high paying employment areas. Examines vehicle system operations such as: service information, precision measurement, tires and wheels, bearings, headlamp adjustment, lubricants and fluids, cleaning methods, gaskets and sealants, belts and hoses and cooling systems

# Course Descriptions

## **AUT 1110 Brake Systems**

**2**  
\* Corequisite(s): AUT 111L Recommended

For automotive majors and other interested community members. Covers the principles of automotive braking including hydraulic theory, diagnosis, and service of brake systems. Studies drum, disc, and power units. Includes wheel bearing adjustments, packing, and troubleshooting. Discusses tire construction including both lateral and radial run out and wheel balancing techniques. Software fee of \$10 applies Lab access fee of \$15 for computers applies.

## **AUT 111L Brake Systems Lab**

**1**  
\* Prerequisite(s) or Corequisite(s): AUT 1110

Provides hands on brake systems instruction, including drum, disc, and power units. Includes wheel bearing adjustments, packing, and troubleshooting. Labs include tire construction, both lateral and radial run out and wheel balancing techniques. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for computers applies.

## **AUT 1120 Manual Power Trains**

**2**  
\* Corequisite(s): AUT 112L Recommended

For automotive majors and other interested community members. Designed to develop skills and knowledge in the area of manual transmission/transaxles and driveline components. Covers the function, construction, operation, inspection, troubleshooting and servicing of front, rear, and four-wheel drive power transmission devices used in passenger cars and light trucks. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **AUT 112L Manual Power Trains Lab**

**1**  
\* Prerequisite(s) or Corequisite(s): AUT 1120

Define diagnosis and repair of manual transmissions including transaxles, differentials, drive shafts, and four wheel drive components. Operation of clutches with torque and gear application. Tool room fee of \$19 for equipment applies. Course Lab fee of \$16 for materials applies.

## **AUT 1130 Engine Repair**

**2**  
\* Corequisite(s): AUT 113L Recommended

Offers an in-depth study of design, operation, troubleshooting, and service procedures for modern gasoline and diesel engines. Presents procedures for disassembly and reassembly of engine units, service, and technical data. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **AUT 113A Engine Repair**

**2**  
For automotive majors and other interested community members. Studies construction, operation, and performance of various types of engines. Covers the theory of combustion, and characteristics of fuels, lubrication systems, cooling systems, timing valves, and wear problems with all other parts of the engine. Includes lab experience. Tool room fee of \$10 for equipment applies.

## **AUT 113B Engine Repair**

**2**  
Designed for anyone interested in small-engine repair. Includes hands hands-on application with shop time. Offers practical information about small engines, theory, operations, and maintenance. Provides information, troubleshooting and service techniques for snowmobiles, 4-wheelers, personal watercraft, mowers, tillers, and other small engine applications.

## **AUT 113L Engine Repair Lab**

**1**  
\* Prerequisite(s) or Corequisite(s): AUT 1130

Provides a laboratory experience enhanced by following the Engine Repair ASE task list. Emphases demonstrations, observations and hands-on participation. Utilizes actual vehicle systems of major manufactures to supplement training. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

## **AUT 1160 Automotive Electrical Systems**

**2**  
\* Corequisite(s): AUT 116L Recommended

Studies electrical and electronic fundamentals found and used on current model automobiles and trucks. Topics of study are: electricity, Ohm's Law, magnetism, inductance, capacitance, electronic devices, schematic user's information, test procedures, test equipment, and batteries.

## **AUT 116L Automotive Electrical Systems Lab**

**1**  
\* Prerequisite(s) or Corequisite(s): AUT 1160

Studies electrical and electronic fundamentals found and used on current model automobiles and trucks. Topics of study are: electricity, Ohm's Law, magnetism, inductance, capacitance, electronic devices, schematic user's information, test procedures, test equipment, and batteries. Lab exercises are correlated with the Automotive Service Excellence (ASE) P1 task list. Lab work will include activities on lab circuitry and live vehicles. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

## **AUT 1170 Engine Electrical Systems**

**2**  
\* Corequisite(s): AUT 1160, AUT 117L Recommended

Studies the function, construction, operation, testing, diagnosis and servicing of automotive ignition systems, starting, charging/generator systems and battery testing using a variety of diagnostic test equipment.

## **AUT 117L Engine Electrical Systems Lab**

**1**  
Studies the function, construction, operation, testing, diagnosis and servicing of automotive ignition systems, starting, charging systems and battery testing using a variety of diagnostic test equipment. Proper use of diagnostic test equipment in the lab and on vehicle systems will be stressed. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

## **AUT 1210 Suspension and Steering Systems**

**2**  
\* Corequisite(s): AUT 121L Recommended

Discusses nomenclature, theory of operation, and service procedures for passenger car and light-truck suspensions and computer controlled power steering systems. Includes instruction in two-wheel and four-wheel electronic systems. Presents methods of alignment including computerized alignment and service tools. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **AUT 121L Suspension and Steering Systems Lab**

**1**  
\* Prerequisite(s) or Corequisite(s): AUT 1210

Provides a laboratory experience enhanced by following the Suspension and Steering ASE task list. Emphases demonstrations, observations and hands-on participation. Utilizes actual vehicle systems of major manufactures to supplement training. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

## **AUT 1220 Automatic Powertrain Systems**

**2**  
\* Corequisite(s): AUT 122L

Includes the operation, diagnosis, repair, and adjustment of automatic transmissions and transaxles. Covers planetary gearing, strategies for operation, and service procedures of passenger car, SUVs and light-trucks. Software fee of \$10 for applies. Lab access fee of \$15 for computers applies.

**AUT 122L****Automatic Transmissions and Transaxles Lab****1**

\* Prerequisite(s) or Corequisite(s): AUT 1220

Provides a laboratory experience enhanced by following the Automatic Transmissions and Transaxles ASE task list. Emphasizes demonstrations, observations and hands-on participation. Utilizes actual vehicle systems of major manufacturers to supplement training. Tool room fee of \$19 for equipment applies. Course Lab fee of \$19 for materials applies.

**AUT 1230****Engine Performance****2**

\* Prerequisite(s): AUT 1110, AUT 1120, AUT 1130, and AUT 1160

\* Corequisite(s): AUT 123L Recommended

Studies electrical and fuel systems fundamentals found on passenger cars, light-trucks, and marine applications of theory, operation, and construction. Includes solid state electronic ignition systems. Teaches tune-up including diagnosis and troubleshooting. Computerized fuel injection found on gasoline and diesel engines will also be studied. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**AUT 123A****Engine Performance****2**

For automotive majors and other interested community members. Studies electrical and fuel system fundamentals including theory, construction and principles of operation. Covers batteries, lighting, starting, and charging. Includes all solid state electronic and ignition systems. Teaches tune-up including diagnosis and troubleshooting. Studies computerized ignition and fuel injection. Includes lab experience.

**AUT 123B****Engine Performance 2nd Half****2**

Includes advanced instruction in engine performance, starting systems, charging systems, and indicator circuits. Discusses all mechanical and electronic parts of the vehicle relative to quality engine tune-up and diagnostic instruction. Includes lab experience.

**AUT 123L****Engine Performance Lab****1**

\* Prerequisite(s) or Corequisite(s): AUT 1230

Provides a laboratory experience enhanced by following the Engine Performance ASE task list. Emphasizes demonstrations, observations and hands-on participation. Utilizes actual vehicle systems of major manufacturers to supplement training. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

**AUT 1260****Tech Math for Mechanics****3**

For students in Automotive, Collision Repair, and Diesel Mechanics technology majors. Covers principles of math as required by the industry. Studies pressures, measuring engine and horsepower output, hydraulics, torque, and electrical flow. Includes solving equations in percent, proportion, variation, formula rearrangement, function and graphs with right and oblique triangles. Successful completers should be able to solve problems on the job using technical and mathematical data.

**AUT 201L****Automotive Service Practicum Engine Performance and Steering Suspension****2**

\* Prerequisite(s): AUT 1210, AUT 1230 with a grade of C- or better

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Steering/Suspension and Engine Performance. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

**AUT 202L****Automotive Service Practicum Emission Controls and Chassis Electronics****2**

\* Prerequisite(s): AUT 1160, AUT 1230 with a grade of C- or better

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Emission Control Systems and Chassis Electrical. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

**AUT 203L****Automotive Service Practicum Brake Systems and Transmission Controls****2**

\* Prerequisite(s): AUT 1110, AUT 1160, AUT 1220 with a grade of C- or better

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Automatic Transmissions and Brake Systems including Anti-Lock and Traction Control. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

**AUT 204L****Automotive Service Practicum Fuel Management Systems and HVACR****2**

\* Prerequisite(s): AUT 1160, AUT 1230 with a grade of C- or better

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Engine Performance and Heating, Ventilation and Air Conditioning Systems. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

**AUT 2110****Advanced Steering Suspension and Alignment****2**

\* Prerequisite(s): AUT 1210, AUT 1160 with a grade of C- or better

\* Corequisite(s): AUT 201L Recommended

Discusses advanced theory of two-wheel and four-wheel alignment. Studies nomenclature, theory of operation and service procedures for mechanical, electronic, and electrical parts of automotive steering and suspension systems. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

# Course Descriptions

## **AUT 211L**

### **Automotive Service Practicum Steering/Suspension/Alignment Lab**

**1**

\* Prerequisite(s): AUT 1210

\* Corequisite(s): AUT 2110

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Steering/Suspension.

## **AUT 2120**

### **Advanced Engine Performance**

**2**

\* Prerequisite(s): AUT 1130, AUT 1230, AUT 1160 with a grade of C- or better

\* Corequisite(s): AUT 202L Recommended

Includes advanced instruction in engine performance, indicator circuits and On-Board Diagnostics II (OBD-II). Discusses mechanical and electronic parts of the vehicle relative to quality engine tune-up and diagnostic instruction. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **AUT 212L**

### **Automotive Service Practicum Engine Performance Lab**

**1**

\* Prerequisite(s): AUT 1230

\* Corequisite(s): AUT 2120

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Covers tasks related to engine performance.

## **AUT 2130**

### **Advanced Emission Control Systems**

**2**

\* Prerequisite(s): AUT 1130, AUT 1230, AUT 1160 with a grade of C- or better

\* Corequisite(s): AUT 202L Recommended

Studies emissions control systems on vehicles. Reviews county emissions certification requirements. Emphasizes the pre and post testing of the different emission systems and the control of the systems as they apply to different types of fuel systems. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **AUT 213L**

### **Automotive Service Practicum Emission Controls Lab**

**1**

\* Prerequisite(s): AUT 1230

\* Corequisite(s): AUT 2130

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Emission Control Systems.

## **AUT 2140**

### **Chassis Electrical and Electronics Systems**

**2**

\* Prerequisite(s): AUT 1160, AUT 1170 with a grade of C- or better

\* Corequisite(s): AUT 202L Recommended

Studies theory, diagnosis, and repair of chassis electrical and electronic systems. Includes the study of lighting systems, electronic dash circuits, inflatable restraint systems, electronic cruise control systems and other accessories found on vehicles.

## **AUT 214L**

### **Automotive Service Practicum Chassis Electrical and Electronics Lab**

**1**

\* Prerequisite(s): AUT 1160

\* Corequisite(s): AUT 2140

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Chassis Electrical.

## **AUT 2210**

### **Advanced Braking and Control Systems**

**2**

\* Prerequisite(s): AUT 1110, AUT 1160 with a grade of C- or better

\* Corequisite(s): AUT 221L Recommended

Covers diagnosis and repair of electronic controlled braking systems; including anti-lock brakes, traction control systems, stability control systems and other control systems found on modern vehicles. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **AUT 221L**

### **Automotive Service Practicum Brake Systems Lab**

**1**

\* Prerequisite(s): AUT 1110

\* Corequisite(s): AUT 2210

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Brake, Anti-Lock and Traction Control Systems.

## **AUT 2220**

### **Automatic Transmissions and Electronic Controls**

**2**

\* Prerequisite(s): AUT 1160 with a grade of C- or better

\* Corequisite(s): AUT 203L Recommended

Includes advanced instruction in rear-wheel drive and transaxle automatic transmissions for passenger cars and trucks (light-duty and medium-duty). Studies computerized transmission controls for shifting and torque converter operation. Stresses service, diagnosis and troubleshooting using electronic test equipment. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **AUT 222L**

### **Automotive Service Practicum Transmission Controls Lab**

**1**

\* Prerequisite(s): AUT 1220

\* Corequisite(s): AUT 2220

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Transmission Controls.

**AUT 2240**  
**Heating Ventilation Air Conditioning and Refrigeration Theory**  
**2**

\* Prerequisite(s): AUT 1160 with a grade of C- or better  
 \* Corequisite(s): AUT 204L Recommended

Offers an In-depth study of automotive heating, ventilation, air conditioning (A/C), and refrigeration systems. Includes theory of operation, diagnosis and repair of HVACR systems. Environmental safety issues are stressed including laws and regulations, CFC recovery and recycling, ozone depletion, and new, environmentally friendly, systems. Computerized automatic temperature controlled systems are also covered. Stresses service, diagnosis and troubleshooting using electronic test equipment. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**AUT 224L**  
**Automotive HVAC Lab**  
**1**

\* Corequisite(s): AUT 2240

This course provides a laboratory experience for Heating, Ventilation, and Air Conditioning lecture (AUT 2240). Studies and provides experience with R12 and 134a refrigerants, environmental issues, retrofit assemblies, evacuation and charging AC systems, and problem solving of AC systems. Course Lab fee of \$17 for materials applies.

**AUT 2250**  
**Electronic Fuel Management Systems**  
**2**

\* Prerequisite(s): AUT 1230, AUT 1160 with a grade of C- or better  
 \* Corequisite(s): AUT 204L Recommended

Studies automotive fuel controls with particular emphasis placed on micro-processor control systems. Studies electronic and mechanical sensors of fuel and ignition systems. Also covers alternative fuel systems. Stresses service, diagnosis and troubleshooting using electronic test equipment.

**AUT 225L**  
**Automotive Service Practicum Fuel Management Systems Lab**  
**1**

\* Prerequisite(s): AUT 1230  
 \* Corequisite(s): AUT 2250 or AUT 2350

Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Advanced Engine Performance and Fuel Management Systems.

**AUT 2350**  
**Electronic Diesel Fuel Management Systems**  
**2**

\* Prerequisite(s): AUT 1160 with a grade of C- or better  
 \* Corequisite(s): AUT 204L Recommended

Studies automotive diesel fuel controls with particular emphasis placed on micro-processor control systems. Studies electronic and mechanical sensors of diesel fuel and ignition systems. Covers alternative diesel fuel systems i.e. bio-diesel. Stresses service, diagnosis and troubleshooting using electronic test equipment.

**AUT 281R**  
**Cooperative Work Experience**  
**1 to 8**

\* Corequisite(s): AUT 285R

Designed for Automotive Technology majors. Provides paid, on-the-job work experience in the student's major. Work experience, the correlated class, and enrollment are coordinated by the Cooperative Coordinator. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and oral presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated as desired for interest. May be graded credit/no credit.

**AUT 285R**  
**Cooperative Correlated Class**  
**1**

\* Corequisite(s): AUT 281R

Designed for Automotive Technology majors. Identifies on-the-job problems and provides remediation of those problems through in-class discussion and study. Includes the study of identifying and maximizing service opportunities. Students register for this class with approval of the Coop coordinator. Included lecture, guest speakers, video tapes, role playing, case analysis, oral presentations, and written assignments. Completers should be better able to perform in their field of work or study. May be repeated as desired for interest.

**AUT 299R**  
**SkillsUSA**  
**1**

Designed for Automotive Technology majors. Supports and facilitates the goals and objectives of SkillsUSA. SkillsUSA is a pre-professional student organization that develops social awareness, civic, recreational, and social activities. Students may participate in local, state, and national contests. May be repeated as desired for interest.

## **Autism Studies (AUTS)**

**AUTS 250G**  
**Understanding the Autism Spectrum**  
**3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005 (with C or higher) or instructor approval.

Discusses autism beginning with the history of the diagnostic category and moving through contemporary issues of etiology, neurobiology, prevalence, assessment, treatment, education, policy, and community impact and inclusion. Emphasizes principles of interdisciplinary care, cultural competence, family centered approaches, and life course perspective.

**AUTS 3810**  
**Autism Across the Lifespan I Infants and Children**  
**3**

\* Prerequisite(s): AUTS 250G and University Advanced Standing

Examines key issues related to infants and children who are diagnosed with an autism spectrum disorder and the impact on family and communities. Emphasizes principles of interdisciplinary care, cultural competence, family-centered approaches, and life course perspective.

**AUTS 382G**  
**Autism across the Lifespan II Teens and Adults**  
**3**

\* Prerequisite(s): University Advanced Standing and AUTS 250G

Examines key issues related to teens and adults diagnosed with an Autism Spectrum Disorder and the impact on family and communities. Emphasizes principles of interdisciplinary care, cultural competence, family-centered approaches, and life course perspective.

**AUTS 3850**  
**Autism Assessment and Treatment**  
**3**

\* Prerequisite(s): AUTS 250G and University Advanced Standing

Examines best practices in the assessment and treatment of language, adaptive skills, and educational levels. Focuses on the current standards in diagnosing autism. Provides practice opportunities of evidence-based autism treatments.

**AUTS 4650**  
**Autism and Applied Behavior Analysis**  
**3**

\* Prerequisite(s): AUTS 250G or EDSP 340G and University Advanced Standing

Describes the scientific principles of applied behavior analysis and how they relate to autism intervention. Discusses principles of single case designs, antecedents, reinforcement, consequences, and behavior modification.

# Course Descriptions

## **AUTS 481R**

### **Field Placement**

**1 to 3**

\* Prerequisite(s): AUTS 250G, AUTS 3810, AUTS 382G, AUTS 4650, AUTS 3850, and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): AUTS 482R (Suggested to be completed during the first semester of the internship)

Provides a generalist base for practice that involves an on-site, supervised field agency practicum. Makes connections between classroom learning and learning that takes place in the on-site field practicum. Supports supervised practice hours in a local agency setting. May be repeated for a maximum of 3 credits toward graduation. May be graded credit/no credit.

## **AUTS 482R**

### **Group Autism Seminar**

**1**

\* Prerequisite(s): AUTS 250G and University Advanced Standing  
\* Corequisite(s): AUTS 481R  
\* Prerequisite(s) or Corequisite(s): AUTS 3810 or AUTS 382G or AUTS 3850 or AUTS 4650

Provides a generalist base for autism practice in a weekly seminar. Integrates classroom learning with learning that takes place in the on-site field practicum. May be repeated for a maximum of 3 credits toward graduation. May be graded credit/no credit.

# **Aviation Science (AVSC)**

## **AVSC 1010**

### **Survey of Aviation Science**

**3**

Designed for all students interested in aviation careers. Includes a general knowledge of aviation, historical events, and aerospace studies/ development opportunities. Covers aviation and aerospace terminology, how aircraft and spacecraft fly, research and development of future systems, government and industry roles in the growth of aviation. Provides entering students with a first year experience covering critical thinking, time and financial management and collaboration as well as aviation career prospects.

## **AVSC 1050**

### **Introduction to Aviation Management**

**3**

Discusses aviation industry structure, practices, and administrative career opportunities; emphasizes strategic decision making in aviation transportation, manufacturing, airport, and government administration, and provides an overview of various administrative methods, tools, and responsibilities. Provides a general knowledge of aviation administration career options and the role of administrators within the aviation industry. May be delivered online.

## **AVSC 1100**

### **Ground I - Private**

**3**

\* Prerequisite(s): Departmental Approval

Introduces the entry-level student to the airplane as they prepare for flight training. Stresses airport systems, air traffic control procedures, aviation weather, air navigation, radio communication procedures, and Federal Aviation Regulations. Prepares students for the required FAA Private Pilot Airplane Knowledge Test.

## **AVSC 1110**

### **Flight I - Private**

**3**

\* Prerequisite(s): Department Approval  
\* Prerequisite(s) or Corequisite(s): AVSC 1100

Covers airplane ground and flight operations, take-off and landing, basic flight maneuvers, cross country methods and emergency procedures. Prepares students for the required FAA Private Pilot Airplane Practical Test. May be delivered online. Course fee of \$18,727 for flight applies.

## **AVSC 1120**

### **Introduction to Aircraft and Spacecraft Systems**

**3**

Introduces the design, installation and operation of basic airframe and propulsion systems, and associated technology, found in light piston-powered, electric, hybrid-electric and turbine-powered fixed wing and rotary-wing aircraft. Explores emerging technologies associated with unmanned aircraft systems (UAS), autonomous large unmanned cargo aircraft (LUCA), advanced air mobility (AAM), and space vehicles that will be deployed and operated within the National Airspace System and within space.

## **AVSC 1130**

### **Glider Rating**

**1**

\* Prerequisite(s): AVSC 1100

Prepares student to transition from powered to unpowered glider flight in preparation for the FAA Private Pilot Glider Rating. Includes ground and flight lessons covering glider towing, launching, powered gliders, thermals, weather, landing, mountain waves, regulations, and emergency procedures. Teaches aerodynamic theory associated with more efficient flight and aircraft control.

## **AVSC 1150**

### **Mountain and Desert Flying**

**1**

\* Prerequisite(s): AVSC 1100 and AVSC 1110

Introduces common flying conditions in mountain and desert areas. Emphasizes flight accident statistics and causes, effects of altitude on aircraft and pilot, mountain associated wake turbulence, techniques for low-altitude search and rescue or photography over mountainous areas, maneuvers, and abnormal or emergency procedures. Includes survival techniques for emergency landings in mountainous or desert terrain.

## **AVSC 1160**

### **Seaplane Rating**

**1**

\* Prerequisite(s): AVSC 1100, AVSC 1110

Provides training to aid in the transition from single-engine land to single-engine sea. Stresses the differences between operating on land and over bodies of water. Introduces regulations for seaplane pilots. Provides training in seaplane aircraft with the capability to land and takeoff from water. Prepares the student for the FAA seaplane rating flight test.

## **AVSC 1230**

### **Flight II - Instrument I**

**2**

\* Prerequisite(s): AVSC 1100, AVSC 1110 and Department Approval

Prepares students to meet FAA Instrument Airplane and Commercial Airplane Pilot cross-country requirements. Introduces extended cross-country flights in both day and night environments with consideration for passenger safety. Includes operational flight performance using all available navigational weather and airplane performance data. Requires proof of completion of cross country airplane pilot in command time. May be delivered online.

## **AVSC 1240**

### **Ground II - Instrument**

**3**

\* Prerequisite(s): AVSC 1100, AVSC 1110 and Department Approval

Examines FAA regulations, meteorology, navigation, radio procedures, instrument departures, en route and approach procedures, the instrument airway, and airspace systems as well as aircraft systems operation. Introduces glass cockpit instrumentation. Covers basic flight instrument construction and operation. Prepares pilots for the required FAA Instrument Pilot Airplane Knowledge Test.

**AVSC 1250**  
**Flight II - Instrument II****3**

\* Prerequisite(s): Department Approval

Stresses attitude instrument flying techniques. Covers instrument departure and approach procedures and instrument en route and cross-country navigation techniques in actual or simulated weather conditions with reference solely to the flight instruments. Prepares students for the required FAA Instrument Airplane Practical Test. Course fee of \$17,890 for flight applies.

**AVSC 1260**  
**21st Century Avionics and Instrumentation****1**

\* Prerequisite(s): AVSC 1100

Provides pilots with the knowledge and practical experience using new generation glass cockpit electronic instrumentation and radio navigation devices. Includes glass cockpit system knowledge, functions, safety, flight planning, crew concepts, and the use of GPS technology. Requires flight, flight training device, or computer based instruction and experience to meet FAA standards for transition to this technology. May be delivered online.

**AVSC 1310**  
**AMT Procedures and Practices A****5**

For Aviation Maintenance Technician Apprentice students. Introduces students to the aviation maintenance environment. Studies common procedures and practices in the industry, the use of tools and measurement devices, and Federal Aviation Regulation related to technician certification and inspections. Includes maintenance forms and record keeping, and weight and balance publications.

**AVSC 1320**  
**AMT General Knowledge A****5**

For Aviation Maintenance Technician Apprentice students. Introduces general processes used by the Aviation maintenance Technician. Introduces aircraft electrical principles including the devices and procedures used in analyzing aircraft electrical systems. Covers materials and processes used in aircraft maintenance. Develops basic science application skills for aircraft maintenance.

**AVSC 1330**  
**AMT Airframe Phase I B****5**

\* Prerequisite(s): AVSC 1310, AVSC 1320, Must complete all (a) level AMT apprentice courses with grade of C- or better

For Aviation Maintenance Technician Apprentice students. Introduces students to the basic maintenance and procedures involving the airframes of a variety of aircraft. Discusses composite technology, aircraft finishes, sheet metal, basic structures, welding, and other fasteners.

**AVSC 1340**  
**AMT Powerplant Phase I B****5**

\* Prerequisite(s): AVSC 1310, AVSC 1320, Must complete all (a) level AMT apprentice courses with grade of C- or better

For Aviation Maintenance Technician Apprentice Students. Introduces students to the basics of power plant installation, repair, and servicing. Focuses on the reciprocating engine used on certified aircraft. Covers radial engines, basic two- and four-stroke reciprocating engines, engine overhaul, starter and ignition systems, and troubleshooting procedures.

**AVSC 1400**  
**Survey of Unmanned Aircraft Systems****3**

Introduces Unmanned Aircraft Systems (UAS) history and development, current and future industry and military application, methods for launch and recovery, purpose and use of data-links, operating personnel and mission planning and governmental oversight. May be delivered online.

**AVSC 1410**  
**Aeronautical Knowledge for Small Unmanned Aircraft Systems****3**

Prepares students for the required FAA sUAS aeronautical knowledge test. Includes applicable regulations, airspace classification and operating requirements, effects of weather, loading and performance, communication and emergency procedures, physiological effects of drugs and alcohol, aeronautical decision-making and judgment and airport operations.

**AVSC 2070**  
**Communications for Aviation Professionals WE****3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Teaches the skills necessary to effectively communicate with a variety of aviation stakeholders and professionals. Examines principles of written and verbal communication. Covers the planning, organizing and delivery of positive and negative messages. Teaches effective interpersonal and listening skills as well as techniques for adapting the message to the audience. Includes the effective development and delivery of computer-aided presentations. Explores the hazards and impacts of miscommunication on aviation safety.

**AVSC 2090**  
**Air Transport Economics****3**

\* Prerequisite(s): MAT 1030 or 1035, STAT 1040 or 1045, MATH 1050 or 1055, AVSC 2150

Teaches basic economic concepts as applicable to air transportation. Introduces foundational principles of free enterprise, supply and demand, private and social implications of profit maximization, market structure, resource markets, inflation, economic and industry cycles, inflation and economic growth. Introduces competitive advantage, air transport demand, modeling, pricing, revenue management and supply and route architecture.

**AVSC 2110**  
**Aviation Weather****3**

Enables the aviation administrator to understand and appreciate the operational and strategic impacts of weather on the aviation industry. Teaches atmospheric composition and structure, climate and synoptic weather, aviation weather reports, forecasts and weather data sources. Requires students to apply these principles in a decision making capacity through weather tracking, planning and decision making activities.

**AVSC 2120**  
**Personal Finance for Aviation Professionals****3**

\* Prerequisite(s): AVSC 1050, AVSC 1100

Covers financial decision making with a view of financial choices/ alternatives and the impact or consequences of these choices during a student's collegiate and professional career. Includes real life scenarios designed around common challenges and issues. Requires students to create a proposed budget and reconcile expenditures monthly as the course progresses. Explores net worth statements, budgets, taxes, insurance alternatives, and life decisions applicable to finance. May be delivered online.

**AVSC 2130**  
**Aviation Safety****3**

Presents an introduction to aviation safety. Covers agencies overseeing safety at the commercial and general aviation levels as well as the applicable regulations they develop and enforce. Explores general aviation and commercial aviation accident statistics and accident causation models. Discusses airline, airport, aircraft, and air traffic control safety issues. Explores the role of the aviation administrator as a safety advocate and responsible party in a variety of settings.

# Course Descriptions

## **AVSC 2150**

### **Air Transportation Management**

**3**

Presents the management skills necessary to be a fixed based operator and entry-level manager for scheduled airlines in the national aviation system. Teaches management functions, marketing, financing, organization and administration, flight operations, maintenance, safety, and liability. Provides hands-on experience of management styles through evaluations and critiques of local airlines and airport facilities.

## **AVSC 2180**

### **Managing Technology in Aviation**

**3**

\* Prerequisite(s): AVSC 2150

Introduces airline computer applications. Teaches database language and calculation skills in aviation operations data query, analytics, and reporting. Uses off-the-shelf software to synthesize raw data into actionable knowledge. Examines the art of data visualization design and presentation through reports, dashboards, and stories.

## **AVSC 2190**

### **Introduction to Dispatch and Scheduling**

**3**

\* Prerequisite(s): AVSC 1010

Introduces airline and corporate flight department operations and flight dispatch procedures. Teaches effects of weather, air traffic control and maintenance on fleet logistics. Introduces responsibilities of dispatchers, routers, maintenance controllers, and general system operations. Covers pertinent crew and operational federal aviation regulations. Examines tools and practices of airline system control and corporate flight departments. Explores responsibilities and authority of dispatchers and schedulers.

## **AVSC 2200**

### **Aviation Marketing**

**3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Teaches principles of aviation marketing and promotional concepts. Covers planning and coordination, advertising and media as well as sales presentations. Explores aviation tradeshow, trade events, and networking as industry marketing tools. Teachers marketing research, financial planning, and transportation methods.

## **AVSC 2210**

### **AMT Airframe Phase II C**

**5**

\* Prerequisite(s): AVSC 1330, AVSC 1340, Must complete all (b) level AMT apprentice courses with grade of C- or better

For Aviation Maintenance Technician Apprentice Students. Prepares students for intermediate level understanding of major airframe components and accompanying devices. Includes lessons on structure alignments, aircraft rigging, flight control balance, communications and navigation equipment, brake systems, anti-skid systems, and landing gear position indication.

## **AVSC 2220**

### **AMT Airframe Phase III D**

**5**

\* Prerequisite(s): AVSC 2210, AVSC 2230, Must complete all (c) level AMT apprentice courses with grade of C- or better

For Aviation Maintenance Technician Apprentice Students. Final airframe class prepares students to take FAA AMT Airframe Examination. Discusses landing gear systems, hydraulics, fuel systems, pneumatics, fuel dumping, pressurization, environmental controls, and indicator systems. Includes examinations of example aircraft systems in operation.

## **AVSC 2230**

### **AMT Powerplant Phase II C**

**5**

\* Prerequisite(s): AVSC 1330, AVSC 1340, Must complete all (b) level AMT apprentice courses with grade of C- or better

For Aviation Maintenance Technician Apprentice Students. Provides students with information and understanding of turbine engines, designs, systems and components. Covers engine installation, accessory devices, lubrication systems, fuel metering, and airworthiness inspections.

## **AVSC 2240**

### **AMT Powerplant Phase III D**

**5**

\* Prerequisite(s): AVSC 2210, AVSC 2230, Must complete all (c) level AMT apprentice courses with grade of C- or better

For Aviation Maintenance Technician Apprentice Students. Provides intermediate level understanding of engine components, accessories, and their operating principles. Prepares students for the FAA AMT Power plant Knowledge Examination.

## **AVSC 2250**

### **Aviation Business Statistics**

**3**

\* Prerequisite(s): MAT 1030 or 1035, MATH 1050 or 1055, or STAT 1040 or 1045

Presents an application of statistics in business and economics within the context of an aviation-related business. Topics include methods of collecting, analyzing, and presenting data, descriptive statistics, populations and samples, measures of central tendency and dispersion, elementary probability, binomial and normal distributions and their interrelationship, frequency distributions, averages, index numbers, probability, sampling, estimation, analysis of variance, time series, regression and correlation, and chi-square.

## **AVSC 2300**

### **Ground IV - Commercial**

**3**

\* Prerequisite(s): AVSC 1250 and Department Approval

Covers privileges, responsibilities and the operational environment of a commercial pilot. Explores application of aeronautical knowledge and skills in simulated commercial operation situations. Develops judgment and decision-making skills. Studies aerodynamics, performance and limitations, weight and balance, aircraft systems, airworthiness, aeromedical factors, night and high altitude operations, weather hazards and reports, airport operations, flight planning, and decision making. Prepares students for the required FAA Commercial Pilot Airplane Knowledge Test.

## **AVSC 2310**

### **Flight IV - Commercial**

**3**

\* Prerequisite(s): AVSC 1250 and Department Approval

Includes maneuvers such as steep power turns, steep spirals, slow flight, lazy eights, pylon eights, and chandelles. Includes commercial cross-country, instrument flying skills, and emergency procedures. Prepares students for the required FAA Commercial Pilot Airplane Practical Test. Graded credit / no-credit. Course fee of \$17,890 for flight applies.

**AVSC 235R**  
**Unusual Attitude Safety Training**

1  
 \* Prerequisite(s): AVSC 1250

Teaches pilots how to assess various flight situations and take the appropriate action to avoid or recover from any in-flight unusual attitude scenario, includes training not covered by commercial flight courses such as situations involving wake turbulence, wind shear, mountain waves and other wind flow patterns, as well as instrument or control system failure and pilot error may produce unusual attitudes beyond those experience in normal flight. Presented in three phases: for the experience level of the 1) Private Pilot Student, 2) Instrument Pilot Student, 3) Commercial Pilot Student and for the Certified Flight Instructor Student. Course enhances overall pilot skill and increases confidence in all flight conditions. May be repeated for a maximum of 2 credits toward graduation.

**AVSC 2400**  
**Ground Certified Flight Instructor**

4  
 \* Prerequisite(s): Department Approval

Provides the foundational knowledge and teaching skills necessary to become an authorized FAA airplane flight instructor. Teaches certification and training requirements for which the student will have instructional privileges. Develops organization and presentation skills required for instructional activity including the application of human behavior and learning principles during instructional activity. Emphasizes training of aviation students to specific standards of competence regardless of the specific instructional privileges carried by the flight instructor. Focuses on the teaching of critical emphasis areas as identified by the FAA. Prepares students for the required FAA Flight Instructor Airplane Knowledge Test and Fundamentals of Instruction Knowledge Test. May be delivered online.

**AVSC 2410**  
**Flight Certified Flight Instructor**

1  
 \* Prerequisite(s): Department Approval

Designed for advanced pilots preparing for the Flight Instructor rating. Trains students to discuss and teach while precisely performing maneuvers and maintaining proper operational control. Emphasizes the identification of common student errors and proper correction. Prepares students for the required FAA Flight Instructor Airplane Practical Test. May be delivered online.

**AVSC 2420**  
**Ground CFI Instrument**

1  
 \* Prerequisite(s): AVSC 2300, AVSC 2310  
 \* Corequisite(s): AVSC 2430

Stresses in-depth study of gyroscopic and pressure instruments, attitude instrument flying techniques, IFR departure, en route, arrival and approach procedures, and the teaching of this to other pilots. Discusses Federal Aviation Regulations that apply to instrument flight instruction, flight logbook endorsements and entries, and other directives and publications that apply to airplane instrument flight. Studies the correct procedures for teaching and the analyzing of student errors while performing the required instrument flight maneuvers. Prepares students for the required FAA Flight Instructor Instrument Airplane Knowledge Test. May be delivered online.

**AVSC 2430**  
**Flight CFI Instrument**

1  
 \* Prerequisite(s): AVSC 2300, AVSC 2310  
 \* Corequisite(s): AVSC 2420

Designed for instructor pilots seeking the CFI Airplane Instrument rating. Covers all required instrument flying maneuvers from the right seat of the instrument training airplane such as instrument departures, en route navigation, and instrument approach to landings. Prepares students for the required FAA Flight Instructor Instrument Airplane Practical Test. May be delivered online.

**AVSC 2440**  
**Ground III - Multi Engine**

1  
 \* Prerequisite(s): AVSC 1110 and Department Approval

Designed for pilots preparing for multi-engine airplane operations. Covers the theory of multi-engine airplane flight and the significant aerodynamic differences between single-engine and multi-engine airplane flight. Includes system operation of constant speed propellers, multi-tank and pump fuel systems, dual electrical systems, turbocharger and ice control systems. Discusses multi-engine weight and balance and use of performance charts. Prepares students for the oral exam portion of the FAA Multi-Engine Airplane Practical Test and Airplane Pilot Knowledge Test.

**AVSC 2450**  
**Flight III - Multi Engine**

1  
 \* Prerequisite(s): AVSC 1110 and Department Approval

Prepares students for flight in complex multi-engine airplanes. Stresses normal and emergency flight procedures and skills demonstrated and practiced for all phases of flight. Includes single-engine operation of a multi-engine airplane in varying flight environments and situations. Discusses complex systems operation as well as instrument flight procedures. Prepares the student for the required FAA Multi-engine Airplane Practical Test. Course fee of \$11,209 for flight applies.

**AVSC 2500**  
**Ground Multi Engine Instructor**

1  
 \* Prerequisite(s): AVSC 2300, AVSC 2310  
 \* Corequisite(s): AVSC 2510

Presents specific teaching techniques and skills necessary to certify as a flight instructor with a multi-engine airplane rating. Includes a review of the multi-engine airplane pilot certification requirements. Stresses the unique instructional and safety responsibilities with students in multi-engine airplanes. Prepares students for the oral exam portion of the FAA Multi-Engine Airplane Instructor Practical Test.

**AVSC 2510**  
**Flight Multi Engine Instructor**

1  
 \* Prerequisite(s): AVSC 2300, AVSC 2310  
 \* Corequisite(s): AVSC 2500

Prepares students for various maneuvers and operations necessary to instruct pilots for the FAA Multi-engine Airplane Practical Test. Teaches normal and emergency flight operations and procedures in all the various flight environments and regimes. Teaches the knowledge and skill necessary to operate a multi-engine airplane safely, while instructing multi-engine airplane pilots. Prepares students for the required FAA Multi-engine Airplane Instructor Practical Test. May be delivered online.

**AVSC 2710**  
**Aviation Marketing**

3  
 \* Prerequisite(s): AVSC 2150

Teaches principles of aviation marketing, market research and promotional concepts. Covers planning and coordination, advertising, and media as well as sales presentations. Explores aviation trade shows trade events, and networking as industry marketing tools. Covers the history of customer service in the aviation industry. Introduces customer service principles applicable to both general and commercial aviation. Analyzes customer rights and carrier responsibilities and explores diffusion of confrontational customers. Analyzes airline and corporate cultures and resulting effects on employees and customers.

# Course Descriptions

## **AVSC 2750**

### **Unmanned Aircraft Systems**

**3**

\* Prerequisite(s): AVSC 2150

Introduces unmanned aircraft systems and applications. Examines the history and development of unmanned aircraft, their systems, technology, training methods, and implementation. Examines the current and future roles these aircraft will take in society and the implications surrounding their increased usage. Explores security, privacy and safety as they relate to the utilization of unmanned aircraft systems in military, law enforcement and civilian applications. Examines challenges and opportunities related to civilian utilization. May be delivered online.

## **AVSC 276R**

### **Current Topics in Aviation**

**1 to 3**

Selected topics in Aviation Science that will vary from semester to semester. May be repeated with different topic areas for a maximum of six credit hours toward graduation.

## **AVSC 281R**

### **Cooperative Work Experience**

**1 to 8**

## **AVSC 285R**

### **Cooperative Correlated Class**

**1**

\* Corequisite(s): AVSC 281R

Designed to enable students with career aspirations in aviation related fields to begin career planning. Enhances a student's knowledge, personal development, professional development and professional preparation by integrating academic study with practical experience and resume preparation. May be repeated for a maximum of 2 credits toward graduation.

## **AVSC 2860**

### **SkillsUSA**

**1**

SkillsUSA includes leadership training, parliamentary procedure, job interview skills, prepared speaking, extemporaneous speaking, and organizational skills. Upon completion, the student should understand the SkillsUSA organization and how it helps to build leadership skills.

## **AVSC 3010**

### **Flight Environment**

**3**

\* Prerequisite(s): AVSC 1240 and University Advanced Standing

Teaches interpretation, selection, and compilation of appropriate weather data. Examines METAR, TAF, PIREPS, AIRMET's, SIGMET's and other sources of applicable weather information. Uses sample reports, data, and charts. Includes class and group discussion, lecture, practical example, and case studies. May be delivered online.

## **AVSC 3020**

### **Aviation Insurance and Risk Management**

**3**

\* Prerequisite(s): AVSC 2130 and University Advanced Standing

Explores the complexity of aviation risk management from flight operations and aircraft maintenance perspectives. Examines industry insurance practices and standards, including the development of risk management procedures to meet both government and insurance requirements. Analyzes basic underwriting procedures and requirements. Presents basic principles of hazardous materials handling in aviation.

## **AVSC 3030**

### **Air Traffic Control I**

**3**

\* Prerequisite(s): AVSC 1100 and University Advanced Standing

Teaches tower, approach, and center techniques and terminology. Covers radar and non-radar control environments and the pilot's responsibility in each. Explains effective use of the Air Traffic Control System.

## **AVSC 3040**

### **Air Traffic Control II**

**3**

\* Prerequisite(s): AVSC 3030 and University Advanced Standing

Covers advanced air traffic management concepts, weather problems, communications procedures, and technical control skills. Provides simulated air traffic control situations and crisis management skills. Discusses terminal en route procedures and Federal Aviation Regulations. May be delivered online.

## **AVSC 3060**

### **Airline Management**

**3**

\* Prerequisite(s): AVSC 2150 and University Advanced Standing

Prepares student for management level duties at air carriers. Examines airline operational considerations, regulation, financing, accounting methods, marketing, customer service, profitability, and labor relations. Discusses how some airlines succeed and others fail.

## **AVSC 3070**

### **Aviation Cargo Operations**

**3**

\* Prerequisite(s): AVSC 2150 and University Advanced Standing

Studies air cargo history and industry development. Teaches air cargo scheduling and supply chain administration. Explores aircraft options and conversions and airport and logistical considerations. Discusses shipping and air cargo regulations including hazard material (hazmat) and security issues. Explores domestic and international air cargo considerations.

## **AVSC 3090**

### **Airline and Dispatch Operations**

**3**

Prerequisite(s): AVSC 2150, AVSC 2110 and University Advanced Standing Introduces airline and corporate flight department operations and flight dispatch procedures. Teaches effects of weather, air traffic control and maintenance on fleet logistics. Introduces responsibilities of dispatchers, routers, maintenance controllers, and general system operations. Covers pertinent crew and operational federal aviation regulations. Examines tools and practices of airline system control and corporate flight departments. Explores responsibilities and authority of dispatchers and schedulers.

## **AVSC 3100**

### **Corporate Aviation Management**

**3**

\* Prerequisite(s): AVSC 2150 and University Advanced Standing

Introduces basic principles of corporate flight department management. Discusses regulatory requirements in corporate aviation, acquisition procedures, insurance requirements, and pilot certification programs. Explores fractional ownership programs and management.

## **AVSC 3110**

### **Aviation Security**

**3**

\* Prerequisite(s): AVSC 2150, and University Advanced Standing

Presents advanced security issues related to aviation including passenger screening, profiling, hijacking, bomb threats and passenger disruptions. Covers historical incidents and studies a variety of responses to threats from various countries. Discusses the role of the Department of Homeland Security and the Transportation Security Administration. Covers the role of pilots and other flight crew in security, including the Federal Flight Deck Officers Program. Includes a discussion of regulatory issues and laws established since the 9/11 attacks. May be delivered online.

## **AVSC 3120**

### **Airport Management**

**3**

\* Prerequisite(s): AVSC 2150 and University Advanced Standing

Explores airport management at both small and large airports. Emphasizes basic requirements and attributes of successful airport managers. Course includes discussion of local and state airport finance and regulatory issues. Discusses pertinent Federal Aviation Regulations and security issues.

**AVSC 3140****Fixed Base Operations Management****3**

\* Prerequisite(s): AVSC 2150 and University Advanced Standing

Prepares students for employment and management at a fixed base operation and related general aviation management. Covers the organization, profit, maintenance, and safety systems concerning fixed base operators. Presents pertinent Federal Aviation Regulations, facility management, and advertising issues.

**AVSC 3150****Principles of Aviation Management****3**

\* Prerequisite(s): AVSC 2070, AVSC 2150 and University Advanced Standing

Teaches principles of aviation management including the management process, decision-making, and organizational structure. Covers leadership skills including communication, fostering team work, conflict resolution, and human resource management. Analyzes the importance of ethics and social responsibility as well as developing and crafting executive strategies. Studies organizational culture and effective management of innovation and change. May be delivered online.

**AVSC 3170****Advanced Air Mobility Technology and Operations****3**

\* Prerequisite(s): University Advanced Standing

Surveys critical topics associated with the design, manufacture, operation and support of a new field of air transportation identified as advanced air mobility. Includes urban air mobility (UAM), personal air transportation vehicles, and autonomous UAS. Analyzes how these new air vehicles will change the landscape of aerospace, how we travel, technical skills required, and career paths necessary to support them.

**AVSC 3200****Flight Physiology****3**

\* Prerequisite(s): AVSC 1240 and University Advanced Standing

For pilots with a career goal in commercial Aviation. Teaches physiological and psychological factors that affect pilot performance. Studies issues such as human error, fatigue, fitness, attitudes, training devices, controls, cabin space, and human payload. Includes lecture, demonstration, experiments, group projects, class discussion, and possible guest lecturers.

**AVSC 3210****Aircraft Incident and Emergency Management****3**

\* Prerequisite(s): AVSC 2130 and University Advanced Standing

Teaches how to develop a pre-accident plan addressing the issues of chain and command responsibility, initial response to safety and security issues, and the coordination of human and material resources for public safety. Emphasizes post crash/aircraft incident preservation of forensic evidence. May be delivered online.

**AVSC 3220****Aircraft Accident Investigation****3**

\* Prerequisite(s): AVSC 2130 and University Advanced Standing

Explores the fundamental requirements of aircraft mishap and accident investigation. Covers the initial gathering and preservation of evidence at the crash site, including photographic and videographic documentation, assessing environmental factors, human factor considerations, aircraft maintenance status, and air traffic control considerations.

**AVSC 3230****Accident Witness Interviewing****3**

\* Prerequisite(s): (AVSC 3210 or AVSC 3220) and University Advanced Standing

Teaches the currently recommended techniques for conducting an accident witness interview and common mistakes. Presents methods of evaluating and analysis of interview information. Case studies and role playing will be used in classroom exercises.

**AVSC 3240****Aviation Accident Reporting****3**

\* Prerequisite(s): (AVSC 3210 or AVSC 3220), (ENGL 1010 or ENGL 1005), and University Advanced Standing

Teaches the student a working knowledge of preparing a complete aircraft mishap/accident report that includes the factual information, analysis, and conclusions, including probable causes, and aviation safety recommendations. Involves turning accident investigation data into an accident report.

**AVSC 3300****Jet Transport Systems****3**

\* Prerequisite(s): AVSC 1240 and University Advanced Standing

Provides training on turbine driven engines, thrust vectoring, pneumatics, electrical, hydraulic, and auxiliary systems. Includes subjects such as pressurization, de-ice and anti-ice, environmental, and warning systems. Utilizes schematic drawings, computer based trainers, and various jet operating manuals. Includes lecture, class discussion, demonstrations, group practice, and possible guest lecturers.

**AVSC 3310****Aviation Logistics Management****3**

\* Prerequisite(s): AVSC 2150, AVSC 3150, and University Advanced Standing

Examines functional areas of supply, maintenance, transportation and services at operational, strategic and tactical levels. Covers facilities, manpower, labor relations, financial and system management, contract administration, analytical techniques and decision making. Uses a variety of case studies and examples of various transportation companies, airlines, and support groups. May be delivered online.

**AVSC 3320****Aviation Managerial Accounting****3**

\* Prerequisite(s): AVSC 2150 and University Advanced Standing

Provides aviation administration students with knowledge of financial, managerial, and basic cost accounting concepts and applications. Introduces basic accounting methods, accounting information systems and the utilization of accounting information in the decision making process. Uses aviation industry case studies and examples. May be delivered online.

**AVSC 3350****Aviation Labor and Human Resource****3**

\* Prerequisite(s): AVSC 2150, AVSC 3150, and University Advanced Standing

Focuses on effective management of human resources in the unique environment of the aviation industry. Teaches planning, recruitment, selection, training, development, labor relations, employee benefits and compensation, employee legal issues, termination and unemployment, and applicable state and federal regulations. May be delivered online.

**AVSC 3400****International Flight Operations****3**

\* Prerequisite(s): AVSC 1240 and University Advanced Standing

Provides an overview of international flight operations including advanced air navigation systems. Explores navigation equipment and aids utilized in international flight operations. Teaches the operation of the "Glass Cockpit" flight data center. Utilizes simulation for operation of a glass cockpit equipped aircraft.

# Course Descriptions

## **AVSC 3530**

### **Flight Aerodynamics**

**3**

\* Prerequisite(s): AVSC 1240 and University Advanced Standing

Teaches the aerodynamics involved in commercial aircraft. Includes aircraft turning and accelerated climb performance, take off velocity, load factors, hypersonic flight, and laminar flow airfoils. Includes demonstration, examples, experiments, and class discussion. May be delivered online.

## **AVSC 3600**

### **Multi-piloted Operations**

**3**

\* Prerequisite(s): AVSC 1100, AVSC 2070 and University Advanced Standing

Explores concepts of Crew Resource Management (CRM), Threat and Error Management (TEM), and Advanced Qualification Program (AQP) concepts. Covers crew coordination, communication, flight discipline, pilot flying and pilot monitoring protocols in multi-piloted environments.

## **AVSC 3740**

### **Advanced Methods in Aviation Investigation**

**3**

\* Prerequisite(s): AVSC 3220 and University Advanced Standing

Teaches current scientific techniques for the analysis of aircraft materials, components, performance and design. Considers aircraft crashworthiness. Discusses the process of establishing facts from analysis and of the findings of an aircraft investigation and probable vs. proximate cause.

## **AVSC 4020**

### **Applied Aviation Finance**

**3**

\* Prerequisite(s): AVSC 3320 and University Advanced Standing

Examines financial management in the aviation corporate and public sectors and the role of financial markets and institutions. Introduces finance terminology and techniques. Discusses time value of money, fundamentals of security valuation, capital asset pricing model and capital budgeting. Introduces weighted average cost of capital and contrasts debt policy and governance in the public and private aviation sectors.

## **AVSC 410G**

### **Global Ethical and Professional Issues in Aviation**

**3**

\* Prerequisite(s): AVSC 2150, PHIL 2050, and University Advanced Standing

Designed for aviation managers and pilots to develop a global perspective and understanding of key intercultural issues facing aviation. Studies the role of multi-culturalism and globalization, especially where these issues impact safety and the business environment. Includes a study of aviation regulation and scenario-based problem solving skills.

## **AVSC 4160**

### **Aviation Law WE**

**3**

\* Prerequisite(s): AVSC 2150, Senior Standing and University Advanced Standing.

Introduces the student to the United States Constitution plus derivation and application of international, federal, state and local laws as applied to aviation. Covers administrative, civil and criminal law including torts, principles of liability, contracts, sales, commercial transactions, the environment, labor law and Federal Aviation regulations.

## **AVSC 4210**

### **Flight: Turbine Transition**

**1**

\* Prerequisite(s): AVSC 2300, AVSC 2310, and University Advanced Standing

Covers the required training experience in preparation for an FAA airplane type rating practical exam. Includes start up, taxi, take-off, en-route, approach, landing, shutdown, and emergency procedures. Requires individualized instruction in a cockpit procedures trainer, simulator or aircraft. Proof of earned airplane type rating is required.

## **AVSC 4300**

### **Ground Airline Transport Pilot Aircraft Dispatcher**

**3**

\* Prerequisite(s): AVSC 2110 and University Advanced Standing

Discusses aircraft aerodynamics, airspace and airports, air traffic control, aviation weather, and aero-medical factors and applicable NTSB and FAA regulations. Analyzes the aspects of decision making and professionalism in aviation. Prepares students for the required FAA Airline Transport Pilot Airplane 121 (ATP); FAA Airline Transport Pilot Airplane (135); or Aircraft Dispatcher (ADX) Knowledge Tests.

## **AVSC 4310**

### **Flight Airline Transport Pilot**

**1**

\* Prerequisite(s): AVSC 2300, AVSC 2310, and University Advanced Standing

Focuses on the areas necessary to pass an Airline Transport Pilot Airplane Practical Test. Covers pre-flight, takeoff and departure, in flight maneuvers, instrument procedures, approaches and landings, normal and abnormal procedures, emergency procedures and postflight procedures. Prepares students for the required FAA Airline Transport Pilot Airplane Practical Test.

## **AVSC 4500**

### **Aerospace Aftermarket Support Services**

**3**

\* Prerequisite(s): University Advanced Standing

Explores organizational structures, geographical location selection, staffing, service delivery, and infrastructure requirements of an effective aftermarket product support program associated with aerospace vehicles. Explores existing support concepts to enable the student to design and plan an integrated and deployable product support organization. Emphasizes key elements of customer relationship management. Includes studies for both Original Equipment Manufacture (OEM) and third-party service providers.

## **AVSC 4550**

### **Aerospace Vehicle Certification-Reliability-Maintainability Systems**

**3**

\* Prerequisite(s): University Advanced Standing

Explores the standards, regulations, infrastructure, and issues involving the certification, reliability, maintainability, risk management, and safety of aerospace vehicles through their life cycle. Studies the aerospace sectors of civil, defense, unmanned, and space-based systems. Investigates global training and certification standards of maintenance engineers and technicians.

## **AVSC 4700**

### **Aviation Professional Seminars**

**3**

\* Prerequisite(s): Senior Standing and University Advanced Standing

Informs aviation students on personal and career development through guest lectures and industry seminars. Discusses career opportunities to develop and promote career success.

## **AVSC 4710**

### **Aviation Career Preparation**

**1**

\* Prerequisite(s): Senior Standing and University Advanced Standing

Prepares students for the rigors of an aviation interview by reviewing important areas including Federal Aviation Regulations, aviation specific discipline knowledge and interpersonal skills necessary to successfully obtain a position in the aviation industry. Includes specific resume, background search, and interview preparation procedures.

## **AVSC 475R**

### **Current Topics in Aviation**

**1 to 3**

\* Prerequisite(s): AVSC 1010 and University Advanced Standing

Presents selected topics in Aviation Sciences and will vary each semester. Requires a special project related to the area of study. May be repeated with different topic areas for a maximum of 6 credits toward graduation.

**AVSC 4800**  
**Professional Pilot Capstone**  
**3**

\* Prerequisite(s): AVSC 3300, 3600 and University Advanced Standing

Teaches systems, operations and performance limitations of the CRJ. Emphasizes operating practices, along with systems indoctrination, and procedures training. Includes systems and operations common to most turbine and transport category aircraft. Provides insight into the rigors of studying for ground school systems class. Utilizes lecture, demonstration, and cockpit procedure trainers. Student who complete the course should be prepared to pass the applicable written exam. May be delivered online. Software fee of \$100 applies

**AVSC 4805**  
**Canadair Regional Jet Orientation**  
**1**

\* Prerequisite(s) or Corequisite(s): AVSC 4800

Introduces Canadair Regional Jet aircraft (CRJ) procedures through hands on application in the CRJ flight simulation training device. Provides simulated experience as a pilot in normal, abnormal, and emergency operations. Includes scenario based training in the CRJ200 flight management system (FMS) and other essential systems. Emphasizes crew resource management (CRM) skills in transport category aircraft.

**AVSC 481R**  
**Cooperative Work Experience**  
**1 to 8**

\* Corequisite(s): AVSC 485R

For upper division Aviation majors. A current job in an aviation related field required prior to registering for this course. Course content is individualized, with students setting objectives in consultation with their faculty coordinator and their on-the-job supervisor. Credit is determined by the number of hours a student works during the semester. (One credit for each five hours of work per week.) May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

**AVSC 485R**  
**Cooperative Related Class**  
**1**

\* Prerequisite(s): Current job in an aviation related field and University Advanced Standing  
 \* Corequisite(s): AVSC 481R

For upper division Aviation Science majors. Designed to enable students with career aspirations in aviation related fields to begin career planning. Enhances a student's knowledge, personal development, professional development and professional preparation by integrating academic study with practical experience and resume preparation. May be repeated for a maximum of 2 credits toward graduation.

**AVSC 4900**  
**Strategic Aviation Management Capstone**  
**3**

\* Prerequisite(s): AVSC 3150, Senior standing, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): AVSC 4020

Provides aviation administration students with the opportunity to practice and apply their cumulative knowledge acquired over the entire course of study. Teaches the components of formulating a strategic plan, implementing and controlling its execution, and evaluating its success. Applies principles of accounting, finance, economics, labor, logistics, operations, research and strategy development through simulation and aviation case studies.

**AVSC 491R**  
**Undergraduate Research Project**  
**3 to 6**

\* Prerequisite(s): AVSC 3200, AVSC 3600, ENGL 2010, Matriculation into Bachelor's Degree, and University Advanced Standing

Combines and integrates concepts, methodologies, and skills developed in previous AVSC course work through the completion of a comprehensive project. Students will develop their own project and portfolio in consultation with a faculty advisor. A list of detailed guidelines for the project is available from the Aviation Science Department. May be repeated three times for a maximum of 6 credits.

**AVSC 4950**  
**Aerospace Technology Management**  
**Capstone Project WE**  
**3**

\* Prerequisite(s): AVSC 4500, AVSC 4550, and University Advanced Standing.

Assesses significant evidence of learning within the discipline studied through a culminating project. Documents evidence of achievement, experience and competencies for current and prospective employers to aid in job placement or promotion.

## Behavioral Science (BESC)

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**BESC 1000**  
**Behavioral Science Forum**  
**2**

For students interested in exploring a Behavioral Science major. Offers an overview of curriculum, major requirements, faculty and their specialties, study and writing helps and guidelines, campus resources and career possibilities. Utilizes lectures, guest speakers, field trips, and application-oriented activities.

**BESC 107G** **SS**  
**Multicultural Societies**  
**3**

Examines societies and cultures within the kinships, beliefs, values and political backgrounds related to differing ethnic groups. Provides a forum for constructive interaction among people of differing economic, social, racial, ethnic and religious backgrounds.

**BESC 295R**  
**Beginning Research Experience**  
**1 to 3**

\* Prerequisite(s): Instructor approval; BESC department major

Provides a mentored experience to assist on a faculty member's research project. Begin to explore academic literature to investigate topics of interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. Includes literature searches, materials creation, data collection, or other options as approved by the instructor. May be repeated for a maximum of six credits toward graduation. May be graded Credit/No Credit.

**BESC 3020**  
**Research Methods for the Behavioral Sciences**  
**3**

\* Prerequisite(s): PSY 3110 or declared major in Family Science and (admission into BSW program or declared major in Behavioral Science, Family Science, or Psychology) and (ANTH 101G, FAMS 240G, PSY 1010, SOC 1010, or SW 1010) and (ENGL 2010 with a grade of C+ or higher) and University Advanced Standing

Surveys the most common research designs in the social sciences. Includes true experiments, quasi-experiments, correlational designs, survey research, single case, and the philosophy of qualitative methods. Includes the design of a study, original data collection, data analysis, presentation of results. May be delivered hybrid and/or online.

**BESC 3100**  
**Career and Graduate School Preparation for Behavioral Science Majors**  
**3**

\* Prerequisite(s): (ANTH 101G or FAMS 240G or PSY 1010 or SOC 1010 or SW 1010) and (ENGL 2010 with a C+ or higher) and (admission into BSW program or declared major in Behavioral Science, Family Science, or Psychology) and University Advanced Standing

Emphasizes the development of skills necessary to successfully apply for employment and/or graduate school. Includes resume writing, cover letters and basic interview skills, preparation of acceptable application packages, and learning how to network with school and community resources to find employment and/or graduate school opportunities.

## Course Descriptions

### **BESC 3420 (Cross-listed with: COMM 3420)**

#### **Communication and Conflict**

**3**

\* Prerequisite(s): (COMM 3410 or COMM 2110) and University Advanced Standing

Studies contemporary theories of conflict and communication. Analyzes the roles of culture, gender, personal, and organizational ethics in conflicts and disputes. Covers the nature of conflict and teaches methods of negotiation, mediation, and conflict resolution with an emphasis on collaborative problem-solving. Canvas Course Mats \$45/McGraw applies.

### **BESC 3820**

#### **Women/War/Peacebuilding**

**3**

\* Prerequisite(s): (PSY 1010 or SOC 1010 or ANTH 101G) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Examines the gendered foundations and dynamics of war (and ethno-political violence) and peace. Explores consequences to women and their roles in militarism and transformational justice and peacebuilding. Emphasizes an analysis of gender within the framework of the behavioral sciences.

### **BESC 4030**

#### **Introduction to Practice Evaluation and Grant Writing**

**3**

\* Prerequisite(s): (ENGL 2010 with a C+ grade or higher), PSY 3110, BESC 3020, and University Advanced Standing

Provides practical guidance for conducting an evaluation study from its inception, through the planning stage, to research design, data collection, data analysis and the reporting, dissemination, and application of conclusions.

### **BESC 4040**

#### **Applied Behavioral Science Research**

**3**

\* Prerequisite(s): (ENGL 2010 with a C+ grade), PSY 3110, BESC 3020, and University Advanced Standing

Introduces psychological theory, methods, and knowledge to actively analyze and engage problems facing a variety of clients. Discusses a variety of organizations, including businesses, government, religion, social science, health care, criminal justice, and others. Utilizes psychological tools to identify, investigate, and actively seek viable solutions to issues that can be applied by organizations to achieve greater success. Requires students to develop, carry out, and professionally present an original research project.

### **BESC 4050**

#### **Clinical Research**

**3**

\* Prerequisite(s): ENGL 2010 with a C+ grade or higher, PSY 3110, BESC 3020, and University Advanced Standing

Introduces students to the field of clinical research. Integrates traditional psychological research methods and the area of clinical practice. Uses the scientist-practitioner model to demonstrate common research methodologies and examine clinical outcomes. Applies quantitative and qualitative methods in a clinical setting. Focuses on determining the effectiveness of therapeutic process and outcome using research.

### **BESC 4510**

#### **Academic and Career Advising**

**3**

\* Prerequisite(s): (ENGL 2010 with a C+ or higher) and University Advanced Standing

Provides students with an understanding of the field of academic/career advising and what it means to be a scholar and practitioner within the field. Engages in scholarly study of academic advising literature, discussion of advising theory and practice, observation of academic advising sessions, and interviews with advisors. Provides knowledge of advising theory and practice, an understanding of student development theory, and an increase in the knowledge and skills needed to advise students effectively.

### **BESC 481R**

#### **Senior Internship**

**1 to 8**

\* Prerequisite(s): PSY 3110, BESC 3020, (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

\* Corequisite(s): BESC 485R

Allows Behavioral Science students with non-clinical orientation to receive behavioral science credits for interning in a governmental, corporate, or private agency apart from their regular employment. Provides practical and research experience over the course of the 15-week semester. Supervised by agency representative. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

### **BESC 485R**

#### **Internship Seminar**

**1**

\* Prerequisite(s): (ENGL 2010 with a C+ grade or higher), PSY 3110, BESC 3020, and University Advanced Standing

\* Corequisite(s): BESC 481R

Provides integration of classroom learning with learning that takes place in an on-site internship. To be taken concurrently with BESC 481R, Senior Internship. Repeatable for a maximum of 8 credits toward graduation.

### **BESC 495R**

#### **Advanced Research Experience**

**1 to 3**

\* Prerequisite(s): (ANTH 101G or FAMS 1010 or PSY 1010 or SOC 1010 or SW 1010) with a C grade or higher; ENGL 2010 with C+ grade or higher; Instructor approval; BESC department major; University Advanced Standing

Provides a mentored experience to significantly assist on a faculty member's research project or carry out an independent research project of the student's design under faculty mentorship. Requires individual initiative and responsibility. Includes limited formal instruction. Includes literature searches, completion of the IRB application process, materials creation, data collection, data analysis, writing a publishable paper, preparing a poster, preparing an oral presentation, or other options as approved by the instructor. May be repeated for a maximum of nine credits toward graduation. May be graded credit/no credit.

## **Biology (BIOL)**

### **BIOL 1010**

#### **General Biology**

**3**

Introduces major themes and concepts of biology including cell and molecular biology, genetics, diversity, evolution, and ecology. Provides students with necessary information and skills to critically evaluate what they hear, read, and see in the living world; communicate clearly; and apply methods to interpret data for making informed decisions concerning the role of biology in a world of which they are a part. May be delivered online.

### **BIOL 1011**

#### **Introduction to Bioinformatics**

**3**

Covers fundamental topics of bioinformatics including bioinformatics databases, sequence and structure alignment, and protein structure prediction. Uses current examples to introduce an overview of methodologies and applications sufficient to introduce students to the field of bioinformatics.

### **BIOL 1015**

#### **General Biology Laboratory**

**1**

\* Prerequisite(s) or Corequisite(s): BIOL 1010

Covers introductory topics in general biology. Complements the student's experience in the General Biology 1010 course with emphasis on the application of the scientific method. Includes actual student experiences with living organisms, use of the microscope, and an introduction to techniques used in the study of life. Course lab fee of \$13 for supplies applies.

**BIOL 101H** **BB**  
**General Biology**  
**3**  
 Introduces major themes and concepts of biology including cell and molecular biology, genetics, diversity, evolution, and ecology. Provides students with necessary information and skills to critically evaluate what they hear, read, and see in the living world; communicate clearly; and apply methods to interpret data for making informed decisions concerning the role of biology in a world of which they are a part. Requires a term paper, project, or presentation.

**BIOL 1070** **BB**  
**Heredity**  
**3**  
 \* Prerequisite(s): BIOL 1010 is strongly recommended  
 Introduces genetics for non-majors. Addresses patterns of inheritance from generation to generation (with an emphasis on human heredity), DNA structure and function as well as other aspects of molecular genetics and reproductive technologies.

**BIOL 1200 (Cross-listed with: GEO 1020)** **BB**  
**Prehistoric Life**  
**3**  
 \* Prerequisite(s): BIOL 1010 or GEO 1010 recommended  
 Studies prehistoric life. Uses the concepts of biology and physical science. Studies major groups of ancient animals and plants as found in the rock record. Includes aspects and fundamental concepts of biology, ecology, and geology.

**BIOL 1500 (Cross-listed with: ANTH 1020)** **BB**  
**Biological Anthropology**  
**3**  
 \* Prerequisite(s): (ENGL 1010 or ENGH 1005) and (ANTH 101G or BIOL 1010)  
 For students with special interests in Anthropology or the Life Sciences. Studies fossils and living primates, primate biology and behavior. Surveys humanoid fossils. Investigates human evolution and variations of basic biology as it pertains to human development. Stresses the importance of the distribution and diversity of humankind.

**BIOL 1610** **BB**  
**College Biology I**  
**4**  
 \* Prerequisite(s): ACT (or equivalent) composite score of 21+, or completion of ENGH 1005 or ENGL1010 (or higher) with a minimum grade of C-  
 \* Prerequisite(s) or Corequisite(s): BIOL 1615  
 Gives a broad exposure to many aspects of the life sciences. Covers topics of biochemistry, energetics, cell structure and function, genetics, and evolution. BIOL 1615 is recommended, but not required for pre-nursing or pre-dental hygiene majors.

**BIOL 1615**  
**College Biology I Laboratory**  
**1**  
 \* Corequisite(s): BIOL 1610  
 Laboratory course to accompany BIOL 1610. Topics covered include scientific method, biomolecules, cell structure and function, cellular reproduction, Mendelian and molecular genetics, DNA technology, and evolution. Course Lab fee of \$24 applies.

**BIOL 1620**  
**College Biology II**  
**3**  
 \* Prerequisite(s): BIOL 1610 and BIOL 1615 with a C- or higher in each.  
 \* Corequisite(s): BIOL 1625  
 Provides the second semester material in the two semester introductory course designed for biology majors. Covers the evolution of life, the relationships between major taxa, anatomy and physiology of these major taxa, and interactions between living organisms and their environments. Discusses major current issues in the biological field.

**BIOL 1625**  
**College Biology II Laboratory**  
**1**  
 \* Corequisite(s): BIOL 1620  
 Laboratory course to accompany BIOL 1620. Topics covered include animal biology and diversity and plant biology and diversity. Course Lab fee of \$30 for lab, transportation applies.

**BIOL 202R (Cross-listed with: GEO 202R)**  
**Science Excursion**  
**1**  
 For students interested in the natural world. Explores a wide variety of topics in science, including geology, botany, astronomy, zoology, ecology, and archeology. Consists of a minimum of a four-day field trip. Participants should gain an increased understanding of several fields of scientific study. May be repeated as many times as desired for interest, however a maximum of 3 credits may count toward graduation.

**BIOL 204R (Cross-listed with: BIOL 1200, GEO 204R)** **BB**  
**Natural History Excursion**  
**3**  
 For students interested in the natural world. Promotes an in-depth look at a wide variety of topics in science, including geology, botany, astronomy, zoology, ecology, and archeology. Consists of 15 hours of lecture plus an appropriate field trip. Participants should gain an interdisciplinary understanding of science and nature. May be repeated for up to six credits toward graduation.

**BIOL 2070 (Cross-listed with: GEO 2070)**  
**Desert Natural History**  
**3**  
 Integrates the teaching of geological and biological systems of the southwestern deserts. Discusses the ecology and geology of unique desert ecosystems; the rocks and strata providing the foundation of the landscape; the evolutionary and geological processes that mold the landscape and the species within it over time; and, the relationships between the physical and biological aspects of the ecosystem, including humans. Provides an intense, hands-on field course where faculty and students participate together in daily activities in a natural setting. Is held for part of the time on the UVU main campus and part of the time at the Capitol Reef Field Station. Requires students to live and learn at the field station for approximately 1/3 of the course.

**BIOL 2500** **BB**  
**Environmental Biology**  
**3**  
 \* Prerequisite(s): BIOL 1010 or BIOL 1610 is recommended  
 Acquaints students with the principles of environmental systems, including biogeochemical cycles, energy transformations, biotic and abiotic interactions, natural resources and their management. Discusses the interactions of ecological principles and humanity's technology relative to the world today and factors that influence the quality of life.

**BIOL 290R**  
**Special Topics In Biology**  
**1 to 4**  
 \* Prerequisite(s): BIOL 1010 or higher or Instructor Approval  
 Explores and examines special topics relating to the field of Biology. Emphasizes areas of rapid growth in Biology or current importance to society. May be repeated for a total of six credits toward graduation.

**BIOL 295R**  
**Independent Studies in Life Sciences**  
**1 to 4**  
 \* Prerequisite(s): At least 3 credit hours of college level biology, approval of a faculty mentor, and approval of the department chair  
 Provides individual studies in biology under the direction of a faculty mentor. May include literature reviews, original research, and participation in ongoing departmental projects. Introduces students to the methodology of life science research. Requires written and oral communication of scientific information. May be repeated for up to 4 credits toward graduation.

## Course Descriptions

### **BIOL 3070 (Cross-listed with: GEO 3070)**

#### **Advanced Desert Natural History**

**3**

\* Prerequisite(s): University Advanced Standing

Integrates the geological and biological systems of the southwestern deserts. Includes discussion of the ecology and geology of unique desert ecosystems; the rocks and strata providing the foundation of the landscape; the evolutionary and geological processes that mold the landscape and the species within it over time; and, the relationships between the physical and biological aspects of the ecosystem, including humans. Provides an intense, hands-on field course where faculty and students participate together in daily activities and experimental design in a natural setting. Is held part of the time on the UVU main campus and part of the time at the Capitol Reef Field Station. Requires students to live and learn at the field station for approximately 1/3 of the course.

### **BIOL 3100**

#### **Introduction to Data Analysis for Biologists**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces computational methods for analyzing and visualizing common biological data types, focusing on developing computational skills and best practices for working with biological data. Provides instruction in command-line computing and appropriate software environments to enable robust and reproducible analyses of varied data sets.

### **BIOL 3150**

#### **Bioinformatics Data Skills**

**3**

\* Prerequisite(s): BIOL 1011 and University Advanced Standing

Introduces basic data skills for bioinformatics students with a focus on genetic sequence data, command-line usage, and pipeline development. Develops competence in interacting with a remote high-performance computing environment and installing, parsing, and linking novel bioinformatics tools. Applies the principles of project organization and reproducibility to create an analysis pipeline.

### **BIOL 3200**

#### **Guided Research Experience**

**1 to 3**

\* Prerequisite(s): BIOL 1610 or BIOL 1010

Provides an authentic research experience that is structured in a way that the class will move through the stages of research at the same time throughout the semester. Covers selected essential components and skills of conducting research including laboratory techniques, experimental design, hypothesis testing, and communication of findings. Focused for biology majors with little to no research experience. Course fee of \$15 for materials applies.

### **BIOL 3300**

#### **Developmental Biology**

**3**

\* Prerequisite(s): BIOL 1610 with a minimum grade of C- and University Advanced Standing

Examines the principles of Developmental Biology with emphasis on the specialization of cells and their organization into body plans. Is recommended for Biology Majors interested in developmental processes. May be delivered online.

### **BIOL 3400**

#### **Cell Biology**

**3**

\* Prerequisite(s): BIOL 1610 and CHEM 1220 with a C- or higher in each and University Advanced Standing

For Biology majors or those desiring more knowledge of this subject. Studies the cell as an organism emphasizing molecular basis of cell structure and functions.

### **BIOL 3405**

#### **Cell Biology Laboratory**

**1**

\* Prerequisite(s): BIOL 1610 and CHEM 1220 or higher with minimum grade of C- in each and University Advanced Standing

\* Corequisite(s): BIOL 3400

Uses laboratory exercises to demonstrate topics covered in BIOL 3400. Includes experimental methods for studying cell processes, enzymes, tissue specific proteins, organelles, and experimental design. Course Lab fee of \$100 applies.

### **BIOL 3500**

#### **Genetics**

**3**

\* Prerequisite(s): BIOL 1610 with minimum grade of C- and University Advanced Standing

For Biology majors. Studies the genetic basis of life and the mechanisms by which information to make life is stored in the DNA. Presents classical, molecular, and population genetics in the background of current techniques and understanding of genetic processes. Provides an understanding of the basic principles of genetics and preparation for more advanced courses in other aspects of biology. Canvas CourseMat \$103/Macmillan applies

### **BIOL 3515**

#### **Advanced Genetics Laboratory**

**1**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): BIOL 3500

Provides experience with genetic analysis of one or more model organisms. Examines recent advances in genetic analysis, how those advances impact medicine and society, and how genetics is increasingly influenced by Genomic and Bioinformatic methods. Includes examination of new technologies and their practical and ethical implications. Provides hands-on experience using bioinformatic tools in identification of gene structure and annotation of genomes.

### **BIOL 3550**

#### **Molecular Biology**

**3**

\* Prerequisite(s): BIOL 1610, CHEM 1215, and University Advanced Standing

Examines structure, organization, replication, and expression of genomes. Explores the methods used for study of genome structure and function, including nucleotide and protein extractions, separations, and characterizations. Compares sequence data of genomes, transcriptomes, and proteomes. Examines primary literature in the field.

### **BIOL 3555**

#### **Experiments in Molecular Biology**

**1**

### **BIOL 3600 (Cross-listed with: CHEM 3600)**

#### **Biological Chemistry**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): CHEM 2320

Introduces principles of the chemical processes that define living organisms. Covers structure and function of proteins, carbohydrates, lipids and nucleic acids. Explores metabolic pathways, biosynthesis, enzymatics, thermodynamics, membrane dynamics and related processes within a living cell. Emphasizes molecular mechanisms of reactions and their outcome.

### **BIOL 3605 (Cross-listed with: CHEM 3605)**

#### **Biological Chemistry Lab**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): BIOL 3600

Introduces laboratory techniques in biochemistry. Studies methods and theory behind purification of proteins and nucleic acids including chromatography and electrophoresis. Uses methods in assessing enzyme activity and kinetics and protein structure analysis. Includes analysis and manipulation of DNA and RNA. Course Lab fee of \$145 applies.

### **BIOL 3620 (Cross-listed with: CHEM 3620)**

#### **Biological Chemistry II**

**3**

\* Prerequisite(s): (CHEM 3600 or BIOL 3600) and University Advanced Standing

Is a continuation of CHEM 3600. Teaches in-depth the biochemistry of molecular and cell biology processes. Explores the topics of molecular information flow and signaling. Examines current understanding in biochemical methods and ideas beyond those discussed in Biochem I.

**BIOL 369R****Introduction to Undergraduate Research****1**

\* Prerequisite(s): BIOL 1610; (MATH 1050 or STAT 2040 highly recommended) and University Advanced Standing

Introduces fundamentals of research in biology, including how to identify a research problem, form testable hypotheses, select appropriate experimental methods, collect data, determine appropriate sample size, establish appropriate controls, conduct experiments, document experiment details and data, tabulate, analyze and interpret data and how to write a research report. Emphasizes research ethics, institutional research guidelines, personal protection, and proper disposal of hazardous chemicals and biologicals. Introduces research opportunities available within and beyond the university community. May be repeated for a maximum of 2 credits toward graduation.

**BIOL 3700****General Ecology****3**

\* Prerequisite(s): BIOL 1620 with a C- or higher, and University Advanced Standing

Introduces the relationships between organisms and their environment, including processes at the individual, population, community, ecosystem, and biosphere levels. Includes specific topics such as adaptation to abiotic factors in terrestrial and aquatic habitats, global climate patterns and biomes, evolution of life histories, reproductive strategies and social behaviors, population distributions and dynamics, species interactions, community structure and succession, energy flow and nutrient cycles in ecosystems, global biodiversity, and the impact of humans on ecological processes.

**BIOL 3705****General Ecology Laboratory****1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): BIOL 3700

Laboratory component to General Ecology in which students may acquire skills in the collection, analysis, and presentation of ecological data. Activities include field sampling of plant and animal populations, laboratory experiments and observations, and computer simulations. Emphasizes techniques in data storage and statistical analysis, graphical representation of data, and scientific writing. Course Lab fee of \$18 for lab, transportation applies.

**BIOL 3800****Conservation Biology****3**

\* Prerequisite(s): (BIOL 1010 or BIOL 1620 with a minimum of C-) and University Advanced Standing; BIOL 3700 strongly recommended

Presents scientific principles of conservation biology and associated cultural and ethical issues. Explores the diversity of life on this planet and how that diversity is organized and distributed. Investigates the challenges facing management of our natural resources in order to maintain healthy and productive populations and ecosystems. Course fee of \$13 for materials, transportation applies

**BIOL 3850****Marine Biology****3**

\* Prerequisite(s): BIOL 1620 with a C- or higher, and University Advanced Standing

Introduces students to the study of life in the ocean. Presents basic principles of the geological, chemical, and physical environment of marine systems. Examines the principal groups of marine organisms including microbes, seaweeds, invertebrates, fishes, marine birds, reptiles, and mammals. Surveys the basics of marine ecology and introduces students to the different types of oceanic habitats from the intertidal and surface waters down to the deep sea. May include an optional non-graded field trip (additional cost would apply, for more information contact the instructor).

**BIOL 4000****Freshwater Ecology****4**

\* Prerequisite(s): BIOL 1620 and (BIOL 2500 or BIOL 3700) with a C- or higher in each, and University Advanced Standing

Explores physical, chemical, and biological characteristics of freshwater systems, including lakes, rivers, and streams. Emphasizes freshwater habitats as ecosystems. Studies human impacts on freshwater, with particular reference to Utah and the West. Emphasizes field experience in collecting and measuring the physiochemical characteristics and different groups of organisms found in freshwater habitats. Includes weekly laboratory. Course Lab fee of \$17 for lab, transportation applies.

**BIOL 4260****Ethical Issues in Biology WE****2**

\* Prerequisite(s): BIOL 1010 or BIOL 1610 with a C- or higher, and University Advanced Standing

Offers an in-depth analysis of current ethical issues in biology. Requires extensive reading and an analytical term paper. Presents subjects in lecture and in lab sessions. Concentrates on readings and on analyses of issues and their effects on people. Explores and discusses individual participant paradigms.

**BIOL 4300****Bioinformatics and Genome Analysis****4**

\* Prerequisite(s): BIOL 3500 with a minimum grade C- and University Advanced Standing

Studies analysis of genomic sequences, comparison of genomes of different species to gather information about protein function. Includes hands on learning in bioinformatics and genomics. Uses a combination of computer work and discussions that will allow the student to perform basic gene and protein analysis using web tools.

**BIOL 4400****Genomics****3**

\* Prerequisite(s): BIOL 3500 with minimum grade of C- and University Advanced Standing

Introduces genomics as a science and its relationship to bioinformatics. Provides fundamental knowledge and skills to carry out analysis of genes and genomes. Covers computational approaches for interpreting genomic data, including genome sequencing and annotation, gene expression and the transcriptome, functional genomics, metagenomics, and genetic variation and SNPs.

**BIOL 4450 (Cross-listed with: MICR 4450)****Immunology****3**

\* Prerequisite(s): (MICR 2060 or MICR 3450 or ZOO 2420) and University Advanced Standing

Explores the macromolecules, cells and organs involved in innate and adaptive immunity. Examines the development of lymphocyte repertoire, positive and negative selection of lymphocytes and the production of effector lymphocytes. Studies properties of antigens, vaccines, antigen presenting cells and the mechanisms of antigen presentation. Reviews major immunological methods for medical diagnostics and other applications. Examines causes and consequences of autoimmune and lymphoproliferative diseases and immunodeficiencies. Probes how immune response could be manipulated for cancer therapy and transplantation medicine.

# Course Descriptions

## **BIOL 4455** **Immunology Laboratory**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): BIOL 4450

Addresses federal, local and institutional regulations on using vertebrate animals for biomedical research. Teaches and regularly practices aseptic techniques required in handling biohazardous materials including vertebrate tissues. Studies how to collect tissues and blood from vertebrate animals and process the samples for harvesting various types of cells and macromolecules. Presents common immunological techniques such as western blot analysis and ELISA. Covers how to immunize animals using appropriate adjuvant and harvest plasma from immunized animals to isolate immunoglobulin. Examines tissue typing methodologies including PCR techniques. Course Lab fee of \$150 applies.

## **BIOL 4500** **Principles of Evolution WE**

**3**

\* Prerequisite(s): BIOL 1620 and (BIOL 3500 or MICR 3650) with a C- or higher in each, senior status, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): BIOL 3700 or MICR 3150 or BOT 3700

Focuses on the concepts of evolution as a fundamental principle of biology. Emphasizes the mechanisms and explanations of the tremendous diversity of life. Studies classical, molecular and current explanations of evolution in the background of current techniques and understanding of the genetic processes. Examines the principles of evolution and the various aspects of natural selection and speciation.

## **BIOL 4550** **Molecular Evolution and Bioinformatics WE**

**3**

\* Prerequisite(s): BIOL 3500 with minimum grade of C-, and minimum of 6 additional credits upper division biology (BIOL, BOT, MICR, ZOOL, BTEC) courses, and University Advanced Standing

Focuses on the concepts of evolution as a fundamental principle of biology with emphasis on change at the molecular level. Teaches how natural selection shapes the evolution of genes, gene systems, macromolecules, and organisms. Explores the roles of mutation, natural selection, population size and subdivision, and genetic recombination. Introduces different approaches for testing hypotheses about how molecules evolve by using phylogenetic analysis.

## **BIOL 4600** **Bioinformatics Capstone**

**3**

\* Prerequisite(s): Senior status in the Bioinformatics program and University Advanced Standing

Applies concepts from the previous Bioinformatics sequence of courses to the real world. Allows students to work with faculty members and industry experts to design and complete a project that incorporates various concepts that have been presented in previous Bioinformatics courses. Requires development and/or application of bioinformatic tools and presentation of results.

## **BIOL 481R** **Biology Internship**

**1 to 5**

\* Prerequisite(s): BIOL 1620 with a C- or higher and Instructor Approval

Allows biology majors to earn credit while obtaining practical and research experience as an intern in a government, nonprofit, private agency, or with an approved employer. Must be supervised by agency representative and faculty advisor. Department chairperson approval required and written contracts must be completed and signed. May be repeated with a maximum of 5 credits counting toward graduation. May be graded credit/no credit.

## **BIOL 489R** **Student Research**

**1 to 4**

\* Prerequisite(s): BIOL 1620, CHEM 1210, instructor permission, and University Advanced Standing

Provides guided research studies in biology under the direction of a Biology Department faculty mentor. Includes any combination of literature reviews, original research, and/or participation in ongoing departmental projects. Involves students in the methodology of original biology research. Requires preparation and presentation of oral and/or written reports. May culminate in results that will form the basis of the senior thesis in the major, if thesis option is chosen. May be repeated for 9 credits toward graduation.

## **BIOL 4900** **Museum-Based Taxonomy and Biodiversity Research**

**3**

\* Prerequisite(s): BIOL 1620 and (BOT 2050 or BOT 2100 or BOT 2400) with a C- or higher, and University Advanced Standing

Focuses on botany and utilizes the UVU natural history museum herbarium and other online natural history resources. Employs museum-based pedagogical tools and will evaluate, define and practice taxonomic applications in biodiversity research, including how floras, faunas and mycotas have been used by scientists. Uses floristics to assess outputs (dissemination) and impacts as well as assess technology on field data collection, uses, potential, and how might collections be used in the future.

## **BIOL 490R** **Special Topics in Biology**

**1 to 4**

\* Prerequisite(s): BIOL 1620 and University Advanced Standing

Explores and examines special topics relating to the field of biology. Emphasizes areas of rapid growth in biology or current importance to society. May be repeated for a total of 9 credits toward graduation.

## **BIOL 492R** **Professional Development**

**1**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): BIOL 4500

Focuses on professional skills required for students to move forward in their chosen career. Emphasizes writing an effective cover letter, resume and personal statement and communicating effectively in an interview setting. Addresses social media branding for professional settings. Requires students to complete the biology major field test and other department assessments.

## **BIOL 494R** **Student Seminar WE**

**2**

\* Prerequisite(s): BIOL 1620 with a C- or higher, junior or senior standing, and University Advanced Standing

Requires students to research scientific literature, give oral presentations, write a research paper, and lead discussions on assigned biology topics in specific areas of current research in biology. May be repeated for up to 4 credits toward graduation.

## **BIOL 497R** **Biology Colloquium**

**.5 to 1**

\* Prerequisite(s): University Advanced Standing

Requires students to attend lectures presented by department faculty and/or invited speakers. Features lectures that are usually a summary of the speaker's recent research results, presented at a level appropriate for junior and senior biological science majors. May be repeated for a maximum of 2 credits toward graduation.

**BIOL 499R**  
**Senior Thesis**  
**1 to 2**

\* Prerequisite(s): ENGL 2010, junior standing, instructor permission, and University Advanced Standing

Teaches students to write a thesis based on library research or work performed during laboratory/field research under BIOL 489R. Provides experience in critically analyzing published literature and, if laboratory/field research was performed, comparing research results with the scientific literature. Requires a technically accurate report on one's findings. Includes the opportunity to present the research results to students, faculty and the community at a Department of Biology seminar. May be repeated once for a total of 2 credits toward graduation.

**BIOL 5000**  
**Regulatory Affairs for Life Sciences**  
**4**

\* Prerequisite(s): Acceptance into the Certificate of Proficiency in Regulatory Affairs for Life Sciences or Instructor Approval

Introduces regulatory affairs as practiced by medical device and biopharma companies in the US. Focuses on United States Federal Drug Administration and International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use guidances and best practices.

**BIOL 5010**  
**Quality Management Systems for the Life Sciences**  
**2**

\* Prerequisite(s): BIOL 5000

Introduces FDA and International Conference on Harmonisation (ICH) requirements for the QSR (Quality System Regulation). Focuses on ISO 13485 and related guidances. Specifically covers the regulations and standards which are the basis of the regulated life science industry.

**BIOL 5020**  
**Design Control and Risk Management for the Life Sciences**  
**3**

\* Prerequisite(s): BIOL 5000

Introduces design control and risk management requirements for medical device and BioPharma companies.

**BIOL 525R**  
**Advanced Topics for Biology Teachers**  
**1 to 5**

\* Prerequisite(s): Departmental Approval

For licensed teachers or teachers seeking to re-certify their biology endorsement from the Utah State Office of Education. Teaches principles of biology and pedagogy of teaching biology for teachers in public or private schools. Emphasizes correlation with the Utah Core Curriculum, the National Science Education Standards, and the Benchmarks of Project 2061. Topics will vary.

**BIOL 579R**  
**Special Topics**  
**2**

Focuses on issues that are current and often changing in regulatory affairs, such as international regulations. Engages students in discussion and lectures with industry experts on cutting-edge issues that impact how medical devices and pharmaceuticals are regulated for compliance and safety. May be repeated for a maximum of 8 credits toward graduation. May be delivered online.

**BIOL 580R**  
**Capstone Project**  
**1**

\* Prerequisite(s): BIOL 5020

Applies knowledge learned in the Regulatory Affairs sequence of courses to the real world. Allows students to work with faculty members and industry experts to design and complete a project that incorporates various concepts that have been presented in previous Regulatory Affairs courses. May be repeated for a maximum of 3 credits toward graduation.

**BIOL 581R**  
**Biology Internship**  
**1 to 5**

\* Prerequisite(s): Instructor Approval and Internship Orientation

Allows students to earn credit while obtaining practical and research experience as an intern in a government, nonprofit, private agency, or with an approved employer. Must be supervised by agency representative and faculty advisor. Department chairperson approval required and written contracts must be completed and signed. May be repeated with a maximum of 5 credits counting toward graduation. May be graded credit/no credit.

**Building Inspection Technology (BIT)**

**BIT 1010**  
**Building Codes**  
**3**

Teaches the nonstructural standards of the Uniform Building Code. Includes occupancy classifications, building area, height and location limits, exit requirements, and fire-resistive standards.

**BIT 1020**  
**Residential Codes**  
**3**

Teaches the nonstructural standards of the International Residential Code. Includes foundations, walls, floors, roofs, finishes, heating, cooling, plumbing and electrical codes as they apply to residential construction.

**BIT 1230**  
**Plan Review**  
**3**

\* Prerequisite(s): BIT 1010 or instructor's approval.

Designed to introduce students to the techniques of nonstructural plans examination through familiarization of the plan and construction documents, specifications, and the application of code requirements.

**Business/Marketing Education (BMED)**

**BMED 4200**  
**Methods of Teaching Business/Marketing/ Digital Technology**  
**3**

\* Prerequisite(s): (IM 2600 or IM 3700 or Instructor Approval), EDSC 3000, and University Advanced Standing

Provides foundation knowledge of business education. Includes methods of teaching business, marketing, digital media, emerging technologies, and keyboarding. Includes philosophical foundations of business education, curriculum trends impacting business and technology classrooms, classroom management, curriculum planning, and assessment. Includes curriculum standards, competency-based instruction, career and technical education, and professionalism. Requires field observation. May be delivered hybrid. Lab access fee of \$45 applies.

**BMED 4250**  
**Methods of Teaching Business and Marketing**  
**3**

\* Prerequisite(s): EDSC 3000, LEGL 3000, MKTG 220G, ECON 2020, MKTG 3600, or instructor approval, and University Advanced Standing

Provides an opportunity for prospective teachers to become facilitators of learning specifically by planning, developing, delivering, and evaluating basic business and marketing curriculum. Provides the background and foundation of business/marketing teacher education for students seeking a secondary education degree. Includes textbook selection, student organizations, professional associations, and advisory committees. Addresses issues and trends in business and marketing education. Lab access fee of \$45 for transportation applies.

# Course Descriptions

## **BMED 4300** **Methods of Teaching Computer Science**

**3**  
\* Prerequisite(s): (INFO 1200 and INFO 2200) or (CS 1400 and CS 1410), and University Advanced Standing

Methodology course designed for secondary education students and current educators to gain the pedagogical knowledge and learn best practices necessary for teaching secondary computer science (CS) concepts. Combines pedagogical principles with computer science knowledge to create an effective learning environment. Includes reading, discussing, reflection, evaluation, micro-teaching, and field observations. Addresses the standards set by the International Society for Technology in Education (ISTE) for students and for teachers, and utilizes in the design, implementation, and assessment of learning materials. Lab access fee of \$45 applies.

## **Botany (BOT)**

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### **BOT 1800** **Introduction to Horticulture**

**3**  
Introduces students to the horticulture industry including plant propagation, landscape management, and greenhouse management. Provides students with information to care for house plants and to design and care for home gardens.

**BOT 2050** **BB**  
**Field Botany**  
**3**  
\* Prerequisite(s): BIOL 1010 or BOT 2400 recommended

Covers the classification, identification, and ecology of woody plants with an emphasis on native trees and shrubs. Includes field trips and laboratory work. Designed for both biology majors and non-majors. Requires student plant collection. Course Lab fee of \$97 for transportation applies.

**BOT 2100** **BB**  
**Flora of Utah**  
**3**  
\* Prerequisite(s): BIOL 1010 is recommended

Focuses on vascular plant taxonomy and is intended for botany and biology majors or anyone interested in learning about plants native to Utah. Covers the principles of plant classification, nomenclature, and identification with an emphasis on Utah flowering plants. Includes field trips and weekly laboratory. Requires student plant collection. Course Lab fee of \$97 for transportation applies.

### **BOT 2400** **BB** **Plant Kingdom**

**4**  
\* Prerequisite(s): BIOL 1010 or BIOL 1610 with a minimum grade of C-

Surveys of the Divisions (Phyla) traditionally studied by botanists, emphasizing structure, reproduction, systematics, and evolution. Completers should be familiar with the morphological features of the major prokaryotic, fungal, algal, and plant groups. Includes a weekly laboratory. Course Lab fee of \$50 for supplies applies.

### **BOT 290R** **Special Topics In Botany**

**1 to 4**  
\* Prerequisite(s): BIOL 1010 or higher or Instructor Approval

Explores and examines special topics relating to the field of Botany. Emphasizes areas of rapid growth in Botany or current importance to society. May be repeated for a total of six credits toward graduation.

### **BOT 295R** **Independent Studies in Botany**

**1 to 4**  
\* Prerequisite(s): At least 3 credit hours of college level biology, approval of a faculty mentor, and approval of the department chair

Provides individual studies in botany under the direction of a faculty mentor. May include literature reviews, original research, and participation in ongoing departmental projects. Introduces students to the methodology of botany research. Requires written and oral communication of scientific information. May be repeated for up to 4 credits toward graduation.

### **BOT 3210** **Controlled Environment Experiments in Horticulture**

**3**  
\* Prerequisite(s): BIOL 1610, BIOL 1615, MATH 1050, and University Advanced Standing

Introduces students to conducting greenhouse or growth chamber experiments. Discusses basic greenhouse design and components. Requires students to develop, conduct and analyze basic greenhouse research with the help of the instructor.

### **BOT 3340** **Plant Biology**

**4**  
\* Prerequisite(s): BIOL 1620 and (CHEM 1120 or CHEM 1220 or higher) with a minimum grade of C- in each, and University Advanced Standing

Covers structure-function interrelationships from the cellular to whole plant level, including aspects of plant anatomy, physiology, reproduction, growth and development with emphasis on the angiosperms (flowering plants). Designed for Biology Education majors and others wishing a one semester upper division combined plant anatomy/plant physiology course. Includes weekly laboratory. Course lab fee of \$30 for supplies applies.

### **BOT 3500** **Mycology**

**4**  
\* Prerequisite(s): University Advanced Standing

Provides an introduction to the fungal kingdom, focusing on understanding evolutionary relationships and adaptations, and in gaining an appreciation for the environmental, industrial, and medical functions that fungi play. Actively explores current primary literature and research methods in mycology. Course Lab fee of \$65 for materials applies.

### **BOT 3710** **Plant Propagation**

**3**  
\* Prerequisite(s): BIOL 1620 and University Advanced Standing. BOT 1800 recommended

Provides students with an understanding of the basic principles of plant propagation. Emphasizes specific techniques for various types of plants in their appropriate environments. Includes propagating from seed, bulbs, layering, vegetative cuttings, grafting and micropropagation. Focuses on the science behind various propagation methods. Course Lab fee of \$100 for materials applies.

### **BOT 3800** **Ethnobotany WE**

**4**  
\* Prerequisite(s): BIOL 1620 with a C- or higher and University Advanced Standing

Analyzes and evaluates interactions between people and plants. Discusses how plants are used in medicine, industry, food, and culture. Covers basic concepts, including literature and field research techniques, phytochemical analysis, and ethical issues such as bioprospecting and conservation. Includes class discussions, student-led activities, oral presentations, and a final project. Course lab fee of \$15 applies.

**BOT 4050  
Plant Ecology****3**

\* Prerequisite(s): BIOL 1620 with a C- or higher, and University Advanced Standing  
\* Corequisite(s): BOT 4055

Studies the interrelationships between plants and their environment, including population, community, and ecosystem processes. Specific topics include adaptation to abiotic factors, plant life history patterns, species interactions such as competition and herbivory; community structure, diversity, and dynamics; biome structure and distribution, and energy flow and nutrient cycles in ecosystems. Presents the impact of humans on plant communities and ecological processes.

**BOT 4055  
Plant Ecology Laboratory****1**

\* Prerequisite(s): University Advanced Standing  
\* Corequisite(s): BOT 4050

Laboratory component of Plant Ecology in which students acquire skills in the collection, analysis, and presentation of ecological data. Includes field sampling of plant populations, laboratory and greenhouse experiments, and scientific writing. Field trips, including one weekend field trip, are required. Course Lab fee of \$97 for lab, transportation applies.

**BOT 4100  
Plant Anatomy****4**

\* Prerequisite(s): BIOL 1620 and BIOL 1625 with a minimum grade of C- in each, and University Advanced Standing

Covers the structure and development of cells, tissues and tissue systems in stems, roots, leaves, and reproductive structures in vascular plants, with emphasis on the angiosperms. Discusses primary and secondary plant body, including wood anatomy. Includes weekly laboratory. Course lab fee of \$47 for supplies applies.

**BOT 4200  
Plant Systematics****3**

\* Prerequisite(s): (BOT 2050 or BOT 2100), (BIOL 1010 or BIOL 1620) with a C- or better in each course, and University Advanced Standing

Covers the principles of plant classification and the techniques employed in gathering and analyzing taxonomic data. Focuses on the essentials of phylogenetic analysis in plants and on the evolutionary relationships between the major groups of vascular plants. Includes a weekly laboratory. Course Lab fee of \$47 for materials applies.

**BOT 4300  
Native Trees and Shrubs of Utah****3**

\* Prerequisite(s): BOT 2050 or BOT 2100; University Advanced Standing

Explores the diversity of woody plants of Utah, the plant communities they inhabit, and the ecological roles they play. Requires field trips; may include overnight trips as well as scheduled labs. Course Lab fee of \$103 for transportation applies.

**BOT 4430  
Plant Pathology****3**

\* Prerequisite(s): BIOL 1610 with a minimum grade of C- and University Advanced Standing

Teaches the fundamental concepts of plant pathology. Describes plant disease symptoms and organisms that cause those diseases and methods of control and diagnosis of diseases. Includes required laboratory. Course fee of \$20 applies.

**BOT 4500  
Introduction to Grasses****3**

\* Prerequisite(s): BOT 2100 or BOT 2050 (with a C- or better); University Advanced Standing

Discusses grasses and their relatives, grass anatomy, taxonomy, and ecology. Emphasizes identification techniques. Includes heavy lab component and required field trips. Requires student plant collection.

**BOT 4600  
Plant Physiology WE****3**

\* Prerequisite(s): BIOL 1620 and CHEM 1220 both with a minimum grade of C-, and University Advanced Standing  
\* Corequisite(s): BOT 4605

Covers the physiological processes occurring in plants. Includes experimental techniques used in the investigation of processes such as photosynthesis, water and solute transport, tissue culture, growth regulation and responses and plant hormones. Involves problem solving and critical thinking skills.

**BOT 4605  
Plant Physiology Laboratory****1**

\* Prerequisite(s): BIOL 1610, BIOL 1615, and University Advanced Standing  
\* Corequisite(s): BOT 4600

Focuses on laboratory aspects of topics in BOT 4600. Covers experimental methods for studying plant physiological processes such as respiration, photosynthesis, mineral nutrition, transpiration and tissue-water relations. Course Lab fee of \$35 applies.

**BOT 4650  
Greenhouse Management****3**

\* Prerequisite(s): CHEM 1220, BIOL 1620, and University Advanced Standing; BOT 1800 recommended

Gives students an in-depth understanding of greenhouse operations, infrastructure and management. Covers greenhouse structures components and controls. Studies plant growth and development within controlled environments. Informs students about plant nutrition, plant substrates, watering, and lighting strategies used in greenhouse management. Course Lab fee of \$97 applies.

**BOT 4700  
Plant Tissue Culture WE****4**

\* Prerequisite(s): BIOL 1620 with a minimum grade of C- and University Advanced Standing

Teaches principles of plant micro propagation techniques. Prepares the student to design and carry out their own micro propagation systems for the cultivation of a particular plant species. Course lab fee of \$60 applies.

**BOT 4800  
Plant-Herbivore Interactions****3**

\* Prerequisite(s): BIOL 1620 with a C- or higher, and University Advanced Standing

Studies the diversity of interactions between plants and herbivores, and how these interactions can affect population, community, and ecosystem-level dynamics. Topics include plant defenses, tritrophic interactions, plant succession, and co-evolution. Implications of plant - herbivore interactions to natural resource management are considered.

**BOT 481R  
Botany Internship  
1 to 5**

\* Prerequisite(s): BIOL 1620 with a C- or higher, Instructor Approval, and University Advanced Standing

Allows biology majors to earn credit while obtaining practical and research experience as an intern in a government, nonprofit, private agency, or with an approved employer. Must be supervised by agency representative and faculty advisor. Department chairperson approval required and written contracts must be completed and signed. May be repeated for a maximum of 5 credits toward graduation. May be graded credit/no credit.

## Course Descriptions

### **BOT 489R** **Student Research** **1 to 4**

\* Prerequisite(s): BIOL 1620, CHEM 1210, Junior or Senior Standing, Instructor Approval, and University Advanced Standing

Provides guided research studies in botany under the direction of a Biology Department faculty mentor. Includes any combination of literature reviews, original research, and/or participation in ongoing departmental projects. Involves students in the methodology of original botanical research. Requires preparation and presentation of oral and/or written reports. May culminate in results that will form the basis of the senior thesis in the major, if thesis option is chosen. May be repeated for 9 credits toward graduation.

### **BOT 490U** **Museum-Based Taxonomy and Biodiversity Research** **3**

\* Prerequisite(s): BIOL 1620 and (BOT 2050 or BOT 2100 or BOT 2400) with a C- or higher, and University Advanced Standing

Focuses on botany and utilizes the UVU natural history museum herbarium and other online natural history resources. Employs museum-based pedagogical tools and will evaluate, define and practice taxonomic applications in biodiversity research, including how floras, faunas and mycotas have been used by scientists. Uses floristics to assess outputs (dissemination) and impacts as well as assess technology on field data collection, uses, potential, and how might collections be used in the future.

### **BOT 490R** **Special Topics in Botany** **1 to 4**

\* Prerequisite(s): BIOL 1620 with a C- or higher, and University Advanced Standing

Explores and examines special topics relating to botany. May emphasize areas of rapid growth in botanical science or areas not covered in other courses. May be repeated for a total of 8 credits toward graduation.

### **BOT 499R** **Senior Thesis** **1 to 2**

\* Prerequisite(s): ENGL 2010, Junior standing, Instructor Approval, and University Advanced Standing

Is for students who are nearing completion of a baccalaureate degree in Botany with the thesis option. Assists students who are writing a thesis based only on library research, or those who have performed laboratory/field research under BIOL 489R or BOT 489R. Provides experience in critically analyzing published literature and, if laboratory/field research was performed, comparing research results with the scientific literature. Is supervised by an appointed faculty member of the Department of Biology. Requires a technically accurate report on one's findings. Includes the opportunity to present the research results to students, faculty and the community at a Department of Biology seminar. May be repeated once for a total of 2 credits toward graduation.

## **Biotechnology (BTEC)**

### **BTEC 1010** **BB** **Fundamentals of Biotechnology I Career Survey** **3**

Explores careers in biotechnology with emphasis on central dogma of biology, DNA techniques, applications in biotech, and bioethics. Examines forensics and human cloning. Includes lab work. Course Lab fee of \$26 applies.

### **BTEC 2010** **DNA Manipulation and Analysis** **3**

\* Prerequisite(s): BTEC 1010 with a minimum grade of a C; BIOL 1610 and BIOL 1615, with minimum grade of C- in each

Facilitates the mastery of lab skills relevant to DNA technology including recombinant DNA cloning, DNA gel electrophoresis, polymerase chain reaction and DNA sequencing. Course fee of \$86 for lab applies.

### **BTEC 2020** **Protein Purification and Analysis** **3**

\* Prerequisite(s): BTEC 2010 with minimum grade of C

Teaches current techniques with protein production, purification, and analysis. Includes instruction and practice with polyacrylamide gel electrophoresis (PAGE), chromatography, western blot, and FPLC analysis. Course fee of \$107 for lab applies.

### **BTEC 2030** **Cell Culture Techniques** **2**

\* Prerequisite(s): BIOL 1615 with a minimum grade of a "C"

Teaches basics of eukaryote cell culture. Includes handling, storage, and maintenance of mammalian stocks. Emphasizes media preparation and sterile techniques. Includes in vitro labeling and transfection. Course fee of \$195 for lab applies.

### **BTEC 2040** **Advanced Nucleic Acid Laboratory** **3**

\* Prerequisite(s): BTEC 2010 with minimum grade of C

Teaches advanced nucleic acid modification and analysis methods. Includes site-directed mutagenesis, DNA sequencing, and RNA analysis methods, high-resolution DNA melting for genotyping and real-time PCR to quantitate DNA in samples. Incorporates methods to mutate 2 genes using CRISPR gene editing technology followed by RT-PCR to analyze gene expression (RNA isolation, creating cDNA, followed by real-time PCR).

### **BTEC 3300 (Cross-listed with: CHEM 3300)** **Biomolecular Modeling and Simulations** **4**

\* Prerequisite(s): CHEM 3600 or BIOL 3600, and University Advanced Standing

Introduces students to the field of molecular modeling and simulations and to the wide range of problems that can be tackled using computational methods. Focuses on biomolecular simulations and computer-aided drug discovery. Emphasizes the connection between structure, dynamics, and function. Teaches application of algorithmic thinking to solving complex problems. Develops practical skills needed to perform simulations and analyze the results. Develops understanding of the inherent approximations and limitations of the methods for adequate assessment of modeling results. Covers topics such as molecular visualization and rendering, molecular dynamics simulations, and computer-aided drug discovery through virtual screening and small molecule docking.

### **BTEC 481R** **Biotechnology Internship** **1 to 10**

\* Prerequisite(s): BIOL 1610 with a minimum grade of C-, junior standing in Biotechnology B.S. program, and instructor approval

Allows biotechnology majors to earn credit while obtaining practical and research experience as an intern in a government, nonprofit, private agency, or with an approved employer. Must be supervised by agency representative and faculty advisor. Department chairperson approval required and written contracts must be completed and signed. May be repeated for a maximum of 10 credits. May be graded credit/no credit.

**BTEC 489R**  
**Student Research**  
**1 to 4**

\* Prerequisite(s): BIOL 1610, CHEM 1210, BTEC 2010, Junior or Senior Standing, instructor permission, and University Advanced Standing

Provides guided research studies in biotechnology under the direction of a Biology Department mentor. Includes any combination of literature reviews, original research, and/or participation in ongoing departmental projects. Involves students in the methodology of original biology research. Requires preparation and presentation of oral and/or written reports. May culminate in results that will form the basis of the senior thesis in the major, if thesis option is chosen. May be repeated for 8 credits toward graduation.

**BTEC 490R**  
**Special Topics in Biotechnology**  
**1 to 4**

\* Prerequisite(s): BIOL 1610 with minimum grade of C-, and University Advanced Standing

Explores and examines special topics relating to the field of biotechnology. Emphasizes areas of rapid growth in biotechnology or current importance to society. May be repeated for a maximum of 18 credits toward graduation.

**BTEC 494R**  
**Student Seminar WE**  
**2**

\* Prerequisite(s): BTEC 2010 with minimum grade of C and University Advanced Standing

Requires students to research scientific literature, write a research paper, give oral presentations, and lead discussions on assigned biotechnology topics in specific areas of current research in biotechnology. May be repeated for up to 4 credits toward graduation.

**BTEC 499R**  
**Senior Thesis**  
**1 to 2**

\* Prerequisite(s): ENGL 2010, junior standing, instructor permission, and University Advanced Standing

Is for students who are nearing completion of a baccalaureate degree in Biotechnology with the thesis option. Assists students who are writing a thesis based only on library research, or those who have performed laboratory/field research under BTEC 499R. Provides experience in critically analyzing published literature and, if laboratory/field research was performed, comparing research results with the scientific literature. Is supervised by an appointed faculty member of the Department of Biology. Requires a technically accurate report on one's findings. Includes the opportunity to present the research results to students, faculty and the community at a Department of Biology seminar and/or other appropriate venues (e.g., conferences). May be repeated for a maximum of 2 credits toward graduation.

## Culinary Arts (CA)

**CA 1000**  
**Culinary Basics**  
**3**

Designed for hospitality management majors and as elective credit for other business majors. Explains the techniques and procedures of quality and quantity food production. Studies the selection and preparation of major food products. Provides an extensive set of basic and complex recipes for practice. Includes lectures, lab, visits of guest chefs, and field trips. Completers should be prepared to enter the working field as a prep cook. Course fee of \$150 for materials applies.

**CA 1120**  
**Cooking Skills Development**  
**5**

\* Prerequisite(s): CA 1490, Food Handlers permit or ServSafe Certification. Acceptance into the Culinary Arts Institute.

Covers basic food service skills in a commercial kitchen environment. Stresses the use of standardized recipes and procedures. Introduces basic ingredients, stocks, soups, mother sauces, protein fabrication, cooking methods and breakfast items. Includes daily end product assessment. Emphasizes sanitary food handling practices and professional work habits. Course fee of \$750 for materials and equipment applies.

**CA 1140**  
**Professional Dining Room Services**  
**1**

\* Prerequisite(s): Acceptance into the Culinary Arts Institute

Covers the key aspects and responsibilities of table servers in different styles of operations. Covers taking reservations, greeting guests, basic table settings, formal and specialized settings, food and beverage service, selling menu specials, closing checks, customer complaints, emergency procedures, and using a Point of Sale system.

**CA 1150**  
**Nutrition and Food Service**  
**3**

Provides an understanding of how and why the relationship between food and health has moved into sharp focus. This course will trace the change in dietary patterns that have been noted by the food service industry. This course has been designed to help meet the need of developing adequate healthful food programs. You will learn about the changes in eating attitudes and be able to define the various responsibilities of the food service industry. You will learn how to identify whether a market exists for a healthful food program and how to plan and manage such a program. The course will also explore nutrients and their food sources; physiological and metabolic aspects of nutrient functions; individual requirements; food choices and selection; prevention and treatment of common nutritional-related disease; along with contemporary and controversial issues.

**CA 1160**  
**Culinary Math**  
**1**

\* Prerequisite(s): Matriculation and Acceptance into the Culinary Arts Institute

Reviews basic math functions. Applies basic math functions to culinary specific uses including unit conversion, recipe scaling, yields, recipe costing, menu costing, food service expenses and costs, and baker's percentages.

**CA 1170**  
**Pastry and Baking Skills**  
**5**

\* Prerequisite(s): Food Handlers permit or ServSafe Certification. Acceptance into the Culinary Arts Institute.

\* Prerequisite(s) or Corequisite(s): CA 1490

Covers basic baking and pastry skills in a commercial kitchen environment. Stresses the use of standardized recipes and procedures. Covers baking terms, equipment and ingredients. Includes daily end product critiquing. Covers yeast-leavened breads, quick breads, pies and tarts, custards, creams, cookies, brownies, pâte à choux, and meringues. Introduces nutritional and specialty diet concerns in baking and pastry. Emphasizes sanitary food handling practices and professional work habits. Course fee of \$750 for materials and equipment applies.

**CA 1180**  
**Professional Kitchen Garde Manger**  
**5**

\* Prerequisite(s): CA 1120, Food Handlers permit or ServSafe Certification

Covers preparation of cold food items in a commercial kitchen environment. Covers salad greens, tossed, compound and composed salads, sandwiches, dressings & sauces, cold soups, display platters, assorted forcemeats, savory mousse, preservation techniques, cold hors d'oeuvres, cold appetizers, cheese and centerpieces. Course fee of \$750 for materials and equipment applies.

## Course Descriptions

### **CA 1230 Professional Kitchen I Cooking**

**5**  
\* Prerequisite(s): CA 1120

Covers advanced food service skills in a commercial kitchen environment. Introduces center of plate foods, starches, vegetables, and compound sauces. Advances comprehension of ingredients, stocks, soups, sauces, protein fabrication, cooking methods, flavor and taste development. Includes daily end product assessment. Emphasizes sustainability, sanitary food handling practices and professional work habits. Course fee of \$750 for materials and equipment applies.

### **CA 1260 Culinary Spanish**

**1**  
\* Prerequisite(s): Matriculation and Acceptance into the Culinary Arts Institute

Designed to assist food service employers, managers, and workers to effectively communicate to an increasingly Spanish-speaking work force. Introduces short phrasing to assist in basic communication.

### **CA 1310 Purchasing and Storeroom Management**

**3**  
\* Corequisite(s): CA 1120 and CA 1170

Teaches principles and practices concerning purchasing of foods, supplies, and materials for a modern full-service food service operation. Emphasizes buying, writing specifications, determining needs, and controlling quality.

### **CA 1320 Culinary Management**

**3**  
\* Prerequisite(s): Matriculation and Acceptance into the Culinary Arts Institute

Focuses on employee management and supervision concepts used in the food service field. Includes instruction on writing a professional resume.

### **CA 1480 Sanitation and Table Service**

**3**  
Teaches effective food and beverage service management in outlets ranging from cafeterias and coffee shops to room service, banquet areas, and high-check-average dining rooms. Presents basic service principles while emphasizing the special needs of guests. Explains effective sanitation management to achieve high standards that will keep customers coming back. Includes lecture, film, and tapes. Develops an entry-level working knowledge of serving food and beverage.

### **CA 1490 Food Service Sanitation**

**1**  
Explains effective sanitation measures that will keep customers and employees safe. Uses the ServSafe Program from the National Restaurant Association to meet the state wide requirements for food service employee's sanitation and safety training.

### **CA 2120 Professional Kitchen II Restaurant**

**5**  
\* Prerequisite(s): CA 1230

Focuses on practical applications of all Culinary Arts courses by running Restaurant Forte. Enhances knowledge of cooking methods, mise en place, flavor building, soups, salads, entrees and desserts through regional and international cuisines. Course fee of \$750 for materials, equipment applies.

### **CA 2130 Advanced Pastry Baking**

**5**  
\* Prerequisite(s): CA 1170

Covers advanced baking and pastry skills in a commercial kitchen environment. Covers cakes, icing, decoration of cakes, petit fours, dessert sauces, laminated doughs, and fillings and toppings. Introduces the use and role of value added dessert items, and banquet and catering dessert requirements. Emphasizes sanitary food handling practices and professional work habits. Course fee of \$750 for materials and equipment applies.

### **CA 2430 Menu Facilities Design and Beverage Management**

**3**  
\* Prerequisite(s): CA 1310

Introduces menu design. Explores the relationship between menus and restaurant design for both production and service areas. Explains fundamental principles and techniques for planning menus for different operation styles. Provides practical experience and approaches in beverage management and service. Emphasizes legal and moral responsibilities of serving alcoholic beverages. Teaches understanding, service, and storage of beverages in full service restaurants.

### **CA 2450 Menu Design**

**2**  
\* Prerequisite(s): CA 1310

Introduces menu design. Explores the relationship between menus and restaurant design for both production and service areas. Explains fundamental principles and techniques for planning menus for different operation styles.

### **CA 2750 Baking**

**3**  
\* Prerequisite(s): Instructor Approval

Teaches intermediate baking skills. Includes lectures, demonstrations, and daily hands-on activities. Emphasizes quality products, methods/ techniques and formula development.

### **CA 2760 Pastry**

**5**  
\* Prerequisite(s): Instructor approval

Combines patisserie skills learned in other culinary arts classes to develop advanced skills in the production of fine baked products. Stresses the use of standardized recipes and procedures. Includes cakes, tortes, pastries, chocolate, and desserts. Provides daily end-product critiquing. Course fee of \$250 for materials applies.

### **CA 282R Culinary Arts Internship**

**1 to 8**  
\* Prerequisite(s): Culinary Arts Institute Director Approval

Provides a transition from school to work where learned theory is applied to actual practice through a meaningful on-the-job experience commensurate with classroom instruction. May be repeated for up to eight hours toward graduation in the Culinary Arts degree. May be graded credit/no credit.

### **CA 296R Culinary Arts Seminar**

**1 to 3**  
\* Prerequisite(s): Instructor Approval

Provides short courses, workshops, and special programs in Culinary Arts topics. Repeatable for up to three credits toward graduation.

### **CA 298R ACF**

**1**  
For Culinary Arts students who are interested in participating with a national professional association (American Culinary Federation). Prepares students to participate in local, state, and national competitions. May require payment of membership dues. A maximum of four credits may be applied toward graduation.

### **CA 299R VICA**

**1**  
For Culinary Arts students who are interested in participating with a national vocational student organization (Vocational Industrial Clubs of America) that develops social awareness, civic responsibility, vocational and leadership skills through participation in educational, vocational, civic, recreational, and social activities. Prepares students to participate in local, state, and national competitions. May require payment of membership dues. A maximum of four credits may be applied toward graduation.

**CA 481R**  
**Cooperative Work Experience**  
**2 to 9**

\* Prerequisite(s): Approval of School of Business Career and Corporate Manager and University Advanced Standing

For upper division students working towards a Bachelor of Science Degree in Hospitality Management with an emphasis in Food and Beverage. Provides opportunities to apply classroom theory on the job. Students work in a restaurant kitchen while enrolled at the college. Credit is determined by the number of hours a student works during the semester. Completers meet individually set goals. May apply 6 credits toward a Bachelor of Science Degree in Hospitality Management. May be graded credit/no credit.

## Cabinetry and Archit Woodwork (CAW)

**CAW 100R**  
**Survey of Working with Wood**  
**2**

An introductory course for those interested in working with wood. Students will experience the satisfaction of making a piece of furniture with individualized help from the instructor. Includes "hands on" practice with woodworking equipment and instruction in methods to design, build, and finish a wood project. May be repeated up to four times for credit. Course fee of \$15 for materials, equipment applies.

**CAW 1100**  
**Artistic Wood Design**  
**2**

Explores form, functions, and utility of wood products through students' design and creation of projects in the wood lab. Provides opportunities to design and create a unique piece of woodwork.

**CAW 1130**  
**Residential Cabinetry**  
**4**

Studies cabinetmaking methods including joinery, construction, gluing, and clamping. Includes building a set of residential cabinets. Introduces hand and portable electric and air tools. Covers tool care and minor repairs. Stresses functions, selection, maintenance, and safety. Course fee of \$15 for materials, equipment applies.

**CAW 1140**  
**Millworking and Safety Shop I**  
**5**

A lab for CAW students. Teaches fundamentals of woodworking machines and standard millwork operations. Studies correct construction techniques. Safety is taught the first 15 hours and stressed throughout the course. Course fee of \$25 for materials, equipment applies.

**CAW 114A**  
**Millworking and Safety Shop I**  
**2.5**

Laboratory for Cabinetry students. Covers half of CAW 1140. Teaches fundamentals of woodworking machines and standard millwork operations. Studies correct construction techniques. Teaches safety the first 15 hours and stressed throughout the course. Course fee of \$15 for materials, equipment applies.

**CAW 114B**  
**Millworking and Safety Shop I**  
**2.5**

Laboratory for Cabinetry students. Covers half of CAW 1140. Teaches fundamentals of woodworking machines and standard millwork operations. Studies correct construction techniques. Teaches safety the first 15 hours and stressed throughout the course. Course fee of \$15 for materials, equipment applies.

**CAW 1150**  
**Design Drafting and Billing**  
**3**

For CAW majors and other interested community members. Teaches detailed drawing concepts, writing bills of materials, and material cost estimates. Uses all elements of good design.

**CAW 1170**  
**Finish Technology**  
**2**

For CAW majors and other interested community members. Studies types of stains, fillers and finishes, and techniques to properly prepare wood. Teaches hand and spray painting. Includes lab experience. Course fee of \$15 for materials applies.

**CAW 1210**  
**Cabinetmaking Materials and Hardware**  
**1**

Emphasizes characteristics of wood, plastic laminates, plywoods, and particle boards. Discusses proper use and residential hardware. Covers specifications, types, selection, and installation.

**CAW 1240**  
**Millworking Shop II**  
**5**

A second semester shop course for CAW students and interested community members. Teaches the design and construction of more difficult millworking projects. Studies advanced jointers, finishing techniques, and fastening devices. Stresses safety. Course fee of \$25 for materials, equipment applies.

**CAW 124B**  
**Millworking Shop II**  
**2**

A second semester shop course for CAW students and interested community members. Covers half of CAW 1240. Teaches the design and construction of more difficult Millworking projects. Studies advanced jointers, finishing techniques, and fastening devices. Stresses safety. Course fee of \$15 for materials, equipment applies.

**CAW 1250**  
**Drafting and Computer Applications for Cabinetmakers**  
**4**

Emphasizes design, purpose, function, appearance, materials, and construction for quality cabinetmaking. Covers efficient timesaving methods. Teaches material cost estimating. Teaches basic CNC software. Uses computer software Cabinet Vision& Master CAM. Course fee of \$15 for materials, software applies. Lab access fee of \$15 for computers applies.

**CAW 140R**  
**Millwork Technology**  
**4**

Teaches the techniques and skills necessary to construct quality furniture using current technology and processes. Stresses safety, machine and tool usage, joinery, and operations. Each semester the joinery and operations will differ and increase in difficulty depending on the required project. May be repeated for a maximum of 16 credits toward graduation.

**CAW 2250**  
**Computer Aided Manufacturing for Woodworking**  
**4**

Teaches how to use computer numerical controlled "CNC" machines to aid in the manufacturing of wood products. Includes machine setup, tooling, software usage, and parts production. Uses CAM software.

**CAW 2300**  
**Counter Top Technology**  
**3**

Explores methods used to produce different types of counter-tops. Studies high pressure laminates, solid wood, solid surface, tile, and stone. Includes field trips to counter-top shops. Course fee of \$25 for materials, equipment applies.

**CAW 2310**  
**Cabinetry Math**  
**2**

Covers math used in cabinetmaking. Includes fractions, decimals, percents, interest, volume, and metrics. Studies special trade formulas. Students receive instruction through structured situations to cope with the special problems required in the woodworking industry.

## Course Descriptions

### **CAW 2340** **Millworking Shop III** **5**

Custom cabinetmaking shop. Practice in making and setting up custom shaper knives, doing custom flat and curved veneer and lamination work. Includes lathe work on the duplicator attachments. Completers should be able to enter the field as a cabinet and architectural woodwork trainee. Course fee of \$25 for materials, equipment applies.

### **CAW 234A** **Millworking Shop III** **2.5**

Custom cabinetmaking shop. Covers half of CAW 2340. Practice in making and setting up custom flat and curved veneer and lamination work. Includes lathe work on the duplicator attachments. Completers should be able to enter the field as a cabinet and architectural woodwork trainee. Course fee of \$15 for materials, equipment applies.

### **CAW 234B** **Millworking Shop III** **2.5**

Custom cabinetmaking shop. Covers half of CAW 2340. Practice in making and setting up custom shaper knives, doing custom flat and curved veneer and lamination work. Includes lathe work on the duplicator attachments. Completers should be able to enter the field as a cabinet and architectural woodwork trainee. Course fee of \$15 for materials, equipment applies.

### **CAW 2430** **Commercial Cabinetry Technology** **4**

Studies zoning, shop flow, and production set. Includes field trip to commercial cabinet shop. Teaches set up of machines used in the industry. Course fee of \$15 for materials, equipment applies.

### **CAW 2440** **Millworking Shop IV** **5**

A culminating architectural woodworking shop. Students build projects demonstrating advanced skills learned in previous shop courses. Course fee of \$25 for materials, equipment applies.

### **CAW 244B** **Millworking Shop IV** **2**

Culminates previous architectural woodworking courses. Covers half of CAW 2440. Requires advanced skills, learned previously, to complete projects. Course fee of \$15 for materials, equipment applies.

### **CAW 2450** **Machine Maintenance and Upkeep** **2**

Studies the maintenance and upkeep of machines and tools used in the woodworking industry. Focuses on sharpening, routine maintenance, machine set-up, adjustments, and diagnosing problems.

### **CAW 281R** **Cooperative Work Experience** **1 to 8**

\* Corequisite(s): CAW 285R the first time only  
For CAW majors. Provides paid, on-the-job work experience in the student's major. Work experience, the related class, and enrollment are coordinated by the Cooperative Coordinator. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and oral presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated twice for credit. May be graded credit/no credit.

### **CAW 285R** **Cooperative Correlated Class** **1**

\* Corequisite(s): CAW 281R the first time only  
For CAW majors. Identifies on-the-job problems and provides remediation of those problems through in-class discussion and study. Includes the study of identifying and maximizing service opportunities. Students register for this class with approval of the Cooperative Coordinator. Includes lectures, guest speakers, video tapes, role playing, case analysis, oral presentations, and written assignments. Completers should be better able to perform in their field of work or study. May be repeated twice for credit.

### **CAW 299R** **Skills USA** **1**

Supports and facilitates the goals and objectives of Skills USA pre-professional student organization that develops social awareness, civic, recreational, and social activities. Students may participate in local, state, and national contests. May be repeated for a maximum of 2 credits toward graduation.

## **Constitutional Government Civics and Law (CGCL)**

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### **CGCL 6100** **Foundations of American Constitutionalism** **3**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Surveys the philosophical and historical foundations of constitutionalism in America. Covers ancient, medieval, and modern political theorists' ideas about regimes and constitutions. Focuses on the English constitution, the American state constitutions, and the Articles of Confederation that the framers of the United States Constitution drew upon in creating the 1787 national constitution. Includes discussion of the Federalist and Anti-Federalist Papers. Analyzes how these foundations continue to shape American constitutional law today.

### **CGCL 6110** **Structures of Government in American Constitutional Law** **3**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Engages students in an effort to understand the institutional logic that animates the American Constitution. Examines the structure of government established by the Constitution, focusing primarily on the two fundamental institutional features that characterize that structure: separation of powers and federalism.

### **CGCL 6120** **Rights and Liberties in American Constitutional Law** **3**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Focuses on the content and enforcement of constitutionally protected civil rights and civil liberties in the United States. Begins with the foundational ideas that formed the content of the American tradition of civil liberties in the early republic and gave rise to reliance on judicial review as a guarantor of constitutional rights. Examines the constitutional disputes over equal protection, property rights, criminal due process, freedoms of speech, press, and association, religious liberty and other judicially created rights concerning privacy, marriage, and parental rights. Explores primary sources, both in the form of judicial opinions and non-judicial documents.

**CGCL 6160****Roots of the American Regime****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Explores core ancient and modern texts in political philosophy and theology that are foundational to the political thought of the American Founding. Helps students understand the American form of government in comparison with other regimes. Surveys American ideas within the history of political philosophy.

**CGCL 6180****Constitutional Interpretation****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Engages students in an effort to understand the ideas and logic that animate constitutional interpretation in the American political system. Explores the major theories of jurisprudence in American law and their criticisms.

**CGCL 6190****Constitutional Law in Education****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Examines the application of constitutional law to education, with special attention to the United States. Includes the scope and exercise of constitutional rights enjoyed by students, parents, teachers, and educational institutions as well as the constraints imposed by federalism, due process, disestablishment of religion, and other structural constitutional principles on education policy.

**CGCL 6200****Foundations of American Democracy****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Surveys the philosophical and historical foundations of American democracy and equal citizenship. Covers key texts about democracy from ancient and modern republican writers, including theorists of democracy in America, like Publius, John Adams, and Thomas Jefferson, and observers of democracy in America like Alexis de Tocqueville. Focuses on the United States Constitution.

**CGCL 6300****Foundations of American Liberty****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Surveys the philosophical and historical foundations of individual rights, limited government, and liberty in America. Covers key texts from the classical liberal tradition, including Roger Williams, John Locke, Thomas Paine, John Adams, Thomas Jefferson, Publius, George Washington, and John Taylor. Focuses on the Declaration of Independence.

**CGCL 6310****Early American Political Thought****3**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Surveys the major figures and ideas in the development of early American political thought. Begins with the foundational underpinnings of the American regime and examines the ideas that divided the Union during the Civil War. Focuses on the ideas of major political actors and thinkers: both the historical context in which they wrote and the texts that they produced.

**CGCL 6320****Modern American Political Thought****3**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Surveys the major figures and ideas in the development of American political thought. Begins with the ideas that divided the Union during the Civil War, studies the political thought of the Gilded Age, continues through the Progressive Era and the New Deal, examines the influential political ideas of the postwar period, and finishes up at the present-day. Focuses on the ideas of major political actors and thinkers: both the historical context in which they wrote and the texts that they produced.

**CGCL 6400****American Political Development****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Surveys the development of the American political regime. Focuses on the major political ideas and institutions that have informed the thought and practice of American politics over the course of American history. Includes a study of the development of American constitutionalism, federalism, Congress, the presidency, and the Supreme Court.

**CGCL 6420****The Presidency in American Political Development****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Examines the origins and development of the institution known as the United States presidency. Begins by studying the creation of the presidency at the time of the American Founding, and then examines how the institution has evolved up to the present day.

**CGCL 6430****The Supreme Court in American Political Development****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Examines the origins and development of the United States Supreme Court. Begins by studying the creation of the Supreme Court at the time of the American Founding, and then examines how the institution has evolved up to the present day.

**CGCL 6440****Parties in American Political Development****2**

\* Admission to M.A. in Constitutional Government, Civics, and Law program.

Examines the origins and development of political parties in the United States. Begins by studying the creation of parties at the time of the American Founding, and then examines how the party system has evolved up to the present day.

## Chemistry (CHEM)

**CHEM 1010****Introduction to Chemistry****3**

\* Prerequisite(s): MAT 1010 or higher with a C- or better, OR STAT 1040 or STAT 1045 or above with a C- or better, OR a placement score equivalent to MATH 1050 or above  
\* Corequisite(s): CHEM 1015 (optional)

Assumes no previous knowledge of chemistry. Presents the foundations of chemistry to students who need preparation for further study in chemistry as well as to students who only want to take an introductory course. Covers chemical measurements, atomic structure, formulas, chemical reactions and equations, chemical nomenclature, stoichiometry, molecules and chemical bonding, gas laws, liquids, solids, solutions, acids and bases.

**CHEM 1015****Introduction to Chemistry Lab****1**

\* Corequisite(s): CHEM 1010

A lab designed to accompany CHEM 1010. Provides practical experience to support chemistry foundational learning. Emphasizes chemical measurements, atomic structure, formulas, chemical reactions and equations, chemical nomenclature, stoichiometry, molecules and chemical bonding, gas laws, liquids, solids, solutions, acids and bases. Course lab fee of \$31 applies.

PP

## Course Descriptions

**CHEM 1110** PP  
**Elementary Chemistry for the Health Sciences**  
**4**  
\* Prerequisite(s): MAT 1010 or higher with a C- or better, or STAT 1040 or STAT 1045 with a C- or better, or a placement score into MATH 1050 or higher.

Introduces the fundamentals of chemistry to students in the health sciences. Covers chemical measurements and calculations, atomic structure, chemical bonding, chemical reactions, states of matter, solutions, chemical equilibrium, acid-base systems, and introduces organic chemistry.

**CHEM 1115**  
**Elementary Chemistry Laboratory**  
**1**  
\* Prerequisite(s) or Corequisite(s): CHEM 1010 or CHEM 1110

Introduces inorganic laboratory experiments including density, precipitation, determination of empirical formulas, gas laws and acid-base reactions. Course Lab fee of \$27 applies.

**CHEM 1120** PP  
**Elementary Organic Bio-Chemistry**  
**4**  
\* Prerequisite(s): CHEM 1110

Introduces organic and biochemistry for non-chemistry majors entering nursing and other allied health fields such as medical technology, physical therapy, nutrition, and environmental technology. Studies the nomenclature of organic compounds, organic functional groups and their reactivities, stereochemistry, major biomolecules and their metabolism, enzymes, chemical communications, and chemistry of heredity. May also be used to prepare for organic chemistry (CHEM 2310 and 2320).

**CHEM 1125**  
**Elementary Organic Bio-Chemistry Laboratory**  
**1**  
\* Prerequisite(s): CHEM 1110 and CHEM 1115  
\* Corequisite(s): CHEM 1120

An introductory organic bio-chemistry laboratory class for non-chemistry majors who need a laboratory to accompany Elementary Organic Bio-Chemistry (CHEM 1120). Explores identifications and reactions of organic functional groups and conducts experiments with biomolecules. Course Lab fee of \$80 applies.

**CHEM 1210** PP  
**Principles of Chemistry I**  
**4**  
\* Prerequisite(s): MATH 1080, MATH 1050, MATH 1055 or any higher MATH course with a C- or better, or appropriate placement scores for MATH 1060 or higher. Also, it is highly recommended to have prior chemistry experience in high school or in CHEM 1010  
\* Corequisite(s): CHEM 1215

First semester of a full-year course primarily for students in the physical and biological sciences and engineering. Covers fundamentals of chemistry including atoms, molecules, reactions, stoichiometry, chemical bonding, thermochemistry, and gas laws.

**CHEM 1215**  
**Principles of Chemistry I Laboratory**  
**1**  
\* Corequisite(s): CHEM 1210

Primarily for students in the physical and biological sciences and engineering. Introduces laboratory safety and chemical waste disposal practices. Teaches techniques of using standard laboratory equipment. Shows how to record laboratory data and prepare laboratory reports. Experiments follow topics in CHEM 1210. Course Lab fee of \$26 applies.

**CHEM 1220** PP  
**Principles of Chemistry II**  
**4**  
\* Prerequisite(s): CHEM 1210 with a grade of C- or higher  
\* Corequisite(s): CHEM 1225

Continuation of Chemistry 1210. Primarily for students in the physical and biological sciences and engineering. Covers intermolecular interactions, properties of solutions, kinetics, equilibria, thermodynamics, and electrochemistry.

**CHEM 1225**  
**Principles of Chemistry II Laboratory**  
**1**  
\* Prerequisite(s): CHEM 1215 with a C- or better  
\* Corequisite(s): CHEM 1220

Is designed for the physical and biological sciences and engineering. Teaches intermolecular interactions, properties of solutions, kinetics, equilibria, thermodynamics, and electrochemistry. Follows CHEM 1215 and emphasizes topics from CHEM 1220. Course Lab fee of \$42 applies.

**CHEM 1250**  
**Chemistry Cornerstone- Research and Careers**  
**1**

Explores scientific literature, culture and careers. Teaches college success strategies for STEM fields to support students interested in a STEM major.

**CHEM 1260**  
**Chemistry Cornerstone- Ethics**  
**1**  
Explores scientific ethics. Teaches college success strategies for STEM fields to support students interested in a STEM major.

**CHEM 2310**  
**Organic Chemistry I**  
**4**  
\* Prerequisite(s): CHEM 1220 with a grade of C- or higher  
\* Corequisite(s): CHEM 2315

The first in a series of two organic chemistry classes for students majoring in science and for those interested in careers in medicine, dentistry, veterinary science, and pharmacy, who must complete two semesters of organic chemistry. Teaches bonding and structures of organic molecules. Explores the relationship between structure and reactivity of organic functional groups. Introduces the concepts of nomenclature, stereochemistry, and reaction mechanism. Canvas Course Mats \$84/Wiley applies.

**CHEM 2315**  
**Organic Chemistry I Laboratory**  
**1**  
\* Prerequisite(s): CHEM 1220, CHEM 1225  
\* Corequisite(s): CHEM 2310

The first of a series of two laboratory courses to accompany CHEM 2310 and 2320. For students majoring in science and those interested in careers in medicine, dentistry, veterinary science, and pharmacy. Introduces safety in organic chemistry lab and chemical waste disposal. Teaches basic separatory, purification, and analytical techniques in organic chemistry such as crystallization, melting points, distillation and chromatography. Introduces organic synthesis using simple organic reactions. Introduces natural product isolation. Course Lab fee of \$88 applies.

**CHEM 2320**  
**Organic Chemistry II**  
**4**  
\* Prerequisite(s): CHEM 2310 & CHEM 2315 with a C- or higher  
\* Corequisite(s): CHEM 2325

Introduces spectroscopic techniques used in identification of organic compounds. Teaches carbon-carbon bond formation strategies. Introduces the concept of aromaticity. Teaches free radicals and their effects on environment and life. Surveys biologically important organic molecules such as carbohydrates, proteins, lipids, and nucleic acids. Canvas Course Mats \$84/Wiley applies.

**CHEM 2325**  
**Organic Chemistry II Laboratory****1**

- \* Prerequisite(s): CHEM 2315
- \* Corequisite(s): CHEM 2320

The second of a series of two laboratory courses to accompany CHEM 2310 and 2320. For students majoring in science and those interested in careers in medicine, dentistry, veterinary science, and pharmacy. Provides hands-on experience in organic synthesis using a series of single and multistep transformations. Teaches identification of products of reactions using spectroscopic techniques. Explores biologically important organic molecules. Course Lab fee of \$88 applies.

**CHEM 3000**  
**Analytical Chemistry****2**

- \* Prerequisite(s): CHEM 1220, CHEM 1225 and Advanced University Standing
- \* Corequisite(s): CHEM 3005

For Chemistry majors and others interested in the basic principles of chemical measurement. Studies principles of quantitative analysis, stoichiometry, equilibrium theory, and volumetric analysis. Introduces error analysis and instrumental methods, especially electrochemistry, spectrophotometry, chromatography, and mass spectrometry

**CHEM 3005**  
**Analytical Chemistry Laboratory****2**

- \* Prerequisite(s): CHEM 1220, CHEM 1225, and University Advanced Standing
- \* Corequisite(s): CHEM 3000

For Chemistry majors and others interested in the basic principles of chemical measurement. Laboratory companion to CHEM 3000. Involves conducting experiments in quantitative and qualitative analysis, including volumetric and gravimetric analysis. Also, students will conduct experiments in introductory instrumental methods, including experiments in spectrophotometry, electrochemistry, and chromatography. Course Lab fee of \$146 applies.

**CHEM 3020**  
**Environmental Chemistry****3**

- \* Prerequisite(s): CHEM 1225 and University Advanced Standing

Studies the chemistry of soil, ground water, hazardous waste, and the atmosphere. Explores current environmental concerns and issues.

**CHEM 3025**  
**Environmental Chemistry Laboratory****1**

- \* Prerequisite(s): CHEM 1225 and University Advanced Standing

Laboratory course which supports CHEM 3020, Environmental Chemistry. Introduces laboratory, sampling, and data analyses techniques used in environmental laboratories. Covers air sampling, and soil and water analysis using a variety of instruments and techniques.

**CHEM 3060**  
**Physical Chemistry I WE****4**

- \* Prerequisite(s): CHEM 1250, CHEM 1260, PHYS 2220, and University Advanced Standing
- \* Corequisite(s): CHEM 3065

Offers an advanced discussion of the laws of thermodynamics and chemical thermodynamics. Applies the laws to chemical reactions and equilibrium. Covers changes of state, including phase diagrams. Discusses real gases and real solutions. Introduces electrochemistry and chemical kinetics.

**CHEM 3065**  
**Physical Chemistry I Lab****1**

- \* Prerequisite(s): University Advanced Standing
- \* Corequisite(s): CHEM 3060

Demonstrates physical chemistry experiments exploring principles and concepts introduced in CHEM 3060. Teaches design and execution of physical chemistry experiments and interpretation of the observations, as well as application of physical chemistry to solving physical chemistry problems. Course lab fee of \$75 applies.

**CHEM 3070**  
**Physical Chemistry II****4**

- \* Prerequisite(s): CHEM 3060, MATH 2210 and University Advanced Standing
- \* Corequisite(s): CHEM 3075

Provides an advanced discussion of quantum mechanics, including solutions to the Schrodinger wave equation. Connects quantum mechanics with observables, including spectroscopy.

**CHEM 3075**  
**Physical Chemistry II Lab****1**

- \* Prerequisite(s): CHEM 3060, CHEM 3065, and University Advanced Standing
- \* Corequisite(s): CHEM 3070

Demonstrates physical chemistry experiments exploring principles and concepts. Provides opportunity to design and execute physical chemistry experiments and interpretation of the observations. Applies physical chemistry to solving physical chemistry problems.

**CHEM 3080**  
**Physical Chemistry III****3**

- \* Prerequisite(s): CHEM 3070 and University Advanced Standing

Teaches the fundamentals of statistical mechanics and chemical kinetics, as well as the fundamentals of the specialized topics of the physical chemistry of chemical symmetry, computational chemistry, NMR spectroscopy, and electrochemistry.

**CHEM 3100**  
**Advanced Inorganic Chemistry****4**

- \* Prerequisite(s): University Advanced Standing
- \* Prerequisite(s) or Corequisite(s): CHEM 3000

Reviews major trends across the periodic table. Surveys basic structure, bonding, and oxidation states of the elements. Introduces inorganic stereochemistry including coordination compounds.

**CHEM 3115**  
**Advanced Inorganic Chemistry Lab****1**

- \* Prerequisite(s): CHEM 3005 and University Advanced Standing
- \* Corequisite(s): CHEM 3100

Explores principles and concepts introduced in CHEM 3100. Teaches design and execution of inorganic chemistry experiments and interpretation of the observations. Uses application of inorganic chemistry to solving inorganic chemistry problems. Course Lab fee of \$130 applies.

**CHEM 3300 (Cross-listed with: BTEC 3300)**  
**Biomolecular Modeling and Simulations****4**

- \* Prerequisite(s): CHEM 3600 or BIOL 3600, and University Advanced Standing

Introduces students to the field of molecular modeling and simulations and to the wide range of problems that can be tackled using computational methods. Focuses on biomolecular simulations and computer-aided drug discovery. Emphasizes the connection between structure, dynamics, and function. Teaches application of algorithmic thinking to solving complex problems. Develops practical skills needed to perform simulations and analyze the results. Develops understanding of the inherent approximations and limitations of the methods for adequate assessment of modeling results. Covers topics such as molecular visualization and rendering, molecular dynamics simulations, and computer-aided drug discovery through virtual screening and small molecule docking.

## Course Descriptions

### **CHEM 3600 (Cross-listed with: BIOL 3600)** **Biological Chemistry**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): CHEM 2320

Introduces principles of the chemical processes that define living organisms. Covers structure and function of proteins, carbohydrates, lipids and nucleic acids. Explores metabolic pathways, biosynthesis, enzymatics, thermodynamics, membrane dynamics and related processes within a living cell. Emphasizes molecular mechanisms of reactions and their outcome.

### **CHEM 3605 (Cross-listed with: BIOL 3605)** **Biological Chemistry Lab**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): BIOL 3600

Introduces laboratory techniques in biochemistry. Studies methods and theory behind purification of proteins and nucleic acids including chromatography and electrophoresis. Uses methods in assessing enzyme activity and kinetics and protein structure analysis. Includes analysis and manipulation of DNA and RNA. Course Lab fee of \$145 applies.

### **CHEM 3620 (Cross-listed with: BIOL 3620)** **Biological Chemistry II**

**3**

\* Prerequisite(s): (CHEM 3600 or BIOL 3600) and University Advanced Standing

Is a continuation of CHEM 3600. Teaches in-depth the biochemistry of molecular and cell biology processes. Explores the topics of molecular information flow and signaling. Examines current understanding in biochemical methods and ideas beyond those discussed in Biochem I.

### **CHEM 3800 (Cross-listed with: ENVT 3800, PHYS 3800)** **Energy Use on Earth**

**3**

\* Prerequisite(s): (PHYS 1010 or PHSC 1000 or GEO 1010 or GEO 2040 or METO 1010) and (MATH 1050 or MATH 1055) and CHEM 1010 and University Advanced Standing

Covers the science of energy production and consumption. Quantitatively analyzes various methods of energy production, distribution, and end use in all sectors of our society, including transportation, residential living, and industry. Examines the impacts of our energy consumption on the environment and prospects for alternative energy sources. Is intended for science majors interested in energy use in society or in an energy related career, and for students in other majors who feel that a technical understanding of energy use will help them to understand and mitigate its impact in our society.

### **CHEM 4000** **Instrumental Analysis WE**

**2**

\* Prerequisite(s): CHEM 3000, and University Advanced Standing

\* Corequisite(s): CHEM 4005

Covers modern instrumental methods and basic principles of instrumentation. Includes spectroscopic and chromatographic analysis.

### **CHEM 4005** **Instrumental Analysis Laboratory**

**2**

\* Prerequisite(s): CHEM 3000, CHEM 2325, and University Advanced Standing

\* Corequisite(s): CHEM 4000

Experiments in selected areas of instrumental methods of analysis. Covers both quantitative and qualitative methods of analysis. Includes introductory laboratory exercises and laboratories using advanced sample preparation and instrumental analysis techniques. Involves the independent creation and implementation of an advanced laboratory exercise. Course Lab fee of \$333 applies.

### **CHEM 4030** **Radiochemistry**

**3**

\* Prerequisite(s): CHEM 1220, MATH 1210, and University Advanced Standing

Introduces nuclear and radiochemistry, stressing the fundamentals of nuclear structure, systematics of nuclear decay, the detection and measurement of radiation, radiation protection, and the role of nuclear chemistry in medical, environmental and scientific applications. Discusses nuclear fuel cycles and nuclear waste problems.

### **CHEM 4600** **Structure Determination**

**3**

\* Prerequisite(s): CHEM 2320, and University Advanced Standing

\* Corequisite(s): CHEM 4605

Explores integrated topics in organic, inorganic, physical, solid-state, and biochemistry using advanced theory. Enables hands-on use and manipulation of state-of-the-art instrumentation. Examines primary chemistry literature, and involves substantial problem solving using spectroscopic and spectrometric data.

### **CHEM 4605** **Structure Determination Laboratory**

**1**

\* Prerequisite(s): CHEM 2320 and University Advanced Standing

\* Corequisite(s): CHEM 4600

Exposes students to integrated topics in organic, inorganic, physical, solid-state, and biochemistry using advanced theory. Enables hands-on use and manipulation of state-of-the-art instrumentation. Immerses students in the primary chemistry literature, and involves substantial problem solving using spectroscopic and spectrometric data. Taken as a corequisite with CHEM 4600. Course lab fee of \$204 applies.

### **CHEM 4800** **Pharmacology**

**3**

\* Prerequisite(s): (CHEM 3600 or BIOL 3600) and University Advanced Standing

Explores the science behind pharmacological therapeutics. Examines general considerations such as pharmacokinetics, drug metabolism, and toxicology. Surveys focused topics including drugs and drug targets for a wide variety of diseases.

### **CHEM 482R** **Chemistry Internship**

**1 to 4**

\* Prerequisite(s): CHEM 2320, a minimum GPA of 3.0, Departmental approval of the internship proposal, and University Advanced Standing

Provides supervised, practical, and research experience for students preparing for careers in chemistry. May be repeated for a maximum of 6 credit hours as per school standards. May be graded credit/no credit.

### **CHEM 489R** **Undergraduate Research in Chemistry**

**1 to 4**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Conducts research on a project determined by the student jointly with a chemistry faculty and approved by the Chemistry Department Chair. Emphasizes experimental technique, data collection and analysis, and preparation of research for presentation to an audience of peers. May be repeated for a maximum of 6 credits toward graduation.

### **CHEM 491R** **Advanced Topics in Inorganic Chemistry**

**3**

\* Prerequisite(s): Instructor Approval and University Advanced Standing

Examines advanced and current topics of inorganic chemistry including bioinorganic chemistry, organometallic chemistry, symmetry and molecular orbital theory, and the descriptive chemistry of main-group compounds. Varies from semester to semester. Offered on demand. May be repeated for a maximum of 9 credits.

### **CHEM 4920** **Chemistry Capstone- Literature/Seminar**

**1**

\* Prerequisite(s): CHEM 2320 with a C- or higher and University Advanced Standing; ENGL 2010 highly recommended

Engages in current chemistry topics. Enables familiarity with chemistry literature resources, teaches chemistry research and design, and facilitates preparation for further education and employment in chemistry-related fields. Focuses on current topics in chemistry and on chemistry literature.

**CHEM 4930**  
**Chemistry Capstone- Ethics/Seminar**

**1**  
\* Prerequisite(s): CHEM 2320 with a C- or higher and University Advanced Standing

Teaches chemistry research and design for further education and employment in chemistry-related fields. Focuses on scientific ethics, current topics in chemistry, chemistry literature and formal report writing based on American Chemical Society guidelines.

**CHEM 495R**  
**Advanced Topics in Organic Chemistry**

**3**  
\* Prerequisite(s): CHEM 2310, CHEM 2320, Instructor approval, and University Advanced Standing

For students majoring in Chemistry. Varies from semester to semester. May be repeated for a maximum of 9 credits. Topics include organic synthesis, reaction mechanisms, and identification of organic compounds.

**CHEM 496R**  
**Special Topics in Chemistry**

**1 to 4**  
\* Prerequisite(s): CHEM 2320, Junior or Senior standing, instructor approval, and University Advanced Standing

Explores special topics in chemistry. Topics vary depending on student demand and current topics of significance in chemistry. May be repeated for a maximum of 8 credits toward graduation.

**CHEM 499R**  
**Independent Study and Research**

**1 to 4**  
\* Prerequisite(s): Instructor approval and University Advanced Standing

Uses independent study on selected topics and conducting experiments in the same topic. Provides guidance by a faculty member. May be taken for a maximum of 4 credits.

**CHEM 525R**  
**Advanced Topics for Chemistry Teachers**

**1 to 5**  
\* Prerequisite(s): Departmental Approval

For licensed teachers or teachers seeking to recertify their chemistry endorsement from the Utah State Office of Education. Teaches principles of chemistry and pedagogy of teaching chemistry for teachers in public or private schools. Emphasizes correlation with the Utah Core Curriculum, the National Science Education Standards, and the Benchmarks of Project 2061. Topics will vary.

**Chinese (CHIN)****CHIN 1010** **LH**  
**Beginning Chinese I**

**4**  
Offers an introduction to basic Chinese. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Provides comprehensive explanations of basic Chinese grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**CHIN 1020** **LH**  
**Beginning Chinese II**

**4**  
\* Prerequisite(s): Students need equivalent knowledge of CHIN 1010

Offers a continuation of basic Chinese. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Provides comprehensive explanations of basic Chinese grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**CHIN 115R**  
**Chinese Conversation I**

**1**  
Offers novice Chinese speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen listening comprehension for natural conversational flow. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

**CHIN 2000**  
**Chinese Character Studies**

**2**  
\* Prerequisite(s): Basic Chinese speaking ability

Prepares students who have oral fluency in Chinese to read and write Chinese characters, including skills in sentence and paragraph writing according to Chinese language norms in order to advance to 3000 level courses.

**CHIN 2010** **LH**  
**Intermediate Chinese I**

**4**  
\* Prerequisite(s): Students need equivalent knowledge of CHIN 1020

Offers a continuation of basic Chinese. Reviews and builds additional skills from 1000-level language courses. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Introduces authentic texts and provides discussions based on reading. Provides comprehensive explanations of basic Chinese grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**CHIN 202G** **HH**  
**Intermediate Chinese II**

**4**  
\* Prerequisite(s): Students need equivalent knowledge of CHIN 2010

Emphasizes increased communicative ability as well as grammatical accuracy; adds more complex, literary grammatical structures, as well as discussion of contemporary cultural and political themes. Includes reading of basic 1000 characters and writing of basic 450-600 characters. Uses diglot weave (mixture of English and Chinese) and character-romanization mix to ease learning of characters. Lab access fee of \$10 applies.

**CHIN 215R**  
**Chinese Conversation II**

**1**  
\* Prerequisite(s): Students should have equivalent knowledge of CHIN 1020

Offers lower division / novice Chinese speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, sharpen listening comprehension, and develop conversational strategies such as circumlocution and managing a conversation with useful expressions for starting a conversation, gaining time to think, helping the other speaker, seeking agreement, etc. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

## Course Descriptions

### CHIN 3030

#### Chinese Composition and Conversation

3

\* Prerequisite(s): (CHIN 202G or equivalent experience or instructor approval) and University Advanced Standing

Advances mastery of Chinese grammar while emphasizing production skills of speaking and writing. Expands reading and listening skills to a lesser degree. Reviews and extends lexical depth. Allows students without experience living in a Chinese immersion setting to advance in their communication skills to where they may participate more comfortably in future upper division courses with other students who do have immersion experience. Offers a variety of topics presented in a variety of media as content basis for real communicative practice in Chinese. Conducts all course work primarily in Chinese. Chinese character learning prepares students advanced reading in Chinese.

### CHIN 3050

#### Advanced Chinese

3

\* Prerequisite(s): It is recommended that students have passed CHIN 202G, have had one year residency in a Chinese-speaking region, or instructor approval.

\* Prerequisite(s) or Corequisite(s): CHIN 2000

Designed for non-native Mandarin speakers who, as a result of foreign residency or similar exposure to the language, have attained a good mastery of basic Mandarin Chinese. Sharpens students' speech-making, reading, and writing skills through advanced Chinese readings about culture, civilization and society, with an emphasis on vocabulary, grammar and syntax. Enhances students' cultural knowledge and awareness through a variety of carefully designed practices and activities. Taught predominantly in Chinese.

### CHIN 3100

#### Introduction to Classical Chinese

3

\* Prerequisite(s): Completion of CHIN 3050 with a grade of C or above; University Advanced Standing

Introduces classical Chinese, the written language from Pre-Qin time through the Han Dynasty (220AD), and the foundation of the literary language of China until the early twentieth century when the vernacular Chinese was introduced through New Cultural Movement in the 1910s and 1920s. Introduces basic syntax, grammar, and vocabulary through the readings of authentic texts ranging from a variety of literary genres including philosophical writings, historical/political literature.

### CHIN 3116

#### Exploring China-Past/Present and You

3

\* Prerequisite(s): High school students have to pass the AP Chinese Language or AP Chinese Literature & Culture test with a 3 or higher

This course is part of the State of Utah Chinese Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Explores Chinese history and traditional cultural values, and connects their influences on the modern Chinese-speaking world. Conveys knowledge and language skills to discuss both ancient and modern Chinese culture and society.

### CHIN 3117

#### Chinese Legacies: tradition and modernity

3

\* Prerequisite(s): High school students must pass the AP Chinese Language or AP Chinese Literature & Culture test with a grade of "3" or higher

This course is part of the State of Utah Chinese Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Explores the legacies of Chinese culture and tradition and its impacts on and relations to the contemporary societal issues. Emphasizes literary analysis and criticism. Develops knowledge of literary history, skills in interpreting literary texts, and deepens understanding of the Chinese language.

### CHIN 3118

#### Chinese Popular Culture

3

\* Prerequisite(s): High school students have to pass the AP Chinese Language test with a score of 3 or above.

This course is part of the State of Utah Chinese Bridge Program, and it will be taught only in high schools for high school students. Not to be taught on college campus for university students. Explores the role that current film, media, and entertainment play in the Chinese-speaking world and exposes students to the historical and cultural perspectives presented through these media. This course is instructed in Chinese.

### CHIN 315R

#### Advanced Chinese Conversation

1

\* Prerequisite(s): CHIN 202G or one year residency in a Chinese-speaking country, or instructor approval. University Advanced Standing.

Offers speaking opportunities to middle or upper division Chinese learners to enhance their speaking proficiency in high level language by focusing on oral and verbal production. Improves authentic pronunciation, reduces grammatical and structural errors, and aids student progression beyond translation to natural production. May be repeated for a maximum of 3 credits toward graduation.

### CHIN 3200

#### Business Chinese I

3

\* Prerequisite(s): CHIN 3050 and University Advanced Standing

Prepares students to take the Business Chinese Test (BCT), a state-level standardized test designed to assess the Chinese proficiency of non-native speakers engaged in business activities. Explores how students can effectively and respectfully pursue business activities with Chinese companies within the framework of Chinese culture, sponsored by Office of Chinese Language Council International. Taught predominantly in Chinese.

### CHIN 351G

#### Chinese Culture and Civilization

3

\* Prerequisite(s): (CHIN 3050 or equivalent) and University Advanced Standing

Explores chronologically the evolution and development of Chinese culture and civilization, and a multitude of aspects that construct Chinese national identity and civilization. Examines modern and contemporary issues, cultural, ethnic, historic, social and economic development of China, as well as historical prosperity and decline, and independence from and interdependence with other nations. Conducted entirely in Mandarin Chinese, including presentations and class instructions.

### CHIN 3650

#### Modern Chinese Literature from 1900

3

\* Prerequisite(s): CHIN 3030 or CHIN 3050, and University Advanced Standing

Studies and analyzes chronologically from 1900 representative Chinese authors to focus on the relevance of their writings to the student's own life. Emphasizes literary analysis and criticism. Develops knowledge of literary history, skills in interpreting literary texts, and deepens understanding of the Chinese language. Analyzes works of diverse genres such as fiction, poetry, and essay. Provides students with enough exposure to each author to develop a feeling for his or her work.

### CHIN 3690

#### Modern China Through Film

3

\* Prerequisite(s): CHIN 3050 and University Advanced Standing

Studies Chinese cinema within the historical, cultural, thematic, and aesthetic context. Reflects on the historical, cultural, political, social, and economic issues that shape Modern China.

**CHIN 4050**  
**Chinese Language and Culture**

**3**  
\* Prerequisite(s): CHIN 3050, over one year residency in a Mandarin Chinese-speaking country, or instructor approval, and University Advanced Standing

Designed for non-native Mandarin speakers who, as a result of foreign residency or similar exposure to the language, have attained a fairly good mastery of basic Mandarin Chinese. Sharpens students' speech making, reading and writing skills through advanced Chinese readings on culture, civilization and society, with an emphasis on vocabulary, grammar and syntax. Enhances students' cultural knowledge and awareness through a variety of carefully designed practices and activities. Taught predominantly in Chinese.

**CHIN 4060**  
**Topics in Grammar Usage and Style**

**3**  
\* Prerequisite(s): [CHIN 3030 or CHIN 3050] with a grade of C or higher and University Advanced Standing

Reviews Chinese grammar focusing on problem areas. Explores grammar as deployed in different genres. Emphasizes writing in different styles. Identifies styles in readings and compose according to certain styles.

**CHIN 4100**  
**Translation and Interpretation**

**3**  
\* Prerequisite(s): CHIN 4050 and University Advanced Standing

Introduces translation as a discipline. Discusses basic theory, principles and tools of translation. Employs the tools of translation: dictionaries, glossaries, grammars and computerized resources. Extensive practice of translation and interpretation from English to Chinese and from Chinese to English.

**CHIN 412R**  
**Chinese for the Professions**

**3**  
\* Prerequisite(s): CHIN 3050 and University Advanced Standing

Offers Medical Chinese, Legal Chinese, Chinese for Science and Technology, or Chinese for Tourism according to student demand. Focuses on the practical needs of students who seek careers in the applicable areas. Addresses the specialized vocabulary and communicative ability necessary for a professional in a bilingual English-Chinese or monolingual Chinese environment. Introduces interpretation in professional situations. May be repeated for a maximum of 6 credits toward graduation with different topics.

**CHIN 4200**  
**Business Chinese II**

**3**  
\* Prerequisite(s): CHIN 3200 and University Advanced Standing

Builds on the content of CHIN 3200. Teaches students business Chinese with more complicated grammatical and rhetorical structures. Studies business Chinese terms and expressions, subtle business Chinese culture and customs practiced in Chinese business society, and the more advanced Chinese business language and culture in Chinese societal settings. Prepares students to effectively and respectfully pursue business activities with Chinese companies within the framework of Chinese culture through a better understanding of the language, culture and society. Strengthens and prepares students to take the Business Chinese Test (BCT), a state-level standardized test designed to assess the Chinese proficiency of non-native speakers engaged in business activities. Taught predominately in Chinese.

**CHIN 4250**  
**Newspaper Readings**

**3**  
\* Prerequisite(s): CHIN 3030 or CHIN 3050 with a grade of C or higher and University Advanced Standing

Introduces the language of Chinese media, including newspapers, magazines, TV, radio and the internet. Covers both the content of the selected materials and the linguistic characteristics of the language: its structures, vocabulary and style. Emphasizes improved reading comprehension through the study, analysis and discussion of a wide range of topics in the Chinese media.

**CHIN 4300**  
**Selected Readings in Classical Chinese**

**3**  
\* Prerequisite(s): CHIN 3100 and University Advanced Standing

As a continuation of CHIN 3100, takes students to a range of philosophical, historical and literary texts. Includes readings from prose texts such as Daodejin, Lunyu, Mengzi, Zhuangzi, Zhan'guo ce, and Shiji. Introduces readings in different genres, such as ghost tales and love romances from the Medieval period, and short excerpts from canonical Ming-Qing novels.

**CHIN 4500**  
**Advanced Writing in Chinese**

**3**  
\* Prerequisite(s): (CHIN 3050 or CHIN 4050) and University Advanced Standing

Designed to improve students' accuracy, clarity and use of appropriate styles, forms and vocabularies when writing in Chinese. Informs students of the significant roles played by styles, content and intentionality of discourse in their writing, and focuses on improving their skills in addressing the requirements of those various roles in different contexts.

**CHIN 490R**  
**Special Topics in Chinese Language and Literacy**

**3**  
\* Prerequisite(s): CHIN 3050, University Advanced Standing

Presents selected topics in Chinese language and literacy (grammar, literacy, and culture). Covers topics such as " Practical Modern Chinese Grammar" or " Modern Chinese Literacy and Sentence Structure". Studies the main points in Modern Chinese language, literacy and their relations to Chinese society, history and culture. Projects and evaluation will vary according to the topic. May be repeated for a maximum of 9 credits toward graduation.

**Chinese Studies (CHST)****CHST 200G**  
**Introduction to Chinese Studies**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005

Taught in English. Introduces Chinese Language and Culture to interested students and gives them an overview about the minor study program. Includes an introduction into the characteristics of Chinese script by memorizing a few everyday expressions in Chinese. Introduces Chinese history, economy, society, politics, culture and popular culture, and ethics including philosophy, religions, beliefs, film, literature, contemporary discourses.

**CHST 362G**  
**Traditional Chinese History**

**3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Introduces the student to the broad outlines of the cultural history of traditional China from some of the earliest historical records (about 1200 BCE) up through the late imperial period (about 1800 CE). Taught in English.

**CHST 363G**  
**Modern Chinese History**

**3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Introduces the student to the broad outlines of Chinese Civilization from the last Imperial Dynasty until the present day. Taught in English.

**CHST 3650**  
**China Transformations from 1949**

**3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Introduces China transformations from the broad outlines under the Communist Party of China since 1949 until the present day. Taught in English.

## Course Descriptions

### CHST 3739

#### Selected Readings from Pre-Qin Writings

3

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Introduces traditional Chinese thinkers in pre-Qin time and enrich students' knowledge of ancient Chinese culture and civilization through selected readings from pre-Qin classical writings. Taught in English.

### CHST 373G

#### Classical Chinese Literature

3

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Studies classical Chinese literature within the historical, cultural, thematic, and aesthetic context. Taught in English.

### CHST 375G

#### Modern Chinese Literature

3

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Studies modern Chinese literature within the historical, cultural, thematic, and aesthetic context. Taught in English.

### CHST 416G

#### Chinese Culture and Film

3

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Examines a selection of films from internationally acclaimed Chinese film directors.

### CHST 481R

#### Internship

1 to 8

\* Prerequisite(s): Departmental Approval, and University Advanced Standing

For upper-division students working toward a Minor in Chinese Studies or Chinese Commerce. On approval also counts for a Bachelor of Science Degree in Business Management. Provides a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job experience. No more than three credit hours of internship work experience will apply toward graduation in Chinese Studies or in any Business Management Specialization; may be repeated for a maximum of 16 credits. May be graded credit/no credit.

### CHST 490R

#### Special Topics in Chinese Studies or Commerce

3

\* Prerequisite(s): University Advanced Standing

Taught in English. Covers topics of social change, history, political science, culture including literature, art, cinema, economy including commerce, and business culture. Offers insights into Chinese life in the past and today. Defines terminology involved, studies evolution and/or specific texts or contexts, and considers theoretical discourse. Provides additional materials in Chinese for students who want more language practice, e.g., in the Chinese Language minor. May be repeated for a maximum of 9 credits toward graduation.

## Cinema Studies (CINE)

### CINE 2150 (Cross-listed with: ENGL 2150) HH

#### Critical Introduction to Cinema Studies

3

\* Prerequisite(s): ENGL 2010

Studies film as an aesthetic and cultural medium. Teaches the fundamentals of film, including narrative form, *mis en scene*, cinematography, editing, sound, and non-narrative forms. Teaches film analysis, including ideological approaches, and considers film as a cultural institution. May be delivered hybrid.

### CINE 217G (Cross-listed with: COMM 217G, ENGL 217G) HH

#### Race Class and Gender in U S Cinema GI

3

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Raises cultural awareness through aesthetic, critical, and interdisciplinary examination of the evolution of the representation of race, class, and gender in American cinema. Focuses on both Hollywood and independent minority filmmakers. Some films screened may carry an "R" rating.

### CINE 2311 (Cross-listed with: THEA 2311)

#### Film History I FF

3

Explores the development of the feature film, both in America and abroad from 1895 to 1945. Covers the evolution of motion pictures from conception as an entertainment novelty (c. 1895) to the mass-audience, commercial art form of the 1940's. Examines film as a serious historical study of a form of mass communication, which has had ethical, social, and political consequences on society. Includes lecture, screenings, and demonstrations with critical discussions of assigned readings and films.

### CINE 2312 (Cross-listed with: THEA 2312)

#### Film History II

3

Explores the development of the feature film, both in America and abroad from 1940 to the Present. Emphasizes the continuing evolution of motion pictures from the height of the Studio System 1930s through to its status as one "form" of digital entertainment in 2010. Examines film as a serious historical study of a form of mass communication, which has had ethical, social, and political consequences on society. Includes lecture, screenings, and demonstrations with critical discussions of assigned readings and films. (Note: Some films screened may be considered controversial and carry an "R" rating.)

### CINE 234R (Cross-listed with: THEA 234R)

#### Special Topics in Cinema Studies

3

\* Prerequisite(s) or Corequisite(s): THEA1023 or CINE2150

Focuses upon a particular genre, director, or film movement. May be repeated once for a total of 6 credits toward graduation.

### CINE 312R (Cross-listed with: LANG 312R)

#### National Cinema History

3

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Covers a single national cinema tradition from the early days of film to the present. Explores representative films from a nation's cinematic chronology, considering major themes, movements, controversies, and artists. Considers social and political contexts as related to the national film output. May be repeated for a maximum of 9 credits toward graduation.

### CINE 3150 (Cross-listed with: ENGL 3150)

#### Cinema and Television Theory

3

\* Prerequisite(s): (CINE 2150 or ENGL 2150) and University Advanced Standing

Examines major theoretical approaches to the screen arts. Explores how cinema and television reflect and are created by historical and contemporary cultural contexts. Includes the study of various approaches such as fan studies, spectatorship, stars, authorship, genre, long-form narrative and production. Includes lecture, film and media screenings, and critical discussions of assigned readings.

**CINE 416R (Cross-listed with: ENGL 416R, THEA 416R)****Special Topics in Film Studies****3**

\* Prerequisite(s): (ENGL 2150 or CINE 2150 or THEA 1023) and University Advanced Standing

Covers cinema directors, genre, theory, and social change on a rotating basis. Explains course focus, defines terminology involved, then studies evolution and/or specific texts or contexts, and considers theoretical discourse. May be repeated for a maximum of 9 credits toward graduation. Some films screened may carry an "R" rating. Course fee of \$40 for support applies.

**CINE 418R****Sundance Documentary Film****3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ENGL 2150 or CINE 2150

Covers history of documentary film, studies current modes and models of documentary film, includes attending Sundance film festival documentaries. May be repeated for a maximum of 6 credits toward graduation. Some films screened may carry an "R" rating, or may not be rated but would carry an "R" rating. Course fee of \$50 for support applies.

**Civil Engineering (CIVE)****CIVE 2130****Engineering Economics and Statistics****3**

Covers fundamental engineering economic topics and introduces concepts of probability and statistics. Includes economic compound interest and discount rate factors, nominal and effective interest rates, cash flow diagrams, capitalized cost, net present worth analysis, equivalent uniform annual cost, internal rate of return, benefit-cost analysis, basic microeconomics, cost estimation, and cost indexes. Includes probability theories, random sampling, Gaussian distributions, Chi-Squared distributions, hypothesis testing, and analysis of variation.

**CIVE 2450****Numerical Methods with Excel and VBA****3**

\* Prerequisite(s): MATH 2250

Discusses computational and symbolic methods for the solution of complex engineering problems. Introduces basic programming logic in visual basic. Discusses computer representation of numbers and algorithm error analysis. Covers the solution of multiple constraints. Covers use of Microsoft EXCEL and Visual Basic for Applications (VBA).

**CIVE 3010****Introduction to Transportation Engineering****3**

\* Prerequisite(s): EGDT 1040, University Advanced Standing and (Formal Acceptance into the Civil Engineering Program or Departmental Approval)

Covers analysis and design of transportation systems and their components. Introduces technological, economic, and social aspects of transportation. Covers economic considerations, role of public policy, system planning, design, management, traffic flow models, intersection control, network analysis, and environmental impact. Lab access fee of \$45 applies.

**CIVE 3130****Structural Analysis****3**

\* Prerequisite(s): ENGR 2140, University Advanced Standing, and (Formal Acceptance into the Civil Engineering Program or Departmental Approval)

Focuses on analysis of determinate and indeterminate structural systems. Covers flexibility and moment distribution methods. Introduces design load distribution and load guidelines. Lab access fee of \$45 applies.

**CIVE 3140****Structural Steel Design****3**

\* Prerequisite(s): CIVE 3130, University Advanced Standing, and (Formal Acceptance into the Civil Engineering Program or Departmental Approval)

Focuses on design of structural steel components of a building. Covers tension members, compression members, beams, and connections using Load and Resistance Factor Design (LRFD). Includes a design component. Lab access fee of \$45 applies.

**CIVE 3150****Reinforced Concrete Design****3**

\* Prerequisite(s): CIVE 3130, University Advanced Standing, and (Formal Acceptance into the Civil Engineering Program or Departmental Approval)

Focuses on design of reinforced concrete components of a structure. Covers beams, columns, slabs, and foundations according to the American Concrete Institute (ACI) 318 building code requirements. Includes a design component. Lab access fee of \$45 applies.

**CIVE 3210****Geotechnical Engineering****3**

\* Prerequisite(s): ENGR 2140, University Advanced Standing, and (Formal Acceptance into the Civil Engineering Program or Departmental Approval)

Focuses on the study of soil properties, classifications, and behavior. Applies principles of mechanics to soil as an engineering material. Introduces consolidation and compaction theories, effective stresses, shear strength, and earth pressure and slope stability. Includes a design component. Lab access fee of \$45 applies.

**CIVE 3320****Hydraulics and Hydrology****3**

\* Prerequisite(s): CIVE 2130, CIVE 3310, University Advanced Standing, and Matriculation into Civil Engineering Program  
\* Prerequisite(s) or Corequisite(s): ENGR 2450 or CIVE 2450

Covers weather patterns, precipitation measurement, distribution, and runoff. Focuses on pipe flow and open channel flows. Introduces storm hydrograph and peak flow analysis, flood design, reservoir and channel routing. Includes a design component. Lab access fee of \$45 applies.

**CIVE 3335****Hydrology and Hydraulics Lab WE****2**

\* Prerequisite(s): ME 3310, University Advanced Standing, and (Formal Acceptance into the Civil Engineering Program or Departmental Approval)

\* Prerequisite(s) or Corequisite(s): CIVE 3320

Covers temperature, pressure, and flow measurement, along with calibration of thermal/fluid sensors in a lab setting. Focuses on experiments to investigate various phenomena in fluid flow, hydraulics, and hydrology. Investigates the performance of pumps. Includes a writing component. Lab access fee of \$45 applies.

**CIVE 3610****Environmental Engineering****3**

\* Prerequisite(s): CHEM 1210, MATH 2250, University Advanced Standing, and (Formal Acceptance into the Civil Engineering Program or Departmental Approval)

Introduces the fundamentals of environmental engineering. Focuses on chemical, biological, and physical principles dealing with water, waste water, and solid waste management. Covers analyses of air, surface, and ground water quality. Includes a design component. Lab access fee of \$45 applies.

# Course Descriptions

## **CIVE 4010**

### **Traffic Engineering**

**3**

\* Prerequisite(s): CIVE 3010 and University Advanced Standing

Introduces elements of traffic engineering including: road use, traffic flow theories, traffic control devices, traffic data collection. Covers freeways and rural highways and principles of intersecting signalization, service level and capacity. Includes a design component. Lab access fee of \$45 applies.

## **CIVE 4020**

### **Highway Design**

**3**

\* Prerequisite(s): CIVE 3010 and University Advanced Standing

Covers classification of highways. Focuses on the process involved in design of highways and their elements. Introduces design of highway cross sections, intersections, and interchanges. Covers design of vertical and horizontal alignment and establishment of sight distances. Includes a design component. Lab access fee of \$45 applies.

## **CIVE 4135**

### **Civil Engineering Experimentation II WE**

**2**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ENGR 2160

Focuses on testing of civil engineering materials such as soil, asphalt, concrete, and metals related to geotechnical, pavement, and structural aspects of civil engineering. This is a laboratory course with a writing component. Course lab fee of \$25 applies. Lab access fee of \$45 applies.

## **CIVE 4210**

### **Foundation Design**

**3**

\* Prerequisite(s): CIVE 3210 and University Advanced Standing

Covers foundation classifications. Applies fundamentals of soil mechanics to analysis and design of soil structure systems. Covers shallow and deep foundations, piles and caissons, and retaining structures. Includes a design component. Lab access fee of \$45 applies.

## **CIVE 4220**

### **Ground Improvement Methods**

**3**

\* Prerequisite(s): CIVE 3210 and University Advanced Standing

Focuses on the analysis, design, and application principles of ground improvement methods to address soil and rock engineering problems. Includes compaction theory and methods, deep dynamic compaction, compaction by explosion, vibro-compaction, stone columns, in-situ control tests, dewatering, preloading, mechanically stabilized (reinforced) earth.

## **CIVE 4310**

### **Storm Water Management**

**3**

\* Prerequisite(s): ME 3310 and University Advanced Standing

Applies fluid mechanics and hydrology principles to the analysis and design of storm water management facilities. Covers environmental issues related to storm water management. Includes a design component. Lab access fee of \$45 applies.

## **CIVE 4320**

### **Open Channel Flow**

**3**

\* Prerequisite(s): CIVE 3320 and University Advanced Standing

Covers analysis of open channel flow systems. Introduces natural and designed channels, steady and unsteady flows, uniform and non-uniform flows and flow transitions. Includes lectures and design projects. Lab access fee of \$45 applies.

## **CIVE 4510**

### **Civil Engineering Seminar**

**1**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): CIVE 4810

Introduces various civil engineering careers and related industries. Emphasizes the importance of life-long learning and active participation in professional societies and communities through lectures given by practicing engineers using their own experiences. Introduces various engineering codes of ethics. Intended as a culminating seminar for graduating seniors to prepare for their engineering careers. Lab access fee of \$45 applies.

## **CIVE 4610**

### **Water and Wastewater**

**3**

\* Prerequisite(s): CIVE 3320 and University Advanced Standing

Introduces municipal water and wastewater treatment and distribution practices. Applies physical, chemical, and biological principles to design and operation of water and wastewater distribution systems. Lab access fee of \$45 applies.

## **CIVE 4810**

### **Civil Engineering Capstone I**

**3**

\* Prerequisite(s): University Advanced Standing, Formal Acceptance into Civil Engineering Program, and Department Approval

Serves as a comprehensive two-semester civil engineering design experience with practical constraints. Focuses on applying civil engineering principles and the design process along with economic analysis and project management methods to a real-world project, and present the findings to other engineers and the public. Capstone I and II must be taken in consecutive semesters. Lab access fee of \$45 applies.

## **CIVE 481R**

### **Internship**

**1 to 3**

\* Prerequisite(s): Matriculation to civil engineering program, Instructor Approval, and University Advanced Standing.

Provides opportunities to apply classroom theory while students work as employees in a job that relates to their careers. Students communicate regularly with a coordinator. Credit is determined by the number of hours a student works during the semester and completion of individually set goals. May apply for up to 3 credits; may be graded as credit/no credit.

## **CIVE 4820**

### **Civil Engineering Capstone II**

**3**

\* Prerequisite(s): CIVE 4810 and University Advanced Standing

Serves as a second semester of the two-semester design experience from conception to modeling or prototype. Focuses on applying civil engineering principles and the design process along with economic analysis and project management methods to a real-world project, and present the findings to other engineers and the public. Capstone I and II must be taken in consecutive semesters. Lab access fee of \$45 applies.

## **CIVE 490R**

### **Advanced Current Topics in Civil Engineering**

**1 to 3**

\* Prerequisite(s): University Advanced Standing and (Formal Acceptance into the Civil Engineering Program or Department Approval)

Provides exposure to emerging topics and technologies of current interest in civil engineering. Varies each semester depending upon the state of technology. May be repeated for a maximum of 6 credits toward graduation without prior written department approval. Lab access fee of \$45 applies.

# **Criminal Justice (CJ)**

## **CJ 1010**

**SS**

### **Introduction to Criminal Justice**

**3**

Presents the processes, institution, and administration of criminal justice in the United States. Examines the crime problem, criminal law, law enforcement, criminal prosecution, criminal defense, bail, the jury system, and sentencing among adult and juvenile offenders. Explores the correctional system; namely, probation, prisons, inmates' rights, and parole.

**CJ 1300**  
**Introduction to Corrections Process**

**3**  
Introduces the corrections system. Includes origin and evolution, philosophies of corrections, perspectives on sentencing, and alternatives to incarceration. Includes community corrections; probation and parole; offender rights and legal issues; adult, juvenile, and special needs offenders; corrections specialists, staff, and administration as a profession; and special challenges for the future.

**CJ 1330**  
**Criminal Law**

**3**  
\* Prerequisite(s): CJ 1010  
Provides an overview of criminal law. Covers history and terminology of the criminal justice system, the elements of specific offenses, and the role of the criminal justice profession in the fact-gathering process.

**CJ 1340**  
**Criminal Investigations**

**3**  
\* Prerequisite(s): CJ 1010; CJ 1390 is also strongly recommended as a pre- or co-requisite for Criminal Justice majors  
Introduces the fundamentals of criminal investigations. Examines the techniques commonly utilized by investigative personnel for crimes against property and persons to include case management and documentation, interacting with victims, witnesses and suspects, and crime scene analysis. May be delivered online.

**CJ 1350**  
**Introduction to Forensic Science**

**3**  
Studies Forensic Science and multiple forensic disciplines as they correlate with criminal investigations. Teaches the identification and importance of multiple types of physical evidence typically found at a crime scene and how that evidence is used to provide a link between the victim, suspect, and crime scene. Explains the proper techniques needed to document a crime scene and physical evidence. Provides the process of taking the evidence from the scene and the scientific analysis of the evidence, which is completed at the crime laboratory.

**CJ 1390**  
**Introduction to Policing**

**3**  
\* Prerequisite(s) or Corequisite(s): CJ 1010  
Evaluates police organizations, administration, and duties within federal, state, and local law enforcement agencies. Includes history and philosophy of law enforcement, evaluation of administrative practices, recruitment and hiring of new personnel, patrol and criminal investigative assignments, issues confronting American law enforcement agencies, emerging concepts, professionalism, and community crime prevention.

**CJ 1800**  
**POST Module I**

**7**  
\* Prerequisite(s): Departmental approval required, Passing score on National Peace Officer Selection Test.  
Completes all training required by Utah Peace Officer Standards and Training (POST) to become certified as a Special Function Officer. Certification may become active when hired by an agency with Peace Officer authority.

**CJ 1810**  
**POST Module II**

**11**  
\* Prerequisite(s): CJ 1800, Departmental Approval Required  
Completes all training required by Utah Peace Officer Standards and Training (POST) to become certified as a Law Enforcement Officer. That certification may become active when hired by an agency with Peace Officer authority.

**CJ 2110**  
**Security Management and Loss Prevention**

**3**  
\* Prerequisite(s): CJ 1010  
Examines external and internal security measures, confidential personnel investigations, and interview procedures. Studies principle and major concepts in prevention, protection, loss control, and crime prevention in the commercial sector.

**CJ 2200**  
**Writing for Criminal Justice Professionals**  
**WE**

**3**  
\* Prerequisite(s): CJ 1010 and (ENGL 1010 or ENGH 1005)  
Teaches written communication across the criminal justice spectrum. Emphasizes basic formats and language used to present accurate, understandable and factual information. Requires written reports, affidavits, warrants, probable cause statements and other legal documents. Applies proper communication principles to legal writing situations. Allows students to author a variety of formal legal documents. Canvas Course Mats of \$49/ Pearson applies.

**CJ 2330**  
**Juvenile Justice**

**3**  
\* Prerequisite(s): CJ 1010  
Provides an overview of the juvenile justice system from its origin through present-day trends and development. Examines the origin and development of the juvenile court as well as its changing social and political philosophy. Discusses the role and relationship of municipal law enforcement toward the juvenile offender. Examines closed juvenile institutions, juvenile probation, parole, and alternative placement such as group homes.

**CJ 2350**  
**Laws of Evidence**

**3**  
\* Prerequisite(s): CJ 1330  
Examines the principles and practices of the laws and rules of evidence pertaining to the use of criminal evidence in the trial process. Studies legal issues including admissibility of evidence, judicial notice, burdens of proof, hearsay, documentary evidence, evidentially privileges and witnesses. Studies the various sources of rules at the Federal and State levels discovering how the American system of case law affects the development of evidence law.

**CJ 250G**  
**Justice For All**

**3**  
Examines issues of diversity in criminal justice and current trends associated with racial and ethnic conflict. Investigates the topics of racism, immigration, gender, sexual orientation, and socio-economic disparity. Discusses salient issues to facilitate critical thinking, enhance knowledge, and inform perspectives. Analyzes varying viewpoints to provide a deeper understanding of the actions taken by individuals both inside and outside the criminal justice system. Emphasizes the social construction of crime and the treatment of minorities as offenders and victims.

**CJ 281R**  
**Internship**

**1 to 8**  
\* Prerequisite(s): Department Approval  
Provides actual, on-the-job work experience on a paid basis in a criminal justice profession or other approved related situation. Emphasizes successful work experience, with emphasis on identifying and solving problems. Completers should be qualified to work at entry-level jobs in the criminal justice profession. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

**CJ 290R**  
**Criminal Justice Lecture Series**

**1**  
Offers weekly lectures by professionals working in criminal justice related fields. Provides insight regarding the practical aspects of a career in policing, courts, corrections, and other related professions. Encourages social awareness, explores current legal issues, and develops civic consciousness. Credit/No-Credit grade issued. May be repeated for a total of three elective credits towards graduation.

**CJ 2920**  
**Short Course Workshop**

**1 to 3**  
The specific title with the credit authorized for the particular offering will appear in the semester schedule and on the student transcript.

# Course Descriptions

## **CJ 3020** **Police Administration**

**3**  
\* Prerequisite(s): ENGL 2010, CJ 1010 and University Advanced Standing

Discusses the issues facing contemporary law enforcement administrators. Focuses on the complexities associated with law enforcement organization leadership and strategic planning, training, and stress management; evaluation, promotion, and discipline; legal issues and police department liability; budgeting; politics; and media relations.

## **CJ 3040** **Community Policing**

**3**  
\* Prerequisite(s): ENGL 2010 (recommended), CJ 1010, and University Advanced Standing

Presents the fundamentals of the community-oriented policing philosophy. Includes the comparison of traditional and community policing philosophies; law enforcement and community relationships. Analyzes the importance of political and public support and involvement; attitudinal changes involving the roles of police management, supervisors, and line personnel; creation of partnership with community organizations and police problem-solving methodologies.

## **CJ 3060** **Corrections in the Community**

**3**  
\* Prerequisite(s): CJ 1300 and University Advanced Standing

Studies the Criminal Justice Community Corrections component. Presents historical origin, development, and current practices in probation, parole, the halfway house, work and educational release, as well as furlough programs. Requires the design of an ideal corrections facility and a pre-sentence investigation report and recommendation.

## **CJ 3100** **Criminal Profiling**

**3**  
\* Prerequisite(s): CJ 1010 and University Advanced Standing

Introduces process of reviewing and assessing the behavioral facts of a violent criminal act from a law enforcement and/or investigative perspective.

## **CJ 3140** **Corrections Law**

**3**  
\* Prerequisite(s): CJ 1300 and University Advanced Standing

Teaches the law as it pertains to the corrections field. Examines civil liability and pertinent constitutional amendments as they relate to corrections covering the areas of probation, incarceration, and parole.

## **CJ 3270** **Criminology**

**3**  
\* Prerequisite(s): CJ 1010 and University Advanced Standing

Introduces the field of criminology, providing an overview of the issues involved in defining, measuring, and explaining crime. Examines the nature, extent, and general characteristics of criminal behavior and the potential causes of criminal offenses and offenders. Reviews early and contemporary theories which attempt to explain criminal behavior from a sociological, psychological, and biological perspective; the effectiveness of theories in explaining crime; theory integration and application of theory to selected issues as they relate to the modern world.

## **CJ 3300** **Victimology**

**3**  
\* Prerequisite(s): CJ 1010 and University Advanced Standing

Presents historic treatment and emerging roles of the crime victim in the criminal justice process. Investigates problems and dilemmas faced by crime victims and victimization risk factors. Studies systemic and societal creation of victims, relationships between victims and offenders, crime victim compensation, and reparations.

## **CJ 3320** **Crime and Gender**

**3**  
\* Prerequisite(s): CJ 1010 and University Advanced Standing

Involves an in-depth approach to the study of women in the criminal justice system from both a theoretical and practical perspective. Covers three main areas: 1) women as offenders; 2) women as victims; and 3) women as criminal justice practitioners.

## **CJ 3330** **Financial Crimes Investigations**

**3**  
\* Prerequisite(s): CJ 1340 or ACC 2010 or ACC 2110 and University Advanced Standing

Examines the complex world of financial crimes, money laundering, and the national and international standards for financial institutional compliance.

## **CJ 3340** **Terrorism and the Criminal Justice System**

**3**  
\* Prerequisite(s): University Advanced Standing and CJ 1010 or ACC 2010.

Examines the phenomena of radicalization and terrorism as they relate to the criminal justice system in America. Evaluates the various radical movements that have led to acts of terrorism, including jihadist extremists, animal rights and environmental extremist, as well as the white supremacist and domestic far-right extremist movement in America. Examines the role of law enforcement in counter terrorism efforts in the United States and law enforcement responses to terrorism. Assesses the challenges of prosecuting, sentencing, and incarcerating terrorists, both domestic and international. Evaluates the movement of Countering Violent Extremism as a means to impede the pathway to terrorism.

## **CJ 3360** **Prisons Contemporary Issues and Dilemmas**

**3**  
\* Prerequisite(s): CJ 1010, ENGL 2010, and University Advanced Standing

Studies the history of the American prison system, targeting current issues and trends. Explores options for resolving current issues and attempts to understand and diagnose future trends and issues.

## **CJ 3400** **Drugs and Crime**

**3**  
\* Prerequisite(s): CJ 1010, ENGL 2010, and University Advanced Standing

Presents historical, economic, social, and political roles of legal and illegal drugs. Explains the drug contribution to crime and the impact that drugs have on the criminal justice system. Compares drug production and distribution systems. Illustrates efforts to combat the drug epidemic including decriminalization, prevention, and treatment.

## **CJ 4060** **Special Problems in Criminal Justice WE**

**3**  
\* Prerequisite(s): CJ 1010 and University Advanced Standing

Examines selected current issues and problems in criminal justice. Researches external factors related to the professions of police, courts, and corrections. Demonstrates functions of the criminal justice system through realistic situations and events.

**CJ 4160**

**Constitutional Criminal Rights**

**3**

\* Prerequisite(s): CJ 1330, ENGL 2010, and University Advanced Standing

Studies decisions in leading U.S. Supreme Court criminal cases. Presents an overview of criminal procedure relating to constitutional amendment laws with a criminal justice emphasis. Discusses leading cases concerning constitutional rights and responsibilities.

**CJ 4200**

**Ethical Issues in Criminal Justice**

**3**

\* Prerequisite(s): CJ 1010 and University Advanced Standing

Presents major ethical problems within the criminal justice system. Studies differences between moral decay and the ideal justice system. Uses an issue-based approach to solve individual, group and departmental ethical dilemmas.

**CJ 4250**

**Criminal Justice Career Strategies**

**2**

\* Prerequisite(s): University Advanced Standing

Emphasizes the development of effective techniques for successfully locating, applying for and securing employment as well as advancing in a Criminal Justice related career path. Includes industry and job research, demonstration, role play, and application exercises. Should be taken during second semester junior year. Provides preparation for coop/internship experience.

**CJ 470G**

**Comparative Criminal Justice Systems**

**3**

\* Prerequisite(s): CJ 1010, and University Advanced Standing

Studies the implementation of criminal justice within the four major legal traditions and the cultural issues that influence its administration. Compares and contrasts the differences in interpretation of procedural and substantive law, policy-making, law enforcement, court systems, corrections, and juvenile justice with that of the United States.

**CJ 475R**

**Current Topics in Criminal Justice**

**3**

\* Prerequisite(s): CJ 1010, University Advanced Standing, and Instructor Approval

Presents selected topics in Criminal Justice, Law Enforcement, and/or National Security and will vary each semester. Requires a special project related to the area of study. May be repeated with different topic areas for a maximum of 9 credits toward graduation.

**CJ 481R**

**Internship**

**1 to 12**

\* Prerequisite(s): University Advanced Standing

Provides actual, on-the-job work experience on a paying or non-paying (volunteer) basis in a criminal justice profession or other approved related situation. Emphasizes successful work experience, with emphasis on identifying and solving problems. May be repeated for a maximum of 12 credits toward graduation. May be graded credit/no credit.

**CJ 487R**

**Criminal Justice Field Experience**

**1 to 6**

\* Prerequisite(s): Junior or Senior status and University Advanced Standing

Provides students access to law enforcement agencies, prisons, detention centers, courts and institutions dealing with criminals and delinquents. Includes 2-3 weeks of intense classroom instruction, interviews, and lectures by practitioners in the field and several on-site visits of varying duration. Course may be repeated five times for a total of 6 hours of credit.

**CJ 4880**

**Qualitative Research Methods in Criminal Justice**

**3**

\* Prerequisite(s): University Advanced Standing

Explores the methods of research used by criminal justice educators and practitioners. Introduces the application of basic research practices to law enforcement and corrections problems. Includes the use of American Psychological Association (APA) style.

**CJ 491R**

**Directed Reading and Special Projects**

**1 to 3**

\* Prerequisite(s): Junior or Senior status and University Advanced Standing

Offers independent study as directed in reading, individual projects, etc., at the discretion and approval of the department chair. May be repeated for a maximum of 9 credits.

**CJ 4990**

**Criminal Justice Capstone Seminar**

**3**

\* Prerequisite(s): CJ 4880 and University Advanced Standing

Applies qualitative, quantitative, and/or mixed research methods to selected issues and dilemmas in criminal justice. Requires the student to develop and present an undergraduate research project both orally and in writing.

**CJ 6200**

**Advanced Topics in Criminal Justice**

**3**

\* Prerequisite(s): Acceptance into Master's of Public Services program.

Evaluates contemporary issues in criminal justice, including current and historical concepts of criminal justice, interrelationships among different components of the system, and the role and function of the justice system in society. Develops philosophies of punishment, contemporary policing issues, courtroom decision making, and modern trends in corrections.

**CJ 6210**

**Information-based Decision Making for Criminal Justice Administrators**

**3**

\* Prerequisite(s): Acceptance into Master's of Public Services program.

Describes contemporary criminal justice models and how data and information are critical to their success (Intelligence-led Policing, CompStat, Problem Oriented Policing, Community Policing, etc.). Builds crime analysis, crime maps, hot spots, intelligence models, and other data analysis from an administrative perspective in order to compile the tools, resources, and practices used around the world to assist in data-based decision making.

**CJ 6220**

**Contemporary Issues In Criminal Justice**

**3**

\* Prerequisite(s): Acceptance into the Masters of Public Services Program

Evaluates developments and changes in the practice of criminal justice brought about by current issues such as terrorism, rapid technological change, police misconduct, active shooter response, police, and the media. Formulates effective policies and procedures using strategic planning to manage organizational change with the use of current management strategies and philosophies.

**CJ 6230**

**Criminal Justice Policy**

**3**

\* Prerequisite(s): Acceptance into Master's of Public Services program.

Evaluates a conceptual approach to the creation, implementation, and evaluation of criminal justice policies. Constructs a framework for planning and formulating policy context now and in the future. Summarizes court decisions instrumental in criminal justice policies for police, courts, corrections, and juvenile justice.

### **Classical Studies (CLST)**

#### **CLST 290R**

##### **Themes in Classical Civilizations**

**3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Explores topics in Classical thought, literature, art, history and philosophy at an introductory level. Emphasizes understanding literature, history and archeological topics through translated primary and secondary sources. Focuses on the basic interpretive skills necessary to relate historical, cultural, and sociological data to classical societies. May be repeated for 6 credits toward graduation.

#### **CLST 490R**

##### **Special Topics in Classical Civilizations**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Analyzes literary, historical, archeological, religious and cultural texts and art work from Classical societies. Emphasizes understanding of the social, cultural and political forces which operate on a culture's writers, artists and major contributors. May be repeated with different topics for 6 credits toward graduation.

### **Construction Management (CMGT)**

#### **CMGT 1010**

##### **Introduction to Construction Management**

**WE**

**3**

Presents an overview of the practice of construction management including heavy civil, commercial, and residential construction. Examines the 5 M's of Construction Management-Money, Machines, Materials, Manpower and Marketing. Introduces construction documents including 2D and 3D building information models (BIM). Utilizes guest lecturers, and field trips in addition to traditional classroom activities.

#### **CMGT 1020**

##### **Construction Materials and Methods I**

**3**

\* Prerequisite(s): MAT 0950 or higher or appropriate test scores

Provides a basic knowledge of the materials and methods used in heavy civil, commercial, and residential construction projects. Includes lectures, site visits and laboratory work. Curriculum covers CSI Divisions 01-05. Lab access fee of \$45 for computers applies.

#### **CMGT 1150**

##### **Construction Safety**

**2**

Introduces OSHA safety practices and its role in the construction industry. Reviews related safety theories, procedures and practices used in the construction industry. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

#### **CMGT 1190**

##### **Concrete and Framing Lab**

**3**

Offers applied learning experience in concrete and framing methods on a construction project. Course Lab Supply fee of \$10 for materials applies.

#### **CMGT 1220**

##### **Finishing Lab**

**3**

Offers lab experience in finishing methods and techniques on a construction project. Course Lab Supply fee of \$10 for materials applies.

#### **CMGT 2010**

##### **Construction Materials and Methods II**

**3**

\* Prerequisite(s): MAT 0950 (or higher)

Provides basic knowledge of the materials and methods used in heavy civil, commercial, and residential construction projects. Includes lectures, site visits and laboratory work. Curriculum covers CSI Divisions 06-39. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

#### **CMGT 2025**

##### **Heavy Civil Plans and Specifications**

**3**

\* Prerequisite(s): CMGT 1010, CMGT 1020

Designed for students interested in heavy/civil construction and design. Studies plans, standards and specifications for infrastructure construction. Emphasizes roadway systems, highway and bridge construction utilized in the heavy civil construction industry. Utilizes current project plans. May include site visits and guest lecturers as appropriate.

#### **CMGT 2035**

##### **Construction Computer Applications**

**3**

\* Prerequisite(s) or Corequisite(s): CMGT 1010, and (CMGT 1020 or CMGT 2010), or department approval.

Emphasizes construction industry-specific, project management software use. Covers spreadsheets, scheduling, document manipulation, storage, dissemination and collaboration. Lab access fee of \$45 applies.

#### **CMGT 2060**

##### **Construction Job Site Management**

**3**

\* Prerequisite(s) or Corequisite(s): CMGT 2010 or CMGT 1020

Covers the role and duties of job site managers of heavy civil and commercial construction projects. Includes documentation, time and cost control, jobsite layout and control, labor relations, conflict resolution, OSHA safety practices. Emphasizes the design and implementation of project safety plans. Focuses on project quality, productivity, cost control and safety management. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

#### **CMGT 2080**

##### **Principles of Construction Scheduling**

**3**

\* Prerequisite(s): CMGT 1010, CMGT 2010, and (CMGT 2035 or IM 2010)

Provides fundamental skills required to plan and schedule civil and commercial construction projects. Familiarizes students with computer scheduling software packages used to monitor and control construction projects. Defines the sequencing, phasing, and critical path management of construction activities. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

#### **CMGT 281R**

##### **Internship**

**1 to 6**

\* Prerequisite(s): Department approval

Provides on-the-job construction work experience. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated for a maximum of 6 credits toward graduation. May be graded Credit/No Credit.

#### **CMGT 289R**

##### **Construction Industry Seminar**

**.5**

Provides the opportunity to hear professionals teach about unique aspects of the industry. Must be repeated twice for one credit for graduation, but may be repeated for a maximum of two credits.

#### **CMGT 299R**

##### **Skills USA**

**1**

\* Prerequisite(s): Requires adviser or department approval.

Supports and facilitates the goals and objectives of Skills USA pre-professional student organization that develops social awareness, civic, recreational, and social activities. Students may participate in local, state, and national contests. May be repeated for a maximum of 2 credits toward graduation.

**CMGT 3010**  
**Construction Materials Testing**

**3**  
 \* Prerequisite(s): CMGT 1020 and (MAT 1010 or higher or EGDT 1600) and University Advanced Standing

Investigates the general physical properties of construction materials and their common quality control/assurance tests conducted in the construction industry. Analyzes results of these tests and how they affect construction design. Emphasizes the performance of field and lab testing procedures used in heavy civil construction. Course Lab Supplies fee of \$17 for materials applies.

**CMGT 3020**  
**Building Envelopes and Mechanical Systems**

**3**  
 \* Prerequisite(s): CMGT 1010, (CMGT 2035 or IM 2010), and University Advanced Standing

Covers mechanical, electrical and plumbing (MEP) principles. Provides problem solving experience in the analysis and design of building envelopes and MEP systems used in construction applications. Software fee of \$5 applies. Course fee of \$10 for materials, transportation applies. Lab access fee of \$45 for computers applies.

**CMGT 3030**  
**Principles of Construction Estimating**

**3**  
 \* Prerequisite(s): (CMGT 2035 or IM 2010), MAT 1010 or higher or EGDT 1600, and University Advanced Standing

Introduces the preparation of detailed cost estimates based on contract models and documents. Includes the use of software for performing reliable quantity take-offs. Covers labor, material, and equipment pricing. Includes lectures and laboratory work. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

**CMGT 3050**  
**Construction Equipment/Planning and Logistics**

**3**  
 \* Prerequisite(s): CMGT 2080, ACC 3000 (recommended) or (ACC 2010 and ACC 2020), and University Advanced Standing, or CMGT Instructor/Program approval for non-CMGT majors  
 \* Prerequisite(s) or Corequisite(s): CMGT 3030

Introduces productivity, logistics and associated costs of heavy equipment required on a typical construction project. Emphasizes equipment used in heavy civil construction. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

**CMGT 3060**  
**Applied Statics and Strength of Materials**

**3**  
 \* Prerequisite(s): (MATH 1060 or EGDT 1610) and University Advanced Standing

Introduces basic principles of statics, coplanar force systems, coplanar-nonconcurrent force systems, stresses and strains, properties of materials, shear and bending diagrams, and beam design. Explores materials used in construction projects.

**CMGT 3080**  
**Construction Financial Management**

**3**  
 \* Prerequisite(s): ACC 3000 (Recommended) or (ACC 2010 and ACC 2020), and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): CMGT 3030

Builds on basic principles of accounting and finance as utilized in the construction industry. Emphasizes labor burden, financial needs and decision tools, construction accounting systems, cash flow, profit and tax projections on construction projects. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

**CMGT 3090**  
**Principles of Hydrology in Construction Management**

**3**  
 \* Prerequisite(s): (MATH 1060 or EGDT 1610) and University Advanced Standing

Prepares students to manage the behavior of water on construction projects. Includes intensity, duration and frequency curves and runoff, erosion control, storm drain systems, dewatering systems, environmental impacts, and stability of soils.

**CMGT 3140**  
**Construction Real Estate**

**3**  
 \* Prerequisite(s): CMGT 3030 and Advanced University Standing

Explores the legal implications of ownership of real property as it relates to new construction and existing improvements. Includes the nature of real property, estates in land, transfer, encumbrances, restrictions, and contracts. Discusses ownership, settlement, taxation, finance, valuation and appraisal.

**CMGT 3160**  
**Building Information Modeling**

**3**  
 \* Prerequisite(s): EGDT 1020 or CMGT Instructor/Program approval for non-CMGT majors and University Advanced Standing

Introduces 3D architectural models for cost estimating, clash detection, collaboration between multiple disciplines and documenting and quantifying project data. Covers model design theory, parametric modeling methods, generation of residential and commercial construction plans and details sufficient for cost estimating, building components and systems, and manipulation of model information. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

**CMGT 4010**  
**Construction Contracts**

**3**  
 \* Prerequisite(s): ENGL 2010, CMGT 1010, Junior Standing, and University Advanced Standing, or CMGT Instructor/Program approval for non-CMGT majors

Utilizes appropriate construction documents such as contracts, waivers, change orders, employee documents and specifications. Addresses the dispute process in the United States and the contractual relationship associated with construction project delivery methods.

**CMGT 4020**  
**Construction Project Management**

**3**  
 \* Prerequisite(s): (CMGT 2080 or CMGT Instructor/Program approval for non-CMGT majors) and University Advanced Standing

Introduces best management practices in the construction industry pertaining to resource optimization. Utilizes construction planning and problem solving tools on real world construction issues. Identifies and quantifies waste in the industry and determines appropriate methods to eliminate such. Discusses lean philosophy and its impact on construction projects and the industry. Lab access fee of \$45 for computers applies.

**CMGT 405G**  
**Global Sustainability and the Built Environment GI WE**

**3**  
 \* Prerequisite(s): CMGT 2060 and Construction Management majors, or CMGT Instructor/Program approval for non-CMGT majors; and University Advanced Standing.

Explores sustainability issues from a global perspective. Discusses global sustainability and focuses specifically on the LEED green building rating system. Emphasizes the local and global impacts on the built environment through writing. May include guest lectures, site visits, and group assignments. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

## Course Descriptions

### **CMGT 4500** **Senior Capstone** **3**

\* Prerequisite(s): CMGT 2060, CMGT 2080, CMGT 3030, Senior Standing, and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): CMGT 3080, CMGT 4010

Designed for senior Construction Management and related majors. Involves execution of a construction project case simulation covering all aspects of construction management for either heavy civil, commercial or residential projects. Engages students with local representatives from the construction industry. Requires a written project report and oral presentations. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

### **CMGT 459R** **Current Topics in Construction** **3**

\* Prerequisite(s): Declared CMGT major and University Advanced Standing

Provides exposure to emerging technologies and topics of current interest in Construction. Varies each semester depending upon the state of technology. May be repeated for a maximum of 6 credits toward graduation.

### **CMGT 481R** **Internship** **1 to 4**

\* Prerequisite(s): Department approval and University Advanced Standing

Provides application of classroom theory while working as an employee in the construction industry. Requires communication of personal goals, tracking performance and work hours with the employer. Credit is determined by the number of hours a student works during the semester and completion of individually set goals. May be repeated for a maximum of 4 credits toward graduation. May be graded credit/no credit.

### **CMGT 489R** **Undergraduate Research in Construction** **1 to 3**

\* Prerequisite(s): Department approval and University Advanced Standing

Provides the opportunity to conduct research under the mentorship of a faculty member. Practices the theoretical knowledge gained in prior major courses. Creates a significant intellectual or creative product that is characteristic of the construction discipline and worthy of communication to a broader audience. May be repeated for a maximum of 3 credits toward graduation.

### **CMGT 497R** **Independent Study** **1 to 3**

\* Prerequisite(s): Approval of Construction Technologies Department Chair and University Advanced Standing

Offers independent study as directed in reading or individual projects at the discretion and approval of the department chair. May be repeated for a maximum of 6 credits toward graduation.

## **Clin Mental Health Counseling (CMHC)**

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### **CMHC 6000** **ACA Ethics** **3**

\* Prerequisite(s): Admission to Clinical Mental Health Counseling, M.S. program

Explores the roles and functions of a professional counselor and the ethical standards that govern the profession. Provides a foundation for the ethical practice of professional Counseling. Introduces students to the history of the Counseling profession as well as professional roles (practitioner, supervisor, educator, etc.) and professional organizations. Examines and applies the American Counseling Association (ACA) Code of Ethics (and ethical standards of its divisions) to a variety of ethical and legal situations using a variety of ethical decision-making models.

### **CMHC 6010** **Theories of Counseling** **3**

\* Prerequisite(s): Admission to Clinical Mental Health Counseling, M.S. program or Master of Education in School Counseling, M.S. program

Introduces basic Counseling and psychotherapeutic theories and associated techniques. Provides a survey of models and theories consistent with current research (evidenced-based) and practice in the Counseling profession. Analyzes approaches including psychoanalytic, individual psychology, person-centered, existential, cognitive-behavioral, Gestalt, family systems, and postmodern theories. Examines the influence of sociocultural and historical factors on the development of Counseling theories.

### **CMHC 6020** **Techniques of Counseling** **3**

\* Prerequisite(s): Admission to Clinical Mental Health Counseling, M.S. program or Master of Education School Counseling, M.S. program

Analyzes the theoretical approaches to Counseling which have been demonstrated to be culturally-relevant and conceptually inclusive of multiple theories and techniques: Advanced Cognitive Behavioral Therapy techniques will be emphasized (other techniques will also be explored). Emphasizes selected readings, academic discussion and clinical application. Requires critical thinking and active participation. Applies theoretical information towards a goal of case conceptualizations as a precursor to effective treatment planning.

### **CMHC 6030** **DSM Diagnostics** **4**

\* Prerequisite(s): Admission to Clinical Mental Health Counseling, M.S. program

Provides an overview of the major disorders in the current edition of the DSM. Examines a range of mental disorders from adjustment disorders to serious psychopathologies, and includes an overview of the etiology, developmental course, multi-axial diagnosis, treatment planning, and policy/advocacy issues associated with various disorders to address socially responsible practice. Addresses biological, environmental, cultural, intrapersonal, and interpersonal risk and protective factors, along with the sociocultural and theoretical critiques of limitations of diagnosis and the DSM.

### **CMHC 6040** **Professional Orientation** **3**

\* Prerequisite(s): Admission to Clinical Mental Health Counseling, M.S. program

Provides a detailed exploration of the field of mental health counseling. Offers inquiry into the nature of the profession, including the professional organization and why many professionals join them. Describes the usual career trajectories of mental health counselors across various disciplines. Requires student development of a career plan and specialization-appropriate resume. Orients students to the requirements for their internship and practica.

**CMHC 6050**  
**Career Counseling**

**3**  
\* Prerequisite(s): CMHC 6000, CMHC 6010, CMHC 6020, CMHC 6030, and Admission to Clinical Mental Health Counseling, M.S. program

Introduces students to the concepts of career development. Presents the philosophical and historical foundations of career Counseling. Applies career Counseling theory to practice. Includes career Counseling technique, career assessment, career exploration, job market strategies, examination of workplace issues, and lifestyle and wellness concepts.

**CMHC 6060**  
**Psychological Assessment**

**3**  
\* Prerequisite(s): CMHC 6010, CMHC 6020, and Admission to Clinical Mental Health Counseling, M.S. program or Master of Education in School Counseling, M.S. program.

Provides an introductory overview of assessment methods, instrumentation, and basic principles of measurement. Reviews techniques for assessing intellectual ability, aptitude/ achievement, psychopathology, emotion, and personality. Includes clinical assessment, communicating results, multicultural considerations, and ethical/legal issues. Orients students to common instruments used in educational and clinical settings, common selection procedures, measurement methods, administration, scoring, and interpretation.

**CMHC 6070**  
**Group Counseling**

**3**  
\* Prerequisite(s): CMHC 6010, CMHC 6020, and Admission to Clinical Mental Health Counseling, M.S. program or Master of Education in School Counseling, M.S. program

Provides an introduction to many of the important challenges facing group leaders and group members in contemporary society. Discusses ethical guidelines particular to group work. Exposes students to how common Counseling theories can be applied in group settings. Provides an understanding of group developmental stages and processes, and how these dynamics influence group growth and productivity. Emphasizes leader skill development. Includes approximately 20 hours of class time spent in a laboratory experience wherein each student is provided the opportunity to function in a group.

**CMHC 6080**  
**Eastern Counseling Approaches**

**3**  
\* Prerequisite(s): CMHC 6000, CMHC 6010, CMHC 6020, CMHC 6030, and Admission to Clinical Mental Health Counseling, M.S. program

Explores the new trends in the field of counseling around mindfulness and meditation interventions. Discusses the history and background of each approach embedding them in their original frame. Facilitates critique of utilizing techniques divorced from original intent. Practices the intended form of these modes of being. Encourages model and psychotherapeutic interventions expanding the usual analytic frame.

**CMHC 6090**  
**Psychopharmacology**

**3**  
\* Prerequisite(s): CMHC 6000, CMHC 6010, CMHC 6020, CMHC 6030, and Admission to Clinical Mental Health Counseling, M.S. program

Explores the principles of psychopharmacology from a practitioner-oriented frame. Introduces the basic principles and concepts behind the types and purposes of various psychoactive substances. Provides neurochemical and biological models appropriate to non-physicians. Presents the mechanisms of action and the relationships between various drugs in the mental health field.

**CMHC 6100**  
**Crisis Management**

**3**  
\* Prerequisite(s): CMHC 6000, CMHC 6010, CMHC 6020, CMHC 6030, and Admission to Clinical Mental Health Counseling, M.S. program

Provides an overview of the types of crises mental health practitioners may involve themselves with, including natural disasters, terrorism, crime, suicide, and homicide. Discusses the research on responses to these types of traumas and some of the mental health conditions that may arise due to such experiences. Provides models of treatment for acute and chronic crises, including both systemic and organizational interventions as well as individual psychotherapeutic interventions.

**CMHC 6110**  
**Research Methods**

**3**  
\* Prerequisite(s): CMHC 6000, CMHC 6010, CMHC 6020, CMHC 6030, and Admission to Clinical Mental Health Counseling, M.S. program

Provides a conceptual understanding of research design and application. Offers an overview of research principles and methodology including qualitative and quantitative approaches and analysis. Enables students to become better, more critical consumers of research projects, methods, and designs. Prepares students to apply relevant research to their clinical practice.

**CMHC 6120**  
**Addiction Counseling**

**3**  
\* Prerequisite(s): CMHC 6010, CMHC 6020, and Admission to Clinical Mental Health Counseling, M.S. program or Master of Education-School Counseling Emphasis program

Introduces relevant theory, research, and practice associated with substance abuse and addictions Counseling. Presents a blend of didactic and practical elements to increase student knowledge of fundamental concepts while providing opportunities to experiment with approaches to working with clients presenting with substance abuse and / or addictions concerns. Explores topics that include pharmacological issues and terminology, models of addiction, theories on etiology, diagnosis and assessment, and evidence-based treatment strategies. Requires students to practice the introductory concepts of Motivational Interviewing in a practicum element that will accompany lectures, group discussion, case studies, and demonstrations over the course of the semester.

**CMHC 6130**  
**Multicultural Counseling**

**3**  
\* Prerequisite(s): CMHC 6000, CMHC 6010, CMHC 6020, CMHC 6030, and Admission to Clinical Mental Health Counseling, M.S. program

Exposes students to various cultures and the methods, values, and beliefs that organize family life and human development. Utilizes the oppression model to examine how the intersections of race, class, culture, gender, ethnicity, and sexuality shape and affect the lives of individuals and families and the therapeutic process itself. Explores intervention practices, social advocacy models, and resistance strategies.

# Course Descriptions

## **CMHC 6140 Program Evaluation**

**3**  
\* Prerequisite(s): CMHC 6010, CMHC 6020, and Admission to Clinical Mental Health Counseling, M.S program or Master of Education-School Counseling Emphasis program

Introduces research methods and program evaluation as it pertains to the field of professional Counseling. Explores major research designs including both quantitative and qualitative methods. Discusses research procedures, such data collection, sampling, and data analysis, and issues related to validity, reliability, and limitations of different approaches. Examines the history and development of program evaluation and provides an introduction to needs assessment in regard to program development, data collection methodology, and data analysis. Reviews ethical and culturally relevant strategies for interpreting and reporting the results of research and program evaluation studies.

## **CMHC 6150 Cognitive Therapies**

**3**  
\* Prerequisite(s): CMHC 6000, CMHC 6010, CMHC 6020, CMHC 6030, and Admission to Clinical Mental Health Counseling, M.S. program

Explores the principles of cognitive-behavioral theory, conceptualization, and psychotherapy techniques. Provides a framework for assessing and treating child and adult clinical problems from the perspective of cognitive-behavioral treatment approaches that have been empirically supported. Presents several assessment strategies including behavioral observation, self-report, self-monitoring, and structured interviews and rating scales. Stresses the important link between assessment and treatment planning, and evaluating treatment outcome. Explores the advantages and disadvantages of techniques discussed within a developmental framework. Emphasizes the assessment of anxiety, depression, addictive behaviors, social skills, and marital dysfunction.

## **CMHC 6160 Human Development**

**3**  
\* Prerequisite(s): CMHC 6010, CMHC 6020, and Admission to Clinical Mental Health Counseling, M.S. program or Master of Education in School Counseling, M.S. program

Presents an overview of various models and theories in the discussion of the characteristics, developmental needs, and tasks at different stages of a person's life cycle. Discusses the impact of social, cultural, biological, and psychological factors on prenatal life, childhood, adolescence, adulthood, and aging. Explores the psychosocial development, cognitive functioning, life transitions, coping and adaptation, work and retirement, bereavement, and related issues in a person's life cycle in relation to students' work as counselors.

## **CMHC 671R Practicum**

**3**  
\* Prerequisite(s): CMHC 6000, CMHC 6010, CMHC 6020, CMHC 6030, and Admission to Clinical Mental Health Counseling, M.S. program

Provides a forum for students to attain supervised clinical experience in which the students develop basic Counseling skills and integrate professional knowledge. Requires students to complete 100 hours of field training in a clinical mental health setting, including attaining 40 direct hours through both individual and group Counseling. Provides students with individual supervision by faculty and group supervision in seminar which is designed to be responsive to students' practicum experiences and concerns for their clients and sites. Evaluates students' ability to apply Counseling theories and techniques assessment and diagnostic information, clients' characteristics in case conceptualization, and treatment planning. Provides peer support and consultation. Must be taken twice to complete requirements. May be repeated for a maximum of 12 credits toward graduation to complete clinical hours.

## **CMHC 689R Internship**

**3**  
\* Prerequisite(s): CMHC 671R taken until 300 practicum hours completed and Admission to Clinical Mental Health Counseling, M.S. program

Provides a forum for students to attain clinical experience in which they develop more advanced counseling skills and integrate course knowledge into their work. Requires that this course is repeated until students complete 800 or more hours in a clinical setting in which they provide 320 hours of direct service. Requires attendance to a one hour per week on-campus group supervision, in addition to the individual and group supervision provided at their internship site. Assists student practice of their clinical skills particularly case conceptualization, treatment planning, and treatment implementation. May be repeated for a maximum of 12 credits toward graduation.

# **Constitutional Studies (CNST)**

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## **CNST 2600 Comparative Constitutionalism**

**3**  
\* Prerequisite(s): POLS 1000 or POLS 1100  
Compares and contrasts the political, social and economic aspects of the origins, drafting, and development of constitutions across the globe.

## **CNST 3870 Constitutional History to Plessy 1896**

**3**  
\* Prerequisite(s): University Advanced Standing  
Explores, in a critical and historical framework, US Constitutional history to Plessy (1896). Examines the origins and general principles of Constitutional thought, including the Colonial, Confederate, Early Republic, and Civil War periods of early US history. Examines the various Constitutional issues relating to judicial review, national supremacy, slavery, secession, the Civil War, and laissez-faire governmental policies.

## **CNST 3880 Constitutional History Since Plessy 1896**

**3**  
\* Prerequisite(s): University Advanced Standing  
Explores, in a critical and historical framework, US Constitutional history since Plessy (1896). Examines the development of the US Constitution from the late nineteenth century to the present day, with special attention being given to the progressive era, the New Deal, liberal constitutionalism, and the US Supreme Court's interpretations of civil rights and civil liberties.

**CNST 4720**

**Foundations of American Constitutionalism**  
**3**

\* Prerequisite(s): (POLS 1000 or POLS 1100 or instructor approval) and University Advanced Standing

Examines the political and constitutional foundations of the American Constitution, from the English Charter of Liberties in 1100 AD to the United States Bill Rights of 1791. Employs a comparative analysis of early Anglo-American constitutional thought, with special attention being given to the writings of prominent 17th century and 18th century constitutional theorists (e.g., Coke, Bacon, Burke, Penn, Dickinson, Mason, Adams, Madison, Marshall).

**CNST 4730**

**Framing of the US Constitution**

**3**

\* Prerequisite(s): CNST 4720 and University Advanced Standing

Examines the political and constitutional arguments of the Framers of the Federal Constitutional Convention. Discusses the strengths and weaknesses of the Constitution and the alternative language and plans presented at the Convention. Examines the ratification of the Constitution, focusing on the Anti-Federalists' critique and the Federalists' defense of that historic document. Employs a critical analysis of the political factors affecting the drafting and ratifying of the Constitution.

**CNST 4790**

**US Constitution**

**3**

\* Prerequisite(s): (POLS 1100 or POLS 1000) and University Advanced Standing

Examines the United States Constitution as the political blueprint of American national government. Explores the basic constitutional powers and structures of the federal government and the prominent political and constitutional conflicts among its executive, legislative, and judicial branches. Addresses such key elements of constitutional design as limited and empowered government, enumerated and implied powers, separation of powers, checks and balances, federalism, and the Bill of Rights. Employs a critical analysis of modern constitutional politics.

**CNST 4795**

**Civil Rights and Civil Liberties**

**3**

\* Prerequisite(s): CNST 4790 and University Advanced Standing

Examines, with a critical lens, the political and constitutional aspects of the origins, drafting, and development of The Bill of Rights, the Modern Civil Rights Movements, and the Ninth, Tenth, Thirteenth, Fourteenth, Fifteenth, and Nineteenth Amendments to the Constitution.

**CNST 490R**

**Issues and Topics in Constitutional Studies**

**3**

\* Prerequisite(s): (POLS 1000 or POLS 1100) and University Advanced Standing

Surveys a specific topic in constitutional studies. Topic varies each semester. With the approval of the department chair or coordinator, students may repeat the course for a maximum of 9 credits toward graduation.

**CNST 491R**

**Independent Study**

**1 to 4**

\* Prerequisite(s): (POLS 1000 or POLS 1100), Instructor Approval, and University Advanced Standing

Provides independent study for students unable to secure a desired course subject matter within regular curriculum offerings. Requires student and instructor design and complete readings and other projects at the upper division level, with the approval of the department chair or coordinator. May be repeated for a maximum of 8 credits toward graduation.

**Communication (COMM)**

**COMM 1020**

**Public Speaking**

**3**

**HH**

Provides an introduction to basic concepts, theories, principles of oral communication as applied to a variety of speaking situations. Develops competence in oral communication through performance, as applied to critical thinking skills, arrangement of ideas, and use of evidence and reasoning to support claims. Explains how culture influences the perception of effective public speaking. Canvas Course Mats of \$101/VitalSource applies.

**COMM 1050**

**Introduction to Communication**

**3**

**SS**

Surveys the questions, methods, and findings in the discipline of speech communication. Explores communication theory and practice across a variety of contexts and forms, including verbal, non-verbal, interpersonal, group, organization, and mass communication. Canvas Course Mats \$45/Sage applies

**COMM 1130**

**Writing for the Mass Media**

**3**

Acquaints students with the fundamentals of mass communication, especially the skills of information-gathering and writing for the mass media. Emphasizes print journalism but also considers broadcasting, legal and ethical issues, and public relations. Emphasizes writing for the media and AP style. Focuses on journalistic writing forms.

**COMM 1500**

**Introduction to Mass Communication**

**3**

**HH**

Introduces students to the study of American mass media. Provides a critical overview of the main themes in the study of mass media, including the historical development of the media; the social, political, economic, and organizational contexts, impacts, and significance of the media; the nature of media content; its complex relationships to mass audiences; and the legal/regulatory context in which the media operate.

**COMM 1610**

**Reporting for the Mass Media**

**3**

Provides an opportunity to learn about a career in journalism. Focuses on gathering and organizing information in the field. Includes interviewing, covering a beat, investigative reporting, reviews, and opinions. Simulates a journalist's working experience. Offers experience covering current events in the field. Lab access fee of \$20 applies.

**COMM 202R**

**Communication Field Experience**

**1 to 3**

\* Prerequisite(s): Instructor Approval

Explores a wide variety of topics in public relations, mass media, journalism, and speech communication. May be repeated for a maximum of 6 credits toward graduation.

**COMM 207G**

**Introduction to Gender and Communication**

**3**

Introduces students to the study of gender differences and similarities in communication. Provides practical understanding and skills useful for more effective communication within and across gender boundaries. Addresses gender and communication issues across multiple cultural contexts, including issues beyond mainstream groups and United States culture.

**COMM 2100**

**The News Editing Process**

**3**

Introduces news judgment, content, and journalistic best practices. Prepares students to properly edit documents for publication through rewriting faulty stories, copy editing, and proof-reading. Includes instruction on how to create appropriate headlines and general page layouts. Lab access fee of \$20 applies.

**COMM 2110**

**Interpersonal Communication**

**3**

**SS**

Examines the role of communication in interpersonal relationships. Includes the history of interpersonal communication research and theory and applications such as negotiation, conflict management, listening, and assertiveness.

## Course Descriptions

### **COMM 2115**

#### **Introduction to Health Communication**

**3**

Provides an introduction to and a foundation for the important area of health communication. Covers persuasion theories as applied to health communication research. Examines the history of medicine and healthcare. Describes patient to caregiver interaction.

### **COMM 2120**

#### **Small Group Communication and Decision Making**

**3**

Provides an overview of the communication processes involved in small-group interactions. Covers theories of leadership, decision-making, and problem-solving through group activities. Canvas Course Mats \$70/McGraw applies.

### **COMM 217G (Cross-listed with: CINE 217G, ENGL 217G) HH**

#### **Race Class and Gender in U S Cinema GI**

**3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Raises cultural awareness through aesthetic, critical, and interdisciplinary examination of the evolution of the representation of race, class, and gender in American cinema. Focuses on both Hollywood and independent minority filmmakers. Some films screened may carry an "R" rating.

### **COMM 2250**

#### **Principles of Advertising**

**3**

Introduces the basics of advertising research, strategy, creative execution, and media strategy. Canvas Course Mats of \$85/McGraw applies.

### **COMM 2270**

#### **Argumentation**

**3**

Examines the study of argument. Emphasizes reasoning, evidence, analysis, evaluation, audience analysis, and application of argumentative skills.

### **COMM 2300**

#### **Introduction to Public Relations and Strategic Communication**

**3**

\* Prerequisite(s): ENGL 1010 or ENGL 101H or ENGH 1005

Introduces the basics of writing for the media, designing corporate literature, and working with the public and key stakeholders on behalf of a business, organization, and/or individual. Canvas Course Mats \$52/Sage applies.

### **COMM 2400**

#### **Organizational Communication**

**3**

Teaches how communication processes affect organizations. Applies theory to organizational analysis. Utilizes dialogue and network analysis to improve organizational values and performance.

### **COMM 2510**

#### **Visual Strategies for Communication**

**Majors**

**3**

Teaches strategies to visually align public relation campaigns with an organization's brand, using contemporary digital software. Provides understanding of visual strategies and effective design practices. Creates a literacy of visual communication tools and strategies for articulating a vision to audiences using well-established web design techniques. Lab access fee of \$20 applies.

### **COMM 2790**

#### **Magazine Writing**

**3**

Focuses on non-fiction writing for magazine consumption. Teaches how to research and write long, investigative feature articles. Includes analysis of the early magazine industry, contemporary issues in the magazine industry, and in-depth reporting on special topics, such as science, politics, culture and society, education, environment, and international affairs. Lab access fee of \$20 applies.

### **COMM 290R**

#### **Independent Study**

**1 to 3**

\* Prerequisite(s): Departmental Approval

For qualified students who wish to undertake a well-defined project or directed study related to an area of special interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. Includes projects such as writing a publishable paper, creating a portfolio of published news articles, producing an annotated bibliography, oral or multimedia presentation, or other options as approved by the instructor. May be repeated for a maximum of 3 credits toward graduation.

### **COMM 3020**

#### **Communication Research Methods WE**

**3**

\* Prerequisite(s): University Advanced Standing

Covers basic communication research methods in both quantitative and qualitative research. Focuses on the research process and discusses the methodological tools for understanding and conducting basic communication research. Includes examples based on research and promotes awareness of the importance of quantitative and qualitative research perspectives as well as of data collection and analytical procedures.

### **COMM 3025**

#### **Introduction to Qualitative Communication Research**

**3**

\* Prerequisite(s): University Advanced Standing

Reviews methods of qualitative data collection, including ethnography, interviewing, observation, and textual analysis. Explores a variety of methods of qualitative analysis including rhetorical, interpretive, and critical analyses. Prepares students for careers in the fields of user-experience research, organizational research, communication consulting, and graduate research in the field of communication.

### **COMM 3030**

#### **Media Literacy**

**3**

\* Prerequisite(s): University Advanced Standing

Explores the concept of media literacy and how individuals can become more knowledgeable citizens when analyzing and evaluating messages disseminated from a wide variety of media outlets.

### **COMM 3040 (Cross-listed with: PHIL 3040)**

#### **Media Ethics**

**3**

\* Prerequisite(s): University Advanced Standing

Covers ethical issues in media communication. Includes discussions of ethnicity, gender, nationalism, and conflict. Analyzes development of moral agency. Examines tensions between individual freedoms and social responsibilities. Addresses ethical questions in the context of current struggles within and over corporate and public media.

### **COMM 3050**

#### **Theories of Communication and Culture WE**

**3**

\* Prerequisite(s): University Advanced Standing.

Covers main theoretical approaches to communication and culture. Includes transmission, ritual, symbolic interactionist, structuralist, post-structuralist, postmodern, and critical theories.

### **COMM 3100**

#### **Propaganda and Persuasion**

**3**

\* Prerequisite(s): University Advanced Standing

Considers the problem of manipulative propaganda in the modern American context. Focuses on consumerist and militaristic propaganda. Treats propaganda as a special type of intentionally persuasive communication, designed by power blocs to engineer the consent of large numbers of people, often with hidden, unethical, or nefarious intent. Features a heavy use of cinema.

**COMM 3110 (Cross-listed with: ENGL 3110, THEA 3110)****Non Fiction Cinema History****3**

\* Prerequisite(s): University Advanced Standing

Surveys the history of non-fiction/documentary film from 1896 to the present. Includes study of early pioneers from Flaherty's NANOOK OF THE NORTH to the current trend of reality television and popular documentaries. May screen some films which carry an "R" rating.

**COMM 3115****Communicating in Environments****3**

\* Prerequisite(s): University Advanced Standing

Explores how people use communication to navigate both social and natural environments. Investigates social and small group communication; specifically, how small groups are created, what role(s) they play in life. Considers how our culture communicates about the natural world: how do we define nature, who communicates for nature, and how does nature behave as a stakeholder in environmental conflicts. Occurs at the Capitol Reef Field Station, which allows for an experiential application of the theories of small-group and environmental communication. Focuses on the experience and application of the literature of the discipline to create an integrated-learning opportunity.

**COMM 3120****Fundamentals of New and Social Media****3**

\* Prerequisite(s): University Advanced Standing

Examines contemporary issues related to social media, including the impact of such media on journalism and society, social media effects, and new media campaigns. Investigates the relationship between government policy and social media in relation to issues such as the digital divide, net neutrality, and the use of social media to sustain protests and revolutions. Software fee of \$20 applies.

**COMM 3130****The Culture of Nature and Technology****3**

\* Prerequisite(s): University Advanced Standing

Analyzes the cultural construction of nature and technology from historical, interpretive, and critical perspectives. Deconstructs the nature/culture dichotomy. Critiques the neutrality of technology thesis. Explores the political and social implications of representations of, and relations to, nature and technology.

**COMM 3140****Social Media Content Creation Strategy****3**

\* Prerequisite(s): University Advanced Standing

Develops critical thinking skills used for social media content creation, strategy, and management. Focuses both on the theoretical and practical foundation of persuasive/informative social media communication and campaigns. Covers a mix of apps, tools and techniques used by professionals to organically use social media to build a brand's community and reputation. Uses a communication/public relations lens. Software fee of \$45 applies.

**COMM 314G (Cross-listed with: ENGL 314G, THEA 314G)****Global Cinema History****3**

\* Prerequisite(s): (ENGL 2150 or THEA 1023) and University Advanced Standing

Studies the evolution of global film styles, movements, stars, and genres with a focus on international cinema chronologies outside the United States. Some films screened may be considered controversial and carry an "R" rating.

**COMM 3160****Social Media Analytics****3**

\* Prerequisite(s): University Advanced Standing

Provides methods in which social media activity data is obtained and subsequently measured. Examines common metrics that are used to evaluate the effectiveness of social media campaigns. Explores how social media, as a medium, can be properly evaluated in terms of valuation and return on investment. Critiques and analyzes current and past social media campaigns in order to better understand how metrics can help to modify social media strategy and tactics. Applies the associated theoretical concepts via hands-on activities using contemporary social media content management tools and analytic software. Software fee of \$45 applies.

**COMM 317G****Ethnographic Methods for Communication Research****3**

\* Prerequisite(s): University Advanced Standing

Provides an examination of concepts and methodologies used to conduct ethnographic research. Discusses the critical study of cultural processes; the approaches to ethnographic research; and the relationship among ethnographic evidence (fieldwork), interpretation, and representation.

**COMM 319G****Intercultural Communication Encounters****3**

\* Prerequisite(s): COMM 1050 and University Advanced Standing

Promotes awareness of the role of competent communication in intercultural awareness and sensitivity. Reviews classical and current definitions of culture and describes their general characteristics, with specific focus on the issue of cultural diversity. Describes the components and process of intercultural communication including perception and motivation. Provides an overview of differences and similarities in verbal and nonverbal intercultural communication. Identifies guidelines for achieving intercultural communication competence.

**COMM 3290****Photojournalism****3**

\* Prerequisite(s): University Advanced Standing

Covers the fundamental skills and principles of gathering news with a camera. Demonstrates how students can improve the way they see information for distribution via the mass media. Allows students to articulate how they feel about images and describe why such images work well or poorly for publication. Lab access fee of \$20 applies.

**COMM 332G (Cross-listed with: MGMT 332G)****International Business Communication****3**

\* Prerequisite(s): University Advanced Standing

Reviews various aspects of today's international business environment from a business communication perspective. Overviews critical elements that arise from the various cultural backgrounds which can impact both domestic and international organizations. Focuses on the development and refinement of goals-driven, receiver-centric approach to communication. Considers topics such as managerial communication, negotiations, and cultural change.

**COMM 3410****Fundamentals of Mediation and Negotiation****3**

\* Prerequisite(s): University Advanced Standing

Teaches students to understand and participate knowledgeably on a basic level in the processes of mediation and negotiation. Emphasizes conceptual knowledge of both processes and improves practical skills and effectiveness as a mediator and negotiator. Uses an interactive-workshop format that blends theory with simulated class role-play.

## Course Descriptions

### **COMM 3420 (Cross-listed with: BESC 3420)**

#### **Communication and Conflict**

**3**

\* Prerequisite(s): University Advanced Standing

Studies contemporary theories of conflict and communication. Analyzes the roles of culture, gender, personal, and organizational ethics in conflicts and disputes. Covers the nature of conflict and teaches methods of negotiation, mediation, and conflict resolution with an emphasis on collaborative problem-solving. Canvas Course Mats \$45/McGraw applies.

### **COMM 350R**

#### **Special Topics in Communication**

**3**

\* Prerequisite(s): University Advanced Standing

Presents selected topics in communication that will vary from semester to semester. May be repeated with different topics for a total of 9 credits toward graduation.

### **COMM 3510**

#### **Visual Communication Theory**

**3**

\* Prerequisite(s): University Advanced Standing

Explores the physio-psychological bases of perception, cognition, semiotics, aesthetics, and history that lead to realization of visual messages within the context of communication. Discusses the ethical dimensions of visual image-making and critiques contemporary visual images across all mass media.

### **COMM 3520**

#### **Public Relations and Strategic Communication Case Studies**

**3**

\* Prerequisite(s): COMM 2300 and COMM 3020 and University Advanced Standing

Examines public relations and strategic planning process through the analysis of case studies. Addresses strategic communication planning issues in media relations, crisis communications, ethics, creative planning, research, and evaluation, using real-world situations and clients. Software fee of \$45 applies.

### **COMM 3530**

#### **Public Relations and Strategic Communication Writing**

**3**

\* Prerequisite(s): University Advanced Standing

Develops skills in persuasive writing for institutional or individual clients. Provides a hands-on experience in applying public relations and strategic communication writing tools for corporate, non-profit, government, and/or integrated communication organizations. Covers writing for the media, designing and writing corporate literature, and working with the public on behalf of a business, organization, and/or individual as it relates to public relations and strategic communication. Lab access fee of \$20 applies. Software fee of \$45 applies.

### **COMM 3540**

#### **Sports Public Relations**

**3**

\* Prerequisite(s): University Advanced Standing

Examines the history of sports communication for public relations. Spotlights sports communication key influencers. Highlights the skills necessary to effectively communicate in a changing sports marketplace. Exposes students to how public relations, social networking, corporate involvement, and mass media continue to shape a dynamic field that remains a top choice for creative communication professionals across the globe. Incorporates students' sports-writing skills as they learn the execution of sports digital media plans, media conferences, and media availability.

### **COMM 3560**

#### **Public Relations Event and Media Coordination**

**3**

\* Prerequisite(s): University Advanced Standing.

Examines the process of event coordination as it relates to public relations and media management. Reviews the history of festivals and events. Provides an understanding of the concepts of project coordination, strategic planning, and strategic vision within event coordination. Explores media management within event coordination for events that include award shows, film festivals, government press conferences, sporting events, fundraisers, promotional events, and more. Explores public-relations careers within event coordination and helps students create, develop, manage, execute, and evaluate an event from a public-relations approach. Software fee of \$45 applies.

### **COMM 3570**

#### **Crisis Communication**

**3**

\* Prerequisite(s): University Advanced Standing

Provides a broad theoretical and practical understanding of crisis communication and risk assessment. Examines recent cases to determine what constitutes a crisis. Examines causes of organizational crises, how to avoid these crises, and what to do when a crisis hits. Evaluates communicative channels and messages, including new media, and develops strategies to prepare and manage a crisis situation.

### **COMM 3580**

#### **Fashion Public Relations and Strategic Communication**

**3**

\* Prerequisite(s): University Advanced Standing

Provides students with an understanding of professional public relations practices for the fashion industry. Explores strategies for creating and executing publicity campaigns for unique areas of fashion print design, haute couture, shows, labels and designers, merchandising, influencers, and the role of social media in fashion. Includes the application of a two-way symmetrical model approach as part of Grunig and Hunt's four models of public relations theory. Includes lecture, reading assignments, guest speakers in the fashion industry and possible field trips to course events.

### **COMM 362G**

#### **International Communication**

**3**

\* Prerequisite(s): COMM 3020, COMM 3050, and University Advanced Standing

Introduces theories of international communication. Covers different systems of the press in different countries. Analyzes specific case studies in international media.

### **COMM 3660**

#### **Investigative Reporting**

**3**

\* Prerequisite(s): University Advanced Standing

Explores news and information in a democratic framework. Develops interview techniques, public record use, fact-checking, and electronic data access in relation to complex social issues.

### **COMM 3680**

#### **Advertising Media Planning**

**3**

\* Prerequisite(s): University Advanced Standing

Teaches the process of media planning. Covers procedures, issues, and methods of evaluation. Takes a problem-solving approach, oriented to targeting particular audiences in appropriate ways.

### **COMM 3690**

#### **Creative Strategy in Communication Campaigns**

**3**

\* Prerequisite(s): University Advanced Standing

Prepares students for careers in public relations, journalism, and communication by exploring the role of research, copywriting, design, and media structures in developing persuasive messages. Emphasizes execution of creative strategies that are appealing to the intended audience, consistent with communication objectives, and formatted correctly for the media in which they are implemented.

**COMM 3700****Free Expression in a Democratic Society****3**

\* Prerequisite(s): University Advanced Standing

Examines the role of the free speech and free press clauses of the First Amendment of the U.S. Constitution from legal, ethical, political, and pragmatic perspectives. Covers basic rules governing the media (advertisers, newspapers, public relations specialists, and electronic media) and individuals. Includes analysis of court decisions, executive orders, administrative rules, and legislation intended to limit or regulate speech and examples of people/organizations who have challenged these rules.

**COMM 3780****Mormons Media and Culture****3**

\* Prerequisite(s): University Advanced Standing

Examines the intersection of media, popular culture, and Mormonism. Analyzes the social construction of Mormonism through representations in the media, official and unofficial LDS discourse, folklore, material culture, and history. Discusses cultural theories of race, gender, orientalism, and tribalism.

**COMM 3790****Case Studies in Journalism****3**

\* Prerequisite(s): University Advanced Standing

Examines historically significant examples of the press in action from historical, ethical, and critical perspectives. Lab access fee of \$20 applies.

**COMM 401G****Communication Education****3**

\* Prerequisite(s): University Advanced Standing

Discusses the various principles and objectives related to communication education and instructional communication. Offers experience in the role of speech lab mentor.

**COMM 4110****Interpersonal Communication Theory and Research****3**

\* Prerequisite(s): University Advanced Standing

Surveys current interpersonal research. Explores the interrelated nature of theory and research. Provides the foundational knowledge required to critically assess current research in the field. Creates an opportunity to systematically explore a personal area of interest within the area of interpersonal communication.

**COMM 4115****Advanced Health Communication****3**

\* Prerequisite(s): University Advanced Standing

Examines how persuasion, interpersonal, and organizational theories impact patient-provider communication. Examines the role of technology in healthcare contexts. Examines the impact of the mass media in health sense-making and decision-making.

**COMM 4120****Group Communication****3**

\* Prerequisite(s): University Advanced Standing

Extends understanding of group operation and experience through current theory and research studies. Provides experiential activity of working in class groups. Enables students to study groups in their social environments, investigate real-world group policy, and discover the benefits of viewing groups as having stable yet permeable boundaries.

**COMM 4125****Applied Survey Research****3**

\* Prerequisite(s): University Advanced Standing

Provides the students with knowledge and skills for conducting applied survey research. Focuses on how to search for previous research, formulation of research questions and hypotheses, primary communication survey research methods and their uses, descriptive and inferential statistical analyses of data, interpretation of statistical findings, and the development of a group-based research paper. Develops students' ability to both consume and produce research.

**COMM 4170****Contemporary Issues in Organizational Communication****3**

\* Prerequisite(s): University Advanced Standing

Provides an introduction, overview, and in-depth look at the role of communication in contemporary organizations. Demonstrates the importance and challenges of communication within organizations. Emphasizes the interdependence of internal and external forms of organizational communication.

**COMM 4180****Communication and Social Behavior****3**

\* Prerequisite(s): University Advanced Standing

Examines the complex relationship between human communication and the social worlds in which we live. Looks at ways behavior in roles, institutions, and culture are socially constructed through language. Examines discourses and their roles in constructing social phenomena, with an emphasis on the relationships between discourse and power.

**COMM 4190****Family Communication****3**

\* Prerequisite(s): University Advanced Standing

Evaluates communication concepts and research specific to the distinct field of inquiry known as Family Communication. Reviews family communication concepts such as privacy, conflict, intimacy, difficult conversations, family storytelling, and family communication patterns. Includes quantitative and qualitative research methods.

**COMM 4250****Communication and Leadership****3**

\* Prerequisite(s): University Advanced Standing

Encourages students to critically analyze leadership in terms of interpersonal effectiveness and professionalism from both a theoretical and practical perspective. Examines power and influence in leadership-related group and team communication. Advances oral and written communication, interpersonal communication, and emotional intelligence in crisis scenarios.

**COMM 431R****Communication Executive Lecture Series****1**

\* Prerequisite(s): University Advanced Standing

Presents lectures by guest speakers emphasizing current public relations and communication topics concerning the student, community, nation, etc. Exposes students to varying topics and industry experts each semester. May be repeated for a maximum of 2 credits toward graduation.

**COMM 4500****Media and Politics****3**

\* Prerequisite(s): University Advanced Standing

Examines theories and research of media and politics. Analyzes the intersection between traditional and emerging media platforms and current issues in political campaigns, attitudes towards politics, and democratic participation.

## Course Descriptions

### **COMM 4630**

#### **Wolverine Student Public Relations and Strategic Communication Firm** **3**

\* Prerequisite(s): University Advanced Standing

Provides industry experience in a public relations firm setting working in corporate and nonprofit sectors. Applies writing, media relations, event planning, branding, copy editing, content creation, and social media management for real-world organizations consistent with accepted public relations practices. Teaches market and consumer research and provides regular contact with clients. Prepares students to create and implement public relations campaigns, including evaluations for client work. Software fee of \$45 applies.

### **COMM 479R**

#### **Journalism Workshop** **3**

\* Prerequisite(s): University Advanced Standing

Provides student newspaper staff experience in writing, editing, and publishing. Allows students to work on the student newspaper and complete specific learning objectives related to print production, such as news and feature writing, columns, and editorials. Focuses on layout, production, photography, advertising, and sales in a real-world newspaper environment. May be repeated for a maximum of 6 credits toward graduation. May be graded credit/no credit. Lab access fee of \$20 applies.

### **COMM 481R**

#### **Internship** **3 or 6**

\* Prerequisite(s): Instructor Approval and University Advanced Standing

For upper division students working towards a Bachelor of Arts or a Bachelor of Science degree in Applied Communication and/or Public Relations and Strategic Communication. Provides a transition from school to work where academic concepts are applied to actual practice through on-the-job experience commensurate with upper-division classroom instruction. Requires instructor approval. May be repeated for a maximum of 6 credits toward graduation. May be graded credit/no credit.

### **COMM 4830**

#### **Competitive Case Studies** **3**

\* Prerequisite(s): Instructor Approval and University Advanced Standing

Teaches competitive case studies with a public relations emphasis. Focuses on development, research, execution, and evaluation of strategic communication planning for a client. Prepares students to compete in regional or national competitions. Software fee of \$45 applies.

### **COMM 4850**

#### **Public Relations and Strategic Communication Campaigns** **3**

\* Prerequisite(s): COMM 2300, COMM 3520, and University Advanced Standing

Applies PR skills, case studies, and writing analysis to create strategic public relations campaigns for a number of clients. Requires students to generate a portfolio of work for clients. Software fee of \$45 applies.

### **COMM 4930**

#### **Communication Capstone** **3**

\* Prerequisite(s): COMM 1050, COMM 319G, and University Advanced Standing

Discusses the integration of various principles and objectives covered across the communication curriculum. Includes major thesis or project designed to reflect students' career goals.

### **COMM 497R**

#### **Independent Study** **1 to 3**

\* Prerequisite(s): Departmental approval and University Advanced Standing

For advanced, qualified students who wish to undertake a well-defined project or directed study related to an area of special interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. Includes projects such as writing a publishable paper, creating a portfolio of published news articles, producing an annotated bibliography, oral or multimedia presentation, or other advanced options as approved by the instructor. May be taken for a maximum of 9 credit hours toward graduation.

## **Computing (COMP)**

### **COMP 1000**

#### **Computer and Information Literacy** **3**

Discusses computer and information literacy, focusing on current technology, emerging technology, and social media. Promotes appropriate and ethical use of technology, critical-thinking skills, and problem-solving strategies. Develops skills in word processing, spreadsheet, presentation, and image-editing applications for personal and college success.

### **COMP 301R**

#### **Digital Lecture Series** **1**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Guest speakers lecture on current topics in computer science, digital media, and information systems/technology. May be repeated for a maximum of 3 credits toward graduation.

## **Collision Repair Technology (CRT)**

### **CRT 100R**

#### **Paint Your Own Car** **2**

Designed as a survey class. Discusses and demonstrates safety, sanding, masking, feather edging, priming, and refinishing of student's vehicle. Students will refinish their own projects in this class. Body and fender dents, rust out, etc., should be taken care of before class enrollment. The instructor will inspect and approve each project prior to allowing it in the program. Course is open to any community member who may profit from the instruction. May be repeated as desired for interest. Tool room fee of \$19 for equipment applies.

### **CRT 110**

#### **Surface Preparation** **2**

Covers environmental and personal safety when handling collision industry chemicals. Discusses metal preparation, surface treatment, painting and surface rust removal, proper sanding of old finishes, and film build tolerances. Teaches application and uses of undercoats, primers, primer surfacers, sealers and primer sealers. Covers block sanding, guide coats, wax and grease removers, and surface pre-cleaning techniques. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

### **CRT 111L**

#### **Surface Preparation Lab** **1**

\* Corequisite(s): CRT 1110

Provides laboratory experience for surface preparation techniques aligning with lectures from CRT 1110. Topics include finish removal, sanding techniques, undercoating materials. Tool room fee of \$19 for equipment applies. Course Lab fee of \$40 for materials applies.

### **CRT 1120**

#### **Nonstructural Repair** **2**

Offers in-depth analysis of minor damage and applied metal working techniques. Studies properties of metal, elasticity, corrosion protection, work hardening, rough out, hammer and dolly techniques, heat shrinking, pick and file and grinding methods. Presents application of corrosion protection materials, body fillers, including metal and fiber reinforced fillers, and their shaping. Emphasizes safety precautions. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**CRT 112L  
Nonstructural Repair Lab**

**1**  
\* Corequisite(s): CRT 1120

Provides a laboratory experience for nonstructural repair techniques aligning with lectures from CRT 1120. Topics include fillers use, metallurgy, shrinking and stretching. Tool room fee of \$19 for equipment applies. Course Lab fee of \$22 for materials applies.

**CRT 1130  
Overall Refinishing and Problem Solving**

**2**  
Teaches use and maintenance of shop paint spray equipment. Studies types of undercoatings including sealers, primers, and primer surfacers, their use, limitations, and application. Discusses refinish products, their solid levels, coverage, and recommended refinish systems. Teaches prevention and removal of refinishing processing defects. Covers cutting and buffing. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**CRT 113L  
Overall Refinishing and Problem Solving Lab**

**1**  
\* Corequisite(s): CRT 1130

Provides a laboratory experience for overall refinishing and problem solving techniques aligning with lectures from CRT 1130. Topics include safety, substrate usage, application techniques, base coats, clear coats, single stage paints, and tri coat processes, application / refinish / material defects, causes and cures. Tool room fee of \$19 for equipment applies. Course Lab fee of \$74 for materials applies..

**CRT 1140  
Panel Replacement and Adjustment**

**2**  
Studies removal, replacement, and alignment of bolt-on body panels. Presents multiple latch mechanisms and their adjustments. Various trim and body fasteners are discussed. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**CRT 114L  
Panel Replacement and Adjustment Lab**

**1**  
\* Corequisite(s): CRT 1140

Provides a laboratory experience for panel replacement and adjustment techniques aligning with lectures from CRT 1140. Topics include replacement and alignment of bolt-on body panels, fasteners and trim. Tool room fee of \$19 for equipment applies.

**CRT 1210  
Blending Tinting and Detailing**

**2**  
Studies automotive refinish blending techniques. identifies proper procedures for Single stage, Base Coat, and Tri stage blending. Identifies detailing techniques and materials. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**CRT 121L  
Blending Tinting and Detailing Lab**

**1**  
\* Corequisite(s): CRT 1210  
Provides a laboratory experience for blending tinting and detailing techniques. Identifies proper procedures for Single stage, Base coat, and Tri stage blending. Identifies detailing techniques and materials. Tool room fee of \$10 for equipment applies. Course Lab fee of \$53 for materials applies.

**CRT 1230  
Welding and Cutting**

**2**  
Introduces gas welding and cutting followed by intense study of MIG, TIG, STRSW welding of mild, high strength, ultra high strength steels, and aluminums. Studies the most common joints as they apply to current vehicles construction techniques. Introduces plasma arc cutting techniques. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**CRT 123L  
Welding and Cutting Lab**

**1**  
Provides a laboratory experience for welding and cutting techniques aligning with lectures from CRT 1230. Topics include MIG, TIG, Squeeze Type Resistant Spot Welding (STRSW), welding processes. Tool room fee of \$19 for equipment applies. Course Lab fee of \$39 for materials applies.

**CRT 2310  
Collision Damage Reporting**

**2**  
\* Prerequisite(s): CRT 1120, CRT 1130, CRT 1230, recommended  
Teaches estimating procedures. Uses Crash Estimating Guide. Covers labor and material costs, judgment of repairs, estimating, and insurance nomenclature. Includes computer generated damage reporting, page logic, and ethical problem solving. Uses lecture, guest speakers, and practice exercises. Includes demonstrations, and lab. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**CRT 231L  
Collision Damage Reporting Lab**

**1**  
\* Prerequisite(s): CRT 112L, CRT 113L, CRT 123L, all recommended  
\* Corequisite(s): CRT 2310

Provides a laboratory experience for collision damage estimating techniques aligning with lectures from CRT 2310. Topics include: damage analysis sequence, repair and replace decisions, using crash estimating guide, procedure page analysis of crash estimating guide, selecting parts and labor amounts in crash estimating guide, and various estimating programs for the computer. Tool room fee of \$19 for equipment applies. Course Lab fee of \$23 for materials applies.

**CRT 2320  
Structural Damage Analysis**

**2**  
\* Prerequisite(s): CRT 1230  
Teaches visual inspection, gauging, measuring, laser technology, and procedures needed to correctly evaluate primary and secondary structural damage. Includes lecture, demonstrations, and lab. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**CRT 232L  
Structural Damage Analysis Lab**

**1**  
\* Prerequisite(s): CRT 123L  
\* Corequisite(s): CRT 2320  
Provides a laboratory experience for analyzing structural damage to conventional and unibody frames. Aligns with lectures from CRT 2320. Topics include: damage identification, body and frame measurement systems, interpret dimension information, set up and properly use a variety of manual, and computerized measuring systems. Tool room fee of \$19 for equipment applies. Course Lab fee of \$20 for materials applies.

**CRT 2330  
Structural Repair**

**2**  
\* Prerequisite(s): CRT 1230  
Teaches methods, strategies, and technology needed to align and straighten unibody and conventional frame components made from high strength steel and plastics. Studies alignment of steering and suspension components. Includes lecture, demonstrations, and lab. Software fee of \$10 applies. Lab access fee of \$10 applies.

# Course Descriptions

## **CRT 233L Structural Repair Lab**

- 1**  
\* Prerequisite(s): CRT 123L  
\* Corequisite(s): CRT 2330

Provides a laboratory experience for aligning and straightening unibody and conventional components made from high strength steel and plastics. Tool room fee of \$19 for equipment applies.

## **CRT 2340 Full and Partial Panel Replacement**

- 2**  
\* Prerequisite(s): CRT 1140, CRT 1230

Teaches removal, alignment, welding, gluing, and corrosion protection technology needed to replace unibody components including rails, pillars, and weld-on panels. Includes lecture, demonstrations, and lab. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **CRT 234L Full and Partial Panel Replacement Lab**

- 1**  
\* Prerequisite(s): CRT 114L, CRT 123L  
\* Corequisite(s): CRT 2340

Provides a laboratory experience for full and partial panel replacement, aligning with lectures from CRT 2340. Topics include: removal, alignment, welding, gluing, and corrosion protection technology needed to replace unibody components: including rails, pillars, and weld-on panels. Tool room fee of \$19 for equipment applies. Course Lab fee of \$15 for materials applies.

## **CRT 2400 Plastic Paintless Dent Repair**

- 2**  
\* Prerequisite(s): CRT 1110, CRT 1120

Teaches plastic parts identification, interpretation of ISO codes, plastic welding equipment and techniques, SMC repairs and sectioning. Instructs in paintless dent repair tools, and methods of repair. Uses Advanced Tech I-CAR curriculum. Includes lecture, demonstrations.

## **CRT 240L Plastic PaintLess Dent Repair Lab**

- 1**  
\* Prerequisite(s): CRT 111L, CRT 112L  
\* Corequisite(s): CRT 2400

Provides a laboratory experience for plastic parts identification, interpretation of ISO codes, plastic welding equipment and techniques, SMC repairs and sectioning. Instructs in paintless dent repair tools, and methods of repair. Uses Advanced Tech I-CAR curriculum. Includes hands-on demonstrations. Tool room fee of \$19 for equipment applies. Course Lab fee of \$35 for materials applies.

## **CRT 2420 Plastic Repair**

**4**  
Teaches various repair methods, tools, and materials used to correctly repair plastic materials and SMC panels in modern vehicles. Includes lecture, demonstrations, and lab. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **CRT 2430 Mechanical and Electrical Repair**

**4**  
Teaches basic mechanical systems theory, removal, and replacement. Studies A/C systems, cooling, braking, emission, restraint, and electrical systems. Includes lecture, demonstrations and lab. Uses ICAR Advanced Technical Curriculum. Successful completers should be prepared for ASE certification. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **CRT 2440 Mechanical Advanced Vehicle Systems**

**2**  
Teaches basic mechanical systems theory, removal, and replacement. Studies basic four-wheel steering, traction control, G.P.S., electronic stability control, and black box technology information systems, minor diagnosis and troubleshooting. Includes lecture and demonstrations. Uses Advanced Tech I-CAR curriculum.

## **CRT 244L Mechanical Advanced Vehicle Systems Lab**

- 1**  
\* Corequisite(s): CRT 2440

Provides a laboratory experience for mechanical systems theory, removal, and replacement. Instructs in basic-four wheel steering, traction control, G.P.S., electronic stability control, and black box technology information systems, minor diagnosis and troubleshooting. Includes demonstrations and hands-on. Uses I-CAR Advanced Technical Curriculum. Tool room fee of \$19 for equipment applies.

## **CRT 2450 Bags Brakes Steering**

**2**  
Teaches the operation and repair of active and passive restraint systems. Diagnosis of sensors, modules and related components is also discussed. Discusses drum, disc, and anti-lock brake systems and components. Covers parallelogram, and rack and pinion steering systems, repair, replacement and diagnosis of each system is addressed. Uses Advanced Tech I-CAR curriculum.

## **CRT 245L Bags Brakes Steering Lab**

- 1**  
\* Corequisite(s): CRT 2450

Teaches the operation and repair of active and passive restraint systems. Diagnosis of sensors, modules and related components is also discussed. Discusses drum, disc, and anti-lock brake systems and components. Covers parallelogram, and rack and pinion steering systems, repair, replacement and diagnosis of each system is addressed. I-CAR Advanced Tech curriculum is used. Tool room fee of \$19 for equipment applies. Course Lab fee of \$27 for materials applies.

## **CRT 2510 Custom Welding**

**2**  
For students pursuing a Diploma or an AAS degree in Collision Repair Technology with an emphasis in Custom Street Rod Technology or interested community members with a welding background. Covers TIG welding processes for mild steel, stainless steel, and aluminum. Teaches oxyacetylene welding processes for mild steel, brass, copper, pot metal, and aluminum.

## **CRT 251L Custom Welding Lab**

- 1**  
\* Corequisite(s): CRT 2510

Provides a laboratory experience for TIG welding processes for mild steel, stainless steel, and aluminum. Instruction in Oxyacetylene welding processes for mild steel, brass, copper, pot metal, and aluminum. Tool room fee of \$19 for equipment applies. Course Lab fee of \$69 for materials applies.

## **CRT 2520 Customizing**

**2**  
For students pursuing a Diploma or an AAS degree in Collision Repair Technology with an emphasis in Custom Street Rod Technology or interested community members with a welding background. Covers frenching, shaving, body modifications, convertible conversions, building hood scoops, louvers, flare, and other technical customizing processes.

## **CRT 252L Customizing Lab**

- 1**  
\* Corequisite(s): CRT 2520

Provides a laboratory experience for frenching, shaving, body modifications, convertible conversions, building hood scoops, louvers, flare, and other technical customizing processes. Tool room fee of \$19 for equipment applies. Course Lab fee of \$11 for materials applies.

**CRT 2530**  
**Panel Fabrication**  
**2**

For students pursuing a Diploma or an AAS degree in Collision Repair Technology with an emphasis in Custom Street Rod Technology or interested community members. Covers basic fabricating tools such as sheet metal brake, slip rolls, band saw, and nibblers. Uses specialty tools such as English wheel, power hammer, kraftformer, plenisher hammer, shrinkers, and stretchers. Teaches panel fabrication and hammer forming.

**CRT 253L**  
**Panel Fabrication Lab**  
**1**

\* Corequisite(s): CRT 2530

Provides a laboratory experience for basic fabricating tools such as sheet metal brake, slip rolls, band saw, and nibblers. Uses specialty tools such as English wheel, power hammer, kraftformer, plenisher hammer, shrinkers, and stretchers. Teaches panel fabrication and hammer forming. Tool room fee of \$19 equipment applies. Course Lab fee of \$60 materials applies.

**CRT 2540**  
**Structural Body Fabrication**  
**2**

For students pursuing a diploma or AAS degree in Collision Repair Technology with an emphasis in Custom Street Rod Technology or interested community members. Covers body construction from bumper to bumper and from roof to floor. Enhances knowledge of structural components of a well constructed vehicle.

**CRT 254L**  
**Structural Body Fabrication Lab**  
**1**

\* Corequisite(s): CRT 2540

Provides a laboratory experience for body construction from bumper to bumper and from roof to floor. Enhances knowledge of structural components of a well constructed vehicle.

**CRT 2610**  
**Top Chopping Sectioning and Channeling**  
**2**

\* Prerequisite(s): CRT 2510, CRT 251L

For students pursuing a Diploma or an AAS degree in Collision Repair Technology with an emphasis in Custom Street Rod Technology or interested community members with a basic welding and collision repair background. Covers the history of vintage vehicles, methods of top chopping, sectioning and channeling techniques.

**CRT 261L**  
**Top Chopping Sectioning and Channeling Lab**  
**1**

\* Prerequisite(s): CRT 2510, CRT 251L

\* Corequisite(s): CRT 2610

Provides a laboratory experience for methods of top chopping, sectioning and channeling techniques. Tool room fee of \$19 for equipment applies. Course Lab fee of \$16 for materials applies.

**CRT 2620**  
**Frames**  
**2**

\* Prerequisite(s): CRT 2510, CRT 251L

For students pursuing a Diploma or an AAS degree in Collision Repair Technology with an emphasis in Custom Street Rod Technology or interested community members with a welding background. Identifies the different types of frames and how to modify them. Teaches sub-framing, pro-streeting, narrowing of rear ends, drive shafts, and complete frame change over. Covers exhaust systems and other alterations, front to rear.

**CRT 262L**  
**Frames Lab**  
**1**

\* Prerequisite(s): CRT 2510, CRT 251L

\* Corequisite(s): CRT 2620

Provides a laboratory experience for identifying the different types of frames and how to modify them. Teaches sub-framing, pro-streeting, narrowing of rear ends, drive shafts, and complete frame change over. Covers exhaust systems and other alterations, front to rear. Tool room fee of \$19 equipment applies.

**CRT 2630**  
**Detailing and Custom Painting**  
**2**

\* Prerequisite(s): CRT 1110, CRT 1120, CRT 1130, CRT 1140, CRT 1210

For students pursuing a Diploma or an AAS degree in Collision Repair Technology or Custom Street Rod Technology or interested community members with an automotive painting background. Teaches custom painting and detailing for show cars. Emphasizes flames, scallops, shredding, checker boarding, air brush techniques, murals, fish scales, three stage paints, pearls, candies, and multi-colored changes.

**CRT 263L**  
**Detailing and Custom Painting Lab**  
**1**

\* Prerequisite(s): CRT 111L, CRT 112L, CRT 113L, CRT 121L

\* Corequisite(s): CRT 2630

Provides a laboratory experience for custom painting and detailing for show cars. Emphasizes flames, scallops, shredding, checker boarding, air brush techniques, murals, fish scales, three stage paints, pearls, candies, and multi-colored changes. Tool room fee of \$19 for equipment applies. Course Lab fee of \$73 for materials applies.

**CRT 2640**  
**Panel Fabrication of Aluminum**  
**2**

\* Prerequisite(s): CRT 1110, CRT 1120, CRT 1130, CRT 1140

For students pursuing a diploma or an AAS degree in Collision Repair Technology with an emphasis in Custom Street Rod Technology or interested community members. Covers basic hand tools, such as: hammers, dollys, leather bags, and slappers. Use of specialty equipment, such as: English wheel, Pullmax, nibbler, power hammers, and bead rollers. Teaches making bucks, patterns and forms. Teaches panel fabrication of aluminum.

**CRT 264L**  
**Panel Fabrication of Aluminum Lab**  
**1**

\* Corequisite(s): CRT 2640

Provides laboratory experience for use of: hammers, dollys, leather bags, and slappers. Instructs in the use of specialty equipment, such as: English wheel, Pullmax, nibbler, power hammers, and bead rollers. Teaches making bucks, patterns and forms. Teaches panel fabrication of aluminum. Tool room fee of \$19 for equipment applies. Course Lab fee of \$60 for materials applies.

**CRT 2650**  
**Automotive Interior Design**  
**2**

\* Prerequisite(s): CRT 1110, CRT 1120, CRT 1130, CRT 1140

Discusses automotive interior designs with emphasis on color coordination, and materials. Identifies a variety of techniques used in alteration, sewing, layout, and attachment processes.

**CRT 265L**  
**Automotive Interior Design Lab**  
**1**

\* Corequisite(s): CRT 2650

Offers a laboratory experience for CRT 2650 lecture. Demonstrates interior design materials, color coordination, and stitching techniques. Teaches fabrication, design attachment, molding, layout and cutting. Tool room fee of \$19 for equipment applies. Course Lab fee of \$96 for materials applies.

**CRT 281R**  
**Cooperative Work Experience - Internship**  
**1 to 4**

\* Corequisite(s): CRT 285R

Designed for Collision Repair Technology Majors. Provides paid, on-the-job work experience in the student's major, with work experience, the correlated class, and enrollment coordinated by the Cooperative Coordinator. Includes student, employer and coordinator evaluations, on-site work visits. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

## Course Descriptions

### **CRT 285R**

#### **Cooperative Correlated Class - Internship 1 to 4**

\* Corequisite(s): CRT 281R

Designed for Collision Repair Technology Majors. Identifies on-the-job problems and provides remediation of those problems through in-class discussion and study. Includes the study of identifying and maximizing service opportunities. Students register for this class with the approval of the Cooperative Coordinator. Includes lecture, guest speakers, video tapes, role playing, case analysis, oral presentations, and written assignments. Completers should be better able to perform in their field of work or study. May be repeated for a maximum of 8 credits toward graduation. May be graded Credit/No Credit.

### **CRT 299R**

#### **Skills USA**

1

Supports and facilitates the goals and objectives of Skills USA, which is a pre-professional student organization that develops social awareness, civic, recreational, and social activities. Prepares students to participate in local, state, and national contests. May be repeated for a maximum of 4 credits towards graduation.

## **Computer Science (CS)**

### **CS 1030**

#### **Foundations of Computer Science**

3

Introduces the basics of computing, including computer hardware, and programming concepts and language. Explores how computers work and how a computer may be programmed. Includes a brief history of computer, programming languages, and computer numbering systems. Presents basic programming constructs; students produce a variety of introductory level programs. Surveys various computing professions. May be delivered hybrid and/or online. Lab access fee of \$45 computers applies.

### **CS 1400**

#### **Fundamentals of Programming**

3

\* Prerequisite(s): MAT 1010 or MAT 1015 with a B or better, or MAT above 1015 or ACT score 23 or higher or ALEKS score 38 or higher. CS 1030 recommended

Introduces techniques and tools to formulate and solve problems where computer algorithms and programs are a core part of an effective, repeatable solution. Demonstrates algorithmic thinking using procedural programs composed of sequences of commands, functions, loops, conditionals, and basic data structures. May be delivered online. Lab access fee of \$45 for computers applies.

### **CS 1410**

#### **Object Oriented Programming**

3

\* Prerequisite(s): CS 1400 and (MATH 1050 or MATH 1055 with a C+ or better, or MATH above 1050)

Teaches proper program structure using the core concepts of object-oriented programming: classes, objects, encapsulation, inheritance and polymorphism. Presents problems of increasing size and complexity requiring OOP techniques, standard libraries and other appropriate language constructs. Presents methods to identify, define and implement solutions to naturally recursive problems. May be delivered online. Lab access fee of \$45 for computers applies.

### **CS 2250**

#### **Java Programming**

3

\* Prerequisite(s): CS 1400

Covers practical Java programming in-depth, including abstract classes and interfaces, proper use of the packages Java.lang, Java.io, and Java.util, GUI design and implementation, and programming. Lab access fee of \$45 for computers applies.

### **CS 2300**

#### **Discrete Mathematical Structures I**

3

\* Prerequisite(s): (CS 1410 or INFO 2200) and MATH 1050 or higher

Covers algebraic structures applied to computer programming. Includes logic, sets, elementary number theory, mathematical induction, recursion, algorithm complexity, combinatorics, relations, graphs, and trees. Lab access fee of \$45 for computers applies.

### **CS 2370**

#### **C Plus Plus Programming WE**

3

\* Prerequisite(s): CS 1410

Introduces C++ programming for students with prior programming experience. Covers language fundamentals, core standard library components, error handling, value semantics, pointers and memory management, object-oriented programming, and templates. Lab access fee of \$45 for computers applies.

### **CS 2420**

#### **Introduction to Algorithms and Data Structures**

3

\* Prerequisite(s): CS 1410

Uses data abstraction to design and implement modular programs of medium size and complexity. Structures solutions to problems using common data structures and algorithms such as advanced arrays, lists, stacks, records, dynamic data structures, searching and sorting, vectors, trees, linked lists, and graphs. Evaluates alternative solutions to problems. Analyzes algorithmic complexity metrics in Big-O notation. Lab access fee of \$45 for computers applies.

### **CS 2450**

#### **Software Engineering**

3

\* Prerequisite(s): CS 2300, CS 2420

Presents concepts, methodology and best-practices necessary to develop large scale software projects. Includes step-wise software requirements analysis, design, implementation, testing and release. Discusses software generation, reuse, scheduling, verification, and maintenance. Emphasizes current "real world" industry best-practices and tools. Lab access fee of \$45 for computers applies.

### **CS 2550**

#### **Web Programming I**

3

\* Prerequisite(s): CS 1410 or DWDD 2720 or INFO 1200

Covers design and development of browser-based programs with an emphasis on single-page applications. Teaches generation and modification of HTML via JavaScript, debugging techniques, communicating with web servers, and use of XML and JSON. Lab access fee of \$45 for computers applies.

### **CS 2600**

#### **Computer Networks I**

3

\* Prerequisite(s): CS 2810 or (INFO 1200 and IT 1600)

A rigorous introduction to computer networking theory and technologies for Computer Science and Information Technology majors. Includes theory of data communications protocols; theory and design of transmission systems; transmission media; and communication software. Emphasizes the lower layers of the Open Systems Interconnection model. Requires lab exercises to be completed outside of lecture. Lab access fee of \$45 for computers applies.

### **CS 2690**

#### **Computer Networks II**

3

\* Prerequisite(s): CS 1410, CS 2300, CS 2600, CS 2370

\* Prerequisite(s) or Corequisite(s): MATH 1210

Continues CS 2600 Computer Networks I. Focuses on the upper layers of the OSI and Internet models. Covers Internet (TCP/IP) protocols, routing theory, transport protocols, network application interfaces, presentation formatting, information theory and compression, cryptography, and other emerging technologies as time permits. Requires lab exercises and programming assignments to be completed outside of lecture. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**CS 2700****Causal Inference****3**

\* Prerequisite(s): CS 1400

Explores a variety of data generating processes of importance for causal inference with computer simulations. Includes stratified sampling, inverse probability weighting, matching, blocking, propensity, sensitivity, causal graphs, d-separation, identifiability, the causal Markov condition, and the back-door criterion for selecting an admissible set of covariates. Examines causal mechanisms, the Rubin causal model, and both deterministic and stochastic counterfactuals. Develops ethical A/B testing procedures.

**CS 2810****Computer Organization and Architecture****3**

\* Prerequisite(s): CS 1400

Uses assembly language to introduce basic concepts of computer organization. Includes number systems, CPU organization, instruction sets, programming in assembly, memory organization, debugging, program design, and documentation. Covers interrupts, vector tables, and disk I/O. Lab access fee of \$45 for computers applies.

**CS 281R****Internship****1 to 8**

\* Prerequisite(s): Department approval

Provides on-the-job work experience for CNS majors. Utilizes the skills and abilities in the fields of computer science, software engineering, networking, and/or computer engineering. May be repeated for a maximum of three credits toward graduation. May be graded credit/no credit.

**CS 291R****Independent Study****1 to 6**

This course will allow the student to pursue an independent topic in computer science and study this topic in-depth in a flexible non-classroom environment. A maximum of three hours may be counted towards graduation without prior written CNS Department approval. The topic must be approved by the instructor and the CNS Department Chair. Lab access fee of \$45 for computers applies.

**CS 296R****CS Seminar****1 to 3**

Presents topics of current interest to computer science in a seminar environment. Includes invited lectures by experts in the field, or a review of a particular technology by a faculty member. A maximum of three hours may be counted towards graduation without prior written CS Department approval. Lab access fee of \$45 for computers applies.

**CS 305G****Global Social and Ethical Issues in****Computing GI WE****3**

\* Prerequisite(s): ENGL 2010 and (CS 1030 or CS 1400 or INFO 1120 or DGM 1110) and University Advanced Standing

Examines how computers have affected global society and how they could further affect it in the future. Examines various ethical issues surrounding computer usage, particularly in differing societal contexts. Explores the responsibilities borne by software professionals, including how their actions can affect both society and individual people in their own and other cultural settings. Presents examples of the moral and professional issues that those who work with computers might expect to face. Lab access fee of \$45 for computers applies.

**CS 3060****Operating Systems Theory****3**

\* Prerequisite(s): CS 2370, CS 2420, and University Advanced Standing. If a computer science or software engineering major, also CS 2810 and matriculation to computer science or software engineering. If a computer engineering major, also ECE 2700 and ECE 3730

Introduces the Unix operating system. Presents the underlying theory and concepts of an operating system, and covers the following topics in depth: device management, processes, threads, synchronization, scheduling, deadlocks, memory management, virtual memory, and file systems. Provides practical experience in writing programs that use standard Unix system calls to interface directly with the operating system. Lab access fee of \$45 for computers applies.

**CS 3100****Data Privacy and Security****3**

\* Prerequisite(s): CS 2420 and University Advanced Standing

Covers the fundamental theory, concepts and practical applications of computer security. Includes networking fundamentals, cryptography, authentication and authorization, access control, malware, physical security, computing systems hardening, threat detection and response, secure code, and secure applications development. Emphasizes developing, deploying, and maintaining a secure computing infrastructure with a hands-on approach.

**CS 3110****Applied Cryptography****3**

\* Prerequisite(s): CS 2300, CS 3100, and University Advanced Standing

Investigates advanced topics in cryptography. Provides an overview of the necessary background in algebra and number theory, private- and public-key cryptosystems, and basic signature schemes. Explores relevant number theory, basic Galois fields as applied to cryptography, the history of primality algorithms and the polynomial-time test of primality, discrete logarithm-based cryptosystems including those based on elliptic-curves and interactive protocols including the role of zero-knowledge proofs in the authentication.

**CS 3120****Ethical Hacking Tools Dev****3**

\* Prerequisite(s): CS 3100 and University Advanced Standing

Develops the structured knowledge base needed to discover vulnerabilities and recommend solutions for tightening network security and protecting data from potential attackers. Emphasizes developing cutting-edge tools and techniques to hack vulnerable systems.

**CS 3140****Network and Cloud Security****3**

\* Prerequisite(s): CS 2690, CS 3100, and University Advanced Standing

Explores standards, protocols, and implementation techniques for secure socket communication and network protocols used to develop back-end agents and services that communicate in a cloud-based environment. Includes designing and implementing secure versions of cloud-based agents and services in a potentially hostile environment. Emphasizes minimizing potential attack vectors beyond user authentication at the service level.

**CS 3240****Discrete Mathematical Structures II****3**

\* Prerequisite(s): CS 2300, CS 2420, CS 2810, computer engineering major or (matriculation to computer science or software engineering), and University Advanced Standing

Presents concepts from discrete mathematics including formal languages, and automata, including Turing machines, regular expressions, grammars, and computability. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **CS 3250**

### **Java Software Development**

**3**

\* Prerequisite(s): CS 2420, matriculation to computer science or software engineering if computer science or software engineering major, and University Advanced Standing

Covers object-oriented, functional programming and event-driven features of the Java Programming Language using common libraries, idioms, and software design patterns and principles. Includes abstract classes, interfaces, inner classes, lambda expressions, collections, streams, modern GUIs, I/O, serialization, socket programming, concurrency and parallel multicore programming. Lab access fee of \$45 for computers applies.

## **CS 3260**

### **CsharpNET Software Development**

**3**

\* Prerequisite(s): Matriculation to computer science or software engineering and University Advanced Standing

Introduces the C# programming language and the .NET Framework. Discusses the various datatypes, built-in class in namespaces, and how to develop user defined classes and namespaces. Includes programming assignments for console, GUI, and ASP.NET applications. Lab access fee of \$45 for computers applies.

## **CS 3270**

### **Python Software Development**

**3**

\* Prerequisite(s): CS 2420 or INFO 2200, matriculation to computer science or software engineering if computer science or software engineering major, and University Advanced Standing

Covers the features of the Python programming language. Includes scripting, dynamic typing, data types (sequences, sets, mappings, files, etc.), loops, iterators, generators, functions, coroutines, classes and objects, modules, packages and scope, runtime services, data wrangling, concurrent programming, etc. Lab access fee of \$45 for computers applies.

## **CS 3310**

### **Analysis of Algorithms**

**3**

\* Prerequisite(s): Matriculation into Computer Science or Software Engineering, and University Advanced Standing

Develops and reinforces ability to write and mathematically analyze foundational computer algorithms. Includes formalizing NP-completeness, divide and conquer strategies, greedy algorithms, dynamic programming, backtracking, branch and bound, approximation algorithms and multicore parallelization. Lab access fee of \$45 for computers applies.

## **CS 3320**

### **Numerical Software Development**

**3**

\* Prerequisite(s): MATH 1210, matriculation to computer science or software engineering, and University Advanced Standing

Teaches the tools necessary for modern scientific computation. Covers computer representation of floating-point numbers, error analysis and numerical stability, IEEE floating-point standards, testing of numerical algorithms, calculation of elementary functions, roots of equations, solutions of linear systems, numerical integration and differentiation, interpolation and approximation, Monte Carlo methods. Lab access fee of \$45 for computers applies. Canvas Course Mats \$45/McGraw applies.

## **CS 3370**

### **C Plus Plus Software Development**

**3**

\* Prerequisite(s): CS 2370, CS 2810, matriculation to computer science or software engineering, and University Advanced Standing

Teaches C++ programming in a production environment, emphasizing mastery of the standard C++ library. Covers the following topics in-depth: const correctness, operator overloading, exception handling, exception-safe design, programming with assertions, automated unit testing, advanced memory management, generic programming with templates, containers, iterators, algorithms, concurrency, and functional programming. Introduces library development, common idioms, and other advanced topics. Emphasizes accepted software engineering practices. Lab access fee of \$45 for computers applies.

## **CS 3380**

### **JavaScript Software Development**

**3**

\* Prerequisite(s): CS 2420, CS 2550, matriculation into the CS program, and University Advanced Standing

Covers modern JavaScript features of functional programming, not JavaScript programming limited to the browser. Topics include rest/spread operators, string interpolation, regular expressions, object property shorthand, computed properties, method properties, destructuring assignments using object and array matching, module export/import, classes & inheritance, promises, iterators, generators, map/set, reflection, localization & formatting. Introduces common idioms and design patterns. Emphasizes accepted software engineering practices. Lab access fee of \$45 for computers applies.

## **CS 339R**

### **Advanced Programming Language Other**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces and explores state-of-the-art programming languages and concepts such as language-specific syntax, operational semantics, libraries, idioms, integrated development environments, and debugging techniques. Demonstrates language concepts by developing and writing programs. May only be repeated for additional credit in another computer language with prior written departmental approval. Lab access fee of \$45 for computers applies.

## **CS 3410**

### **Human Factors in Software Development**

**3**

\* Prerequisite(s): CS 2550 and University Advanced Standing

Explores the analysis, design, and implementation of User Interfaces. Delves into all aspects of the user experience while interacting with computer systems, including cognitive, social, and emotional aspects of the user experience and methodical interaction design. Teaches how to observe users, collect requirements, design user experiences, create prototypes for customers and how to evaluate the effectiveness of any user interface. Includes both individual and group work. Lab access fee of \$45 for computers applies.

## **CS 3450**

### **Principles and Patterns of Software Design**

**3**

\* Prerequisite(s): (CS 3250 or CS 3260 or CS 3270 or CS 3370) and University Advanced Standing

Gives students familiarity with modern principles and practices of software design. Emphasizes design patterns, including their motivation and the design principles on which they are based. Lab access fee of \$45 for computers applies.

## **CS 3520**

### **Database Theory**

**3**

\* Prerequisite(s): Matriculation to computer science or software engineering and University Advanced Standing

Introduces the underlying theories of Relational Database Management Systems (RDBMS) as well as their practical use retrieving data using both embedded SQL and relational algebra. Implements queries that start from simply joining, selecting, and projecting data, then progresses to more complex data retrieval techniques that require the use of set operations, sub-queries, and group by having clauses. Discusses entity-relationship (ER) modeling, creating a RDBMS from an ER model, B+ Trees, ACID transactions, normalization, locking, concurrency issues, and alternatives to an RDBMS. Lab access fee of \$45 for computers applies.

**CS 3530****Data Management For Data Sciences****3**

\* Prerequisite(s): CS 3520 and University Advanced Standing

Covers advanced relational databases and issues related to managing non-relational data sets. Has two major components: (1) advances knowledge in relational database and skills in using SQL and database indexing; and (2) introduces NoSQL databases such as a document-oriented database, key-value database, column-oriented database, graph database, and Hadoop system and data warehousing. Justifies the need for NoSQL databases, and shows how they are implemented in database systems. Presents criteria that decision makers should consider when choosing between relational and non-relational databases and techniques for selecting the NoSQL database that best addresses specific use cases.

**CS 3540****Game Programming****3**

\* Prerequisite(s): Matriculation to computer science or software engineering and University Advanced Standing

Teaches techniques for two and three-dimensional graphics programming using DirectX, OpenGL, and/or game engines built on those libraries. Presents concepts of game design that relate to the design and implementation of game software, including procedural generation of assets. Includes application of artificial intelligence concepts to game programming. Introduces the use of network programming techniques for development of multi-player games. May be delivered hybrid. Lab access fee of \$45 for computers applies.

**CS 3660****Web Programming II****3**

\* Prerequisite(s): CS 2420, CS 2550, CS 3380, and University Advanced Standing

Builds upon concepts taught in CS 2550 Web Programming I. Teaches how to design, implement, test, and debug medium sized web applications using both client and server side technologies. Includes web security, data markup languages, server side scripting technologies, web application interactions with databases, and web service architectures. Teaches how to develop a full web-site having sophisticated user interactions at a variety of security levels. Lab access fee of \$45 for computers applies.

**CS 3670****Network Programming****3**

\* Prerequisite(s): CS 2690, CS 3250, and University Advanced Standing

Covers concept and practical application of socket communication and network protocols. Presents design and implementation of networked applications. May be delivered online. Lab access fee of \$45 for computers applies.

**CS 3680****Mobile Device Programming****3**

\* Prerequisite(s): Matriculation to computer science or software engineering and University Advanced Standing

Teaches software design and programming principles and practices for developing applications for mobile devices. Addresses issues such as application life-cycle, user interfaces on touch-screen devices, options for data storage and communication, power and performance, and using graphics and media. Examines hardware features common in mobile devices such as GPS, accelerometers, and cameras. Lab access fee of \$45 for computers applies.

**CS 3720****Database Programming****3**

\* Prerequisite(s): CS 3520 and University Advanced Standing

Develops the mastery of programming interfaces to local, remote, web and cloud databases. Uses console, Microsoft Windows WPF and web user interfaces. Lab access fee of \$45 for computers applies.

**CS 3800****Data Science Through Statistical Reasoning****3**

\* Prerequisite(s): ECE 3710, CS 3530, and University Advanced Standing

Develops statistical reasoning and computational skills required to clean transform data, implement solutions to complex problems, explore and visualize data, develop and test hypotheses, use simulation to investigate stochastic processes and model real-world situations of interest. Presents cases that require various statistical methods, data technologies, developing algorithms and using powerful statistical and data science tools in a modern scripting language.

**CS 3810****Applied Data Science****3**

\* Prerequisite(s): CS 3100, CS 3530, and University Advanced Standing

Covers the entire life cycle of a data science project, from problem formulation to data science solutions. Starts with a data driven problem, identifying data sets needed, collecting data, selecting techniques to solve the problem, implementing algorithms and models, assessing performance, and communicating insights and recommendations through written reports and oral presentations. Features several individual projects and a semester long team project.

**CS 3820****Visualization Analytics for Data Science****3**

\* Prerequisite(s): CS 3530 and University Advanced Standing

Introduces visual analytics methods and techniques to support human reasoning and decision-making with data. Presents visualization as the primary tool for recognizing and communicating the significance, meaning and decision-making from massive, dynamic, often conflicting, data. Includes both theoretical foundations and application methods, which presents a comprehensive view of this emerging, multidisciplinary field beyond simply learning to use visualization tools. Includes choosing the right visualization for the questions being asked, the data and the target audience; translating numbers to images; showing data or statistics; showing uncertainty, time trends; presenting results of machine learning techniques; many variables; big data; and maps and networks. Covers pie charts, bar charts, histograms, simple metrics, scatterplots, maps.

**CS 4120****Security Vulnerability Analysis****3**

\* Prerequisite(s): CS 3100 and University Advanced Standing

Presents a methodology for attacking, assessing, analyzing, categorizing, and remediating security weaknesses in software and software systems. Develops insight into system architecture, process execution, operating systems, and error conditions that create opportunities for attack surfaces. Develops the ability to scan and exploit popular third-party applications rather than simulated lab exercises. Emphasizes writing and running working exploits and payloads.

# Course Descriptions

## **CS 4200** **Secure Computing Capstone**

**3**  
\* Prerequisite(s): CS 3110, CS 3120, CS 3130 or CS 3140, and University Advanced Standing

Focuses on student's chosen field of the security domain. Solves a real-world computer security-related problem or dilemma. Brings all pieces of secure computing experience into a complete capstone project. Covers design, development, and deployment of all parts of the security domain.

## **CS 4230** **Software Testing and Quality Engineering**

**3**  
\* Prerequisite(s): CS 2450, one of (CS 3250 or CS 3260 or CS 3270 or CS 3370), ECE 3710 or STAT 2050, and University Advanced Standing

Provides a comprehensive exploration of strategies for testing software systems. Includes unit testing, system testing, developing software testing organization, and establishing software Total Quality Management (TQM) programs. Students will conduct system tests of software packages. Lab access fee of \$45 for computers applies.

## **CS 4380** **Advanced High Performance Computer Architecture**

**3**  
\* Prerequisite(s): CS 3060, (CS 3370 Recommended), and University Advanced Standing

Presents theory and concepts of high-performance computer architectures. Includes digital logic, buses, registers, ALU's, control units, pipelining, parallelism, DASD's, SASD's, RAID, caching, instruction-sets, memory hierarchy, multiprocessing, interconnection via networks. Lab access fee of \$45 for computers applies.

## **CS 439R** **Advanced Current Topics in Computer Science**

**1 to 3**  
\* Prerequisite(s): Department approval and University Advanced Standing

Provides exposure to emerging technologies and topics of current interest in computer science. Varies each semester depending upon the state of technology. A maximum of 6 hours may be counted toward graduation without CS Department approval. Lab access fee of \$45 for computers applies.

## **CS 4400** **Software Engineering II**

**3**  
\* Prerequisite(s): CS 2450, CS 2600, CS 3520, and (CS 3250 or CS 3260 or CS 3270 or CS 3370), and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): CS 3450

Covers principles and practices of early phases of software development life cycle. Studies software requirements elicitation, analysis, and design. Includes in-depth, practical study of at least one major software development approach as applied to a realistic organizational systems problem. Explores requirements definition, analysis including prototyping, functional and nonfunctional requirements specification, legacy systems, and architecture patterns. Lab access fee of \$45 for computers applies.

## **CS 4440** **Applied 3D Computer Graphics**

**3**  
\* Prerequisite(s): CS 2420 with a C or better and (CS 3220 or CS 3250 or CS 3260 or CS 3270 or CS 3370 or CS 339R), and University Advanced Standing

Presents theory and implementation concepts of 2D and 3D computer graphics as used in areas such as computer games, movie special effects, scientific visualization and art. Focuses on the development of applications using an existing cross-platform graphics library rather than on the development of a graphics library. Lab access fee of \$45 for computers applies.

## **CS 4450** **Analysis of Programming Languages**

**3**  
\* Prerequisite(s): CS 3240, (one of CS 3250, CS 3260, CS 3270 or CS 3370) and University Advanced Standing

Offers the mature student an in-depth understanding of the design and implementation of programming languages. Explores criteria for evaluating programming languages as a context for comparing both traditional and current popular languages. Includes the evolution of programming languages, the concept of binding, type checking, static and dynamic scoping, control structures, subprograms and parameter passing methods, and concurrency. Explores the functional programming paradigm in-depth. Includes programming assignments in at least two different programming languages, at least one of which being a functional language such as LISP, Scheme, ML, or Haskell. Lab access fee of \$45 for computers applies.

## **CS 4470** **Artificial Intelligence**

**3**  
\* Prerequisite(s): CS 3240, CS 3310, CS 3320, and (CS 3250 or CS 3260 or CS 3270 or CS 3370), and University Advanced Standing

Presents theory, organization, concepts, and principles of artificial intelligence methodologies including neural networks, expert systems, machine learning algorithms, and genetic algorithms. Lab access fee of \$45 for computers applies.

## **CS 4480** **Digital Image Processing and Computer Vision**

**3**  
\* Prerequisite(s): CS 2300, CS 2420, CS 3320, and University Advanced Standing

Prepares students for creating software solutions in the multimedia market of today and into the future. Covers digital sampling of analog signals, basic image processing in the spatial domain and frequency domain, edge and line detection, photo enhancement, feature extraction, and object recognition. May be delivered online. Lab access fee of \$45 for computers applies.

## **CS 4490** **Compiler Construction**

**3**  
\* Prerequisite(s): CS 3450, CS 4380, CS 4450, and University Advanced Standing

Builds on software created in CS 4380. Presents concepts necessary to create a modern compiler. Reinforces theoretical and practical software development skills from previous courses through an immersive, expressive approach to compiler construction. Lab access fee of \$45 for computers applies.

## **CS 4500** **Advanced Topics in Database**

**3**  
\* Prerequisite(s): (CS 3520 or INFO 3410) and University Advanced Standing

Covers transaction processing, concurrency control techniques, database recovery techniques, database security and authorization, database integrity, distributed databases and client-server architectures, load balancing, data warehousing, data mining, database machines, mobile database, multimedia database, GIS, genome data management, data fragmentation, data encryption, locking, and deadlock. Lab access fee of \$45 for computers applies.

**CS 4550  
Software Engineering III****3**

\* Prerequisite(s): CS 4400, CS 4230, and University Advanced Standing

Senior-level, capstone project experience course. Requires operating as part of a high performance team. Includes completing the design and implementation of a large-scale software development project. Combines major milestone presentations to project clients, completing a portfolio of project-related artifacts, and offer an evaluation of the project and team experience. Requires students to take a program level assessment. Lab access fee of \$45 for computers applies.

**CS 4610  
TCP/IP Internet Architecture****3**

\* Prerequisite(s): CS 2690, matriculation to computer science or software engineering, and University Advanced Standing

Provides theoretical, practical, administrative perspectives of the TCP/IP protocol and its use with the Internet. Includes coverage of IPv4, IPv6, TCP, OSPF and related protocols, IP addressing, subnetting issues, and domain name services are also covered. Lab access fee of \$45 for computers applies.

**CS 4620  
Data Mining****3**

\* Prerequisite(s): CS 3520 and University Advanced Standing

Introduces the process of knowledge discovery and the basic theory of automatic extracting models from data, validating those models, solving the problems of how to extract (mine) valid, useful, and previously unknown interesting patterns from a source (database or web) which contains an overwhelming amount of information. Explains various models (decision trees, association rules, linear model, clustering, bayesian network, neural network) and how to apply them in practice. Algorithms applied include searching for patterns in the data, using machine learning, and applying artificial intelligence techniques. Teaches how to implement several relevant algorithms and use existing tools to mine real-world, business driven databases. Lab access fee of \$45 for computers applies.

**CS 4660  
NoSQL Database Development****3**

\* Prerequisite(s): Matriculation into the Computer Science or Software Engineering program, CS 3520, and University Advanced Standing

Introduces theory, concepts, architecture, and use of non-traditional database management systems. Discusses the appropriate use of each in its own niche. Lab access fee of \$45 for computers applies.

**CS 4670  
Undergraduate Research Project for  
Networking Specialization****3**

\* Prerequisite(s): CS 3660, CS 4610, and University Advanced Standing

Creates a system suitable for presentation and defense including project proposal, management plan, system design documentation, relevant testing and benchmarks, and final written and oral reports. Includes system design, systems integration and systems management. Encourages open source and community service projects. Requires completion of a program level assessment test. Lab access fee of \$45 for computers applies.

**CS 4690  
Distributed Internet Application  
Development****3**

\* Prerequisite(s): CS 3660 and University Advanced Standing

Provides experience building significant software solutions that span large heterogeneous networks. Includes heterogeneous operating systems, data stores (SQL and NoSQL), service architectures, remote objects, remote services, and data exchange. Lab access fee of \$45 for computers applies.

**CS 4700  
Machine Learning I****3**

\* Prerequisite(s): CS 3270, CS 3320, and University Advanced Standing

Explores the philosophy, utility, mathematics and algorithms of machine learning in order to understand the basic concepts and issues at the heart of machine learning. Covers the implementation and use of machine learning algorithms to solve real-world problems or to pursue a graduate program. Includes feature selection and extraction, decision trees, neural networks, nearest-neighbors, support vector machines, naive Bayes classifier, clustering, ensembles, reinforcement learning and deep learning.

**CS 4710  
Machine Learning II****3**

\* Prerequisite(s): CS 4700 and University Advanced Standing

Applies Deep Learning models to problems in a variety of application domains that use massive data sets, such as recommender systems, novel text, image and music generation, sentiment analysis. Implements working models using algorithms such as recurrent neural nets, convolutional neural nets, deep belief nets, and deep reinforcement learning. Uses modern toolkits such as Tensorflow.

**CS 4770  
Software Development for Robotics****3**

\* Prerequisite(s): CS 3370 and University Advanced Standing; CS 4470 recommended

Teaches students through hands on development the intricacies of programming robots such as autonomous vehicles and/or industrial manufacturing robots. Includes behavior based programming, intelligent agents, low level device drivers, sensor calibration and processing, real time programming requirements, motion planning and navigation, and machine learning. Lab access fee of \$45 for computers applies.

**CS 479R  
Advanced Current Topics in Computer  
Science****1 to 3**

\* Prerequisite(s): Department Approval and University Advanced Standing

Provides exposure to emerging technologies and topics of current interest in computer science. Varies each semester depending upon the state of technology. May be repeated for a maximum of 6 credit hours toward graduation without prior written CS Department approval. Lab access fee of \$45 for computers applies.

**CS 4800  
Data Science Capstone****3**

\* Prerequisite(s): CS 3530 and University Advanced Standing

Solves a real-world data science problem or dilemma for an industry partner. Provides an opportunity to work in teams on a project from an industrial firm. Includes realistic industry evaluations such as teamwork, communication, individual initiative, and final product.

**CS 481R  
Internship  
1 to 8**

\* Prerequisite(s): Matriculation to computer science or software engineering, Instructor Approval, and University Advanced Standing

Provides opportunity to use work experience to add to educational background and academic experience. A maximum of 3 credit hours may be counted towards graduation without prior written CS Department approval. May be graded credit/no credit.

# Course Descriptions

## **CS 4880**

### **Cloud Computing**

**3**

\* Prerequisite(s): Matriculation into the Computer Science or Software Engineering program, CS 4690, and University Advanced Standing

Develops mastery of programming to cloud databases. Emphasizes real-world scenarios involving architecture, build, development, testing, and deployment on commercially available cloud databases. Covers concurrent programming, distributed programming, microservices, migration, and hybrid clouds. Lab access fee of \$45 for computers applies.

## **CS 489R**

### **Undergraduate Research Project**

**2 to 6**

\* Prerequisite(s): Department approval and University Advanced Standing

Combines and integrates concepts, methodologies, and skills developed in previous Computer Science course work. Studies the specification, analysis, design, implementation, and completion of a complex and comprehensive project. Requires a project/portfolio using project management techniques. A maximum of 3 hours may be counted towards graduation without prior written Computer Science Department approval. Lab access fee of \$45 for computers applies.

## **CS 4900**

### **Full Stack Web Senior Capstone**

**3**

\* Prerequisite(s): CS 3410, CS 4660, CS 4690, and University Advanced Standing

Brings all pieces of full stack web development into a complete capstone project. Covers design, development and deployment of all parts of a web application. Lab access fee of \$45 for computers applies.

## **CS 491R**

### **Independent Study**

**1 to 6**

\* Prerequisite(s): Prior written Department Chair approval and University Advanced Standing

Offers independent study as directed by a faculty advisor in reading, individual projects, etc. Varies each semester depending upon the state of technology. A maximum of 3 credit hours may be counted towards graduation without prior written Department approval. Lab access fee of \$45 for computers applies.

## **CS 496R**

### **Senior Seminar**

**1 to 3**

\* Prerequisite(s): University Advanced Standing

Presents current state-of-the-art and/or best-practices topics in a seminar format. A maximum of 3 credits will count towards graduation. Lab access fee of \$45 for computers applies.

## **CS 6100**

### **Database Management System**

#### **Construction**

**3**

\* Prerequisite(s): Acceptance into the Master of Computer Science Program or Graduate Certificate in Artificial Intelligence Program

Explores issues associated with implementing a DBMS. Provides experience designing and implementing a relational DBMS with features such as projection, select and join, indexing, B+ trees, and parsing. Examines database performance and implements query optimization.

## **CS 6150**

### **Advanced Algorithms**

**3**

\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program.

Explores applications and tradeoffs of state of the art algorithms in parallel/concurrent programming, data search, graphics, graph theory, data structures, mathematical programming, machine reasoning, machine learning, network flow, and other domains. Applies both theory and practice to various projects with a focus on concurrent/parallel programming.

## **CS 6200**

### **Cyberphysical Security**

**3**

\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Studies the principles, practices and algorithms related to securing computers and other network-visible devices. Analyzes the problems of security associated with computers and cyberphysical systems. Identifies threats, attacks, and actors. Applies cryptography and other techniques to address those problems.

## **CS 6300**

### **Software Engineering Leadership**

**3**

\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Prepares students to be software project leaders. Evaluates modern software processes and project management. Identifies important roles in software projects and their contribution to project success. Explores interaction of business needs and project development.

## **CS 6400**

### **Modern Databases**

**3**

\* Prerequisite(s): Acceptance into the Master of Computer Science Program or Graduate Certificate in Artificial Intelligence Program

Evaluates recent trends in database technology, including the history of NoSQL, NoSQL aggregate data, distribution models, and NoSQL consistency. Teaches data analysis and machine learning by exploring concepts associated with processing massive data sets such as parallel data analysis through mapReduce and other algorithms. Explores technologies associated with modern databases management systems, such as in-memory databases, cloud database management systems.

## **CS 6460**

### **Artificial Intelligence**

**3**

\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Presents foundational AI algorithms. Explores state space search, local search, adversarial search, constraint satisfaction problems, logic and reasoning, expert systems, Markov Models, Bayesian networks, particle filters, planning, reinforcement learning, and multilayer perceptrons. Studies practical implementations of AI algorithms.

## **CS 6470**

### **Machine Learning**

**3**

\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Explores the theory and algorithms, concepts and issues of machine learning. Topics include feature selection, neural networks, decision trees, K-nearest neighbor, clustering, reinforcement learning, genetic algorithms, deep learning and data mining. Implements machine learning approaches in real-world applications.

## **CS 6480**

### **Advanced Machine Learning**

**3**

\* Prerequisite(s): CS 6470 and Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Presents advanced models, algorithms, approaches and applications in neural networks and machine learning. Broadens and deepens the horizons of study of the philosophy and utility of machine learning models beyond what is covered in Machine Learning. Includes advanced gradient descent models, bayesian methods, boltzmann machines, recurrent neural nets, hidden markov models, randomized optimization, hopfield nets, computer vision, modern toolkits, learning from gigantic data.

**CS 6500  
Software Architecture**

**3**  
\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Evaluates software architecture and the high level design of large scale software systems. Explores common architectural styles and patterns. Teaches techniques of documenting and assessing software architectures. Teaches characteristics of software architecture evolution. Evaluates several large-scale software architectures.

**CS 6510  
Design and Simulation of Operating Systems**

**3**  
\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Analyzes current topics in operating systems design and simulation. Covers modern computer architecture; several types of memory management; current scheduling algorithms for multiple processes; disk management; virtual memory and interprocess communication.

**CS 6600  
Graduate Project I**

**3**  
\* Prerequisite(s): CS 6300, CS 6510, CS 6400

Teaches the design and development of a walking skeleton with students participating in all aspects of software development, including: requirements elicitation, architecture, design, implementation, testing, and deployment. First semester of a two-semester capstone course.

**CS 6610  
Graduate Project II**

**3**  
\* Prerequisite(s): CS 6600

Guides through completion and delivery of the large-scale system started in CS 6600. Delivers appropriate system documentation. Teaches the writing and execution of system tests that ensure a high quality system. Must be taken immediately after CS 6600.

**CS 6620  
Advanced Data Mining and Visualization**

**3**  
\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Explores advanced concepts of data mining and knowledge discovery including sequence mining, audio video mining, and text mining. Analyzes, designs, develops, and evaluates data mining techniques and tools, including data preprocessing, data characterization and comparison, decision trees, association rule mining in large databases, classification and prediction. Uses clustering and cluster analysis and statistical modeling, advanced methods and applications, extracting meaningful patterns from massive datasets using methods such as neural networks and machine learning algorithms.

**CS 6700  
Advanced Mathematics for Computer Science**

**3**  
\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Solves computer science problems using advanced mathematical models. Applies calculus functions of multiple variables, linear equations, matrix algebra, determinants, Gaussian elimination, eigenvalues, linear programming, and finite-state Markov chains.

**CS 6730  
Advanced Embedded Systems Engineering**

**3**  
\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Provides a hands-on design experience of software design at the system layer where hardware meets software. Explores embedded computing platforms, interacting with the external world, real-time operation, constraints and optimization, and other techniques which are important for building embedded systems that work in the real world. Applies design/implementation/debugging of embedded functionality through a series of projects and homework exercises.

**CS 6800  
Computer Graphics and Mixed Realities**

**3**  
\* Prerequisite(s): Acceptance into the Master of Computer Science program or Graduate Certificate in Artificial Intelligence program

Introduces computer graphics beyond 2D and 3D graphics into mixed reality, where virtual objects interact with the real world. Explores topics such as 2D/3D graphics, augmented reality, virtual reality, immersive visualization, the use of graphics/physics engines, and 3D printing.

**Digital Media AGVE  
(DAGV)****DAGV 1200  
3D Modeling Essentials**

**3**  
Covers the 3D pipeline which includes pre-production (rough placeholder art), production (finished art), and post production (composite and effects). Instructs students to develop 3D models, UV maps, and 2D textures. Teaches how to integrate models into a realtime rendering engine. Lab access fee of \$45 applies.

**DAGV 1300  
Animation Essentials**

**2**  
\* Corequisite(s): DAGV 130L

Introduces animation principles and processes used in the animation industry. Emphasizes the synthesis of technology and aesthetics in the production of animated titles. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DAGV 130L  
Animation Essentials Lab**

**1**  
\* Corequisite(s): DAGV 1300

Applies animation principles and processes introduced in DAGV 1300. Emphasizes the synthesis of technology and aesthetics in the production of animated titles. Introduces traditional animation methods in the construction of motion projects.

**DAGV 1400  
Scripting Essentials**

**3**  
Introduces the fundamentals of computer programming and problem solving using the current industry standard scripting languages. Emphasizes the fundamentals of structured and object-oriented programming, syntax, semantics, control structures, arrays, file I/O, testing/debugging, implementation, and the construction of graphical user interfaces. Applies these concepts to manipulate digital images, sound, movies, text, and web pages that are heavily used as digital media. Lab access fee of \$45 applies.

**DAGV 1500  
Concept Essentials**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance

Introduces animated title production from initial idea to finished film. Explores the fundamentals of figure structure, proportion, and shape. Serves as the foundation for advanced courses in layout, character development, rigging, and animation for films and games. Utilizes live and/or on-line resources to draw the human form.

# Course Descriptions

## DAGV 1600

### Studio Technology Essentials

3

\* Prerequisite(s): Portfolio Review Acceptance

Introduces 2D animation processes used in industry today. Teaches both traditional paperless and cut-out animation. Introduces node-system software technology and the use of a script editor.

## DAGV 2210

### 3D Modeling and Animation

3

\* Prerequisite(s): Portfolio Review Acceptance

Addresses the basics of 3D modeling, texturing, animation, and rendering. Demonstrates how to utilize these techniques in a production pipeline for games and animation. Includes basic practices and theories common in the animation industry. Software fee of \$15 applies. Course fee of \$19 for equipment applies. Lab access fee of \$45 for computers applies.

## DAGV 2230

### Animation I

2

\* Prerequisite(s): Portfolio Review Acceptance

\* Corequisite(s): DAGV 223L

Explores and applies animation pipeline practices. Emphasizes the study of characters and objects in motion and the communication of key ideas in the development of second-year animation projects. Covers both aesthetic and technical processes. Lab access fee of \$45 for computers applies. Software fee of \$15 applies. Course fee of \$18 for software and plug-ins applies.

## DAGV 223L

### Animation I Lab

1

\* Prerequisite(s): Portfolio Review Acceptance

\* Corequisite(s): DAGV 2230

Applies animation principles and software processes. Emphasizes the research and construction of character motion to communicate emotional impact. Covers both aesthetic and technical processes.

## DAGV 2240

### Character Development

3

\* Prerequisite(s): Portfolio Review Acceptance

Teaches an in-depth study and application of character development practices for animation and interactive games. Includes research, design, construction, and testing of an original animated character. Requires the application of the Principles of Animation. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## DAGV 2330

### Introduction to Rigging

2

\* Prerequisite(s): Portfolio Review Acceptance

\* Corequisite(s): DAGV 233L

Introduces fundamental rigging on typical 2D and/or 3D characters for simple performance motion in animated films and interactive games. Software fee of \$15 applies. Lab access fee of \$45 applies.

## DAGV 233L

### Introduction To Rigging Lab

1

\* Prerequisite(s): Portfolio Review Acceptance

\* Corequisite(s): DAGV 2330

Applies fundamental rigging processes on typical 2D and/or 3D characters for simple performance in animated films and interactive games.

## DAGV 2340

### Digital Storyboarding

3

\* Prerequisite(s): Portfolio Review Acceptance

Introduces contemporary storyboarding practices, both linear and non-linear, key to communicating information clearly and consistently in a cost effective manner. Lab access fee of \$45 for computers applies. Software fee of \$15 applies. Course fee of \$12 for software and plug-ins applies.

## DAGV 2440

### Scripting for Animation and Games I

3

\* Prerequisite(s): Portfolio Review Acceptance

Focuses on the basic elements of scripting languages in contemporary software applications. Develops a firm understanding of basic scripting concepts in an animation and/or game, including: libraries, expressions, arrays, conditionals, loops, and functions. Discusses simplification of complex user operations and the development of basic user interfaces. Laptop Required. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## DAGV 2460

### Game Development I

3

\* Prerequisite(s): Portfolio Review Acceptance

Provides a foundation for basic game development pipeline. Covers low poly count modeling in a variety of software packages and use of 3D models in an industry-standard game development engine. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## DAGV 2470

### Game Development II

3

\* Prerequisite(s): Portfolio Review Acceptance

Explores interactive video and computer gaming from historic, economic, and production perspectives. Introduces game theory, analysis, design documentation, and development. Lab access fee of \$45 applies.

## DAGV 2480

### Introduction to Compositing

3

\* Prerequisite(s): Portfolio Review Acceptance

Introduces animation compositing processes, including lighting, filters, masks, effects, render, and export of finished scenes.

## DAGV 301R

### Digital Lecture Series

1

\* Prerequisite(s): University Advanced Standing

Uses guest speakers who lecture on current topics in digital media. May be repeated for a maximum of 3 credits toward graduation.

## DAGV 3310

### Technical Design and Direction

3

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Introduces industry standard technical direction (TD) problem solving practices. Includes project management, aesthetic development, film and/or game play design. Software fee of \$15 applies. Course fee of \$20 applies. Lab access fee of \$45 for computers applies.

## DAGV 3350

### Animation and Game Production I

2

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

\* Corequisite(s): DAGV 335L

Emphasizes industry title development processes. Covers lighting and rendering in an animation and/or game environment. Includes composition, technical lighting, layer-based rendering, and texture baking. Requires junior-level projects to be initiated and completed within the semester. Lab access fee of \$45 for computers applies.

## DAGV 335L

### Animation and Game Lab I

1

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

\* Corequisite(s): DAGV 3350

Emphasizes the application of title-development processes. Covers composition, lighting, texture, color, and rendering in the production of junior-level animation and game titles.

## DAGV 3360

### Advanced Character Rigging

3

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Studies the process of rigging, and the motion of characters and objects for animation and interactive games. Includes full character, muscle, facial, and dynamic rigs. Reinforces principles of animation. Lab access fee of \$45 for computers applies.

**DAGV 3440**  
**Scripting for Animation and Games II**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Provides in-depth instruction in advanced scripting concepts and practices in video game development. Focuses on the application of advanced technical topics as they impact game construction. Addresses networking and distributed systems issues, including scalability and latency compensation techniques, in designing games for online multi-player environments. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DAGV 3450**  
**Animation and Game Production II**

**2**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing  
\* Corequisite(s): DAGV 345L

Develops pre-production of a team project for animation and game development students. Includes research, writing, scripting, designing, storyboarding, and pre-visualization of an animated short film or an interactive game project. Software fee of \$15 applies. Course fee of \$19 for software and plug-ins applies. Lab access fee of \$45 for computers applies.

**DAGV 345L**  
**Animation and Game Lab II**

**1**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing  
\* Corequisite(s): DAGV 3450

Emphasizes the application of pre-production processes in the development of a multi-semester project for animation and game development projects. Includes research, writing, scripting, designing, storyboarding, and pre-visualization of a short title.

**DAGV 3460**  
**Game Development III**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Continues the study of game theory, analysis, and design documentation. Emphasizes game construction using an industry-standard development engine. A laptop computer is required for this course. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DAGV 3470**  
**Animation Story Development WE**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Covers short themed script development for animated and interactive titles. Discusses specific scriptwriting subjects such as initiating the idea, researching, outlining, and rewriting. Includes weekly writing assignments that are read and analyzed according to structure and the execution of a goal. Requires the presentation of a completed animatic. Lab access fee of \$45 applies.

**DAGV 4350**  
**Advanced Technical Direction I**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Focuses on the production of digital special effects and compositing in 2D and 3D environments. Includes multi-layer effects, green screen, digital mattes, and grading. Includes visual effects editing and particle generation. Software fee of \$15 applies. Course fee of \$19 for software and plug-ins applies. Lab access fee of \$45 for computers applies.

**DAGV 4450**  
**Advanced Technical Direction II**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Focuses on the use of digital special effects in two and three-dimensional environments including high-end particle effects, digital fluids, and advanced simulation. Tools include industry standard software applications. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DAGV 4550**  
**Performance Animation**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Covers advanced animation and/or game development principles. Includes timing and spacing, overlapping action, flexibility, and successive breaking-of-joints. Analyzes theatrical performance, emotional, and dialoged animation. Explores expressive character action representative of life. Augments the fourth-year capstone experience assisting in portfolio development. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DAGV 490R**  
**Senior Capstone**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Provides a capstone animation and game development experience for senior students. Develops individual and team real-world projects in consultation with a faculty advisor. May be repeated for a maximum of 6 credits toward graduation.

**Dance (DANC)**

**DANC 1010** **FF**  
**Dance as an Art Form**  
**3**

Explores multi-cultural dance and movement expression. Studies the different ways in which world cultures are expressed through dance and movement. Overviews dance history and traces the evolution of dance as an art form. Examines the art and craft of dance making, dance as an expression of culture and community. Explores dance as artistic expression in 20th Century America. Course lab fee of \$30 for World Dance applies.

**DANC 110R (Cross-listed with: DANC 1100)**  
**Beginning Ballet**

**1**  
Introduces ballet to students without previous experience. Emphasizes ballet discipline, develops posture, alignment, and muscular control to improve health and appearance of physical body. May be repeated for a maximum of 3 credits toward graduation.

**DANC 120R**  
**Beginning Modern/Contemporary Dance**

**1**  
Gives students experience in modern/contemporary dance technique, emphasizing locomotor skills and movement expression. Introduces elements of dance, time, space, and energy. May be repeated for a maximum of 3 credits toward graduation.

**DANC 127R**  
**Ballet Technique and Theory I**

**3**  
For intermediate level ballet students. Requires ability to handle the varying technical difficulties of classical ballet. Includes theories from Soviet, French, Italian, American, English, and Danish schools. Provides hands-on experience in barre and center floor work to increase strength, flexibility. Emphasizes body alignment and correct placement. Prepares students for a more intensive study in ballet. May be repeated for a total of 18 credits. Course Lab fee of \$216 for support applies.

**DANC 1330**  
**Studio Workshop Creative Process in Dance**

**1**  
A multi-disciplinary approach to the creative process in dance. Overviews the creative process and explores the development of individual artistry and personal voice in dance. Examines how the creative process in other disciplines informs creative work in dance. Includes participation and lecture.

## Course Descriptions

### **DANC 141R** **Intermediate Modern/Contemporary Dance** **2**

Increases physical skills in dance technique and performance technique. Introduces principles and concepts that govern human movement. Emphasizes development of strength, flexibility, coordination, core support, and movement expressiveness. Includes aspects of composition, improvisation, and performance as they relate to technique. Develops foundational skills in modern dance technique. Prepares students for more intensive study. Does not fulfill a dance major requirement. May be repeated for a total of 6 credits toward graduation.

### **DANC 143R** **Modern/Contemporary Dance Technique** **and Theory I/Semester I** **3**

\* Prerequisite(s): Audition

Introduces Dance majors to modern/contemporary dance technique. Focuses on development of solid foundational skills in modern dance technique and theory that prepare the student for an intensive major program. Emphasizes the development of strength, flexibility, core support, coordination, kinesthetic awareness and memory, and movement expressiveness. Includes experience in improvisation and composition as a means of understanding and applying technical skills in performance settings. May be repeated for a total of six credits toward graduation. Course Lab fee of \$216 for support applies.

### **DANC 144R** **Modern/Contemporary Dance Technique** **and Theory II/Semester II** **3**

\* Prerequisite(s): DANC 143R

Focuses on development of solid foundational skills in modern dance/contemporary dance technique and theory that prepare the student for an intensive major program. Emphasizes the development of strength, flexibility, core support, coordination, kinesthetic awareness and memory, and movement expressiveness. Includes experience in improvisation and composition as a means of understanding and applying technical skills in performance settings. May be repeated for a total of six credits toward graduation. Course Lab fee of \$216 for support applies.

### **DANC 150R** **Beginning Jazz Dance** **1**

Gives students experience in jazz dance including rhythms, style, and jazz techniques. Includes basic jazz terminology. May be repeated for a maximum of 3 credits toward graduation.

### **DANC 151R** **Intermediate Jazz Dance** **1**

Teaches intermediate jazz technique, style and rhythm. Increases coordination, stamina, strength and flexibility through appropriate principles of jazz training. May be repeated for a maximum of 3 credits toward graduation.

### **DANC 1520** **Folk Dance I** **1**

Presents music, dance steps, and styles of folk dances from different countries. Teaches basic dance formations, positions, and terminology.

### **DANC 1530** **Folk Dance II** **1**

\* Prerequisite(s): DANC 1520

Acquaints students with intermediate level folk dances from around the world, including steps, styling, music and costumes. Discusses cultural characteristics that are expressed through folk dance.

### **DANC 1540** **Clogging I** **1**

Teaches basic steps, styling and history of clogging. Includes dances and freestyle clogging choreography.

### **DANC 1550** **Clogging II** **1**

\* Prerequisite(s): DANC 1540 or equivalent experience

Teaches buck-style clogging and steps of complex rhythm and structure. Includes upper body movement patterns and emphasizes total body coordination. Examines contemporary and historical trends in clogging.

### **DANC 156R** **African Dance I** **1**

Explores traditional movements and rhythms from Central and West Africa and is accompanied by live drumming. Focuses on the development of solid foundational skills in African dance technique. Emphasizes the cultural significance of various dances and rhythms as well as the influences of the African aesthetic in contemporary dance and culture. Includes participation, video, and guest instructors from Africa. May be repeated for a maximum of 3 credits toward graduation. Course fee of \$40 for support applies.

### **DANC 158R** **Tap Dance I** **1**

Introduces basic steps and rhythms of tap dance. Reviews the history of this American theatrical dance form. May be repeated for a maximum of 3 credits toward graduation.

### **DANC 159R** **Hip Hop I** **1**

Explores a variety of Hip Hop Dance styles and moves to the latest music. Introduces students to fundamental dance techniques. Discusses Hip Hop as a cultural movement. May be repeated for a maximum of 3 credits toward graduation.

### **DANC 160R** **Hip Hop II** **1**

\* Prerequisite(s): Previous Hip Hop Dance experience

Presents intermediate/advanced skills in Hip Hop Dance. Explores Hip Hop Dance through different styles, across the floor combinations, break dancing, and in-class performances. Broadens the students' understanding of the history, culture, and style of Hip Hop Dance. May be repeated for a maximum of 3 credits toward graduation.

### **DANC 161R** **Dance Conditioning** **1**

Introduces dance conditioning principles. Covers theory and practice. Emphasizes body balancing in strength, flexibility and endurance training supported by knowledge of basic principles of anatomy and biomechanics. Includes stress management, nutrition, body image, somatotypes, and body connectivity work. May be repeated for a maximum of 3 credits toward graduation.

### **DANC 162R** **Polynesian Dance I** **1**

Explores basic forms of authentic Polynesian dance with a focus on the dances of Tonga, New Zealand, Tahiti and Hawaii. Teaches the origins of the Polynesian people, their "tapu" systems, culture, religions, musical instruments and legends through movement classes, research, discussion and video. Explores Polynesian dance as an art form. May be repeated for a maximum of 3 credits toward graduation.

### **DANC 170R** **American Social Dance I** **1**

Introduces beginning (Bronze) level patterns of American Social Dance including Foxtrot, Triple Swing, Waltz, and Cha Cha. Emphasizes, on a beginning level, correct rhythm, poise, footwork and foot positions, dance position, and etiquette. Course fee of \$10 for practical experience applies. May be repeated for a maximum of 3 credits toward graduation.

**DANC 171R**  
**International Ballroom Dance I****1**

Teaches beginning (Bronze) level patterns of International Ballroom Dance including Waltz, Quickstep, and Tango. Introduces correct rhythm, poise, footwork, foot positions, dance position, posture, and leading and following. Provides general knowledge of Bronze level curriculum. May be repeated for a maximum of 3 credits toward graduation. Course fee of \$10 for practical experience applies.

**DANC 172R**  
**Latin Ballroom Dance I****1**

Teaches beginning (Bronze) level patterns of International Style Latin Rumba, Samba, and Cha Cha. Introduces correct rhythm, poise, footwork, and foot positions. Provides general knowledge of Bronze level curriculum. May be repeated for a maximum of 3 credits toward graduation. Course fee of \$10 for practical experience applies.

**DANC 1780**  
**Country Western Dance I****1**

Teaches Western Swing, Line Dances, Texas Two-Step, Cotton Eyed Joe, Schottische, and Heel Toe polka. Stresses rhythm, dance with a partner, and developing a country western dance style. Uses lecture, demonstration, and active class participation.

**DANC 1790**  
**Country Western Dance II****1**

\* Prerequisite(s): DANC 1780

Teaches Pony Swing, East Coast Swing, Waltz, Two-Step, and Line Dances. Stresses rhythm, dance with a partner, and developing a country western dance style. Uses lecture, demonstration, and active class participation.

**DANC 2100**  
**Teaching Dance for Children FF****3**

Introduces fundamentals of teaching dance to children in the community, school and home. Includes philosophy, educational benefits, lesson integration, and teaching methods. Emphasizes content creation based on state and national standards. Assists students to become independent, creative, and productive learners as they acquire the knowledge, skills, and experience to teach children ages 5–12.

**DANC 2110**  
**Orientation to Dance FF****3**

For students interested in pursuing a career in dance. Introduces students to the discipline of dance as an academic as well as artistic field of study. Examines various dimensions of the discipline such as performance, teaching, choreography, dance science/medicine, movement analysis and fundamentals, dance criticism, interdisciplinary collaboration, and current issues. Includes lecture, readings, discussion, writing and participation. Prepares the student entering the Dance emphasis. Course lab fee of \$32 applies.

**DANC 221R**  
**Pointe II****1**

\* Prerequisite(s): Intermediate equivalent skill level to be determined by audition.

For students at an intermediate pointe technique level. Develops coordination, control, articulation of the feet, stamina, and flexibility in pointe training. Emphasizes barre work to build strength necessary for further advanced study. Requires ballet attire. May be repeated for a total of six credits toward graduation. Course Lab fee of \$120 for support applies.

**DANC 222R**  
**Allegro Dance II****1**

\* Corequisite(s): DANC 227R or DANC 327R

Focuses on allegro ballet technique at a beginning level and introduces dance majors and other interested students to jumps, turns, and other allegro technical abilities. Builds strength and control necessary for further intermediate study. Explores the development of musicality and epaulement as it relates to artistic interpretations. Prepares students to perform simple allegro variations from the classical repertoire. May be repeated for a maximum of 4 credits toward graduation.

**DANC 225R**  
**Character Dance I****1**

\* Prerequisite(s): Intermediate equivalent skill level to be determined by audition

Teaches theatre dance based on ethnic styles within ballet performance context to students at an intermediate or higher skill level. May be repeated for a maximum of 3 credits toward graduation.

**DANC 2260**  
**Character Dance II****1**

\* Prerequisite(s): DANC 227R

For students desiring a ballet emphasis. Introduces ballet performance practices. Explores topics that may include but are not limited to character dance, pantomime and acting techniques for dancers, stage makeup for dancers, and the study of classic and contemporary ballet repertoire. Requires ballet attire.

**DANC 227R**  
**Ballet Technique and Theory II****3**

\* Prerequisite(s): Instructor Approval

For intermediate level ballet students. Requires ability to handle the varying technical difficulties of classical ballet. Includes theories from Soviet, French, Italian, American, English, and Danish schools. Provides hands-on experience in barre and center floor work to increase strength, flexibility, and artistic interpretation. Emphasizes body alignment and correct placement. Successful completers should be fully prepared to participate in an upper division classical ballet course. May be repeated for a total of 18 credits. Course Lab fee of \$216 for support applies.

**DANC 2330**  
**Improvisation****1**

For students interested in experiencing and developing skills in physical inventiveness and performance intuition and immediacy. Provides guided exploration in the elements of dance for the creative development of personal movement vocabulary, spontaneous group interaction, and the ability to recall and give form to movement generated improvisationally. Course lab fee of \$64 for Dance Accompanist applies.

**DANC 2340**  
**Composition****2**

\* Prerequisite(s): DANC 2330

\* Prerequisite(s) or Corequisite(s): DANC 143R, or DANC 144R, or Instructor Approval

For students interested in experiencing and developing skills in dance composition. Includes conceptual and practical exploration of the basic elements of dance in both solo and group forms. Investigates the relationship between choreographic intention, movement invention, content, and form/structure. Introduces choreographic devices and forms and encourages experimentation in the choreographic process. Emphasizes the process of creating and giving form to a personal movement vocabulary. Course lab fee of \$85 for Dance Accompanist applies.

## Course Descriptions

### **DANC 2350** **Dance and Technology**

**2**

Explores fundamental approach to Dance for Camera in its various forms. Includes documentary-style videos as well as the creation of dances made specifically for the screen. Explores three-dimensional movement through the two-dimensional medium of the camera. Examines how editing choices creates dance composition in video form. Discusses aesthetic and historical representations of the body through media. Covers choreography for the camera, video camera basics, elements of a video shoot, and video-editing while preparing the student for further integration of dance and technology, such as the use of video projection during live dance performance. Provides the necessary skills to professionally produce video resumes. Lab access fee of \$17 for computers applies.

### **DANC 243R** **Modern/Contemporary Dance Technique and Theory Level II /Semester I**

**3**

\* Prerequisite(s): by audition

Teaches fundamental body and performance technique. Emphasizes locomotor skills and movement progressions as well as elements of body, effort, shape, space, and time. May be repeated for 9 credits toward graduation. Course Lab fee of \$216 for support applies.

### **DANC 244R** **Modern/Contemporary Dance Technique and Theory Level III/Semester II**

**3**

\* Prerequisite(s): DANC 243R

Focuses on development of technical and performance skills in modern/contemporary dance. Includes concepts of applied anatomy and kinesiology as well as Bartenieff Fundamentals. Emphasizes clarity of movement intent and interpretation in movement progressions. May be repeated for a maximum of 9 credits towards graduation. Course Lab fee of \$216 for support applies.

### **DANC 247R** **Repertory**

**1**

\* Prerequisite(s): By Audition

\* Corequisite(s): DANC 143R, DANC 144R, DANC 243R, or DANC 244R

For students with advanced technical, performance, and artistic skills in Modern/Contemporary Dance interested in performing amateur and professional choreographic works. Emphasizes study and performance of student, guest, and faculty choreography. Introduces students to choreographic approaches of historical and current works. Includes performance in formal and informal concerts. Repeatable for a maximum of three credit hours.

### **DANC 248R** **Special Topics In Dance**

**2**

Provides students an in-depth exploration of specialized dance forms outside of traditional course offerings, with an emphasis on World Dance forms such as Polynesian, Classical Indian, Argentine Tango, Capoeira, Balinese and Tibetan Folk Dance. Focuses on learning specific dance forms through active participation. Includes integration of theoretical, historical and social concepts which deepen the student's understanding of the context in which the dance form was practiced historically and is practiced today. May be repeated for a total of 6 credits towards graduation.

### **DANC 250R** **Advanced Jazz Dance**

**2**

\* Prerequisite(s): Instructor Approval

Explores advanced level jazz technique, performance and composition skills. Includes preparation for the professional audition through movement experiences, lecture with group discussions, video, guest teacher(s), and group projects. May be repeated for a total of six credit hours.

### **DANC 256G** **Dance as a Cultural Practice I**

**3**

\* Prerequisite(s): Matriculation in any BFA or BS Dance major

Explores the richness and beauty of various cultures from around the world through the medium of dance. Takes a critical cultural approach to the study of dance as a means of encoding cultural values. Analyzes issues of gender, identity, religion, power, art, semiotics, and media/technology in relation to dance. Teaches students a deeper knowledge of cultures through their dance forms by participation in movement classes, informal performances, and dance-related cultural events in class, on campus, and in the community. Serves to deepen the student's understanding of the profound relationship between dance and culture, and dance and human existence throughout time through readings, group discussions, interactive assignments, cultural research projects, concert attendance, writing, dancing, singing and playing music. Explores the evolution and dissemination of the various cultural dance forms studied in class. Course Lab fee of \$40 applies.

### **DANC 256R** **African Dance II**

**1**

\* Prerequisite(s): DANC 156R or previous African Dance experience

Explores dance traditions of West and Central Africa, as well as other countries in the African Diaspora, including Brazil, Cuba, and Haiti. Focuses on strong foundational skills in various African dance styles and emphasizes the cultural and historical significance of the various dances and rhythms. Explores more complex movement and rhythmic structures than African I and challenges the students' physical stamina. Accompanied by live drumming. May be repeated for a maximum of 3 credits toward graduation. Course fee of \$50 for support applies.

### **DANC 258R** **Tap Dance II**

**1**

Introduces intermediate steps and rhythms of tap dance. Reviews the history of this American theatrical dance form. May be repeated for a maximum of 3 credits toward graduation.

### **DANC 265R** **Fundamentals of Movement**

**2**

\* Prerequisite(s): DANC 120R recommended

Explores methods of moving with greater ease, efficiency, and sense of connection in the body. Emphasizes body awareness and developmental human movement patterning. Makes application to the areas of dance, sport, theater, somatics, performance, and psychology. Includes Bartenieff Fundamentals and basic principles of Laban Movement Analysis. Develops integrated and harmonious movement patterns in the body. May be repeated for a maximum of 4 credits toward graduation.

### **DANC 2670** **Introduction to Laban Studies**

**2**

\* Prerequisite(s): DANC 265R or Matriculation in BS Dance Education Program

Introduces the basic principles of Laban Movement Analysis (LMA). Presents a comprehensive system for analyzing the complexity of human movement based on the theories of Rudolph Laban and Irmgard Bartenieff. Utilizes physical performance and observation methods. Emphasizes the process of perceiving and making meaning of human movement from a variety of contexts.

**DANC 270R**  
**American Social Dance II**

**1**  
\* Prerequisite(s): Instructor Approval

For students with Bronze level American Social Dance experience or equivalent. Teaches intermediate (Silver) level patterns of American Social Dance including Foxtrot, Waltz, Triple Swing, Viennese Waltz, West Coast Swing, and Cha Cha. Emphasizes, on an intermediate level, correct rhythm, poise, footwork, and foot positions, dance position, and etiquette. Successful completers will have a good general knowledge of Silver level curriculum. May be repeated for a maximum of 2 credits toward graduation. Course fee of \$15 for practical experience applies.

**DANC 271R**  
**International Ballroom Dance II**

**1**  
\* Prerequisite(s): Instructor Approval

For students with Bronze level International Ballroom Dance experience. Teaches the intermediate (Silver) level patterns of International Style Waltz, Quickstep, Tango, Foxtrot, and Viennese Waltz. Emphasizes, on an intermediate level, rhythm, poise, footwork, foot positions, dance position, alignment, rise and fall, body flight and correct leading and following. Successful completers will have a good general knowledge of Silver level curriculum. May be repeated for a total of two credits toward graduation. Course fee of \$15 for practical experience applies.

**DANC 272R**  
**Latin Ballroom Dance II**

**1**  
\* Prerequisite(s): Instructor Approval

For students with Bronze level Latin Ballroom Dance experience or equivalent skill level. Teaches the intermediate (Silver) level patterns of International Style Rumba, Samba, Cha Cha, and Paso Doble. Emphasizes, on an intermediate level, rhythm, poise, footwork, foot positions, dance position, alignment, and correct leading and following. Successful completers will develop a good general knowledge of Silver level curriculum. May be repeated for a total of two credits toward graduation. Course fee of \$15 for practical experience applies.

**DANC 276R**  
**Ballroom Dance Company Back Up Team**

**1**  
\* Prerequisite(s): By audition only.

For students with or without prior ballroom dance team experience. Teaches American and International techniques as a performance discipline. Includes choreography, rehearsals, performances, demonstrations, competition. Also teaches fundamentals of formation team dancing, stage performance and team competition. Requires individual practice. Prepares dancers for audition to touring team. May be repeated for up to four credits toward graduation. Course fee of \$45 for specialized clothing applies.

**DANC 281R**  
**Internship in Dance I**

**1 to 3**  
\* Prerequisite(s): Departmental Approval

Provides an opportunity for students to receive college credit and explore career options in dance by working in dance-related fields. Applies academic concepts to actual work experiences. Requires approval of faculty sponsor and completion and acceptance of application. Requires completion of an orientation, completion of Master Agreement between UVU and employer, completion of goals and tasks as required by academic department, and completion of final evaluation. May be repeated for a total of 6 credits towards graduation. May be graded credit/no credit.

**DANC 3140**  
**Dance Production and Lighting**

**2**  
\* Prerequisite(s): University Advanced Standing

Introduces essential aspects of dance production. Focuses on theory and practice of lighting for dance. Includes consideration of costuming, set design, sound design, backstage organization, make-up for dance, promotion, and programming. Includes lecture and lab experience.

**DANC 3160**  
**Dance Accompaniment**

**2**  
\* Prerequisite(s): University Advanced Standing

Designed for students interested in musical accompaniment for dance. Explores rhythmic structures and its components in music and dance, composing a percussion score for dance, and building percussion instruments. Emphasizes practical skills in performing simple and complex rhythmic patterns on drum. Includes participation, writing, lecture, and discussion.

**DANC 321R**  
**Pointe III**

**1**  
\* Prerequisite(s): Advanced equivalent skill level to be determined by audition.  
\* Corequisite(s): DANC 327R

For women dance majors and others with an interest in the professional dance world. Emphasizes pointe. Builds strength and control. Explores various styles from classical and contemporary repertoire. Women develop successful virtuosity en pointe. Completers will have skills necessary to perform at an advanced technical skill level and have skills necessary to perform variations from classical repertoire. Includes guest teachers. May be repeated for a total of six credits toward graduation. Course Lab fee of \$120 for support applies.

**DANC 322R**  
**Allegro Dance III**

**1**  
\* Corequisite(s): DANC 327R or DANC 427R

Focuses on allegro ballet technique at an intermediate level. Explores jumps, turns, and other allegro technical abilities. Builds strength and control necessary for further advanced study. Explores the development of musicality and epaulement as it relates to artistic interpretations. Prepares students to perform intermediate and advanced allegro variations from the classical repertoire. May be repeated for a maximum of 4 credits toward graduation.

**DANC 327R**  
**Ballet Technique III**

**3**  
\* Prerequisite(s): DANC 227R or Advanced equivalent skill level to be determined by audition

For ballet students at an advanced skill level who are able to handle the varying technical difficulties of classical ballet. Provides hands-on experience in barre and center floor work to increase strength and flexibility. Emphasizes the development of musicality as it relates to artistic interpretations. Successful completers will be prepared to participate on a corp de ballet professional performance level. May be repeated for a total of 18 credits toward graduation. Course Lab fee of \$216 for support applies.

**DANC 3330**  
**Modern Dance Workshop**

**2**  
\* Prerequisite(s): DANC 2340 and University Advanced Standing

A continuation of DANC 2330 and DANC 2340. Emphasizes the relationship between improvisation and composition in the choreographic process. Focuses on developing fluency in creating and developing content and creating appropriate form for that content. Explores established choreographic forms in both solo and small group settings. Requires some choreographic work outside of class.

**DANC 3340**  
**Ballet Choreography**

**2**  
\* Prerequisite(s): DANC 2230, DANC 2340, and University Advanced Standing  
\* Corequisite(s): (DANC 327R, DANC 427R, or DANC 428R) and (DANC 321R or DANC 421R)

For dance majors desiring ballet emphasis. Investigates and explores the choreographic process with relationship to narration as well as all choreographic concepts. Includes the creation of student works that give shape and form to ideas based on a specific theme or statements. Examines plot, character, and theme as part of the creative process.

## Course Descriptions

### **DANC 3350** **Choreography**

**2**  
\* Prerequisite(s): DANC 3330 and University Advanced Standing

Provides in-depth experience in the choreographic process. Focuses on development of personal voice in choreography and the ability to generate choreographic form intrinsic to thematic content. Explores the use of choreographic forms and devices as means of developing thematic content. Requires intensive exploration of the creative process through imaginative thinking, creating, and crafting in movement.

### **DANC 3400** **Dance in the Elementary School**

**XF**

**2**  
\* Prerequisite(s): University Advanced Standing

Introduces the philosophy, educational benefits, and teaching methods of dance for children. Teaches movement as an effective and motivational medium for building self awareness, expression, and discipline. Develops skills in the psychomotor, affective, and cognitive domains. Places emphasis on learning through problem-solving and on integrative learning. Addresses the Utah State Core Curriculum in Dance for the elementary school. Completion of a second course is required to satisfy the fine arts requirements (see Graduation section of catalog).

### **DANC 341R** **Modern/Contemporary Dance Technique and Theory Level III/ Semester I**

**3**  
\* Prerequisite(s): By audition

Builds technical, performance, and theoretical understanding and skills in modern/contemporary dance. Emphasizes body and performance techniques; axial and locomotor skills; total body connectivity movement progressions; increased spacial, rhythmical, and qualitative acuity; risk-taking; and movement commitment. Includes aspects of composition, improvisation, and performance as they relate to technique. May be repeated for up to 9 credits total toward graduation. Course Lab fee of \$216 for support applies.

### **DANC 3420** **Dance in the Elementary Schools Practicum**

**3**  
\* Prerequisite(s): DANC 3400 and University Advanced Standing

Builds on the methods, strategies, and dance pedagogy studied in the DANC 3400 Dance in the Elementary Schools course. Focuses on the practicum experience in the elementary schools using the Utah Secondary Dance Core Curriculum.

### **DANC 342R** **Modern/Contemporary Dance Technique and Theory Level III/ Semester II**

**3**  
\* Prerequisite(s): DANC 341R or by audition

Builds technical, performance and theoretical understanding and skills in modern/contemporary dance. Expands on the skills and concepts introduced in DANC 341R. Emphasizes body and performance techniques, axial and locomotor skills, total body connectivity movement progressions; increased spacial, rhythmical, and qualitative acuity; risk-taking; and movement commitment. Includes aspects of composition, improvisation, and performance as they relate to technique. May be repeated for up to 9 credits total toward graduation. Course Lab fee of \$216 for support applies.

### **DANC 3450** **Modern/Contemporary Dance Teaching Methods**

**3**  
\* Prerequisite(s): DANC 3400 and University Advanced Standing

Introduces methodologies, strategies, ideologies, and philosophies of dance pedagogy based on current research and practices. Emphasizes lesson plan writing using the Utah State Secondary Dance Core Curriculum and the National Dance Standards. Integrates theory and practice through lecture, discussion, writing, and classroom teaching experiences in the college and public school settings.

### **DANC 346R** **Synergy Dance Company**

**3**  
\* Prerequisite(s): Audition required  
\* Corequisite(s): DANC 143R or DANC 144R or DANC 243R or DANC 244R or DANC 341R or DANC 342R or DANC 441R or DANC 442R

Designed for students to gain more advanced understanding of artistry through the process and performance of student, faculty, and guest choreography in a formal and informal performance settings. Combines participation in technique, performance, composition, and improvisation. Also includes lectures and demonstrations for local schools and other interested groups. May be repeated for a maximum of 9 credits toward graduation. Course Lab fee of \$74 for practical experience applies.

### **DANC 348R** **Special Topics in Dance**

**1 to 3**  
\* Prerequisite(s): University Advanced Standing and Department Approval

Addresses emerging topics, issues, and developments related to dance. Includes lectures, demonstrations, and studio time for application and evaluation. May be repeated for a maximum of 9 credits toward graduation.

### **DANC 360R** **Esprit d c**

**3**  
\* Prerequisite(s): Audition required

Explores Hip Hop dance culture through a performance-based experience, developing technical and performative skills, and further developing dance artistry. Provides students with opportunities to perform the works of professional choreographers (faculty and guests) in a variety of formal and informal settings. Engages dancers with the choreographic process by providing the opportunity to set choreography on company members. May be repeated for a maximum of 9 credits toward graduation. Course fee of \$80 for support applies.

### **DANC 3610** **Intermediate Dance Conditioning and Injury Prevention**

**2**  
\* Prerequisite(s): DANC 161R and University Advanced Standing

Covers the theory and practice of core conditioning principles with specific application to dance. Includes regularly scheduled conditioning work outs with accompanying lectures, where recognition and appropriate responses to common dance injuries will be discussed.

### **DANC 3630** **Dance as a Cultural Practice II WE**

**3**  
\* Prerequisite(s): ENGL 2010, DANC 2110, DANC 256G, and University Advanced Standing

Continues the study of dance as a cultural practice. Takes a critical cultural approach to the study of dance as a means of encoding cultural values. Emphasizes critical theories of dance, representation, identity, view of the body through the application of Post-Modern Critical Theories/Frames of Analysis. Emphasizes the relationship of dance to Medieval, Renaissance, Baroque, Classical, Romantic, and Modern cultures. Explores keystone dance history concepts and the work of various recognized dance scholars. Introduces students to a wide range of publications in the field. Includes lecture and movement experiences. Emphasizes skills of critical analysis, synthesis, and interpretation in writing about dance.

**DANC 365R**  
**Advanced Fundamentals of Movement**

**2**  
 \* Prerequisite(s): DANC 265R, DANC 2670, and University Advanced Standing

Continues and deepens the content of DANC 265R. Emphasizes application of principles of Bartenieff Fundamentals to varied movement contexts. Explores the connections between Laban Movement Analysis (LMA) elements of Body, Effort, Shape, and Space and applies the connections to developing increased ease in movement function and liveliness of expression in many movement forms. Develops increased skill and awareness in movement sensation, perception, practice, observation, analysis, prescription, and interpretation. Utilizes LMA symbology. Involves lecture, participation, observation, and written and verbal analysis. May be repeated for 4 credits toward graduation.

**DANC 3670**  
**Movement Analysis**

**3**  
 \* Prerequisite(s): DANC 265R or equivalent, DANC 2670 or equivalent, and University Advanced Standing

An advanced survey course in movement analysis. Focuses on application of the concepts and theories of Laban Movement Analysis in the context of observing, recording, analyzing, and making meaning from human body movement. Includes in-depth study of motif score writing and applying Body, Effort, Shape and Space Harmony paradigms. Utilizes physical performance and written and verbal observation methods. Examines application to disciplines that concern themselves with human movement behavior such as behavioral sciences, theater, communications, human performance, human development, business, and education.

**DANC 3680**  
**Dance Kinesiology**

**4**  
 \* Prerequisite(s): (ZOOL 1090 or ZOOL 2320) and University Advanced Standing

Studies the neuromusculoskeletal system in practical application to dance. Analyzes demands placed on the dancer's body and identifies how to maximize efficiency and reduce injuries while maintaining requisite aesthetic elements. Includes lecture and lab experiences.

**DANC 3690**  
**Motif and Labanotation I**

**2**  
 \* Prerequisite(s): DANC 265R, DANC 2670, and University Advanced Standing

Teaches Motif Writing and beginning Labanotation. Expands students' understanding of the written symbol system of Laban Movement Analysis and deepens observation and analysis skills critical for understanding dance and varied manifestations of human movement expression. Relates Motif Writing and Labanotation to dance history and current dance choreography and performance. Includes application of Motif Writing to teaching dance technique, composition, and improvisation. Emphasizes the theory of human movement description and analysis formulated by Rudolph Laban and requires students to both write and read beginning to intermediate level notated scores. Includes lecture, discussion, observation, and participation including reading from score, written and embodied symbology assignments, teaching assignments, and completion of several creative projects.

**DANC 370R**  
**American Social Dance III**

**1**  
 \* Prerequisite(s): Instructor Approval

For students who have successfully completed Bronze and Silver American Social Dance courses and for members of the Ballroom Tour Team. Teaches the advanced (Gold) level patterns of American Style Foxtrot, Cha Cha, Waltz, Triple Swing, Viennese Waltz, and West Coast Swing. Emphasizes, on an advanced level, correct poise, style, rhythm. Also teaches correct footwork, foot position, alignments, rise and fall, partnering, correct leading and following, and etiquette. First semester successful completers will have a general knowledge of Gold level curriculum. Second semester successful completers will have an in-depth knowledge of Gold level curriculum. May be repeated for two credits toward graduation. Course fee of \$20 for practical experience applies.

**DANC 371R**  
**International Ballroom Dance III**

**1**  
 \* Prerequisite(s): Instructor Approval

For students who have successfully completed Bronze and Silver International Ballroom Dance courses, and for members of the Ballroom Tour Team. Teaches the advanced (Gold) level patterns of International Style Waltz, Quickstep, Tango, Foxtrot, and Viennese Waltz. Emphasizes, on an advanced level, correct poise, style, rhythm. Also teaches correct footwork, foot positions, alignments, rise and fall, partnering, floor craft, and correct leading and following. First semester focuses on developing a general knowledge of Gold level curriculum. Second semester focuses on developing an in-depth knowledge of Gold level curriculum. May be repeated for a maximum of 4 credits toward graduation. Course fee of \$20 for practical experience applies.

**DANC 372R**  
**Latin Ballroom Dance III**

**1**  
 \* Prerequisite(s): Instructor Approval

For students who have successfully completed Bronze and Silver Latin Ballroom Dance courses and for members of the Ballroom Tour Team. Teaches the advanced (Gold) level patterns of Latin Style Rumba, Samba, Cha Cha, Paso Doble, and Jive. Emphasizes, on an advanced level, correct poise, style, and rhythm. Also teaches correct footwork, foot position, alignments, rise and fall, partnering, correct leading and following, amounts of turn, Cuban action, and movement principles. First semester focuses on developing a general knowledge of Gold level curriculum. Second semester focuses on developing an in-depth knowledge of Gold level curriculum. May be repeated for a maximum of 4 credits toward graduation. Course fee of \$20 for practical experience applies.

**DANC 3730**  
**American Social Dance Teaching Methods**

**2**  
 \* Prerequisite(s): DANC 270R or equivalent skill level, and University Advanced Standing

Focuses primarily on Social Dance teaching techniques using Bronze level patterns. Emphasizes calling steps. Explores proper music selection and tempo. Includes actual teaching time of peers and a beginning class. Prepares students to adequately teach social dance in either a formal or informal setting.

## Course Descriptions

### **DANC 3740**

#### **Ballroom Dance Choreography**

**2**

\* Prerequisite(s): (DANC 270R, DANC 271R, DANC 272R, or Instructor Approval) and University Advanced Standing

Investigates and explores the choreographic process with reference to choreographic concepts. Involves the creation of dance skills that give shape and form to ideas based on a specific theme, style, or statement. Includes Latin, International Ballroom, American Rhythm and Smooth, and Cabaret styles. Explores formation team competition, solo couple competition, formation team stage performance, and solo couple stage performance as part of the creative process.

### **DANC 3750**

#### **Studies in Ballroom Dance Styles**

**2**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Investigates and explores historical ballroom dance styles. Emphasizes the social and cultural context in which ballroom dance is created and performed. Includes career, life style, education, gender, moral and ethical concerns related to ballroom dance issues. Also covers ballroom dance history, evolution, and current trends. Identifies similarities and differences between ballroom dance and other dance forms. Involves discussion, lecture, research, student presentations and participation.

### **DANC 376R**

#### **Ballroom Dance Company Back-up Tour Team**

**2**

\* Prerequisite(s): Audition

For students with advanced ballroom dance experience. Teaches American, International Ballroom, and Latin techniques using intermediate and advanced choreography in performance and competitive discipline. Includes choreography, stage performances, competitions, and demonstrations with increased emphasis on dance technique and proper execution of formations. Requires individual practice. Prepares dancers for audition to touring team. May be repeated for eight credits toward graduation. Course fee of \$45 for specialized clothing and materials applies.

### **DANC 421R**

#### **Pointe IV**

**1**

\* Prerequisite(s): Advanced equivalent skill level to be determined by audition

\* Corequisite(s): DANC 427R

For women dance majors and other students with an interest in the professional dance world. Emphasizes pointe. Continues to build strength and control through increased complex combinations. Explores advanced levels of styles from classical and contemporary repertoire. Develops virtuosity en pointe. Prepares students to perform at a professional technical skill level. Includes guest teachers. May be repeated for a total of six credits toward graduation. Course Lab fee of \$120 for support applies.

### **DANC 422R**

#### **Allegro Dance IV**

**1**

\* Prerequisite(s): Intermediate/Advanced equivalent skill level to be determined by audition.

\* Corequisite(s): DANC 227R or DANC 327R or DANC 427R

Emphasizes jumps, turns and other technical abilities specific to allegro dance at an advanced level. Builds strength and control necessary for performing allegro dance variation, particularly from the classical ballet repertoire. Explores the development of musicality as it relates to artistic interpretations. May be repeated for a maximum of 8 credits toward graduation.

### **DANC 423R**

#### **Pointe V**

**1**

\* Prerequisite(s): DANC 321R or to be determined by audition

\* Corequisite(s): DANC 427R

For dance majors and other students with an interest in the professional dance world. Emphasizes virtuosity in a variety of specialized ballet techniques which may include pointe and bravura exercises. Welcomes students who are trained in pointe as well as those whose emphasis has been allegro work. Explores movement from classical and contemporary repertoire. Requires ballet attire. May be repeated for a total of six credits toward graduation. Course Lab fee of \$120 for support applies. Course Lab fee of \$120 for support applies.

### **DANC 424R**

#### **Pas de deux**

**1**

\* Prerequisite(s): (DANC 321R and/or DANC 327R) or higher recommended; or advanced-intermediate equivalent skill level to be determined by audition.

\* Corequisite(s): (DANC 321R and/or DANC 327R) or an approved technique class as determined by instructor

For dance majors and other students interested in developing their partnering technique. Emphasizes working in partnerships through experimentation in the partner and partnered roles. Explores pas de deux sequences from classical and contemporary repertoire. Requires ballet attire. May be repeated for a total of four credits toward graduation. Course Lab fee of \$126 applies.

### **DANC 425R**

#### **Repertory Ballet Ensemble**

**3**

\* Prerequisite(s): Audition required

\* Corequisite(s): (DANC 427R or DANC 327R) and (DANC 321R or DANC 421R or DANC 422R or DANC 423R or DANC 424R)

For serious ballet students showing a high level of talent and technical achievement. Explores the development of artistic interpretation as students learn styles of various repertoire works. Prepares students to perform as a competent corps de ballet member. May be repeated for a maximum of 9 credits toward graduation. Course fee of \$75 for specialized clothing applies.

### **DANC 4260**

#### **Ballet Pedagogy**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces a variety of teaching methodologies to inform the instruction of ballet technique classes. Develops interpersonal skills as they relate to classroom management. Explores various styles of ballet to help students construct effective lesson plans and curricula. Course lab fee of \$61 applies

### **DANC 427R**

#### **Ballet Technique IV**

**3**

\* Prerequisite(s): DANC 327R or advanced equivalent skill level to be determined by audition

\* Corequisite(s): DANC 421R

For ballet students at an advanced skill level who are able to handle the varying technical difficulties of classical ballet. Provides experience in barre and center floor work to increase strength and flexibility. Emphasizes the development of musicality as it relates to artistic interpretations. Successful completers will be prepared to participate on a corps de ballet professional performance level. May be repeated for a total of 18 credits toward graduation. Course Lab fee of \$216 for support applies.

**DANC 428R**  
**Ballet Technique V**

**3**  
\* Prerequisite(s): DANC 427R or advanced equivalent skill level to be determined by audition  
\* Corequisite(s): DANC 421R or DANC 423R

For ballet students who successfully audition for Utah Regional Ballet Company at an advanced skill level and artistic skill level who are prepared for the technical difficulties required at a professional level. Provides hands-on experience in barre and center floor work to fully develop the professional artist. Successful completers will be prepared to participate on a professional performance level. May be repeated for a total of 24 credits toward graduation. Course Lab fee of \$216 for support applies.

**DANC 429R**  
**Utah Metropolitan Ballet Repertory**

**3**  
\* Prerequisite(s): Advanced/Professional Skill level; determined by audition  
\* Corequisite(s): (DANC 421R, DANC 423R) or DANC 427R, DANC 428R

For serious ballet students showing a high level of talent and technical achievement. Explores the development of artistic interpretation as students learn styles of various repertoire works. Successful completers should be qualified to perform as a competent corps de ballet member. May be repeated for a maximum of 9 credits toward graduation. Course fee of \$50 for specialized clothing applies.

**DANC 4350**  
**Senior Capstone I WE**

**2**  
\* Prerequisite(s): DANC 3140, DANC 3630, DANC 3680, and (DANC 3340, or DANC 3350, or DANC 3740), and University Advanced Standing

Prepares senior dance majors with the skills, resources, and portfolio/marketing materials needed to apply for graduate work or professional opportunities in dance. Emphasizes digital portfolio development and biographical writing, personal web page creation, audition and interview strategies, and dance resources. Includes writing, performance, research, video editing and multimedia work. Course fee of \$16 applies.

**DANC 4360**  
**Senior Capstone II WE**

**2**  
\* Prerequisite(s): DANC 3680 and DANC 4350 and DANC 4880 and (DANC 3340 or DANC 3350 or DANC 3740 with a B- or higher) and University Advanced Standing

Designed for senior dance students as the second course in a capstone sequence. Emphasizes through choreography, performance, and production a synthesis of the knowledge and skills developed in the B.S. and B.F.A. degrees in Dance. Includes writing, collaborative work, discussion, lecture, and intensive studio preparation of choreography. Course fee of \$66 applies.

**DANC 441R**  
**Modern/Contemporary Dance Technique and Theory Level IV/Semester I**

**3**  
\* Prerequisite(s): By audition

Builds technical, performance, and theoretical understanding and skills in modern dance/contemporary dance. Emphasizes body and performance techniques, axial and locomotor skills, total body connectivity, movement progressions, increased spacial, rhythmical and qualitative acuity, risk-taking, and movement commitment. Includes aspects of composition, improvisation, and performance as they relate to technique. May be repeated for up to 9 credits total towards graduation. Course Lab fee of \$216 for support applies.

**DANC 442R**  
**Modern/Contemporary Dance Technique and Theory Level IV/ Semester II**

**3**  
\* Prerequisite(s): DANC 441R or by audition

Builds rigorous technical, performance, and theoretical training. Emphasizes advanced performance sequences and progressions that utilize technical, kinesthetic, and expressive skills. Includes challenging spacial, rhythmical, and qualitative performance skills, risk-taking, and movement commitment. Includes aspects of composition, improvisation, and performance as they relate to technique. May be repeated for up to 9 credits total toward graduation. Course Lab fee of \$216 for support applies.

**DANC 4430**  
**Dance Teaching Practicum**

**3**  
\* Prerequisite(s): DANC 3450 and University Advanced Standing

For secondary dance licensure majors or dance majors interested in dance pedagogy. Builds on the methodologies, strategies, ideologies and philosophies of dance pedagogy studied in DNCE 3430. Emphasizes lesson plan and unit development, instruction, and assessment based on the National and Utah State Dance Standards. Focuses on the integration of theory and practice during a practicum experience in the secondary public schools setting. Includes writing, reading, discussion, and participation.

**DANC 446R**  
**Contemporary Dance Ensemble**

**3**  
\* Prerequisite(s): By audition  
\* Corequisite(s): DANC 341R or DANC 342R or DANC 441R or DANC 442R

Designed for students with advanced technical, performance, and artistic skills. Provides students interested in further developing their artistry with opportunities to perform the works of professional choreographers in formal and informal settings. Explores a variety of contemporary and historical choreographic approaches. Prepares students for work in a professional modern dance company. May be repeated for a maximum of 9 credits toward graduation. Course Lab fee of \$75 for practical experience applies.

**DANC 471R**  
**International Ballroom Dance I**

**2**  
\* Prerequisite(s): Instructor Approval

For students who have successfully completed Bronze, Silver and Gold International Ballroom Dance classes and for members of the Ballroom Tour Team. Prepares students to dance, choreograph and compete on a championship amateur level. Teaches the Advanced (Gold-Bar) level patterns of International style Waltz, Quickstep, Tango, Foxtrot, and Viennese Waltz. Emphasizes, on a pre-professional level, correct poise, style, and rhythm. Also teaches and enhances correct footwork, foot positions, alignments, rise and fall, partnering, floor craft, body flight, precedes and follows, and correct leading and following. First semester focuses on developing a general knowledge of Gold-Bar level curriculum. Second semester focuses on developing an in-depth knowledge of Gold-Bar level curriculum. May be repeated for a maximum of 8 credits toward graduation. Course fee of \$20 for practical experience applies.

**DANC 472R**  
**Latin Ballroom Dance IV**

**2**  
\* Prerequisite(s): Instructor Approval

For students who have successfully completed Bronze, Silver and Gold International Ballroom Dance classes and for members of the Ballroom Tour Team. Includes preparation to dance, choreograph and compete on a championship amateur level. Teaches the advanced (Gold-Bar) level patterns of Latin style Rumba, Samba, Cha Cha, Paso Doble, and Jive. Emphasizes, on a pre-professional level, correct poise, style, and rhythm. Also teaches and enhances correct footwork, foot positions, Cuban action, alignments, rise and fall, partnering, floor craft, precedes and follows, and correct leading and following. First semester focuses on developing a general knowledge of Gold-Bar level curriculum. Second semester focuses on developing an in-depth knowledge of Gold-Bar level curriculum. May be repeated for a maximum of 8 credits toward graduation. Course fee of \$20 for practical experience applies.

## Course Descriptions

### **DANC 4740**

#### **International Ballroom and Latin Theory**

**3**

\* Prerequisite(s): DANC 271R, DANC 272R, and University Advanced Standing

Covers technical and theoretical aspects of basic figures in Waltz, Tango, Foxtrot, Quickstep, Cha Cha, Samba, Rumba, Paso Doble, and Jive, such as footwork, amounts of turn and rhythm. Emphasizes correct teaching methods associated with each dance. Prepares students to obtain membership in the Imperial Society of Teachers of Ballroom Dance and to teach professionally.

### **DANC 476R**

#### **Ballroom Dance Company Tour Team**

**3**

\* Prerequisite(s): Audition

For students with advanced Ballroom Dance Team experience. Teaches advanced technique in performance and competitive discipline. Includes choreography, performances, demonstrations, and tours, in formation team dancing, stage performance, team competition, team match, and individual competitive events. Requires individual practice. May be repeated for 12 credits toward graduation. Course fee of \$100 for specialized clothing and materials applies.

### **DANC 481R**

#### **Internship in Dance II**

**1 to 3**

\* Prerequisite(s): Matriculation in BFA or BS in Dance and Departmental Approval, and University Advanced Standing

Provides an opportunity for upper-division students to receive college credit and work in a dance-related field. Offers students the opportunity to focus on a specific career path and prepare themselves to enter the profession. Applies academic concepts to actual work experiences. Requires approval of faculty sponsor and completion and acceptance of application. Also requires completion of an orientation, completion of Master Agreement between UVU and employer, completion of goals and tasks as required by academic department, and completion of final evaluation. May be repeated for a total of 6 credits towards graduation. May be graded credit/no credit.

### **DANC 4880**

#### **Current Issues in Dance**

**3**

\* Prerequisite(s): DANC 3630, and University Advanced Standing

Introduces students to the issues and philosophical views that have influenced dance and other art forms. Examines current trends and issues in dance. Includes lecture, discussion, readings, video, guest artists, and collaborative projects.

## **Digital Media Cinema Prod (DCPR)**

### **DCPR 2995**

#### **Virtual Reality for Digital Cinema Storytelling**

**3**

Introduces the technical foundations of virtual reality for cinema production including capture, image stitching, editing, and output. Discusses potential narrative and documentary applications for the use of virtual reality as a storytelling vehicle. Allows students hands-on practice as they create various VR projects. Discusses current and evolving distribution and delivery channels for VR filmed content. Lab access fee of \$45 applies.

## **Dental Hygiene (DENT)**

### **DENT 1000**

#### **Introduction to Dental Professions**

**1**

Explores the main aspects of the dental profession. Introduces head and neck anatomy, tooth morphology, periodontology, and dental instrumentation skills. Explains the various dental specialty programs. Studies broad topics in dental professions.

### **DENT 1010**

#### **Dental Hygiene I**

**3**

\* Prerequisite(s): Acceptance into Dental Hygiene program

\* Corequisite(s): DENT 1015

For students accepted into the Dental Hygiene Program. Introduces basic principles and skills used in the practice of dental hygiene, including infection control, patient assessment and treatment. Requires practicing on dental mannequins and student patients. Teaches all skills to clinical competence. Builds on basic and dental sciences and is foundational for the ensuing Dental Hygiene II, III, and IV courses. Course fee of \$3175 for practical experience applies.

### **DENT 1015**

#### **Dental Hygiene I Preclinical lab**

**2**

\* Prerequisite(s): Acceptance into Dental Hygiene program

\* Corequisite(s): DENT 1010

For students accepted into the Dental Hygiene Program. Introduces basic principles and skills used in the clinical practice of dental hygiene, including infection control, patient assessment and treatment. Skills are practiced in a preclinical setting on dental mannequins and student patients; all skills are taught to clinical competence. Builds on basic and dental sciences and prepares for clinical dental hygiene practice on community patients. Course Lab fee of \$73 applies.

### **DENT 1020**

#### **Oral Anatomy and Physiology**

**4**

\* Prerequisite(s): Acceptance into Dental Hygiene program

For students in the Dental Hygiene Program. Focuses on study of the normal development, structure, and function of the orofacial region. Provides microscopic and macroscopic study of oral structures in a laboratory setting. Builds on basic sciences and prepares for the study of the dental sciences and clinical dental hygiene.

### **DENT 1030**

#### **Dental Materials**

**2**

\* Prerequisite(s): Accepted into Dental Hygiene program

Presents the history, composition, chemical, and physical properties and use of materials commonly utilized in the dental laboratory and dental operatory. Builds on dental sciences. Provides laboratory experience in performing common dental laboratory procedures and prepares for the clinical practice of expanded functions. Course Lab fee of \$75 applies.

### **DENT 1040**

#### **Dental Hygiene II**

**3**

\* Prerequisite(s): Acceptance into Dental Hygiene program

\* Corequisite(s): DENT 1015

Provides advanced dental hygiene modalities, including oral health education, practice management, patient assessment and treatment. Emphasizes treatment planning and emergency preparedness. Builds on basic and dental sciences and prepares for clinical dental hygiene practice. Course fee of \$3175 for practical experience applies.

### **DENT 1045**

#### **Dental Hygiene II Clinical**

**3**

\* Prerequisite(s): Acceptance into Dental Hygiene program

\* Corequisite(s): DENT 1040

Provides for developing clinical dental hygiene skills, practiced on patients in a clinical setting, including oral health education, practice management, patient assessment and treatment. Emphasizes treatment planning and emergency preparedness. All skills are taught to clinical competence. Builds on basic and dental sciences and prepares for clinical dental hygiene practice. Course Lab fee of \$85 applies.

**DENT 1050**

**Clinical Dental Radiography**

**1**

\* Prerequisite(s): Acceptance in Dental Hygiene program

\* Corequisite(s): DENT 1055

Focuses on radiation physics, biology, protection and quality dental techniques. Prepares competency in film processing, mounting, interpretation of errors, recognition of anatomical landmarks, and evidence of pathologies. Builds on basic and dental sciences and prepares for clinical dental hygiene practice.

**DENT 1055**

**Clinical Dental Radiography Lab**

**1**

\* Prerequisite(s): Acceptance into Dental Hygiene program

\* Corequisite(s): DENT 1050

Focuses on clinical application of radiation physics, biology, protection and quality dental techniques. Prepares students for competency of film processing and mounting, interpretation of errors, recognition of anatomical landmarks, and evidence of pathologies. Practices skills on radiographic mannequins in a laboratory setting. Builds on basic and dental sciences and prepares for clinical dental hygiene practice. Course Lab fee of \$74 applies.

**DENT 1060**

**General and Oral Pathology**

**2**

\* Prerequisite(s): Acceptance into Dental Hygiene program

Focuses on the study of commonly encountered systemic and oral diseases; etiology, presentation, treatment and effect on dental treatment, including associated emergency procedures. Emphasizes the principles of inflammation, immunology, healing, and repair. Builds on basic and dental sciences and prepares for clinical dental hygiene practice.

**DENT 1070**

**Medical Emergencies in the Dental Office**

**2**

\* Prerequisite(s): Acceptance into Dental Hygiene program

Introduces the basic principles and management of medical emergencies that could occur in a dental office, including the care and clinical management of medically compromised patients.

**DENT 2020**

**Dental Pharmacology**

**3**

\* Prerequisite(s): Accepted into Dental Hygiene program

Focuses on pharmacology as it affects the clinical practice of dentistry. Emphasizes drugs commonly used in dentistry, for treatment of common systemic and oral diseases, and for emergency treatment: effects, administration, and toxicology. Builds on basic and dental sciences and prepares for clinical dental hygiene practice.

**DENT 206G**

**Oral Public Health**

**3**

\* Prerequisite(s): Acceptance into the Dental Hygiene Program

Examines the principles of community health, including assessment, planning, implementation, and evaluation of health care, with an emphasis on oral health. Builds on knowledge of ethics, basic and dental sciences, and clinical dental hygiene practice. Provides the knowledge and skills necessary to function in a community health setting and includes learning experiences in community health agencies. Analyzes and evaluates global or intercultural issues. Evaluates cultural rules and biases. Explores stereotypical cultural conceptions.

**DENT 3010**

**Pain Management**

**3**

\* Prerequisite(s): Acceptance into Dental Hygiene program and University Advanced Standing

\* Corequisite(s): DENT 3015

Focuses on pain control including local and topical oral anesthesia, nitrous oxide conscious sedation and other means of pain control, which is accepted as standard of care. Applies gained knowledge for direct clinical application on patients in the clinical setting. Demonstrates preclinical competence in the laboratory setting. Builds on basic and dental sciences and prepares the student for clinical dental hygiene practice and prepares students for regional anesthesia board exams. Course fee of \$3175 for practical experience applies.

**DENT 3015**

**Dental Hygiene III Clinical**

**4**

\* Prerequisite(s): Acceptance into Dental Hygiene program and University Advanced Standing

\* Corequisite(s): DENT 3010

Introduces skills involving oral anesthesia (pain control) and supportive periodontal treatment. Utilizes advanced skills of dental hygiene practice, including assessment and treatment on patients of all ages in a clinical setting, with emphasis on planning and comprehensive treatment. Requires demonstration of clinical competence unless otherwise noted in the course outline. Includes more rigorous skill and patient difficulty levels than the first year clinical experiences. Builds on basic and dental sciences and foundational skills to include DENT3010, and prepares the student for clinical dental hygiene practice. Course Lab fee of \$63 applies.

**DENT 3030**

**Periodontology**

**3**

\* Prerequisite(s): Acceptance into the Dental Hygiene Program and University Advanced Standing

Focuses on the study of the healthy periodontal tissues, and the factors, recognition, and classes of periodontal disease. Provides background knowledge of nonsurgical and surgical treatment of periodontal disease. Builds on basic and dental sciences and prepares for clinical dental hygiene practice.

**DENT 3040**

**Dental Hygiene IV**

**2**

\* Prerequisite(s): Acceptance into Dental Hygiene program and University Advanced Standing

\* Corequisite(s): DENT 3045

Provides comprehensive didactic experience in all phases of dental hygiene practice for patients, regardless of special needs. Introduces nutritional and tobacco cessation counseling. Builds on basic and dental sciences and prepares for various practice settings in clinical dental hygiene. Course fee of \$3175 for practical experience applies.

**DENT 3045**

**Dental Hygiene IV Clinical**

**4**

\* Prerequisite(s): Acceptance into the Dental Hygiene Program and University Advanced Standing

\* Corequisite(s): DENT 3040

Provides comprehensive clinical experience in all phases of dental hygiene practice for patients, to include special needs. Teaches to clinical competence. Introduces nutritional and tobacco cessation counseling. Builds on basic and dental sciences and prepares for various practice settings in clinical dental hygiene. Course Lab fee of \$63 applies.

**DENT 3050**

**Ethics and Practice Management**

**1**

\* Prerequisite(s): Acceptance into the Dental Hygiene Program

Explores topics relevant to contemporary practice of dental hygiene, including professional roles, career and stress management, ethical and legal aspects, and the role of the dental hygienist in the dental specialty practices. Builds on clinical practice and prepares for entry into the many aspects of the profession of dental hygiene. Includes observation of various dental specialty practices.

## Course Descriptions

### **DENT 3060**

#### **Advanced Dental Hygiene Public Health**

**3**

\* Prerequisite(s): DENT 206G and University Advanced Standing

Examines current and future issues in oral public health. Investigates barriers and solutions to health concerns. Analyzes and evaluates community needs and oral health issues. Incorporates elements of public health into practice of dental hygiene. Prepares students to design a business/practice model for public health dental hygienists. Builds on community health theories and models learned in the associate-level community dental health course.

### **DENT 307G**

#### **Domestic Multicultural Experience**

**2**

\* Prerequisite(s): Accepted into Dental Hygiene program and University Advanced Standing

Examines the principles of community health, socioeconomic status and personal bias. Builds on knowledge of ethics, basic and dental sciences, and clinical dental hygiene practice. Provides the knowledge and skills necessary to function in a community health setting and includes learning experiences in community health agencies.

### **DENT 3100**

#### **Office and Private Practice for the Dental Hygienist**

**3**

\* Prerequisite(s): 2 year hygiene degree, departmental approval, and University Advanced Standing

Expands beyond the dental hygiene basics taught in hygiene school. Addresses topics in dental hygiene practice that will help the clinical dental hygienist become more proficient in their field and a leader in dental hygiene. Studies practice management issues, productivity, salary enhancement, cutting edge technology, dental insurance, salaries and benefits, team work, patients and money considerations, and other challenges faced in the dental hygiene profession.

### **DENT 3200**

#### **Teaching the Dental Hygiene Patient WE**

**3**

\* Prerequisite(s): Admission to the BS Dental Hygiene and University Advanced Standing

Addresses areas such as learning theories, teaching strategies, societal-cultural considerations, and evaluation and applies them specifically to the needs of the dental hygienist when teaching his/her patients and the community at large.

### **DENT 406G**

#### **Global Community Health Project**

**3**

\* Prerequisite(s): Admissions to the Dental Hygiene Program or upon approval by program director, and University Advanced Standing

Addresses the complexities inherent in global and/or intercultural oral health and the community health theories and strategies used to address these concerns. Includes the planning and execution of a 10 day oral health education or service project in either another culture or another country (e.g., Native American reservation in Utah or Guatemala). Students from all disciplines may participate.

### **DENT 4200**

#### **Teaching the Dental Hygiene Student**

**3**

\* Prerequisite(s): DENT 3200, DENT 3060, and University Advanced Standing

Prepares the dental hygienist to become a successful educator in a dental hygiene program by addressing areas such as: learning theories, teaching strategies, learning objectives, lesson plans, syllabi, curriculum design evaluation tools, and roles of an educator. May be delivered online.

### **DENT 4300**

#### **Dental Hygiene Capstone**

**1**

\* Prerequisite(s): Admission to the BS Dental Hygiene and University Advanced Standing

Requires the student to integrate several main areas of study in the BS program and create a paper or project that reflects comprehensive knowledge and ability to reflect, connect and then produce a work based on their learning experiences throughout the BS program.

### **DENT 481R**

#### **Internship in Dental Hygiene**

**1 to 4**

\* Prerequisite(s): University Advanced Standing and Dental Hygiene Department approval

Utilizes the student's current practice as a dental hygienist to further apply and develop their skills and knowledge. May be repeated for up to 8 credits toward the BS Dental Hygiene.

### **DENT 489R**

#### **Undergraduate Research in Dental Hygiene WE**

**3**

\* Prerequisite(s): Acceptance into Dental Hygiene program and University Advanced Standing

Explores research proposal process and design. Provides opportunity to develop basic research skills in searching and critically appraising evidence-based literature. Engages in evidence-based decision making, developing clinical questions and translating research into practice. Creates a significant intellectual and creative research proposal in the dental discipline. May be repeated for a maximum of 6 credits toward graduation.

### **DENT 490R**

#### **Special Topics in Dental Hygiene**

**3**

\* Prerequisite(s): Accepted into Dental Hygiene program and University Advanced Standing

Explores special topics in Dental Hygiene. Focuses on current and future themes relevant to the profession of dental hygiene including societal, economic, and cultural impact. Topics are subject to change from year to year. May be repeated for a maximum of 6 credits toward graduation.

## **Digital Media (DGM)**

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### **DGM 1061**

#### **Digital Cinema Editing I**

**3**

Introduces the interface, tools, techniques, and operations of a variety of Non-Linear Editing (NLE) software programs. Introduces standard editing concepts and practices necessary for the creation and completion of Digital Cinema projects made for various distribution channels. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

### **DGM 1062**

#### **Animation for the Internet**

**2**

Introduces the interface, tool set, tweening techniques, and operations of an animation software package for online use. Requires creation of an interactive project with sound, video, and motion. Introduces basic scripting. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

### **DGM 1063**

#### **Image Editing**

**2**

Introduces students to the interface, fundamental set of tools, techniques and operations of Photoshop. Requires creation and modification of digital images. Software fee of \$15 applies. Lab access fee of \$45 applies.

### **DGM 1110**

#### **Digital Media Essentials I**

**4**

Beginning course designed to give students an in-depth introduction and well-grounded understanding of the digital media way of thinking, opportunities in the field, various tools, and introduction to development techniques. Topics include: audience assessment, digital imaging, compression algorithms, ethical dilemmas, message design through text, audio, images, animation, and digital video. May be delivered online. Software fee of \$15 applies. Lab access fee of \$45 applies.

**DGM 1500**  
**Intro to Digital Cinema****1**

Offers an overview of the Digital Cinema major and industry. Teaches students the expectations and timetables required of them as they progress through the major. Develops a broad understanding of the various aspects of the filmmaking process and how training for these various aspects is conducted at UVU. Emphasizes industry standards of safety and professionalism. Should be taken in the first semester of classes in the program. Lab access fee of \$45 applies.

**DGM 1510**  
**Film Production Analysis****3**

Film Production Analysis is a foundation class for those interested in the digital media and motion picture business. Analyzes the various technologies and production techniques that make up motion picture communication. Involves viewing a motion picture each week of class and analyzing how the producer and director incorporated production and structural techniques to produce a compelling story. Covers the eight sequence structural elements of motion picture storytelling, how each crew member of the production team contributes to the overall impact, how scripting is used to direct the team to create a strong cinematic effect, and how the three act eight sequence structure guides the entire team through the pre-production, production and post-production process. Software fee of \$15 applies. Course fee of \$18 for software and plug-ins applies. Lab access fee of \$45 applies.

**DGM 1520**  
**Digital Cinema Production I****3**

Introduces professional video production techniques used for non-narrative digital cinema projects. Covers production processes such as working with clients, storytelling, camera techniques, basic lighting techniques, production management and basic non-linear editing techniques. Requires participation in a high-quality semester project that will take a non-narrative project through the entire pre-production, production and post-production process. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 1645**  
**Mixed Reality Essentials****2**

Introduces virtual reality using browser technology, mobile apps, head mounted displays and other emerging platforms.

**DGM 210R**  
**Special Topics in Digital Media****1 to 4**

Designed for students interested in specific digital media tools and concepts. Includes relevant and changing topics and tools used in production. Emphasizes hands-on experience along with lectures and demonstrations. This class may be taken for a total of nine credits, but curriculum may vary from one semester to another. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 2110**  
**Digital Cinema Production II****3**

\* Prerequisite(s): DGM 1520

Presents professional digital cinema production techniques used in narrative filmmaking. Addresses problem-solving issues related to pre-production, production and post-production. Serves as a Production Assistant Certification course recognized by the Utah Film Commission. Course fee of \$10 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 2130**  
**Digital Audio Essentials****3**

\* Prerequisite(s): MAT 1010

Reviews basic sound principles, cable types, microphone types, and basic techniques of use. Teaches recording of basic sounds and musical instruments into a Digital Audio Workstation. Introduces multi-track audio, editing, EQing, mixing, and mastering a 3-minute piece with voice and music. Includes a final project consisting of a multi-track music project designed for use in film, commercial radio, or other multimedia applications. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 2140**  
**Electronics for Media****3**

Covers connectors and cable wiring standards and soldering techniques used in this field. Emphasizes electronic equipment and circuits used with electrical safety in media. Includes basic DC/AC theory such as voltage, current, resistance, power dissipation, batteries, and magnetism. Introduces the basic construction and theory of operation of circuits used in media containing electronic components, resistors, capacitors, inductors, transformers, diodes, transistors, electron tubes, operational amplifiers, and linear ICs. Designed for Digital Media students. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 220R**  
**Special Topics in Digital Design****1 to 4**

Designed for students interested in specific authoring tools and concepts used in digital media processes. Includes relevant and changing topics and tools used in digital authoring. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of nine credits toward graduation. Course fee of \$10 for materials applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 2245**  
**Mixed Reality Experiences I****3**

\* Prerequisite(s): DGM 1645

Introduces students to the technology for photographing locations for Mixed Reality experiences. Covers multiple ways to photograph, stitch, augment, and publish completed experiences to multiple platforms.

**DGM 2271**  
**Digital Media Design I****3**

\* Prerequisite(s): DWDD 1600

Introduces students to the underlying design and development principles that create favorable circumstances for user-centered digital media experiences. Establish the development techniques and processes required for Web and mobile apps, which may include native OS and Web Apps as well as interactive digital publication Apps. Further introduces topics such as responsive design, use of grids and layout patterns according to platform, as well as underlying development considerations such as content inventory and Information Design. Offers students a greater appreciation for good design and the basic skills necessary to produce world-class media experiences. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 230R**  
**Special Topics in Digital Graphics****1 to 4**

Designed for students interested in specific graphic tools and concepts currently used in digital media production. Includes relevant and changing topics and tools. Emphasizes hands-on experience along with lectures and demonstrations. This class may be taken for a total of nine credits, but curriculum may vary from one semester to another. Course fee of \$10 for materials applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **DGM 2320** **Digital Photography and Compositing I** **3**

Introduces digital image acquisition and manipulation. Teaches the mechanics of the digital camera, and introduces lighting, white balance, color temperature, digital ISO and electronic image stabilization. Discusses image compositing, EXIF data analysis and archiving. Software fee of \$15 applies.. Lab access fee of \$45 for computers applies.

## **DGM 2340** **Output and Color for Digital Cinema I** **3**

\* Prerequisite(s): DGM 1061

Introduces digital workflow management of digital still and cinema camera assets. Addresses codecs, asset backup, management, transcoding, preparation of assets for the NLE workflow and final asset output for various digital distribution channels. Introduces color correction and color grading techniques, principles and concepts in a variety of professional software platforms. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 240R** **Special Topics in Digital Audio** **1 to 4**

\* Prerequisite(s): DGM 1110

Designed for students interested in specific audio tools and concepts currently used in digital audio production. Includes relevant and changing topics and tools. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Software fee of \$15 applies. Lab access fee of \$45 for computers, applies.

## **DGM 2410** **Core Recording Principles** **3**

\* Prerequisite(s): DGM 2130

Teaches mic choice and placement, acoustic positioning, in-line signal processing, level matching, impedance matching, phase error elimination, pre-mixing and recorded stems, DAWs, Pro-Tools intermediate skills, project budgeting, and artist and client relations. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 2430** **Core Mixing Principles** **3**

\* Prerequisite(s): DGM 2410

Teaches the science and art of audio mixing, centering on a broad range of musical and media post-production material. Covers initial mix plan, signal flow, and fix, fit and feature skills for all signal processors, including equalization, compression, limiting, delay, reverb, distortion, doubling, phase, flange, chorus, other modulation effects, characteristics of algorithms (digital, solid state, transformers, rectifiers, tube, electro-optical, convolution). Also, teaches mix room acoustics, treatments and workarounds. Lab access fee of \$45 applies.

## **DGM 2440** **Sound for Film and Television** **3**

\* Prerequisite(s): DGM 2130

Teaches the basics of gathering sound for use in film and video productions. Covers proper boom miking and wireless mic techniques, and acoustics preparation to record dialogue and sound effects on location and on sound stages. Examines the processes utilized in editing audio of multimedia productions, including the balancing of artistic relationships, mixing and mastering of music, sound effects tracks and Foley. Offers practical experience in audio-only productions as well as audio-video relationships. Culminates in a digital cinema mixing session. Primarily a lab class, may couple with another video class to gather the sound for a cohesive project. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 2460** **Radio Production** **3**

Teaches the history of radio, and the structure of typical radio stations, from management to programming and sales, and production and promotion. Covers method of producing radio promos, radio shows, commercials and news segments, as well as features and interviews. Examines the use of Digital Audio Workstations to produce several radio segments of the student's choosing. Includes lectures, demonstrations, and guest lecturers from radio stations in the community. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 2481** **Digital Audio Restoration** **3**

\* Prerequisite(s): DGM 2130

Teaches the value and use of various tools to restore, preserve, and archive audio from a variety of sources, including vinyl records, tapes, film soundtracks, etc. Additional topics include removal of ambient noise (fans, AC, etc) from class film projects, impulsive noise (clicks and pops), periodic noise (hum and buzz), and random noise (spectral subtraction of ambient noise). In addition, some attention will be given to the subject of audio forensics, or restoring audio for intelligence or law enforcement applications. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 2490** **Digital Audio Workstation Training I** **3**

\* Prerequisite(s): DGM 2130

Teaches proficiency in the use of a Digital Audio Workstation at the beginning level. Implements the first half of AVID Corporation's "ProTools User Level" certification, and successful completion of this course, together with its follow-on course, DGM 2491, will earn students their AVID ProTools certification at the "User" level. Lab access fee of \$45 applies.

## **DGM 2491** **Digital Audio Workstation Training II** **3**

\* Prerequisite(s): DGM 2130, DGM 2490

Teaches proficiency in the use of a Digital Audio Workstation at the intermediate level. Implements the second half of AVID Corporation's "ProTools User Level" certification, and successful completion of this course, together with its preceding course, DGM 2490, will earn students their AVID ProTools certification at the "User" level. Lab access fee of \$45 applies.

## **DGM 250R** **Special Topics in Digital Cinema** **1 to 4**

\* Prerequisite(s): DGM 2110

Designed for students interested in specific video tools and concepts currently used in digital media processes. Includes relevant and changing topics and tools used in industry. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 for computers applies. Software fee of \$15 applies. Course fee of \$10 for equipment applies.

**DGM 2510****Visual Effects for Digital Cinema I****3**

\* Prerequisite(s): DGM 1061

Introduces a variety of professional Visual Effects software used in conjunction with NLE (Non-Linear Editing) software in current industry use. Establishes a foundation of understanding of cinematic post-production workflows utilized by professional visual effects houses. Lab access fee of \$45 applies.

**DGM 2540****Cinematography I****3**

\* Prerequisite(s) or Corequisite(s): DGM 1520

Introduces the basic concepts of lighting, grip/electric work, and beginning cinematography. Teaches a full understanding of lighting instruments, power distribution, lighting support, rigging, dollies, and production equipment. Teaches how to work as a member of a team/department applying on-set protocols to meet the needs of production objectives. Software fee of \$15 applies. Lab access fee of \$45 for computers applies. Course fee of \$46 for equipment applies.

**DGM 2570****Storytelling for Digital Media I WE****3**

\* Prerequisite(s): DGM 1510

Focuses on traditional three-act structure and character-driven storytelling. Introduces dramatic and persuasive writing for filmed media content including short narrative films and documentaries. Applies cinematic storytelling approaches to emerging technologies such as interactive media, gaming, and virtual reality. Lab access fee of \$45 applies.

**DGM 2600****The Animated Image****3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Chronicles the development of Animation as a medium dependent on both aesthetics and technology from its inception in the late 19th century through contemporary scientific and entertainment venues. Introduces key international personalities and industry benchmarks. Discusses animation both as a means of self-expression and as a commercial enterprise. Includes film screenings and research assignments. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 260R****Special Topics in Animation and Game****Development****1 to 4**

Designed for students interested in specific animation tools and concepts currently used in digital animation production. Includes relevant and changing topics and tools. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 for computers applies. Software fee of \$15 applies. Course fee of \$12 for equipment applies.

**DGM 2661****Visualization for Digital Cinema-Pre-****Directing****3**

\* Prerequisite(s): DGM 1510

Introduces concepts of visualizing filmed media content during the pre-production process from storyboarding and shot design to production design. Focuses on the role of the director to communicate lighting, character movement, camera movement, camera angles and framing to key motion picture production departments to enhance and support cinematic story. Lab access fee of \$45 applies.

**DGM 270R****Special Topics in Web Design and****Development****1 to 4**

Designed for students interested in specific web design tools and concepts currently used in multimedia creation. Includes relevant and changing topics and tools used in multimedia. Emphasizes hands-on experience along with lectures and demonstrations. Completers should be able to use the web design tools to create a typical multimedia project. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Course fee of \$10 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 281R****Internship****1 to 8**

\* Prerequisite(s): Departmental Approval

For Digital Media majors only. Provides a transition from school to-work where learned theory is applied to actual practice through a meaningful on-the-job experience. Includes student, employer and coordinator evaluations, on-site work visits, and written assignments. Completers should obtain experience in establishing and accomplishing individualized work objectives that improve work performance. Internship is intended for entry level DGM students who are working at that level. Credit is determined by the number of hours a student works during the semester and completion of individually set goals. May be repeated for a maximum of 16 credits toward graduation. May be graded credit/no credit.

**DGM 296R****Seminar****1 to 3**

Provides short courses, workshops, and special programs in information management or current administrative topics. Curriculum may vary from one semester to another. May be repeated for a maximum of nine credits.

**DGM 302R****Digital Cinema Production Lecture Series-****CineSkype****1**

\* Prerequisite(s): (DGM 1520 or CINE 2150 or THEA 1023) and University Advanced Standing

Presents a series of feature-length films and the opportunity to discuss the challenges that went into their creation with the individual filmmaker(s). Introduces participants to directors, screenwriters, producers, and editors currently working in the industry. May be repeated for a maximum of 3 credits toward graduation. (Note: Some films screened may be considered controversial and carry an "R" rating.)

**DGM 3061****Professional NLE Certification****3**

\* Prerequisite(s): DGM 1061 and University Advanced Standing

Provides guidance and materials allowing participants to certify in Non-Linear Editing software on various platforms. Focuses on certification on the User-level and Pro-level of Avid Media Composer. Extensively covers technical editing consideration including workflows, media management, color, sound, output, and scripting. Lab access fee of \$45 applies.

**DGM 3110****Corporate Issues in Digital Media WE****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Covers business and legal issues in multimedia. Reviews good business practices for the multimedia industry. Studies universal marketing and sales principles and mastery, as well as e-commerce fundamentals. Includes copyright laws and procedures, obtaining permissions, creating and using contracts, protecting corporate assets, standards, security and privacy issues, and other legal issues regarding multimedia communication. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **DGM 312G** **Digital Media for Intercultural Communication**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Explores issues, concepts, and practices for making digital media accessible to people from diverse cultures and people with disabilities. Covers design considerations and techniques for the Web and other digital technologies. Presents methods for understanding and comparing different cultures and ways of approaching and enhancing intercultural interactions. Addresses accessibility standards, guidelines, and laws important for digital media developers to know and implement. Lab access fee of \$45 for computers applies.

## **DGM 320R** **Advanced Topics in Digital Media Design**

**1 to 4**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Intended for advanced students with an interest in digital design and authoring. Includes relevant and changing topics and tools. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 for computers applies. Software fee of \$15 applies. Course fee of \$10 for equipment applies.

## **DGM 321R** **Advanced Interaction Design Practicum**

**1**  
\* Prerequisite(s): DWDD 1430, DWDD 2410

Provides opportunities to lead and mentor a small team. Instructs in the design and production of a fully-featured digital media project, including concept, design, content creation and acquisition, testing, revision, mastering, and publication with hands on guidance. May be repeated for a maximum of 3 credits toward graduation.

## **DGM 3220** **Digital Media Project Management**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Teaches the foundational management principles that contribute to both the quality and profitability of digital media products. Introduces technical project management skills to help with budgeting and scheduling as well as critical soft skills, such as how to manage product design, make good decisions, communicate effectively, and build productive work relationships. Also, teaches about different types of project documents that enable and support effective, successful projects. Lab access fee of \$45 for computers applies.

## **DGM 3261** **Mixed Reality Experiences II**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Explores the use of technology for creating Virtual Reality, Augmented Reality, and Extended Reality workflows. Covers how to develop Mixed Reality content for digital screens and headsets. Addresses the use of Mixed Reality environments in real world applications to remotely tour college campuses, museums, shops, sports venues, plan events at locations; show real estate, influence travel to vacation getaways; and create historical documentation. Prepares students for Mixed Reality Studio work. Software fee of \$56 applies. Lab access fee of \$45 for computers applies. Course fee of \$220 for equipment applies.

## **DGM 3290** **Developing Digital Media for Instruction and Training**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Teaches the lifecycle of training and development in a business setting. Uses the Instructional System Design (ISD) process, which includes identifying performance deficiencies and appropriate interventions, developing objectives, selecting appropriate learning technologies, developing course content, selecting effective instructional aids, delivering training, and evaluating training effectiveness. Reviews basic educational principles in teaching adult learners and managing classroom dynamics. Examines legal issues, cross-cultural preparation, and workforce diversity as they relate to training and development. Provides hands-on training experiences. Completers should be prepared to apply basic principles to training and development opportunities. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 330R** **Advanced Topics in Digital Media Graphics**

**1 to 4**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Intended for advanced students with an interest in digital graphics and design. Includes relevant and changing topics and tools. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Course fee of \$10 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 3320** **Digital Photography and Compositing II**

**3**  
\* Prerequisite(s): DGM 2320 and University Advanced Standing

Builds on skills acquired in Digital Photography and Imaging I. Uses photo imaging tools like Photoshop, Light Table, and Aperture in the creation and manipulation of digital images for use in a broad range of output specific formats. Teaches advanced image manipulation, and compositing and asset management to deliver finished digital image deliverables for such things as the web, DVD media, print, billboard, and wrap advertising media. Lab access fee of \$45 for computers applies.

## **DGM 340R** **Advanced Topics in Digital Audio**

**1 to 4**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Intended for advanced students with an interest in digital audio. Includes relevant and changing topics and tools. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 3410** **Audio Engineering for the Studio I**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Reviews basic sound principles (standing waves, studio acoustics, psycho-acoustics), microphone types and techniques of use. Covers theory and application of mixers, signal processors, and effects. Outlines proper construction and grounding of a recording studio. Introduces one or more digital audio workstations, which will be used to record a band or classical project. Requires the completion of a mixdown of a multi-track project. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3420**  
**Studio Recording II****3**

\* Prerequisite(s): DGM 3410, Portfolio Review Acceptance, and University Advanced Standing

Reviews principles of good audio engineering covered in the introductory class, but in greater depth, including, cable types, microphone types, mixers, and techniques of use. Emphasis will be on miking techniques for each individual instrument involved in the recording. Covers in-depth theory and application of mixers, signal processors, and effects. Addresses advanced stereo miking techniques and focuses on several key instruments, including piano and drums. Continues further in-depth topics on impedance matching, power requirements, and use of the decibel. Includes acoustic properties and sound transmission loss of common studio surface materials. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3430**  
**Recording Studio Design Principles and Practices****3**

\* Prerequisite(s): DGM 3410, Portfolio Review Acceptance, and University Advanced Standing

Addresses many issues found in the design, construction and maintenance of a recording studio. Explores the physics, mathematics, electronics, and practical issues to properly design and build a successful recording studio. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3440**  
**Sound for Games****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing; Laptop capable of running the Unreal Developer's Kit and Unity.

Teaches sound design and implementation for video games using both the Unreal Developer's Kit (Unreal Engine) and the Unity Game Engine. Includes visual and text-based scripting, signal flow, resource allocation and preservation, priority, layering, mastering for end-format, computer-based, console-based, and mobile-targeted development, and whole-project planning and execution. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3460**  
**Live Sound Reinforcement****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Teaches fundamental sound concepts: propagation, absorption, reflection, transmission, frequency response, effective manipulation of the decibel in calculations of loudness, power, and voltages. Covers intelligent use of microphone patterns, and loudspeaker and monitor placement. Investigates indoor sound vs. outdoor sound. Teaches proper cabling and connections, speaker crossovers, and theory of bi-amplification. Covers mixer diagrams and basic electronics. Incorporates practical experience acquired in giving technical support to UVU theater, music department, or public relations functions. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3481**  
**Advanced Audio Restoration and Forensics****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Covers advanced principles and practices for digitally restoring difficult audio specimens, and includes forensic audio restorative and reconstructive techniques important to historical, investigative, and criminological fields as well. Also covers, in more depth, the cylinder recording period at the turn of the century. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3490**  
**Digital Audio Workstation Training III****3**

\* Prerequisite(s): Portfolio review acceptance; DGM 2490, DGM 2491, and University Advanced Standing

Teaches proficiency in the use of a Digital Audio Workstation at the advanced level. Is the UVU implementation of the first half of AVID Corporation's "ProTools Operator Level" certification, and successful completion of this course, together with its follow-on course, DGM 3491, will make AVID ProTools certification at the "Operator" level available. Lab access fee of \$45 applies.

**DGM 3491**  
**Digital Audio Workstation Training IV****3**

\* Prerequisite(s): Portfolio review acceptance, DGM 3490, and University Advanced Standing

Teaches proficiency in the use of a Digital Audio Workstation at the expert level. Currently, this is the UVU implementation of the second half of AVID Corporation's "ProTools Operator Level" certification, and successful completion of this course, together with its preceding course, DGM 3490, will make AVID ProTools certification at the "Operator" level available. Lab access fee of \$45 applies.

**DGM 350R**  
**Advanced Topics in Digital Motion Picture Production****1 to 4**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Includes relevant and changing topics and tools used in digital motion picture industry. Emphasizes hands-on experience. Uses digital cinema and production management and development tools to create a typical digital media project. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Course fee of \$10 for equipment applies. Software fee of \$15 applies.

**DGM 351R**  
**Digital Broadcasting****3**

\* Prerequisite(s): DGM 2110, Portfolio Review Acceptance, and University Advanced Standing

Teaches planning, management and execution of live video productions integrating multiple cameras. Teaches the roles of the broadcast production team. Studies digital standards for broadcast equipment. Includes multiple 10 hour hands-on broadcast production labs. May be repeated for a maximum of 12 credits toward graduation. Course fee of \$10 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3520**  
**Digital Cinema Production III****3**

\* Prerequisite(s): DGM 2110 and University Advanced Standing

Teaches skills to produce a micro-budget film. Introduces practical production techniques including paperwork for the Screen Actors Guild and for standard distribution deliverable requirements. Involves the completion of various finished short films both in groups and as individuals. Course fee of \$10 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3530**  
**Digital Cinema Production Management****3**

\* Prerequisite(s): (Portfolio review acceptance or consent of instructor) and University Advanced Standing

Teaches the foundational principles which contribute to both quality and profitability in digital cinema projects that range from micro to mega budgets. Reviews team dynamics such as the relationship between producer and other production team members. Introduces industry standard budgeting and scheduling software tools, which can be used as management tools to guide multiple projects. Focuses on video/film workflow, from development and budgeting to pre-production, production and post-production. Requires the submission of an industry standard production book at the end of the semester. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **DGM 3540** **Cinematography II**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

A "hands-on" class that covers the role of the Director of Photography (DP) and Gaffer in drama-based broadcast television and digital cinematography. Teaches continuity of lighting, visual story telling, implied script subtext through light quality and color, continuity in direction, use of lenses and shot blocking for fixed and moving camera. Covers advanced grip and lighting equipment use and setups. Covers working with a producer, director, production designer, set decorator, boom operator and editor and on-set protocol. Software fee of \$15 applies. Lab access fee of \$45 for computers applies. Course fee of \$46 for equipment applies.

## **DGM 3545** **Advanced Editing for Mixed Reality Content**

**3**  
\* Prerequisite(s): DGM 2545 and University Advanced Standing

Provides advanced training and practice in editing in multiple platforms for use of Mixed Reality content (including virtual and augmented reality, etc). Explores new and emerging technologies for stitching, editing, combining visual-image with immersive sound, and delivery in multiple formats. Lab access fee of \$45 applies.

## **DGM 3550** **Producing I**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Examines the process of motion picture development and distribution with focus on the role of the producer in identifying, evaluating, developing, financing and securing distribution. Software fee of \$15 applies. Lab access fee of \$45 for computers applies

## **DGM 3560** **Digital Cinema Editing II**

**3**  
\* Prerequisite(s): DGM 1061, Portfolio Review Acceptance, and University Advanced Standing

Develops an understanding of how editing can shape cinematic storytelling using content from a variety of media and in various styles. Provides further practice in hands-on application on a variety of professional Non-Linear Editing platforms. Course fee of \$13 for software and plug-ins applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 3570** **Storytelling for Digital Media II WE**

**3**  
\* Prerequisite(s): DGM 2570 or THEA 2742, Portfolio Review Acceptance and University Advanced Standing

Teaches advanced writing for cinema, television and emerging media. Includes writing assignments each week that will be read and analyzed according to the structure and execution of a goal. Discusses a specific scriptwriting subject each week such as finding the idea, researching, outlining and rewriting. Course fee of \$13 for software and plug-ins applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 3580** **Digital Cinema Directing Workshop I**

**3**  
\* Prerequisite(s): DGM 1510, DGM 1520, DGM 2110, Portfolio Review Acceptance and University Advanced Standing

Offers an advanced workshop format class structure. Utilizes project-based opportunities to apply and hone skills in digital cinema direction, editing scripts, casting, rehearsing and performing a scene. Includes polishing concept for shooting, then shooting and editing for presentation and critique. Course fee of \$13 for software and plug-ins applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 3590** **Documentary I**

**3**  
\* Prerequisite(s): (DGM 1061, DGM 1510, DGM 1520, portfolio review acceptance or instructor approval) and University Advanced Standing

Presents intermediate viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Explores the diversity of documentary styles and approaches including interview, archival, observational, etc. Focuses on character driven stories using traditional three act structures. Requires the completion of various exercises from conceptualization through post-production, culminating in production of short documentary project. Lab access fee of \$45 applies.

## **DGM 360R** **Advanced Topics in Animation and Games**

**1 to 4**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Intended for advanced students with an interest in digital animation. Includes relevant and changing topics and tools. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Course fee of \$12 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 3621** **Hard Surface Modeling**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Teaches theories, tools, and principles of current industry modeling trends, specifically for video games and short animated films. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 370R** **Advanced Topics in Web Design and Development**

**1 to 4**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Intended for advanced students with an interest in Internet authoring. Includes relevant and changing topics and tools. Emphasizes hands-on experience along with lectures and demonstrations. Curriculum may vary from one semester to another. May be repeated for a maximum of 9 credits toward graduation. Course fee of \$10 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 3750** **Media Analytics**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Provides students access to all the leading and most effective traffic techniques, ranging from organic search traffic and all aspects of SEO, through paid traffic of all kinds, and on to free, direct traffic methods. Covers all the concepts, techniques, and tools for web and mobile traffic analysis. Offers students the opportunity to practice generating traffic to a real web page and practice using analytical tools to evaluate their results. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## **DGM 3760** **Web Languages II**

**3**  
\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Covers server-side web development and database interaction. Offers the skills and knowledge necessary to produce web sites in a professional environment. Covers current technology and design standards for websites that are database driven using current languages and platforms. Demonstrates how database interaction can enhance a multimedia website. Includes lectures, demonstrations, and weekly projects. May be delivered hybrid. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 3780****Web Tools and Frameworks II****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Participants learn advanced techniques for delivering exceptional Flash based Internet applications. Teaches advanced scripting fundamentals, how to deliver content through server-side database connectivity, and engaging the audience through highly interactive experiences. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 4000****Writing for Digital Audio WE****3**

\* Prerequisite(s): ENGL 2010, Portfolio Review Acceptance, and University Advanced Standing

Teaches the role of the written word in the digital audio arena, and helps students build competency in areas of expository, technical, persuasive, analytical, and research writing.

**DGM 4261****Mixed Reality Studio****3**

\* Prerequisite(s): DGM 3261, Portfolio Review Acceptance, and University Advanced Standing

Applies knowledge and skills from previous mixed reality courses to assemble and publish highly interactive mixed reality experiences to multiple platforms. Represents the culmination of previous mixed reality courses in which projects will be hands-on practical application of technologies preparing students for senior capstone projects. Lab access fee of \$45 applies.

**DGM 4310****Senior Capstone I****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

For senior Digital Media students. Provides a capstone experience working in digital media. Develops individual real world projects in consultation with a faculty advisor. Encourages team work. Course fee of \$10 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 4410****Senior Capstone II****3**

\* Prerequisite(s): DGM 4310, Portfolio Review Acceptance, and University Advanced Standing

Conclusion of DGM 4310. Concludes the capstone experience for digital media students. Addresses post production issues such as testing, packaging, and documentation. Offers the opportunity to present projects to students, faculty, sponsors, and potential employers or clients. Course fee of \$10 for equipment applies. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 4420****Applied Digital Media Technology****3**

\* Prerequisite(s): University Advanced Standing

For educators and general public interested in technology integration. Examines the ever-expanding array of options available to educators, business personnel and government agencies for creating and distributing rich media based materials. Explores what new technologies and creative practices are available and how to implement them into their present workflow. Focuses on getting the most out of Digital Media technology. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 4430****Audio Mastering****3**

\* Prerequisite(s): DGM 3420, Portfolio Review Acceptance, and University Advanced Standing

Deals with the final step in any audio production--Mastering. Covers the art of final EQ and Compression. Explores the issues of bit depth, sampling rates, dither, jitter, EQ techniques, and Dynamic Range manipulation (expanders and compressors). Looks into analog and digital signal processors, including reverb, and the final step of putting an album together with a brief discussion on vinyl pre-mastering. Teaches the use no fewer than 15 different compressors, both analog and digital for comparative listening tests. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DGM 450R****Story Editing for Digital Media****3**

\* Prerequisite(s): Cinema Portfolio Review Acceptance OR Instructor Approval, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): DGM 2570 or THEA 2742

Teaches necessary skills for working with writers and producers preparing scripts for production through various media technologies. Uses Daniel Methodology to analyze stories in all stages from early concept to production scripts, identify strengths, diagnose weaknesses, and find possible solutions to strengthen the scripts. Teaches consulting techniques for working with writers and producers to communicate clearly and in a way that encourages and empowers them to suit their storytelling plan to the appropriate technologies. May be repeated for a maximum of 6 credits toward graduation. Lab access fee of \$45 applies.

**DGM 4510****Visual Effects for Digital Cinema II****3**

\* Prerequisite(s): DGM 2510 and University Advanced Standing

Provides an advanced practicum in a variety of professional Visual Effects software used in conjunction with NLE (Non-Linear Editing) software in current industry use. Further develops on the foundation of understanding of cinematic post-production workflows utilized by professional visual effects houses. Overviews a broad survey of types of visual effects in use today and the evolution of various programs and their shifting capabilities. Lab access fee of \$45 applies.

**DGM 4511****Film Production Analysis II****3**

\* Prerequisite(s): (DGM 1510 or instructor approval) and University Advanced Standing

Immerses participants in the theory and practice of effective storytelling through digital media. Features films and Daniel Methodology analysis as a foundation, then branches into applying Daniel Methodology to other media, including television series, documentaries, animation, gaming, interactive design and virtual reality. Prepares students for the rigorous requirements of the digital media industry in key creative professional roles, including writing, directing, producing and editing. Lab access fee of \$45 applies.

**DGM 4530****Special Topics-Cinematography Masterworks****3**

\* Prerequisite(s): DGM 1510, DGM 1520, DGM 2540, and University Advanced Standing

Surveys selected cinematographers and their works. Looks at each cinematographer's films in chronological order from their earliest to more recent and analyzes their progression throughout their career. Evaluates individual technique and style in depth, breaking down films, scene by scene. Lab access fee of \$45 applies.

**DGM 454R****Cinematography III****3**

\* Prerequisite(s): DGM 3540 and University Advanced Standing

Offers an advanced workshop format class structure. Utilizes project-based opportunities to apply and hone advanced professional skills in composition, lighting and camera movement. May be repeated for a maximum of 9 credits toward graduation. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## Course Descriptions

### **DGM 4550** **Producing II** **3**

\* Prerequisite(s): DGM 3550

Implements the advanced process of motion picture development and distribution with focus on the role of the producer in identifying, evaluating, developing, financing and securing distribution. Lab access fee of \$45 applies.

### **DGM 4560** **Output and Color for Digital Cinema II** **3**

\* Prerequisite(s): DGM 1061, DGM 2340, Portfolio Review Acceptance or instructor approval, and University Advanced Standing

Focuses on advanced digital post-production workflow, digital output, and color grading for digital cinema productions. Furthers training in professional industry standard software used for color grading, output and compression. Prepares students for a career in post-production with emphasis on the careers of the Digital Imaging Technician and Color Grader. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

### **DGM 456R** **Digital Cinema Editing III** **3**

\* Prerequisite(s): DGM 3560, Portfolio Review Acceptance, and University Advanced Standing

Presents an advanced practicum in Digital Cinema editing and craft. Prepares students for employment as professional editors and assistant editors in a variety of work environments on a variety of types of media. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 applies.

### **DGM 457R** **Storytelling for Digital Media III** **3**

\* Prerequisite(s): DGM 1510 and (DGM 2570 or THEA 2742), University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): DGM 450R

Focuses on advanced writing for longform media projects including feature narrative films, documentary projects, episodic television series, experimental new media, interactive games, etc. Introduces participants to the process, discipline and format necessary to outline, write and refine a character-driven media script that will ultimately have a running-time of greater than forty-five minutes. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 applies.

### **DGM 458R** **Digital Cinema Directing Workshop II** **3**

\* Prerequisite(s): DGM 3580 and University Advanced Standing

Offers a professional level workshop format class structure for students interested in feature film and television direction, as well as other narrative screen-based content. Focuses include approaches to evaluating story and screenplays, directing actors, staging and blocking scenes, and approaches to visual/cinematic storytelling. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 applies.

### **DGM 459R** **Documentary II** **3**

\* Prerequisite(s): DGM 1520, DGM 3590, and University Advanced Standing

Presents advanced viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Explores the diversity of documentary styles and approaches including interview, archival, observational, etc. Requires the completion of various exercises from conceptualization through postproduction, culminating in the production of professional level documentary project. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 applies.

### **DGM 4610** **Designing Technology based Training** **3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Provides shadowing opportunities in an educational or business setting where students can see basic principles of training and development in action and gain insights into training design, development, implementation, and evaluation. Uses the course map content from the DGM 3290 course to pre-author a technology-based training program, which includes creating a course navigation map (flowchart) to determine course sequence and navigational paths, designing storyboard frames with multimedia elements, and generating the navigation map and storyboards into an authoring tool. Completers should be prepared to apply shadowing experiences, discussion insights, and pre-authoring computer skills to future training opportunities. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

### **DGM 4620** **Producing Technology based Training** **3**

\* Prerequisite(s): DGM 4610 and University Advanced Standing

Builds on information taught in DGM 3290 and DGM 4610. Generates story boards from a computer design tool into an authoring tool. Teaches basic principles of building and editing frames with text and multimedia elements. Provides practice and feedback, remediation as needed. Addresses individual learner needs and evaluation of program effectiveness. Uses program objectives to evaluate final program product. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

### **DGM 481R** **Internship** **1 to 8**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

For Digital Media majors only. Provides a transition from school to-work where learned theory is applied to actual practice through a meaningful on-the-job experience. Includes student, employer and coordinator evaluations, on-site work visits, and written assignments. Completers should obtain experience in establishing and accomplishing individualized work objectives that improve work performance. Internship is intended for senior DGM students who are working at that level. Credit is determined by the number of hours a student works during the semester and completion of individually set goals. May be repeated for a maximum of 16 credits towards graduation. May be graded credit/no-credit.

### **DGM 497R** **Independent Study** **1 to 3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

For bachelor's degree students and other interested persons. Offers independent study as directed in reading or in individual projects; offered at the discretion and approval of the department chairperson. May be repeated for a maximum of 6 credits toward graduation.

## **Diesel Mechanics (DMT)**

### **DMT 1000** **Related Oxyacetylene and Arc Welding** **3**

Specialty course designed for diesel mechanics, other trade areas, and interested community members. For beginning students. Covers theory and practice of oxyacetylene and arc welding of mild steel. Includes identification of basic and filler metals and melting temperatures of various metals. Emphasis is placed on root penetration and fusion of welded materials. Completers should be able to weld in their professional area. Tool room fee of \$19 for equipment applies.

**DMT 1005  
Basic Shop and Safety Skills****2**

Covers the selection and usage of basic occupational hand tools. Presents fastener types and applications. Provides practice on proper drill and tap skills. Includes experience learning correct measuring skills. Addresses manufacturers electronic service literature and search engines. Classifies and employs shop measuring tools with their specific functions. Covers recognition of fundamental heavy truck/equipment engine, power-train and chassis components. Emphasizes shop safety guidelines and proper handling of hazardous materials. Requires safety certification.

**DMT 1110  
Diesel Engine Overhaul****4**

\* Corequisite(s): DMT 111L

\* Prerequisite(s) or Corequisite(s): DMT 1005

Introduces diesel engine operating principles, factors affecting performance, design variations, and identification of components. Focuses on disassembly and reassembly of diesel engines following industry standard overhaul procedures. Includes the identification, inspection, and measuring of parts to determine condition for reuse. Uses failed components to assist in teaching troubleshooting skills. Provides theory of engine tune-up processes on various engines used by industry. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**DMT 111L  
Diesel Engine Overhaul Lab****2**

\* Corequisite(s): DMT 1110

\* Prerequisite(s) or Corequisite(s): DMT 1005

Provides hands on experience in diesel engine operating principles, factors affecting performance, design variations, and identification of components. Includes disassembly and reassembly of diesel engines following industry standard overhaul procedures. Focuses the identification, inspection, and measuring of parts to determine condition for reuse. Utilizes failed components to assist in teaching troubleshooting skills. Tool room fee of \$19 for equipment applies. Course Lab fee of \$22 for materials applies.

**DMT 1120  
Diesel Engine Operation Tune Up****4**

\* Prerequisite(s) or Corequisite(s): DMT 1110, DMT 111L, DMT 112L

Covers diesel engine components, controls, operating systems, and performance factors. Addresses engine component replacement, tune-up adjustments, and the requirements for engine dynamo-meter testing. Emphasizes basic engine operating factors and troubleshooting complaints such as: low power, smoke conditions, and engine faults. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**DMT 112L  
Diesel Engine Operation Tune up Lab****2**

\* Corequisite(s): DMT 1120

Examines diesel engine components, operating systems, and performance factors. Provides opportunity to perform hands on component replacement and tune-up adjustments. Provides the opportunity to run an engine under load in a dynamometer test cell. Troubleshoots common engine operating complaints, such as low power, smoke conditions, engine faults, etc. Tool room fee of \$19 for equipment applies. Course Lab fee of \$27 for materials applies.

**DMT 1510  
Electrical Systems I****4**

\* Prerequisite(s): AUT 1260 (or any MAT or MATH course 1000 or higher) with a C- or better

\* Corequisite(s): DMT 151L

Teaches the definition of electricity: voltage, current, and resistance as well as the electrical rules of Ohm's law, Watt's law, Kirchhoff's circuit laws. Provides examples of the application of the above laws in both series and parallel circuits. Includes instruction on the proper use of DVOM's and their function in diagnosing and troubleshooting electrical circuitry on heavy trucks and equipment. Teaches electrical components and symbols. Teaches correct repair procedures for wiring, fuses, and connectors. Addresses starting and charging system operation and testing. Emphasizes all safety procedures practices. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**DMT 151L  
Electrical Systems I Lab****2**

\* Prerequisite(s): AUT 1260 (or any MAT or MATH course 1000 or higher) with a C- or better

\* Corequisite(s): DMT 1510

Provides hands-on experience using a DVOM on series and parallel circuits. Identifies electrical components and examines their functions. Describes testing batteries, starting systems, and charging systems. Identifies the correct repairs on these systems and when applicable. Provides practice in electrical safety and preventative maintenance. Covers basic electrical repair techniques. Tool room fee of \$19 for equipment applies. Course Lab fee of \$30 for materials applies.

**DMT 1520  
Electrical Systems II****2**

\* Corequisite(s): DMT 152L

\* Prerequisite(s) or Corequisite(s): DMT 1510 and DMT 151L

Covers heavy and medium duty vehicle electrical systems including lighting, climate control, computer controls and accessories. Emphasizes DOT lighting regulations for vehicles and trailers. Introduces fundamentals of electrical circuitry and schematics. Examines the computer controls on modern vehicle electrical systems. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

**DMT 152L  
Electrical Systems Lab II****1**

\* Corequisite(s): DMT 1520

\* Prerequisite(s) or Corequisite(s): DMT 1510 and DMT 151L

Focuses on lab work for the troubleshooting and repair of heavy/medium duty electrical systems and electronic engine management. Includes vehicle and trailer lighting, monitoring, and control systems. Emphasizes DOT safety regulations requirements. Tool room fee of \$19 for equipment applies. Course Lab fee of \$25 for materials applies.

**DMT 2230  
Heating Ventilation Air Conditioning and Refrigeration Theory****2**

\* Corequisite(s): DMT 223L

\* Prerequisite(s) or Corequisite(s): DMT 1510 and DMT 151L

Teaches the principles of heat transfer using refrigerant as the medium. Emphasizes the identification and operation of individual system components. Discusses the different types of refrigerants used in the mobile industry as well as recovery, recycling, storage, handling, and disposal. Also covers the theory and operation of auxiliary power units used on highway trucks. Software fee of \$10 applies. Course fee of \$10 for materials applies. Lab access fee of \$15 for computers applies.

# Course Descriptions

## **DMT 223L Heating Ventilation Air Conditioning and Refrigeration Lab**

**1**

\* Corequisite(s): DMT 2230

\* Prerequisite(s) or Corequisite(s): DMT 1510 and DMT 151L

Teaches correct use of modern HVACR testing and repair equipment. Provides hands-on opportunity to troubleshoot and service modern HVACR systems. Examines and practices EPA approved handling of current refrigerants used in current vehicles and equipment. Provides hands-on opportunity to locate, identify, test, service, and troubleshoot different types of mobile AC systems using EPA approved equipment & procedures. Also provides hands-on experience with auxiliary power units used on highway trucks. Tool room fee of \$19 for equipment applies. Course Lab fee of \$19 for materials applies.

## **DMT 2310 Fluid Power I Theory**

**4**

\* Prerequisite(s): AUT 1260 (or any MATH MAT course 1000 or higher) with a C- or better

\* Corequisite(s): DMT 231L

Outlines the fundamental principles of fluid power (hydraulics). Emphasizes the relationship between pressure, force, area, and resistance. Covers Bernoulli's principle in connection with hydraulic: flow, horsepower torque and the conservation of energy. Illustrates the application and operation of all of the essential components and valving found in a hydraulic system. Identifies types of circuit designs and schematic symbols. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **DMT 231L Fluid Power I Lab**

**2**

\* Prerequisite(s): AUT 1260 (or any MATH MAT course 1000 or higher) with a C- or better

\* Corequisite(s): DMT 2310

Provides practical lab experience for the identification, operation, and repair of basic hydraulic system components and circuits. Utilizes various lab equipment and machinery to highlight basic system designs and use of schematics. Emphasizes the safe and proper usage of hydraulic diagnostic equipment or tools necessary for component and system testing. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

## **DMT 2320 Fluid Power II Theory**

**4**

\* Prerequisite(s) or Corequisite(s): DMT 2310, DMT 231L, DMT 232L

Covers the design and operation of variable displacement pumps and motors, emphasizing those that are load sensing and pressure compensating. Focuses on the electronic controls of fluid power systems including open and closed loop circuits. Analyzes corresponding electronic controls on hydraulic schematics. Presents the theory and operation of hydrostatic and automatic transmissions used with heavy equipment and medium/heavy duty trucks. Emphasizes component operation, maintenance, repair, testing, and troubleshooting. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **DMT 232L Fluid Power II Lab**

**2**

\* Corequisite(s): DMT 2320

Focuses on the use of hydraulic test equipment to diagnose and troubleshoot systems using electronic, proportional or load sensing components. Covers the testing and correct adjustment of load sensing/pressure compensated pumps. Provides for the disassembly, inspection, reassembly and testing of hydrostatic transmissions. Provides experience to build and troubleshoot electronically controlled hydraulic circuits, troubleshoot electronically controlled hydrostatic transmissions as well as Allison transmissions. Emphasizes the use of diagnostic tools and service manuals. Tool room fee of \$19 for equipment applies.

## **DMT 2410 Chassis Theory**

**4**

\* Corequisite(s): DMT 241L

Provides theory on maintenance and repair of heavy duty chassis systems. Covers air brake systems, ABS systems, suspension systems, steering geometry, front end and tandem alignment, and frame maintenance. Emphasizes Department of Transportation highway safety requirements, and preventative maintenance. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **DMT 241L Chassis Lab**

**2**

\* Corequisite(s): DMT 2410

Covers troubleshooting and repair skills for heavy and medium duty trucks for air brake systems and ABS brake systems. Discusses alignment fundamentals. Uses hands on exercises to develop these skills. Focuses on proper maintenance and adjustment to foundation brakes and wheel ends. Requires performance tasks on various suspension designs and frame maintenance. Tool room fee of \$19 for equipment applies. Course Lab fee of \$22 for materials applies.

## **DMT 2420 Power Train Theory**

**4**

\* Corequisite(s): DMT 242L

Provides theory in maintenance and repair of heavy duty power trains systems. Teaches clutches, single and multiple counter shaft transmission, computer controlled transmissions, drive line geometry, differentials and Department of Transportation safety requirements. Emphasizes troubleshooting, highway safety, and preventative maintenance. Software fee of \$10 applies. Lab access fee of \$15 for computers applies.

## **DMT 242L Power Train Lab**

**2**

\* Corequisite(s): DMT 2420

Provides hands-on experience in maintenance and repair of heavy duty power train systems. Applies tasks for clutches, single and multiple counter shaft transmission, computer controlled transmissions, drive line geometry, differentials and DOT safety requirements. Emphasizes troubleshooting, highway safety, and preventative maintenance. Tool room fee of \$19 for equipment applies. Course Lab fee of \$22 for materials applies.

## **DMT 2530 Electronic Engine Management**

**2**

\* Prerequisite(s): DMT 1510, DMT 151L, DMT 1520, and DMT 152L

\* Corequisite(s): DMT 253L Recommended

Covers electronic fuel systems: parts, component ID, usage and operation. Includes instruction for electronic governors, set up, operation and diagnosis. Analyses advanced electronic fuel injectors and injection systems. Includes examination of sensor types, function and testing. Teaches the operation and component identification of current emission equipment as well as the present EPA emission standards. Lab access fee of \$15 for computers applies.

## **DMT 253L Electronic Engine Management Lab**

**1**

\* Prerequisite(s): DMT 1510, DMT 151L, DMT 1520, and DMT 152L

\* Corequisite(s): DMT 2530

Covers the identification, location and function of all electronically controlled fuel system components, including sensors, governors, injectors, pumps, valving, and conductors. Explains the usage of computer based diagnostic equipment for troubleshooting and electronic engine management. Covers the identification, location and function of all emission system related components. Focuses on the proper maintenance and service of these systems.

**DMT 281R**  
**Cooperative Work Experience**  
**1 to 8**

\* Corequisite(s): DMT 285R

Designed for Diesel Mechanics Technology majors. Provides paid, on-the-job work experience in the student's major. Work experience, the correlated class, and enrollment are coordinated by the Cooperative Coordinator. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and oral presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated for a maximum of 16 credits toward graduation. May be graded credit/no credit.

**DMT 285R**  
**Cooperative Correlated Class**  
**1**

\* Corequisite(s): DMT 281R

Designed for Diesel Mechanics Technology majors. Identifies on-the-job problems through in-class discussion and study. Includes the study of identifying and maximizing service opportunities. Students register for this class with approval of the Cooperative Coordinator. Includes lecture, guest speakers, video tapes, role playing, case analysis, oral presentations, and written assignments. Completers should be better able to perform in their field of work or study.

**DMT 291R**  
**Special Projects**  
**1 to 5**

\* Prerequisite(s): Advisor and Instructor Approval

For students majoring in diesel technology. Involves special projects. Allows independent projects that are designed to enhance beginning or advanced abilities. Repeatable for as many times as desired.

**DMT 298R**  
**Technical Workshop**  
**1 to 4**

For Diesel Technology students and other interested community members. Tailored to a specific topic, product, component, or vehicle related to the diesel service industry. Its purpose is to update technician training by addressing changes in products or equipment. Topics will vary. May be presented by an OEM, a dealer representative, or faculty member. Repeatable.

**DMT 299R**  
**VICA**  
**1**

Designed for Diesel Mechanics Technology majors. Supports and facilitates the goals and objectives of Vocational Industrial Clubs of America (VICA). VICA is a pre-professional student organization that develops social awareness, civic, recreational, and social activities. Students may participate in local, state, and national contests.

## Digital Media Web Design Dev (DWDD)

**DWDD 1400**  
**Digital Design Essentials**  
**3**

Teaches fundamentals of digital layout for web development and how to properly create engaging interfaces for digital media. Addresses technical challenges for digital mediums to deliver effective digital experiences. Introduces basic content creation and sprint thinking independent of software platforms. Lab access fee of \$45 applies.

**DWDD 1410**  
**Interaction Design Essentials**  
**3**

\* Prerequisite(s): DWDD 1400

Implements creative development layouts into interactive designs. Focuses on integration with industry development tools. Introduces basic overview of product development, pattern libraries, layout and development standards using interaction and industry practices for digital experiences. Lab access fee of \$45 applies.

**DWDD 1420**  
**Communicating Digital Design WE**  
**3**

\* Prerequisite(s): DWDD 1400

Focuses on the development of highly creative and visual design documentation; how to communicate both written and visual information in meaningful ways in a highly technical field. Covers why communicating a particular design challenge is just as important as the design itself, and why writing, layout, and visual clarity is critical to mastering UX and Digital Product Design. Sets the foundation for all documentation assignments in the Web Design and Development degree. Lab access fee of \$45 applies.

**DWDD 1430**  
**Principles of Digital Design**  
**3**

\* Prerequisite(s): DWDD 1400

Teaches principles of visual design, how to properly create engaging interfaces for digital media, and practice good integration with industry development tools. Addresses the complexity of designing rich media experiences around digital devices ranging from computer screens to personal information devices. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

**DWDD 1600**  
**Web Essentials**  
**3**

Provides the fundamentals necessary to plan, design, develop, deploy, and critique a web site which includes images, sound, video, forms, and separates content from presentation. Focuses on the fundamentals of web programming languages. Examines various ways to build an accessible web page. Lab access fee of \$45 for computers applies.

**DWDD 1720**  
**Scripting for Internet Technologies**  
**3**

\* Prerequisite(s): DWDD 1600

Introduces the fundamentals of computer programming and problem solving using the current industry standard scripting languages. Emphasizes the fundamentals of structured and object-oriented programming, syntax, semantics, control structures, arrays, file I/O, testing/debugging, implementation, and the construction of graphical user interfaces. Applies these concepts to manipulate digital images, sound, movies, text, and web pages that are heavily used as digital media. Laptop Required. Lab access fee of \$45 for computers applies.

**DWDD 2410**  
**Interaction Design**  
**3**

\* Prerequisite(s): DWDD 1410

Focuses on strategies and principles used in digital media development to enhance the user experience. Teaches how to understand stakeholder goals, identify and specify user needs and requirements through user research and design documentation, engage in interactions with target audiences through interviews, observation, and discussion, as well as create and test prototypes. Deals with solving real-world problems faced by consumers using products in the market. Software fee of \$15 applies. Lab access fee of \$45 for computers applies. Course Lab fee of \$30 applies.

**DWDD 241R**  
**Interaction Design Practicum**  
**1**

\* Prerequisite(s): DWDD 2410

Instructs in the design and production of a fully-featured digital media project, including concept, design, content creation and acquisition, testing, revision, mastering, and publication with hands-on guidance. May be repeated for a maximum of 3 credits toward graduation. Lab access fee of \$45 applies. Course Lab fee of \$30 for equipment applies. Software fee of \$15 applies.

# Course Descriptions

## DWDD 2420

### Media Formats and Outputs

3

\* Prerequisite(s): DWDD 1400

Focuses on the digital workflow and management of still images, video, audio and digital effects media assets. Addresses use of codecs and format types for use in mobile media use scenarios. Introduces the proper handling of assets in various development platforms and user experience design best practices when using assets on touch-based devices. Lab access fee of \$45 for computers applies.

## DWDD 2510

### Interactive Media Production

3

\* Prerequisite(s): DWDD 1410

Focuses on the use of digital visual effects in mobile publishing environments. Includes multi-layer effects in known mobile layouts, creation of digital mattes and parallax for unique visual user engagement, as well as integration techniques according to development platforms. Lab access fee of \$45 for computers applies.

## DWDD 2520

### Digital Product Experiences I

3

\* Prerequisite(s): DWDD 1410

Focuses on the development of engaging mobile apps for distribution on a myriad of devices. Teaches the fundamental building blocks of publishing digital media experiences of all types and may include interactive guide, catalogs, brochures, training manuals, kiosks, and exhibits. Covers the development of apps for touchscreen 'native' content and feature real-time updates. Laptop & Device Required. Lab access fee of \$45 for computers applies.

## DWDD 2530

### Immersive Experiences I

3

\* Prerequisite(s): DWDD 1410

Focuses on the application of media technologies that possess the ability to create rich immersive experiences for distribution on optical media such as CD, DVD-ROM, and over the Internet. Introduces participants to a variety of authoring systems and development techniques when creating Digital Media experiences. Laptop Required. Software fee of \$22 applies. Course fee of \$18 applies. Lab access fee of \$45 for computers applies.

## DWDD 2610

### Principles of Web Languages

3

\* Prerequisite(s): DWDD 1720

Focuses on solving various Web design and coding problems using current Internet technologies. Emphasizes solving unique coding problems using HTML, CSS, and jQuery that arise when implementing a Web design. Lab access fee of \$45 for computers applies.

## DWDD 2620

### Web Tools and Frameworks I

3

\* Prerequisite(s): DWDD 1600

Introduces the necessary frameworks and tools needed to build structured, maintainable, and scalable web pages common in the industry. Incorporates project-based learning to help students gain solid web development experience through hands-on programming and problem solving a real world project. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## DWDD 2720

### Web Languages I

3

\* Prerequisite(s): DWDD 1720

Examines client-side languages that allow viewers to interact with the content of Web pages. Extensively uses methods for creating highly interactive web sites without the use of authoring tools. Teaches how to make the static content within a typical webpage more dynamic, interesting, and most importantly, useful. Culminates with a final project to design and create materials for use in a well-designed interactive web site. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## DWDD 301R

### Digital Lecture Series

1

\* Prerequisite(s): University Advanced Standing

Uses guest speakers who lecture on current topics in digital media. May be repeated for a maximum of 3 credits toward graduation.

## DWDD 3410

### Interaction Design Colloquium

3

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Provides advanced students with unique and current industry perspectives on interaction design through seminar discussions, workshops, and industry on-site experiences. Lab access fee of \$45 for computers applies.

## DWDD 3430

### Adaptive Media Experiences

3

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Investigates methods to capture, create, use, and adapt digital content in appropriate and meaningful ways. Examines distribution channels for media such as desktop, mobile, smart appliances, and automobile markets. Laptop Required. Lab access fee of \$45 for computers applies.

## DWDD 3520

### Digital Product Experiences II

3

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Focuses on the development of engaging mobile apps for distribution on a myriad of devices. Covers advanced development of publishing digital media experiences of all types and includes techniques for coding immersive experiences beyond standard practices. Prepares students to develop for touchscreen 'native' content and feature real-time updates. Laptop and Device Required. Software fee of \$15 applies. Lab access fee of \$45 for computers applies.

## DWDD 3530

### Immersive Experiences II

3

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Focuses on advanced application of media technologies and design paradigms when creating rich immersive experiences for distribution as a net-based desktop or mobile application. Uses unique and emerging technologies that are critical for digital media majors to understand. Laptop required. Lab access fee of \$45 for computers applies. Software fee of \$22 applies. Course fee of \$19 for software and plug-ins applies.

## DWDD 3620

### Web Tools and Frameworks II

3

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Investigates advanced techniques for delivering exceptional Internet applications using existing frameworks. Teaches advanced scripting fundamentals, how to deliver content through server-side database connectivity, and engaging the audience through highly interactive experiences.

## DWDD 3720

### Web Languages II

3

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Covers server-side web development and database interaction. Offers the skills and knowledge necessary to produce web sites in a professional environment. Covers current technology and design standards for websites that are database driven using current languages and platforms. Demonstrates how database interaction can enhance a multimedia website. Includes lectures, demonstrations, and weekly projects.

**DWDD 3770****Rich Internet Application Development I****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Describes various Rich Internet Application development technologies. Investigates RIA development and delivery technologies such as JavaScript frameworks, API usage, and developer productivity tools with a special emphasis on the integration of Digital Media into Internet applications. Teaches the design and development workflow for interactive, media-rich applications delivered via networked browser, computer desktops, and mobile devices. Lab access fee of \$45 for computers applies.

**DWDD 3780****Rich Internet Application Development II****3**

\* Prerequisite(s): DWDD 3770, Portfolio Review Acceptance, and University Advanced Standing

Describes various Rich Internet Application development technologies with a focus on utilizing server-side resources. Investigates a wide variety of RIA technologies including cloud services, API development, and dynamic data stores. Teaches how to design and develop RIAs using a variety of tools, code frameworks, and delivery clients. Requires creation of interactive and useful media-rich web experiences for end users. Lab access fee of \$45 for computers applies.

**DWDD 4240****Experience Design Process****3**

\* Prerequisite(s): DWDD 2410 and University Advanced Standing

Focuses on advanced strategies and principles used in digital product development to enhance the user experience. Focuses on strategy and research methodologies for production-level digital product design through advanced user research, and engages in product interactions with target audiences. Software fee of \$15 applies. Course Lab fee of \$30 applies for computers.

**DWDD 4430****Adaptive Media II****3**

\* Prerequisite(s): DWDD 3430 and University Advanced Standing

Focuses on the advanced application of media technologies that possess the ability to create adaptable content media experiences. Focuses primarily on the ability to curate and realign rich content assets through Internet-based Apps. Teaches principles of distribution that can be applied to desktop, mobile, and advancing technologies in the home or automobile markets with a specific focus on dynamic retrieval and adaptation of content. Laptop Initiative Requirement. Lab access fee of \$45 for computers applies.

**DWDD 4520****Digital Product Design Studio****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Covers advanced development techniques of Product Design fused with User Experience Design / User Interface Design. Highlights problem solving and effective communication. Focuses heavily on how digital designers can influence the user experience, and participatory outcomes of such experiences, through well-planned interactions, digital layout, and adaptation to the physical hardware. Lab access fee of \$45 for computers applies.

**DWDD 4560****Designing Voice Experiences****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Teaches fundamentals of Voice Experience design and development for verbal digital interfaces. Addresses technical challenges for verbal and conversational digital experiences in real world applications. Introduces basic content creation and verbal logic theory for varying artificial intelligence platforms. Lab access fee of \$45 applies.

**DWDD 4630****Web Content Management****3**

\* Prerequisite(s): Portfolio Review Acceptance and University Advanced Standing

Instructs students on how to create a site that is content rich, dynamic, and meaningful to site visitors. Teaches participants how to effectively plan, develop, and arrange content through the use of information design principles, content management systems, and analysis tools. Culminates with students building a live site for a real-world client where students must solve real design, development, and delivery issues. Lab access fee of \$45 for computers applies.

**DWDD 490R****Senior Capstone****3**

\* Prerequisite(s): Portfolio Review Acceptance and Senior Class Standing

Provides a capstone experience working in digital media. Develops individual real-world projects in consultation with a faculty advisor. May be repeated for a maximum of 6 credits toward graduation. Course Lab fee of \$30 applies. Software fee of \$15 applies.

## Electrical Comp Engineering (ECE)

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**ECE 1000****Introduction to Electrical and Computer Engineering****3**

\* Prerequisite(s): MATH 1060 or higher

Introduces engineering-problem-solving techniques, design processes, modeling and analysis of simple electrical and computer circuits using MATLAB and LabVIEW software packages. Emphasizes engineering design procedures by incorporating group projects and presentations. Lab access fee of \$45 applies.

**ECE 1020****Computer Engineering Problem Solving with MATLAB and LabVIEW****1**

\* Prerequisite(s): MATH 1050 or higher

Introduces the field of Computer Engineering through programming in the MATLAB and LabVIEW languages. Teaches the design of various components of a prototype communication system while learning about the following aspects of MATLAB: scripts and function files, math functions, commands for array construction and manipulation, string expressions, logic operators, control flow, and graphics. No prior knowledge of computer engineering is assumed. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

**ECE 2210****Fundamentals of Electric Circuit Analysis****3**

\* Prerequisite(s): MATH 1210, PHYS 2210

Explores fundamental electric circuit analysis techniques. Develops analysis techniques using Kirchoff's laws, Thevenin and Norton equivalents, superposition, and phasors. Covers transient and steady-state time-domain analysis, and frequency analysis. Lab access fee of \$45 for computers applies.

**ECE 2215****Fundamentals of Electric Circuit Analysis Lab****1**

\* Prerequisite(s): MATH 1210, PHYS 2210

Covers fundamental electric circuit analysis techniques. Develops analysis techniques using Kirchoff's laws, Thevenin and Norton equivalents, superposition, and phasors. Covers transient and steady-state time-domain analysis, and frequency analysis. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **ECE 2250**

### **Circuit Theory**

**3**

\* Prerequisite(s): MATH 1210, PHYS 2220, ECE 1000

Develops linear circuit theory and its application in the analysis and design of RLC active circuits. Covers DC, AC, and transient analysis utilizing node and mesh analysis. Lab access fee of \$45 for computers applies.

## **ECE 2255**

### **Circuit Theory Lab**

**1**

\* Prerequisite(s): MATH 1210, PHYS 2220, ECE 1000

\* Corequisite(s): ECE 2250

Laboratory for ECE 2250 develops linear circuit theory and its application in the analysis and design of RLC active circuits. Covers DC, AC, and transient analysis utilizing node and mesh analysis. Introduces the use of CAD tools. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

## **ECE 2700**

### **Digital Design I**

**3**

\* Prerequisite(s): MATH 1050 or MATH 1055

\* Corequisite(s): ECE 2705

Studies the design and application of combinational and sequential logic circuits with discrete and programmable logic devices. Lab access fee of \$45 for computers applies.

## **ECE 2705**

### **Digital Design I Lab**

**1**

\* Prerequisite(s): MATH 1050 or MATH 1055

\* Corequisite(s): ECE 2700

Designed to accompany ECE 2700. Covers design of digital systems with discrete and programmable logic devices. Includes the use of CAD tools for system design and verification. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

## **ECE 2750**

### **Engineering Analysis**

**3**

\* Prerequisite(s): MATH 1220 and ECE 1000

Studies Linear systems, abstract vector spaces, matrices through eigenvalues and eigenvectors, solution of ordinary differential equations, Laplace transforms, first order systems, and complex numbers. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

## **ECE 3250**

### **Energy Conversion**

**3**

\* Prerequisite(s): ECE 2250, (Formal Acceptance into the Electrical Engineering Program, or Departmental Approval), and University Advanced Standing

Presents fundamental concepts of energy conversion including torque and power in singly/doubly excited electromagnetic systems, single and three-phase transformers, single and three-phase induction motors including speed control, three-phase synchronous generators and DC machines. Lab access fee of \$45 applies.

## **ECE 3350**

### **Control Systems**

**3**

\* Prerequisite(s): ECE 2750, ECE 3770, University Advanced Standing, and (Formal Acceptance into the Electrical Engineering Program, or Departmental Approval)

Introduces the theory and practice of control systems engineering. Covers modeling in the frequency and time domains, analog and discrete transfer function models, reduction of multiple subsystems, system response specifications, control system characteristics, root locus analysis and design, frequency response analysis and design. Emphasizes computer-aided analysis. Lab access fee of \$45 applies.

## **ECE 3450**

### **Electromagnetics and Transmission Lines**

**3**

\* Prerequisite(s): PHYS 2220, ECE 2250, University Advanced Standing, and (Formal Acceptance into the Electrical Engineering Program, or Departmental Approval)

Introduces the fundamentals of electromagnetic field theory and application: vector analysis, electric and magnetic fields, potential theory, dielectric and magnetic material properties, conductance, capacitance, and inductance, Maxwell's equations and circuit concepts. Explains transmission lines as a bridge to understanding electromagnetic field theory. Covers basic principles of radiation and propagation in waveguides and antennas. Lab access fee of \$45 applies.

## **ECE 3710**

### **Applied Probability and Statistics for Engineers and Scientists**

**3**

\* Prerequisite(s): MATH 1210 and University Advanced Standing

Explores probability and statistical theory with an emphasis on engineering and computer science applications. Covers descriptive statistics, discrete and continuous random variables, probability distributions, hypothesis testing, expectation, estimation, ANOVA testing, and regression analysis. Includes computer analysis of data and simulation. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

## **ECE 3730**

### **Embedded Systems I**

**3**

\* Prerequisite(s): ECE 2700, ECE 2250, (Formal Acceptance into the Electrical or Computer Engineering Program, or Departmental Approval), and University Advanced Standing

Presents an introduction to the basic building-blocks and the underlying scientific principles of embedded systems. Covers both the hardware and software aspects of embedded processor architectures and assembly language programming. Develops the theory and technology necessary for the interconnection of devices and systems to microcontrollers by using hardware and software examples and students' projects. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

## **ECE 3740**

### **Digital Design II**

**3**

\* Prerequisite(s): ECE 2700, (Formal Acceptance into the Electrical Engineering Program or Computer Engineering program, or Departmental Approval), and University Advanced Standing

Covers the design and verification of digital systems. Emphasizes hierarchical design principles and the use of programmable logic devices (PLDs). Utilizes modern CAD tools and design languages (VERILOG). Lab access fee of \$45 for computers applies.

## **ECE 3760**

### **Electronic Systems**

**3**

\* Prerequisite(s): ECE 2250, PHYS 2220, University Advanced Standing, and (Formal Acceptance into the Electrical Engineering Program or Computer Engineering program, or Departmental Approval)

\* Corequisite(s): ECE 3765

Introduces semiconductor theory and the fundamentals of diode and transistor operation. Covers the use of discrete and integrated active devices in linear amplifier and switching applications. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

## **ECE 3765**

### **Electronic Systems Lab**

**1**

\* Prerequisite(s): ECE 2255, PHYS 2220, and University Advanced Standing

\* Corequisite(s): ECE 3760

Designed to accompany ECE 3760. Covers electronic analog circuit design, simulation, construction, debugging and measurement of circuit performance quantities using advanced instrumentation techniques. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

**ECE 3770****Signals and Systems****3**

\* Prerequisite(s): ECE 2750, (Formal Acceptance into the Electrical Engineering Program or Computer Engineering program, or Departmental Approval), and University Advanced Standing

Examines the time and frequency domain analysis of continuous-time systems subjected to periodic and non-periodic input signals. Introduces signal and transform theory and the application of Laplace and Fourier transforms. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

**ECE 3780****Communication Systems and Circuits****3**

\* Prerequisite(s): ECE 3770, ECE 3710, (Formal Acceptance into the Electrical Engineering Program, or Departmental Approval), and University Advanced Standing

Introduces the fundamentals of electronic communication systems and circuits. Covers pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, and noise in communication systems. Lab access fee of \$45 applies.

**ECE 3785****Communication Systems and Circuits Lab****1**

\* Prerequisite(s): ECE 3770, ECE 3710, and University Advanced Standing  
\* Corequisite(s): ECE 3780

Covers hands on experiments related to course work, in the area of communication systems and circuits. Includes digital and analog modulation for the baseband and bandpass communications. Provides appropriate wireless communication techniques for modern circuits and applications using mini projects. Lab access fee of \$45 applies.

**ECE 4250****Power Systems Engineering****3**

\* Prerequisite(s): ECE 3250, (Formal Acceptance into the Electrical Engineering Program, or Departmental Approval), and University Advanced Standing

Introduces power system analysis and design with the aid of a personal computer. Emphasizes AC power generation, distribution and usage. Covers single-phase and 3-phase power, motors, generators, power distribution and the grid, generation plants, smart grids, and power flow control. Lab access fee of \$45 applies.

**ECE 4260****Smart Power Grids****3**

\* Prerequisite(s): ECE 2250 and University Advanced Standing

Introduces fundamentals and system analysis of power grids, smart grids and microgrids with emphasis on distributed renewable power generations, distribution, usage and energy storage. Covers single-phase, three-phase and per-unit power calculations; solar and wind generators, and load flow calculation control.

**ECE 4700****Computer Architecture for Engineering Applications****3**

\* Prerequisite(s): ECE 3740 and University Advanced Standing

Uses register transfer languages and simulation tools to describe and simulate computer operation; central processing unit organization, microprogramming, input/output, pipelining, virtual memory concepts, VLIW, superscalar out of order, ILP, and memory system architectures. Lab access fee of \$45 applies.

**ECE 4730****Embedded Systems II****3**

\* Prerequisite(s): ECE 3730, ECE 3740, and University Advanced Standing

Presents the design of hardware and software required for embedded, real-time systems. Covers types of real-time systems, fuzzy logic, sensors, real-time operating systems, C programming skills, and wireless sensor networks. Lab access fee of \$45 for computers applies.

**ECE 4750****Digital Signal Processing****3**

\* Prerequisite(s): ECE 3770, ECE 3710, and University Advanced Standing

Introduces the theory of digital signal processing and its application to practical problems. Covers spectrum representation, Nyquist sampling, z-transform, discrete Fourier transform, discrete-time Fourier transform, FIR (Finite Impulse Response) and IIR (Infinite Impulse Response) digital filter design. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

**ECE 4755****Digital Signal Processing Lab****1**

\* Prerequisite(s): ECE 3770 and University Advanced Standing

Performs software and hardware experiments illustrating the basic principles and techniques of digital signal processing. Teaches programming of real-time signal processing algorithms on a concrete DSP chip, and Accelerate the DSP code on the GPU. Lab access fee of \$45 applies.

**ECE 4760****VLSI Design****3**

\* Prerequisite(s): ECE 3760 and University Advanced Standing

\* Corequisite(s): ECE 4765

Focuses on theories and techniques of VLSI design on CMOS technology. Studies the fundamental concepts and structures of designing digital VLSI systems, including CMOS devices and circuits, standard CMOS fabrication processes, CMOS design rules, static and dynamic logic structures, interconnect analysis, CMOS chip layout, simulation and testing, low power techniques, design tools and methodologies, VLSI architecture. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

**ECE 4765****VLSI Design Laboratory****1**

\* Prerequisite(s): ECE 3765 and University Advanced Standing

\* Corequisite(s): ECE 4760

Covers the complete process of building a ready-to-fabricate CMOS integrated circuit using commercial design software. Includes the layout design of CMOS transistors, gate level design, design using VHDL, CHIP design and pin configuration, and simulation of the circuit for slack time and power consumption. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

**ECE 4770****Artificial Neural Networks****3**

\* Prerequisite(s): MATH 1210 and University Advanced Standing

Introduces a range of topics in the field of artificial neural networks: modeling of brains, applicable algorithms, and related applications. Develops the theory of a number of neural network models such as Perceptron, Multilayer Perceptron, and Hopfield networks. Emphasizes algorithms for implementing simple artificial neural networks and their applications. Software fee of \$10 applies. Lab access fee of \$45 for computers applies.

## Course Descriptions

### **ECE 4780**

#### **Wireless and Mobile Communications**

**3**

\* Prerequisite(s): ECE 3780 and University Advanced Standing

Covers the fundamentals of modern digital wireless communication systems and their applications to modern wireless communication technologies such as 5G NR, MIMO, IEEE 802.11ax (Wi-Fi 6), and broadband satellite communication. Includes digital modulation schemes and their performance analysis in the presence of noise, intersymbol interference (ISI), equalizers, synchronization, multipath fading, spread spectrum, OFDM, multiple access techniques, error control codes, and information theory. Introduces both software and hardware designs. Lab access fee of \$45 applies.

### **ECE 4800**

#### **Computer Engineering Senior Design Project**

**3**

\* Prerequisite(s): ECE 3740 and University Advanced Standing

Serves as a project-oriented capstone course for computer engineering majors. Emphasizes major hardware and software design. Includes identification and completion of a suitable design project to be mutually selected by the faculty supervisor and student. Requires weekly written and oral presentations as well as a final written project report and an oral presentation. Requires completion of a program level assessment test. Software fee of \$10 applies. Course fee of \$27 for materials/testing applies. Lab access fee of \$45 for computers applies.

### **ECE 481R**

#### **Electrical and Computer Engineering Internship**

**1 to 3**

\* Prerequisite(s): Admission to Computer Engineering program or Electrical Engineering program, Instructor Approval, and University Advanced Standing

Provides an opportunity to gain career-related experience while earning academic credit. Credit is determined by the number of hours a student works during the semester. May be Graded Credit/No Credit. May be repeated for a maximum of three credits toward graduation.

### **ECE 4850**

#### **Machine Learning**

**3**

\* Prerequisite(s): CS 1400, ECE 3710, and University Advanced Standing

Provides a broad introduction to machine learning (ML). Uses techniques such as probability and statistics, linear algebra, and optimization to learn from and make predictions on data without human intervention. Covers the concepts behind several machine learning modeling and algorithms to be prepared for conducting research and industrial application of machine learning.

### **ECE 4900**

#### **Electrical and Computer Engineering**

#### **Capstone I WE**

**3**

\* Prerequisite(s): ECE 4730 and University Advanced Standing

Electrical and Computer Engineering Capstone I and Capstone II focus on team-oriented design and technical writing by incorporating group projects, oral presentations and written reports. Incorporates engineering standards and realistic constraints including economic, environmental, sustainability, manufacturability, ethical, social, political, health and safety. Emulates the problems encountered by engineers working in commercial, industrial, and governmental entities. Capstone I and Capstone II must be taken in consecutive semesters. Lab access fee of \$45 applies.

### **ECE 490R**

#### **Advanced Current Topics in Computer Engineering**

**1 to 3**

\* Prerequisite(s): Department Approval and University Advanced Standing

Provides exposure to emerging technologies and topics of current interest in computer engineering. Varies each semester depending upon the state of technology. May be repeated for a maximum of 6 credits toward graduation without prior written department approval. Lab access fee of \$45 applies.

### **ECE 491R**

#### **Independent Study**

**1 to 3**

\* Prerequisite(s): Prior written Department Chair approval and University Advanced Standing.

Offers independent study as directed by a faculty advisor in reading, individual projects, etc. Varies each semester depending upon the state of technology. A maximum of 3 credit hours may be counted towards graduation without prior written Department approval.

### **ECE 4950**

#### **Electrical and Computer Engineering Capstone II WE**

**3**

\* Prerequisite(s): ECE 4900 and University Advanced Standing

Electrical and Computer Engineering Capstone I and Capstone II focus on team-oriented design and technical writing by incorporating group projects, oral presentations and written reports. Capstone II meets one of two Writing Enriched courses required for graduation in Electrical Engineering and Computer Engineering. Capstone II incorporates engineering standards and realistic constraints including economic, environmental, sustainability, manufacturability, ethical, health and safety, social, and political. Emulates the problems encountered by engineers working in commercial, industrial, and governmental entities. Capstone I and Capstone II must be taken in consecutive semesters. Lab access fee of \$45 applies.

## **Edu Child and Family Studies (ECFS)**

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### **ECFS 208R**

#### **Directed Readings**

**1 to 4**

For second-year ECFS students. Includes readings with analysis and discussion of selected topics in child education and family relationships. Requires approval of the department for registration. May be taken for a maximum of four credits.

### **ECFS 2900**

#### **Independent Study**

**1 to 5**

\* Prerequisite(s): Approval of ECFS Department

Provides independent study through faculty-directed individual projects related to working with children and families. Possible areas of study include curriculum, behavior management, program administration, family studies, and case studies in applied theory.

### **ECFS 3320**

#### **Gender Perspectives in Education**

**3**

\* Prerequisite(s): University Advanced Standing

For educators, counselors, student teachers, those wanting to recertify, and other interested students. Explores gender issues that may affect the educational experience of girls and boys. Examines history, biases, myths, and stereotypes. Develops sensitivity to issues of gender through discovery learning. Assists participants to recognize cultural and individual issues as they pertain to gender.

### **ECFS 4720**

#### **Characteristics and Identification of Gifted Students**

**3**

\* Prerequisite(s): Permission of instructor and University Advanced Standing

Designed for senior teacher education students and in-service teachers. Reviews different conceptualizations of intelligence and giftedness and practices and instruments used for identification. Describes characteristics and cognitive, social and developmental needs of gifted students.

### **ECFS 4730**

#### **Teaching Gifted Students**

**3**

\* Prerequisite(s): ECFS 4720, Instructor Permission, and University Advanced Standing

For senior education students and in-service teachers in local schools. Describes the various settings in which gifted students are served. Reviews instructional strategies and assessment appropriate to teaching gifted students, and strategies for dealing with parents.

**ECFS 492R**  
**Special Topics in Gifted Education**

**3**  
\* Prerequisite(s): (EDEL 3000 or EDSC 3000), Instructor Permission, and University Advanced Standing

Designed for senior education students and local in-service teachers. Includes topics, such as underserved populations of gifted students, contemporary issues in gifted education, creativity, etc. May be repeated 3 times for credit.

**ECFS 494R**  
**Special Topics in Educational Psychology**

**3**  
\* Prerequisite(s): (EDEL 3000 or EDSC 3000), Instructor Permission, and University Advanced Standing

Explores topics in educational psychology as it relates to classrooms. Includes topics, such as motivation to learn and succeed, classroom application of learning and cognition, role of emotion in learning, etc. Varies each semester. May be repeated 3 times for credit.

**Economics (ECON)**

**ECON 1010** **SS**  
**Economics as a Social Science**  
**3**

An introductory course which studies the operation of a mixed market system, including production, domestic and global trade, and labor-management economics. Includes business cycles and monetary and fiscal policies designed to modify those cycles. Canvas Course Mats \$85/McGraw applies

**ECON 2010** **SS**  
**Principles of Economics I**  
**3**

\* Prerequisite(s): MATH 1050, MATH 1055, MATH 1090 or higher or appropriate test score  
Teaches basic concepts and tools from the fields of Microeconomics and Macroeconomics. Focuses on the tenets of economic analysis and explains how consumers, producers and other economic agents make decisions, as well as the outcomes of their interactions. Provides the needed framework for business students to understand the role of macroeconomic policies in the US, including GDP measurement, inflation and unemployment. Uses lectures, class discussions, and a variety of in-class activities to promote engaged learning. Required for all business students. Lab access fee of \$30 for computers applies. Canvas Course Mats \$85/McGraw applies.

**ECON 2020** **SS**  
**Principles of Economics II**  
**3**

\* Prerequisite(s): ECON 2010  
Teaches basic concepts and tools from the fields of Microeconomics and Macroeconomics not covered in ECON 2010. Focuses on economic scenarios that depart from perfect competition, including market failures and imperfect competition. Analyzes the Keynesian framework and its applications to fiscal policy, as well as monetary theory and policy. Uses lectures, class discussions, and a variety of in-class activities to promote engaged learning. Required for Finance and Economics majors. Lab access fee of \$30 for computers applies. Canvas Course Mats \$85/McGraw applies.

**ECON 3010**  
**Intermediate Microeconomics**

**3**  
\* Prerequisite(s): ECON 2020, MGMT 3345, and University Advanced Standing

Covers intermediate microeconomic theory for economics and finance majors planning on extending their economics training into econometrics, mathematical economics and other related courses. Reviews microeconomic theory and models to develop an understanding of, and ability to use, modern microeconomic theory, measurement, and policy.

**ECON 3020**  
**Managerial Economics**

**3**  
\* Prerequisite(s): MGMT 2240 with a B- or better; ECON 2020; University Advanced Standing

Extends the discussion of the economic theory of markets, demand and supply, elasticity, and marginal analysis process to make more effective decisions. Emphasizes an applied approach using basic theoretical concepts. Discusses the concepts of production theory and cost analysis in the short and long run. Describes how to apply economic decision-making in various competitive markets, including perfect competition, monopoly, monopolistic competition, and oligopoly. Reviews elements of risk and uncertainty in a microeconomic framework. Canvas Course Mats \$85/McGraw applies.

**ECON 3030**  
**Intermediate Macroeconomics**

**3**  
\* Prerequisite(s): Matriculation into the Woodbury School of Business and University Advanced Standing

Extends discussion of models of income determination, economic growth theory, analysis of fiscal and monetary policy theory, international trade issues, and alternative views related to the impact of macro theory in the US and world economies. Prepares economics majors for other advanced economic theory and policy courses.

**ECON 3040**  
**Environmental Economics**

**3**  
\* Prerequisite(s): Instructor Approval and University Advanced Standing

Introduces economic issues of ecological and environmental theory and policy. Identifies the economic tools appropriate for the analysis of ecological and environmental challenges for an inter-disciplinary group of engineering, science, social science, and natural resources management professionals. Presents the microeconomic concepts useful for reviewing these types of issues. Evaluates public policy issues related to environmental, ecological, and natural resource challenges.

**ECON 305G**  
**International Economics**

**3**  
\* Prerequisite(s): ECON 2010, ECON 2020, and University Advanced Standing

Covers theoretical and practical concepts of international trade and finance. Reviews empirical tests of basic international trade theories. Uses international trade and finance databases for the analysis of trade patterns, balance of payments, exchange rates and global capital markets. Includes coverage of cultural and intercultural relationships that exist within an economic context. Canvas Course Mats \$100/Pearson applies.

**ECON 3060**  
**Money and Banking**

**3**  
\* Prerequisite(s): ECON 2020 and University Advanced Standing

Covers the concept of money, its historical development, and its role in the economy. Covers the U.S banking system with a focus on the Federal Reserve Bank. Examines the Federal Reserve Bank balance sheet and the different tools for conducting monetary policy. Provides the opportunity for students to collect data from the Federal Reserve Bank and test the relationships between money, banking, and macroeconomics theory.

**ECON 3070**  
**Behavioral Economics**

**3**  
\* Prerequisite(s): ECON 2010 and University Advanced Standing

Provides an introduction to Behavioral Economics. Contrasts the assumptions of the neoclassical economic theories with theories based on psychology, sociology, and related disciplines. Reviews the leading models in heuristics and biases in decision making. Uses case studies for the understanding of real-world scenarios in economics and business.

# Course Descriptions

## **ECON 3370**

### **Economic Modeling and Data Analytics**

**3**

\* Prerequisite(s): MGMT 2240 with a B- or better; ECON 2020; University Advanced Standing

Covers at an intermediate level some of the most important quantitative tools used in Economics and Data Analytics. Explains how to build, solve and estimate theoretical models of real-world situations. Applies optimization techniques and machine learning methods to economic and business problems. Uses lectures, class discussions, and a variety of in-class activities to promote engaged learning.

## **ECON 3400**

### **Health Economics**

**3**

\* Prerequisite(s): ECON 3370 and University Advanced Standing

Introduces healthcare economics and provides an overview of the structure and operations of health care systems in the United States. Introduces dynamic developments in the healthcare industry and changes in health policy. Reviews the roles of private and government insurance, physician, hospital, and patient relationships, the impacts of pharmaceutical providers, long-term care, and related issues. Includes the application of alternative economic models associated with healthcare provision and the identification of data required to measure and evaluate healthcare processes.

## **ECON 3470**

### **Principles of Applied Econometrics**

**3**

\* Prerequisite(s): ECON 3370 and University Advanced Standing

Provides an opportunity to use mathematical and statistical skills in real-world applications of econometrics. Examines the foundations of econometrics through well-known examples. Develops analytical skills by using data inputs and working through a series of projects students might encounter in future professional experience. Lab access fee of \$25 for computers applies.

## **ECON 3810**

### **Labor Economics**

**3**

\* Prerequisite(s): Matriculation into the Woodbury School of Business and University Advanced Standing

Provides an analysis of the theory and practice of labor markets. Defines the factors that influence the demand and supply of labor in a modern economy. Develops the concepts for a theory of human capital. Reviews factors such as wage determination, occupational differences, problems of gender, labor turnover, discrimination, impacts of education and training, impacts of labor unions, immigration, changes in technology, and other related issues. Lab access fee of \$25 for computers applies.

## **ECON 3820**

### **Economic Development**

**3**

\* Prerequisite(s): ECON 2020, MGMT 2400, and University Advanced Standing

Describes economic development models. Reviews economic growth theories, poverty, inequality, the role of institutions, human capital, and structural transformation. Uses existing databases for the empirical analysis of economic development policies. Lab access fee of \$25 for computers applies.

## **ECON 3830**

### **History of Economic Thought**

**3**

\* Prerequisite(s): Matriculation into the Woodbury School of Business and University Advanced Standing

Traces the evolution of formal economic theory primarily beginning with Adam Smith, the first classical economic theorist. Studies other classical writers including Ricardo and Malthus as well as Marx's criticisms. Studies neoclassical analysis through Marshall and the critiques of the Austrian school. Reviews the modern theorists including Keynes and the development of macroeconomics, the development of empirical and mathematical economic theories, monetarism, and other post-Keynesian analysis. Lab access fee of \$25 for computers applies.

## **ECON 4010**

### **Advanced Microeconomics**

**3**

\* Prerequisite(s): ECON 3010 and University Advanced Standing

Advanced course in microeconomics for economics majors. Addresses the issues related to modern economic theories of imperfect competition, the market of factors of production, cost analysis, the distribution of income, general equilibrium, and welfare economics.

## **ECON 4020**

### **Advanced Macroeconomics**

**3**

\* Prerequisite(s): ECON 3030, MGMT 3345, and University Advanced Standing

Is an advanced course in macroeconomics for economics majors. Provides economics graduates an understanding of modern macroeconomic theory including traditional macro issues, models with incomplete nominal adjustment, inflation theory, dynamic inconsistency and recent theories of unemployment.

## **ECON 4040**

### **Game Theory**

**3**

\* Prerequisite(s): ECON 4010, ECON 4320, and University Advanced Standing

Designed to give students the skills to assess economic and social issues where strategic interaction is relevant. Teaches students to condition their responses based on the reactions and behavior of other individuals rather than merely in response to outside constraints, which is the usual approach to optimization theory. Provides concepts, tools, and experience to deal with game theory situations.

## **ECON 4100**

### **Analysis of Financial Institutions and Markets**

**3**

\* Prerequisite(s): Matriculation into the Woodbury School of Business and University Advanced Standing

Studies money, banking, and financial markets from an economics perspective. Examines the structure of interest rates and their influence in financial markets. Reviews financial instruments, financial intermediaries, banking institutions and the types of assets and liabilities common to those systems. Covers money supply and money demand within the central banking system.

## **ECON 4150**

### **Public Finance**

**3**

\* Prerequisite(s): Matriculation into the Woodbury School of Business and University Advanced Standing

Designed as elective credit for Business Management and other bachelor of science degree majors. Develops knowledge, skills, and attitudes required for those employed in and analyzing the public sector. Describes the three levels within the public structure including respective purposes and functions, revenue generation alternatives, budgeting, deficit financing, public choice, income redistribution, public goods, and externalities. Lab access fee of \$25 for computers applies. Canvas Course Mats \$68/Norton applies.

## **ECON 4320**

### **Mathematical Economics**

**3**

\* Prerequisite(s): ECON 3010, and University Advanced Standing

Discusses advanced concepts in economic modeling, the application of mathematical models in economic analysis, and advanced research methods in economics. Covers advanced mathematical applications in economics and finance for students interested in advanced econometric analysis and model building. Lab access fee of \$25 for computers applies.

**ECON 4400**  
**Health Economics II****3**

\* Prerequisite(s): ECON 3370, ECON 3400, ECON 3470, and University Advanced Standing

Covers methods from microeconomics and data analytics to investigate different aspects of health care markets and institutions and economic epidemiology. Uses economic tools from several sub-disciplines and machine learning methods to estimate models of demand and supply of health care, disease transmission, vaccine adoption, and other health and epidemiology issues.

**ECON 4500**  
**US Economic Development and History****3**

\* Prerequisite(s): Matriculation in the Woodbury School of Business, University Advanced Standing

Provides an analysis of the economic development of the United States. Describes the factors that led to the development of colonies in the Americas and the causes of the Revolution and formation of a government. Describes the economic causes for western expansion, transportation development, and the rise of American capitalism. Reviews the shift from agrarian to industrial development, the economic development of big business and big government, the impact of depression, and the economics of world war and peace. Lab access fee of \$25 for computers applies.

**ECON 494R**  
**Special Topics in Economics****3**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Provides short courses, workshops, and special programs in economics and current business and public policy topics. May be repeated for a maximum of 6 credits toward graduation.

**ECON 4960**  
**Economics capstone research project****3**

\* Prerequisite(s): ECON 3470 and University Advanced Standing

Provides guidance for the capstone research project for the Bachelor's Degree in Applied Economics. Integrates all steps of the economic scientific method from designing a research project to using appropriate empirical tools and analyzing economic issues. Provides students the opportunity to work on real-world projects. Lab access fee of \$25 for computers applies.

**ECON 4970**  
**Economic Research Design and Implementation****3**

\* Prerequisite(s): Matriculation into the Woodbury School of Business and University Advanced Standing

Defines the scientific approach to managerial decision-making and project management. Describes issues related to problem definition, model development, data collection, model implementation using the data, model validation, results analysis, and using the findings to implement changes to solve problems. Examines both quantitative and qualitative models and methods. Allows students to work on real-world projects through the Utah Community Research Group (Utah CRG) and its research partners.

**ECON 6300**  
**Managerial Economics****3**

\* Prerequisite(s): Acceptance in the MBA program

Applies concepts and theories, based on managerial economic to business problems. Analyzes cost theory, pricing, market structures, and forecasting.

**ECON 6330**  
**Econometrics****3**

\* Prerequisite(s): Acceptance in the MBA program

Provides graduate level introduction to applied regression tools, including simple and multivariate regression analysis; linear, nonlinear, and qualitative dependent variable models; distributed lags; seemingly unrelated regression, and model specification and validation tests.

## Applied Behavior Analysis (EDAB)

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**EDAB 6010**  
**ABA Concepts and Principles****3**

\* Prerequisite(s): Admission to Master of Education in Applied Behavioral Studies program or permission of the graduate program director

Provides students with a strong foundation in the basic concepts and principles of ABA, including the history and philosophical assumptions of behavior analysis and autism spectrum disorder. Graduate fee of \$515 applies.

**EDAB 6020**  
**Ethics and Professional Competencies in Applied Behavioral Analysis****3**

\* Prerequisite(s): Admission to Master of Education in Applied Behavioral Studies program or permission of the graduate program director

Defines ethical responsibilities required in the field of applied behavior analysis. Introduces policy and practice related to informed consent, protection of confidentiality, selection of least intrusive and least restrictive behavior change procedures within the context of case methodology. Emphasizes legal issues and ethical decision making processes. Covers professional, disciplinary, and ethical standards for Board Certified Behavior Analyst certification in depth. Graduate fee of \$515 applies.

**EDAB 6030**  
**Developing and Changing Behaviors****3**

\* Prerequisite(s): Admission to Master of Education in Applied Behavioral Studies program or permission of the graduate program director

Explains various behavioral assessments and intervention strategies. Focuses on single subject designs and procedures for measuring behavior, displaying data, and interpreting results. Examines ways to evaluate and analyze behavior change. Graduate fee of \$515 applies.

**EDAB 6040**  
**Measurement in Single Subject Design****3**

\* Prerequisite(s): Admission to Master of Education in Applied Behavioral Studies program or permission of the graduate program director

Introduces methods for collection and interpretation of various types of data. Focuses on the importance of making data-driven decisions for behavior change procedures based on functional relationships. Graduate fee of \$515 applies.

**EDAB 6050**  
**Functional Behavior Assessment and Treatment****3**

\* Prerequisite(s): Admission to the Master of Education in Applied Behavior Analysis program, or permission of the graduate program director.

Focuses on using methods and tools for selecting and defining target behaviors and for behavior measurement. Provides experience in methods to develop new behavior using imitation, modeling, shaping, and chaining and methods to decrease behaviors using extinction, differential reinforcement and antecedent interventions. Reviews and extends the study of functional behavior assessment, verbal behavior, generalization and maintenance of behavior change. Course fee of \$515 applies.

# Course Descriptions

## **EDAB 6060**

### **Advanced Topics in Applied Behavior Analysis**

**3**

\* Prerequisite(s): Admission to Master of Education in Applied Behavioral Studies program or permission of the graduate program director

Focuses on advanced topics in behavior analysis, including current research, changes in relevant legislation, emerging areas of behavior analysis, measurement technology, school applications, teaching methodology, innovative interventions, and ethics. Graduate fee of \$515 applies.

## **EDAB 6070**

### **Training Supervision and Performance Monitoring in Applied Behavior Analysis**

**3**

\* Prerequisite(s): Admission to Master of Education in Applied Behavioral Studies program or permission of the graduate program director

Examines the training, supervision, and performance monitoring from an applied Behavior Analytic perspective. Provides students with a strong foundation in effective training as it applies to parents, staff, and supervisees. Develops competency in supervision of ABA interns. Provides an overview of systems-level analysis, including organizational assessment, quality assurance, performance, and outcome monitoring. Graduate fee of \$515 applies.

## **EDAB 6080**

### **Introduction to Practice in ABA**

**3**

\* Prerequisite(s): Admission to the Master of Education in Applied Behavior Analysis program.

Provides an introduction to applied practice in behavior analysis. Focuses on foundational knowledge to apply clinical skills to address problem behaviors of social importance and to teach pro-social, adaptive behaviors.

## **EDAB 6090**

### **Advanced Applications in ABA**

**2**

\* Prerequisite(s): Admission to the Master of Education in Applied Behavior Analysis program.

Focuses on the application of advanced clinical skills to address problem behaviors of social importance. Teaches practices used to develop pro-social, adaptive behaviors. Examines best practices for addressing complex problems in applied settings.

## **EDAB 6100**

### **Group Research Design in ABA**

**3**

\* Prerequisite(s): Admission to the Master of Education in Applied Behavior Analysis program.

Provides an introduction to group research design in the field of Applied Behavior Analysis (ABA). Examines the basic concepts and principles of group research designs. Addresses the history and contemporary application of these principles to research in autism spectrum disorder.

## **EDAB 689R**

### **ABA Supervision Seminar**

**1**

\* Prerequisite(s): Admission to the Master of Education in Applied Behavior Analysis program.

Provides students with a comprehensive understanding of clinical practice in applied behavior analysis. Examines ways to apply clinical skills to the treatment selection and implementation process. Explores strategies to promote a client centered and culturally competent approach to clinical practice in applied behavior analysis.

## **School Counseling (EDCO)**

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### **EDCO 6010**

#### **Foundational Principles of School Counseling**

**3**

\* Prerequisite(s): Admission to Master Education School Counseling program.

Examines the foundational principles of school counseling and introduces students to the Utah School Counseling Model and the ASCA National Model. Provides students with the information and knowledge of how to implement a College and Career Readiness School Counseling Program.

### **EDCO 6020**

#### **Ethics and Professional Competencies of School Counseling**

**3**

\* Prerequisite(s): Acceptance into the SOE Master of Education in School Counseling.

Provides essential knowledge and skills as established by the Utah State Board of Education standards. Focuses on legislation impacting professional school counselors and the ASCA Code of Ethics.

## **EDCO 6030**

### **Career Counseling**

**3**

\* Prerequisite(s): Acceptance into School of Education graduate program or approval of graduate program director

Introduces theories of career development and career decision-making models relating to educational and career development program planning, organization, implementation, administration, and evaluation. Covers the history of work and career in the U.S. in addition to contemporary influences and multicultural considerations.

## **EDCO 6040**

### **Multicultural Counseling**

**3**

\* Prerequisite(s): Admission to the Master of Education in School Counseling program.

Examines implications of working with students with diverse cultural backgrounds. Exposes students to various cultures and the methods, values, and beliefs that organize family life and human development. Examines how the intersections of race, class, culture, gender, ethnicity, and sexuality shape and affect the lives of individuals and families. Explores intervention practices, social advocacy models, and resistance strategies.

## **EDCO 6050**

### **Interventions in Schools**

**3**

\* Prerequisite(s): Acceptance into School of Education graduate program or approval of graduate program director

Introduces developmentally relevant counseling treatment or intervention plans. Includes development of measurable outcomes for students. Teaches evidence-based counseling strategies and techniques for prevention and intervention. Provides instruction on the referral process and community-based resources. Emphasizes suicide prevention models and strategies. Explores crisis intervention, trauma-informed, and community-based strategies, such as Psychological First Aid.

## **EDCO 6060**

### **College and Career Readiness**

**3**

\* Prerequisite(s): Acceptance into School of Education graduate program or approval of graduate program director

Prepares future school counselors to help all students succeed in post-secondary training and future careers. Emphasizes current labor market demands and resources that can provide early and ongoing exposure to information necessary for students to make informed decisions regarding post-secondary education and improve their career literacy.

**EDCO 6100  
Research and Evaluation****3**

\* Prerequisite(s): Admission to the Master of Education in School Counseling program.

Introduces practitioner research in school counseling. Identifies methods for locating, reading, interpreting, and using credible research, and explores approaches to applying action research methods in school counseling programs to advance the counseling profession. Provides students the skills and competencies necessary to successfully conduct valid and reliable research and analyze and use data for completing data projects required by the Utah State Board of Education.

**EDCO 6710  
School Counseling Practicum****3**

\* Prerequisite(s): Admission to the Master of Education in School Counseling program.

Provides students with an opportunity to job shadow a school counselor at a local school for 100 hours and directly apply concepts and principles learned in coursework. Includes weekly reporting and reflection from practicum experiences to a group supervisor. Provides instructional content relating to the special topics in school counseling.

**EDCO 689R  
School Counseling Internship****3**

\* Prerequisite(s): Admission to the Master of Education in School Counseling program.

Supports the student in completing the required 400-600 hour internship.

**Edu Early Childhood  
Education (EDEC)****EDEC 1640  
Childrens Music and Movement****2**

Covers historical foundations of music for young children. Explores strategies for teaching music and movement. Explores music appreciation, creative and structured music, and transitions and movement activities for young children. Investigates musical instruments and their use. Provides opportunities to teach music and movement activities to children. Examines music and movement curricula, academic content and learning environments. Course fee of \$10 for materials applies.

**EDEC 2300  
Including Young Diverse Learners****2**

\* Prerequisite(s): PSY 1100; ACT (or equivalent) composite score of 21+, or completion of (ENGL 1010 or ENGH 1005 or higher) with a minimum grade of C-

Introduces the implications of diversity and exceptionality in young children. Emphasizes the impact of diversity in children's educational settings. Includes basic assessment strategies. Introduces teaching strategies to address children with special needs and/or from diverse populations. Emphasizes inclusive and adaptive strategies for supporting young children with exceptionalities. Covers partnerships, families, and communities. Includes 10 hours of field experiences.

**EDEC 2500  
Child Development Birth to Eight Years****3**

\* Prerequisite(s): PSY 1100; ACT (or equivalent) composite score of 21+, or (ENGL 1010 or ENGH 1005 or higher) with a minimum grade of C-

Covers developmental theories and milestones of a child's development. Emphasizes growth in all developmental domains. Focuses on supportive parental and care giver behaviors. Addresses the influence of out-of-home care. Examines the role of play when creating supportive environments. Investigates risk factors that impede optimal development. Includes 15 hours of structured observation, assessment, and interactions with young children.

**EDEC 2600  
Introduction to Early Childhood Education****2**

\* Prerequisite(s): ACT (or equivalent) composite score of 21+, or (ENGL 1010 or ENGH 1005 or higher) with a minimum grade of C-

Introduces the field of early childhood education. Focuses on the historical, theoretical and philosophical foundations of early childhood education. Emphasizes developmentally appropriate practices, constructivism, and integrated, child-centered curriculum. Covers learning in all domains and content areas. Explores the components that identify quality programs for young children. Addresses ethical and professional teaching practices. Includes 8 hours of classroom observations. Canvas Course Mats \$60/Sage applies.

**EDEC 2610  
Child Guidance****3**

\* Prerequisite(s): ACT (or equivalent) composite score of 21+, or (ENGL 1010 or ENGH 1005 or higher) with a minimum grade of C-

Focuses on the adult role in fostering the social and emotional development of young children. Emphasizes strategies adults can use to build positive self-concept, appropriate social behaviors, empathy, independence, responsibility and effective communication in children. Addresses the value of play to enhance children's social development. Introduces strategies to reduce aggressive behaviors. Examines factors that effect resiliency in young children. Includes 20 hours of structured field observations and interactions with young children.

**EDEC 2620  
Early Childhood Curriculum****3**

\* Prerequisite(s): ACT (or equivalent) composite score of 21+, or (ENGL 1010 or ENGH 1005 or higher) with a minimum grade of C-, EDEC 2600 recommended

Examines the philosophy of Developmentally Appropriate Practice in connection to teaching preschool children, preparing the classroom environment, and planning/ implementing instruction. Investigates a variety of curriculum models. Addresses the role of play to support learning in all areas of development. Introduces the principles of intentional teaching. Focuses on creating and teaching child-guided and teacher-guided learning experiences using early childhood standards. Covers integrating content when planning lessons. Includes curriculum mapping to facilitate integration of state core curriculum standards in early childhood classrooms. Includes 20 hours of field experiences in an early childhood classroom. Course fee of \$10 for materials applies.

**EDEC 2630  
Literacy and Literature for Early Childhood****3**

\* Prerequisite(s): ACT (or equivalent) composite score of 21+, or (ENGL 1010 or ENGH 1005 or higher) with a minimum grade of C-

Introduces practical aspects of fostering literacy development in young children. Focuses on emerging and early literacy in the home, early care, and education settings. Investigates strategies for holistic integration of various literacy processes. Addresses the role of appropriate children's literature to support early language and literacy development. Examines methods for developing positive attitudes towards reading, writing and books.

## Course Descriptions

### **EDEC 2700**

#### **Early Childhood Practicum**

**3**

\* Prerequisite(s): ACT (or equivalent) composite score of 21+, or (ENGL 1010 or ENGH 1005 or higher) with a minimum grade of C-, EDEC 2600 with a B- or higher

\* Corequisite(s): EDEC 2720

\* Prerequisite(s) or Corequisite(s): EDEC 2610 and EDEC 2620

Provides support-teaching and lead-teaching experiences in partnership preschool programs. Includes planning and implementing learning plans. Focuses on appropriate interactions with children in whole groups, small groups and individually. Addresses positive and effective guidance strategies. Provides parent education opportunities. Provides individual and collaborative reflection on teaching practices. Addresses professional and ethical teaching practices. Requires an assigned field experience with children. Course fee of \$25 for materials applies.

### **EDEC 2720**

#### **Early Childhood Assessment**

**2**

\* Prerequisite(s): ACT (or equivalent) composite score of 21+, or (ENGL 1010 or ENGH 1005 or higher) with a minimum grade of C-, EDEC 2600 with a B- or higher

\* Corequisite(s): EDEC 2700

\* Prerequisite(s) or Corequisite(s): EDEC 2610 and EDEC 2620

Addresses assessment of children in an early childhood classroom during the practicum experience. Focuses on authentic assessment of young children, using anecdotal observations, child work samples, photos, checklists, event samplings, and logs. Emphasizes using child assessment to inform curriculum planning. Prepares participants to create child portfolio assessments for use in parent conferences. Includes creating a professional teaching portfolio assessment.

### **EDEC 3820**

#### **Assessment in the PreK-K classroom**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): EDEC 2620

Addresses assessment with children in pre-k or kindergarten classrooms. Focuses on authentic assessment of young children using anecdotal observations, child work samples, checklists, event samplings, and logs. Emphasizes assessment to inform curriculum planning. Addresses the connection between daily child assessment to Utah Early Childhood Core Standards or Utah State Kindergarten Core standards. Prepares participants to create child portfolio assessments for use in conference with parents. Includes personal professional portfolio assessment.

## **Edu Elementary Education (EDEL)**

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### **EDEL 1010 (Cross-listed with: EDSC 1010)**

#### **Introduction to Education**

**2**

Facilitates matriculation into professional education programs. Examines the relationships of teaching, learning, motivating, and instructing in classroom settings. Includes observation in public schools to help students understand these relationships and appreciate the role of professional educators in today's society. Requires substantial commitment of time to off-campus field experiences.

### **EDEL 2200**

#### **Introduction to Educational Technology**

**2**

Explores the evaluation, selection, and use of technology for children. Develops students' confidence in the use of a variety of technologies. Includes authentic hands-on experiences with digital tools. May be delivered online.

### **EDEL 2330**

#### **Childrens Literature**

**3**

Focuses on current and classic children's literature for ages 0-12. Examines picture books, beginning readers, chapters books and novels. Addresses evaluating the literary quality of children's books in a variety of genres. Covers book awards and selection criteria for quality literature. Examines reading motivation and enjoyment. Investigates controversial issues in children's literature. Canvas Course Mats \$38/Pearson applies.

### **EDEL 3000**

#### **Educational Psychology**

**3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Stresses research-based teaching/learning principles used in a classroom setting to enhance learning. Includes study of parent education, involvement, and support strategies, and collaboration with community agencies and professionals. Emphasizes the application of theory to practice with emphasis on teacher-student instructional interaction and teacher/parent/community agency interactions. Designed to help students understand how children develop and learn and how that knowledge should influence classroom teaching.

### **EDEL 3050**

#### **Foundations of American Education**

**2**

\* Prerequisite(s): University Advanced Standing and Admission to Professional Education Program or permission of department chair

Provides a broad and comprehensive overview of American education. Facilitates the understanding of current educational practices in America as a result of the social, historical, economic, and political forces that have had influence on the education system. Provides opportunities for students to evaluate their own belief system concerning education.

### **EDEL 3100**

#### **Kindergarten Classroom**

**2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Examines the philosophy of Developmentally Appropriate Practice in connection to interactions with kindergarten children, preparing the classroom environment, and planning/implementing instruction. Addresses the role of play to support learning in all areas of development. Includes strategies for supporting children's social, emotional, and cognitive development. Introduces the principles of intentional teaching. Emphasizes lesson planning in all content areas. Addresses the teacher's responsibility in creating a child-centered environment that supports creativity, critical thinking, communication, and collaboration.

### **EDEL 325G**

#### **Equitable Technology Integration**

**2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Addresses the equitable integration of technologies into elementary classroom instruction. Prepares future teachers to use technologies to differentiate their instruction to meet the needs of all students. Explores ways technology can be used to revitalize pedagogy. Explores the impact of the global digital divide. Provides future teachers with the ability to develop lesson activities that empower students to make meaningful connections and develop 21st Century skills.

**EDEL 330G  
Multicultural Education**

**3**  
\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Discusses implications of human diversity for major societal institutions. Addresses the impact of diversity in children's education environments, ages birth through adolescence. Focuses on linguistic, cultural, ethnic, familial, religious, developmental, and gender diversity. Emphasizes inclusive, anti-bias classroom strategies for supporting learning and development of diverse students. Encourages examination of personal beliefs and attitudes about diversity.

**EDEL 3350  
Instructional Design and Assessment**

**3**  
\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Covers instructional design and assessment for program effectiveness and student achievement. Discusses instructional models, skills and techniques for engaging students in course content and assessing learning. Teaches beginning lesson plan design.

**EDEL 340G  
Exceptional Students**

**2**  
\* Prerequisite(s): Admission to Professional Education Program or permission of department chair and University Advanced Standing

Covers the role of teachers in the inclusion of exceptional children, working with parents and specialists, and in developing individual educational plans for exceptional children. Introduces characteristics and special needs of exceptional children who have physical, emotional, social, mental, or health exceptionalities. Stresses curriculum modification planning necessary for special needs students. Addresses ethical behaviors specific to teaching exceptional children.

**EDEL 4200  
Elementary Learning Environments I**

**1**  
\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Introduces students to basic classroom management ideas. Provides learning strategies for managing students and materials in the classroom environment. Explores basic classroom management theories and practices.

**EDEL 4210  
Elementary Learning Environments II**

**1**  
\* Prerequisite(s): EDEL 4200, Admission to Professional Education Program, and University Advanced Standing

Establishes a foundation for selecting a model to follow for the development of a classroom management plan. Considers the role of the teacher and students in developing rules and establishing habits in a classroom setting.

**EDEL 4230  
Elementary Learning Environments III**

**1**  
\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Presents strategies for routine management of the classroom environment and materials, and the initial set up of a classroom and management plans.

**EDEL 4240  
Elementary Learning Environments IV**

**1**

**EDEL 4400  
Elementary Literacy Instruction and Assessment I**

**3**  
\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Presents practical and theoretical foundations for fostering reading competence in children, kindergarten through grade 3. Addresses literacy models, research-based reading instruction, and literacy assessments. Includes collaborative activities and public school field experience with children. Emphasizes findings of the National Reading Panel, International Reading Association standards and positions in literacy instruction, as well as Utah Common Core curriculum requirements.

**EDEL 4410  
Elementary Literacy Instruction and Assessment II WE**

**3**  
\* Prerequisite(s): Admission to Professional Education Program or permission of department chair; University Advanced Standing

Presents practical and theoretical foundations for fostering reading competence in children, grade 3 to 6. Surveys three essential components of learning to read: fluency, vocabulary, and comprehension, as well as reading motivation and academic reading. Addresses the explicit gradual release of responsibility model and think-alouds. Provides collaborative activities and public school field experience where original lesson plans are taught. Emphasizes findings of the National Reading Panel, International Reading Association standards and positions in literacy instruction, as well as Utah Common Core curriculum requirements.

**EDEL 4420  
Elementary Language Arts Instruction and Assessment**

**3**  
\* Prerequisite(s): (Admission to Professional Education Program or department chair permission) and University Advanced Standing

Presents methods for teaching reading and language art concepts to children, grades K-6. Includes classroom instruction and field experiences with children.

**EDEL 443G  
Teaching Methods for English Learners GI WE**

**3**  
\* Prerequisite(s): Admission to Professional Education Program or permission of department chair; University Advanced Standing

Introduces teachers to the teaching of English as a second language not only for linguistic development, but for cognitive, academic and social development. Includes classroom instruction and field experiences with children. Presents methods for promoting reading competence and fostering literacy in limited English-speaking children, grades K-6. Prepares teachers to teach English as a second language in U.S. public schools. Covers both theoretical and applied aspects of second language learning and teaching and provides techniques, activities, strategies and resources to plan instruction for English language learners (ELLs).

# Course Descriptions

## **EDEL 4510**

### **Elementary Mathematics Instruction and Assessment I**

**3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Introduces methods for teaching math concepts to children, grades K-6. Focuses on developing a mathematical mindset, choosing worthwhile mathematical tasks, and planning lessons. Includes classroom instruction and field experiences with children.

## **EDEL 4520**

### **Elementary Science Instruction and Assessment**

**3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Presents methods for teaching science concepts to children, grades K-6. Includes classroom instruction and field experiences with children. Includes hands-on laboratory experiences.

## **EDEL 4530**

### **Elementary Social Studies Instruction and Assessment**

**3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Presents methods of teaching social studies concepts to children, grades K-6. Includes classroom instruction and field experiences with children.

## **EDEL 4540**

### **Elementary Fine Arts Instruction and Assessment**

**3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Presents methods for integrating music, art, dance, and drama experiences across the curriculum in grades K-6. Includes classroom instruction and field experiences with children.

## **EDEL 4550**

### **Elementary Mathematics Instruction and Assessment II**

**3**

\* Prerequisite(s): University Advanced Standing, EDEL 4510, and admission to Professional Education Program or permission of department chair

Presents methods for teaching math concepts through the contexts of specific mathematical content to children, grades K-6. Includes classroom instruction and field experiences with children.

## **EDEL 4620**

### **Differentiation for Academic Diversity**

**2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Includes theory and philosophy for teachers working with diverse populations, grades K-6. Outlines critical need for knowing students' personal, cultural, and community assets, as well as academic strengths and needs. Addresses strategies for pre- and formative assessment determining instruction that differentiates content, learning processes, and products for students' readiness, interests, and learning profiles.

## **EDEL 4880**

### **Student Teaching--Grades K-6**

**9**

\* Prerequisite(s): University Advanced Standing, admission to Professional Education Program or permission of department chair, and successful completion of all other professional coursework.

\* Corequisite(s): EDEL 4240, EDEL 4980, and EDEL 4990

Provides a culminating 12-week teaching experience in an elementary classroom, grades K-6. Enhances knowledge, skills, and attitudes in preparation for a teacher preparation assessment. Course Lab fee of \$200 for practical experience applies.

## **EDEL 491R**

### **Independent Study**

**2 to 4**

\* Prerequisite(s): Department Chair Approval and University Advanced Standing

For Bachelor Degree seeking students and other interested persons. Offers independent study as directed at the discretion and approval of the department chairperson. May be repeated for a maximum of 3 credits toward graduation.

## **EDEL 4980**

### **Elementary Education Capstone Seminar**

**1**

\* Prerequisite(s): University Advanced Standing, admission to Professional Education Program or permission of department chair, and successful completion of all other professional coursework.

\* Corequisite(s): EDEL 4240, EDEL 4880, and EDEL 4990

Integrates previous coursework and current student teaching or internship experience. Includes designing, teaching and assessing a comprehensive learning segment in both literacy and math. Engages preservice teachers in professional analysis and reflection.

## **EDEL 4990**

### **Teacher Performance Assessment Project**

**2**

\* Prerequisite(s): University Advanced Standing, admission to Professional Education Program or permission of department chair, and successful completion of all other professional coursework

\* Corequisite(s): EDEL 4240, EDEL 4880, and EDEL 4980

Introduces the teaching and learning cycle: planning, instruction, and assessment. Assists students in completing an authentic assessment tool that shows how they develop and evaluate student learning. Documents authentic practices from the student's teaching experience that address planning, instruction, assessment, analyzing teaching, and academic language to reveal the impact of a candidate's teaching performance on student learning. Course lab fee of \$300 for the teacher performance assessment applies.

## **Higher Education Leadership (EDHE)**

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### **EDHE 6200**

#### **Higher Education Leadership Capstone Project**

**3**

\* Prerequisite(s): Admission to Master of Education Higher Education Leadership program.

Focuses on the capstone project report. Addresses literature review, proposal, feedback and future steps. Includes report and defense of capstone projects.

### **EDHE 6410**

#### **Foundations and Contexts of Higher Education**

**3**

\* Prerequisite(s): Admission to the Master of Education in Higher Education Leadership program, or permission of the graduate program director.

Examines diverse models and systems of higher education in an effort to provide contexts for effective work and leadership in higher education environments. Explores the nuances of higher education institutions in terms of political dynamics, shared governance, technology, innovation, organizational culture, and external/internal constituent expectations and perceptions. Discusses U.S. and international models of higher education and future possibilities.

**EDHE 6420**  
**Diversity in Higher Education**

**3**  
 \* Prerequisite(s): Admission to the Master of Education in Higher Education Leadership program, or permission of the graduate program director.

Examines multiple critical lenses informing the higher education landscape on issues related to marginalization, identity, silence, under-representation and other factors that American higher education has historically been inadequate at addressing. Guides students to develop a personal framework based in reflexivity around biases. Synthesizes collegial, institutional, historical and contextual nuances to provide foundational knowledge. Develops a dispositional and interdisciplinary approach to facilitate inclusion within particular higher education roles and activities.

**EDHE 6430**  
**Student Success and Development**

**3**  
 \* Prerequisite(s): Admission to the Master of Education in Higher Education Leadership program, or permission of the graduate program director.

Presents various theories relevant to college student development and applies those theories to the field through class discussion, papers, and special projects. Introduces students to the major theories of learning, development, and retention and connects them with current practice.

**EDHE 6440**  
**Leadership in Higher Education**

**3**  
 \* Prerequisite(s): Admission to the Master of Education in Higher Education Leadership program, or permission of the graduate program director.

Examines organizational theory, models, governance, and management processes in higher education, leadership perspectives and leadership theory. Explores leadership as a discipline that transcends functional area, serving as a framework to lead and guide within higher education. Investigates leadership theories and formulates personal approach as an educational leader.

**EDHE 6450**  
**Law-Policy-Ethics in Higher Education**

**3**  
 \* Prerequisite(s): Admission to the Master of Education in Higher Education Leadership program, or permission of the graduate program director.

Examines legal frameworks, liability, compliance, constitutional and civil rights, competing rights of institutions, faculty, staff, and students, and contractual obligations in higher education. Explores the legal, ethical, institutional, and political processes that influence higher education and the relationship between law and the system of higher education. Critiques legal issues as a way to define the role and meaning of higher education in today's society.

**EDHE 6460**  
**Planning-Budget-Organizational Effectiveness**

**3**  
 \* Prerequisite(s): Admission to the Master of Education in Higher Education Leadership program, or permission of the graduate program director.

Examines the principles and practices of strategic planning, evaluation, accountability, and financial management in higher education institutions, operating units, and academic programs.

**EDHE 696R**  
**Higher Education Leadership Capstone**

**1**  
 \* Prerequisite(s): Admission to Master Education Higher Education Leadership program

Addresses the three phases of capstone project development. Provides instruction on writing the literature review. Examines the development of the capstone proposal and presentation. Incorporates feedback and reflection on proposal presentations.

## **K-12 Education Leadership (EDLE)**

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**EDLE 6120**  
**Personal Leadership and Organizational Design**

**3**  
 \* Prerequisite(s): Admission to Master of Education in K-12 Education Leadership or Graduate Certificate leading to USBE K-12 Education Leadership License Area of Concentration, or permission of the graduate program director.

Introduces students to critical concepts about leadership theories and practice. Provides both historical perspective and current understanding to approaches, methods, and practices of leaders. Provides insight into how leadership skills and organization strategies produce increased productivity and better learning/working environments for P-12 students' academic success and well-being. Provides opportunity for class members to examine their own beliefs and develop a personal model of leadership. Emphasizes attributes that promote integrity, fairness, transparency and trust.

**EDLE 6130**  
**School Operations and Management-Finance/Law/Safety**

**3**  
 \* Prerequisite(s): Admission to the Master of Education in K-12 Education Leadership program, the Graduate Certificate in Educational Leadership program, or permission of the graduate program director.

Explores school finance, law, and safety as primary themes in school management and operations. Provides an overview of current K-12 management conditions and theory. Discusses these themes 1) best management theories and practices for not-for-profit organizations, 2) rules and regulations that govern school finance, 3) court rulings in areas of student speech, discipline, and other points of tensions in public schools, and 4) school organization to keep students physically and emotionally safe.

**EDLE 6140**  
**Instructional Leadership**

**3**  
 \* Prerequisite(s): Admission to the Master of Education in K-12 Education Leadership program, the Graduate Certificate in Educational Leadership program, or permission of the graduate program director.

Advances student understanding, skill, and capacity to facilitate coherent systems of curriculum development, impactful instruction, valid assessment. Builds professional capacity for data interpretation and decision making for the success and well-being of students and faculty.

# Course Descriptions

## **EDLE 6150**

### **School Operations and Management-Communication/Planning/HR/Evaluation** **3**

\* Prerequisite(s): Admission to the Master of Education in K-12 Education Leadership program, the Graduate Certificate in Educational Leadership program, or permission of the graduate program director.

Explores school communication, planning, human resources, and evaluation as primary themes in school management and operations. Provides an overview of current K-12 management conditions and theory. Reviews the role of legislation, policy, and leadership on the primary themes. Prepares students to communicate with stakeholders, strategically plan for school improvement, know best practices in the hiring and retention of public school staff.

## **EDLE 6160**

### **Developing Positive School and Community Culture** **3**

\* Prerequisite(s): Admission to the Master of Education in K-12 Education Leadership program, the Graduate Certificate in Educational Leadership program, or permission of the graduate program director.

Introduces students to critical concepts about building a school culture that leverages the strengths of collective solutions. Identifies leadership skills required to effectively manage change within the school setting. Introduces assessments to use in identifying challenges and summarizing impact of PLC fairness, transparency and trust.

## **EDLE 6170**

### **Leading Change/Innovation/Educational Entrepreneurship** **3**

\* Prerequisite(s): Admission to the Master of Education in K-12 Education Leadership program, the Graduate Certificate in Educational Leadership program, or permission of the graduate program director.

Introduces critical concepts of school change. Addresses strategies to encourage and manage innovation and entrepreneurship. Prepares students to aid learners in developing deeper abilities to create, critique, and collaborate to solve complex challenges facing society. Prepares students to successfully manage change and innovation in teaching and learning in the 21st century. Guides students in learning to anticipate needed changes and to develop skills to effectively lead innovation in their school settings.

## **EDLE 6200**

### **Current Research in Education Leadership** **3**

\* Prerequisite(s): Admission to Master Education Leadership program leading to USBE Professional Education Leadership License Area in K-12 Education Leadership Concentration.

Examines current research in education leadership through reading, discussion, analysis, and writing. Includes reviews of research literature related to K-12 education. Emphasizes connections to state board professional requirements.

## **EDLE 696R**

### **Clinical Portfolio** **1**

\* Prerequisite(s): Admission to the Master of Education in K-12 Education Leadership program, the Graduate Certificate in Educational Leadership program, or permission of the graduate program director.

Focuses on clinical experiences to build skills and strategies needed for school leadership. Aligns all experiences with USBE licensure requirements. Includes the development of the professional school leadership portfolio. Requires evidence for all USBE professional school leadership strands.

## **Edu Secondary Education (EDSC)**

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### **EDSC 1010 (Cross-listed with: EDEL 1010)**

#### **Introduction to Education** **2**

Facilitates matriculation into professional education programs. Examines the relationships of teaching, learning, motivating, and instructing in classroom settings. Includes observation in public schools to help students understand these relationships and appreciate the role of professional educators in today's society. Requires substantial commitment of time to off-campus field experiences.

## **EDSC 3000**

### **Educational Psychology** **3**

\* Prerequisite(s): Admission to Professional Education Program and University Advanced Standing

Stresses research-based teaching and learning principles used in secondary classroom settings to enhance student learning and motivation. Emphasizes the application of theory to practice. Designed to help students in the professional secondary teacher preparation program prepare for state teacher licensing requirements. Requires service-learning.

## **EDSC 3050**

### **Foundations of American Education** **2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Provides a broad and comprehensive overview of American education. Facilitates the understanding of current educational practices in America as a result of the social, historical, economical, and political forces that have had influence on the education system. Provides opportunities for students to evaluate their own belief system concerning education.

## **EDSC 325G**

### **Equitable Technology Integration** **2**

\* Prerequisite(s): Admission to Professional Education Program and University Advanced Standing

Addresses the equitable integration of technologies in 7-12th grade and in all curricular areas. Prepares future teachers to use technologies to differentiate their instruction to meet the needs of all students. Explores ways technology can be used to revitalize pedagogy. Evaluates the impact of the global digital divide. Provides future teachers with the ability to develop lesson activities that empower students to make meaningful connections and develop 21st Century skills.

## **EDSC 4200**

### **Classroom Management I** **2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Provides effective classroom management procedures (including classroom setup). Develops strategies to build strong student-teacher relationships and classroom management philosophy, rules, and consequences. Identifies strategies for 1st day success and strategies to handle behavior problems encountered in the classroom.

## **EDSC 4250**

### **Classroom Management II** **2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

\* Corequisite(s): (EDSC 4850 and EDSC 4990) or (EDSP 4990 and EDSP 4885 or EDSP 4895)

Develops strategies for planning and conducting instruction. Establishes appropriate strategies for handling chronic misbehavior and students with behavioral or emotional disorders. Explores practical and appropriate responses, including internal control and behavior modification strategies with an emphasis on self-monitoring. Prepares preservice secondary teachers to interact well with parents.

**EDSC 4440**  
**Content Area Literacies****3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Prepares preservice secondary teachers to facilitate the development of reading, writing, speaking and listening skills in the content areas through an asset-based lens and to support and expand the literacy practices of their disciplines.

**EDSC 445G**  
**Multicultural Instruction ESL****3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Prepares pre-service secondary teachers to understand and facilitate achievement in the content areas for ethnically and linguistically diverse students at the middle school and high school level. Covers foundations of multicultural education and instructional methodology for adaptations for ethnically and linguistically diverse students. Emphasizes inclusive, anti-bias classroom strategies for supporting learning and development of diverse students. Encourages examination of personal beliefs and attitudes about diversity. Introduces teachers to the teaching of English as a second language not only for linguistic development, but for cognitive, academic and social development. Covers both theoretical and applied aspects of second language learning and teaching and provides techniques, activities, strategies and resources to plan instruction for English language learners (ELLs).

**EDSC 455G**  
**Secondary Curriculum Instruction and Assessment****3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Examines state standards to prepare preservice secondary teachers to write objectives, lesson plans, and units using appropriate models of instruction and assessment. Includes a field experience component.

**EDSC 4850**  
**Student Teaching Secondary****4 to 10**

\* Prerequisite(s): University Advanced Standing, admission to Professional Education Program or permission of department chair, and successful completion of all other professional coursework

\* Corequisite(s): EDSC 4250 and EDSC 4990

Provides a thirteen-week teaching experience in a secondary classroom, grades 7-12. Includes application of knowledge, skills, and attitudes derived in previous course work and program experience. Requires students to be recommended for a secondary education license from the Utah State Board of Education. Course Lab fee of \$200 for practical experience applies.

**EDSC 491R**  
**Independent Study****2 to 4**

\* Prerequisite(s): Department Chair Approval and University Advanced Standing

For Bachelor Degree seeking students and other interested persons. Offers independent study as directed at the discretion and approval of the department chairperson. May be repeated for a maximum of 4 credits toward graduation.

**EDSC 4990**  
**Teacher Performance Assessment Project WE****2**

\* Prerequisite(s): Admission to Professional Education Program or permission of department chair, and successful completion of all other professional coursework; University Advanced Standing

\* Corequisite(s): EDSC 4250 and EDSC 4850

Introduces the teaching and learning cycle: planning, instruction, and assessment. Assists students in completing an authentic assessment tool that shows how they develop and evaluate student learning. Documents authentic practices from the student's teaching experience that address planning, instruction, assessment, analyzing teaching, and academic language to reveal the impact of a candidate's teaching performance on student learning. May be Graded Credit/No Credit. Course lab fee of \$300 for edTPA Performance Assessment applies.

**Edu Special Education (EDSP)****EDSP 2840**  
**Instruction and Assistive Technology****2**

Provides students with an overview of the field of instructional and assistive technology (IT and AT) and an understanding of how to successfully integrate varied uses of technology into their specific learning environment. Develops students' proficiencies for evaluating technology needs and teaching technology-enhanced learning activities to support students with diverse needs in the classroom.

**EDSP 3000**  
**Educational Psychology****3**

\* Prerequisite(s): Admission to Professional Education Program and University Advanced Standing

Stresses research-based teaching and learning principles used in classroom settings to enhance student learning and motivation. Emphasizes the application of theory to practice. Helps students in the professional teacher preparation program prepare for state teacher licensing requirements. Requires service-learning.

**EDSP 340G**  
**Exceptional Students****2**

Covers the role of teachers in the inclusion of exceptional children, working with parents and specialists, and in developing individual educational plans for exceptional children. Introduces characteristics and special needs of exceptional children who have physical, emotional, social, mental, or health exceptionalities. Stresses curriculum modification planning necessary for special needs students. Addresses ethical behaviors specific to teaching exceptional children. Requires ten hours of field work.

**EDSP 4100**  
**Instructional Strategies and Program Management for Students with Mild/Moderate Disabilities****3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Provides an overview of the individual education plan (IEP), service delivery patterns, assessment and programming variables and organizational variables necessary for teaching students with mild/moderate and significant disabilities.

## Course Descriptions

### **EDSP 4110**

#### **Special Education Law/Policies/Procedures 3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Provides overview of the role of the federal, state, and local government in special education issues with special emphasis on case and regulatory law, including Utah regulation. Focuses on six major principles of the Individuals with Disabilities Education Act as they relate to the free and appropriate public education for all students.

### **EDSP 4120**

#### **School to Post-School Transition Planning 2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Provides students with knowledge, strategies, and resources necessary to prepare students with disabilities for the transition from school to postsecondary education, employment, community participation, and independent living. Provides skills for transition planning and helping students access services necessary to reach their desired outcomes and become as independent as possible. Emphasizes the person-centered planning process, which embeds decisions based on students' preferences, interests, and abilities.

### **EDSP 4130**

#### **Math Instruction for Students with Mild/ Moderate/Severe Disabilities 2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair  
\* Corequisite(s): EDSP 4131

Provides specific strategies and techniques to use in teaching students with learning difficulties both in pull-out special educational settings and in more inclusive general education settings. Provides math curricula aligned with the Utah Core standards using Utah Effective Teaching standards. Emphasizes how to implement targeted interventions in Math at the Tier 3 level for students who are not making progress at the Tier 1 and Tier 2 interventions.

### **EDSP 4131**

#### **Math Practicum 1**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair  
\* Corequisite(s): EDSP 4130

Provides students the opportunity spend time in practicum placements to practice applying skills, competencies, and techniques to teach math to students with mild or moderate disabilities. Provides students with an opportunity to work with practicum coordinators to analyze and solve instructional and management problems by making data-based decisions.

### **EDSP 4135**

#### **Reading and Writing Instruction for Students with Mild/Moderate/Severe Disabilities K-12 2**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair  
\* Corequisite(s): EDSP 4136

Provides specific strategies and techniques to use in teaching students with learning difficulties both in pull-out special educational settings and in more inclusive general education settings. Features reading and writing curricula aligned with the Utah Core standards using Utah Effective Teaching standards. Emphasizes evidence-based practices and empirically supported instruction for teaching reading and writing to students with disabilities combined with data based decision making.

### **EDSP 4136**

#### **Reading Practicum 1**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair  
\* Corequisite(s): EDSP 4135

Provides students practicum placements to practice applying skills, competencies, and techniques to teach reading and writing to students with mild or moderate disabilities. Provides students with practicum coordinators to analyze and solve instructional and management problems by making data-based decisions.

### **EDSP 4140**

#### **Collaboration and Consultation with Parents and School Staff WE 3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Provides strategies for collaborating and communicating with families, other educators, related service providers, individuals with exceptionalities, and personnel from community agencies in culturally responsive ways. Provides a review of interagency collaboration and consultation for life skills. Emphasizes creating multidisciplinary teams and professional learning communities who are prepared to assist parents and other teachers in collaborative problem solving.

### **EDSP 4160**

#### **Assessment and Evaluation in Special Education 3**

\* Prerequisite(s): University Advanced Standing and admission to Professional Education Program or permission of department chair

Provides an overview of multiple methods of assessment. Presents the connection between gathering assessment information and applying results to decisions regarding students' eligibility for special education services. Includes administering eligibility assessment tests, interpreting results, and communicating results of assessment tools.

### **EDSP 4170**

#### **Instruction in Life Skills for Students with Severe and Significant Disabilities 3**

\* Prerequisite(s): (Admission to Professional Education Program or permission of department chair) and University Advanced Standing

Provides special education pre-service teachers with knowledge and understanding of the characteristics and needs of individuals with severe and significant disabilities. Includes Instructional programs and practices for Students with Moderate and Severe Disabilities. Evaluates procedures for data based evaluation of student progress.

**EDSP 4180**  
**Curriculum and Instruction for Students with Severe and Significant Disabilities**  
**3**

\* Prerequisite(s): (Admission to Professional Education Program or permission of department chair) and University Advanced Standing

Examines the history of instructional models and characteristics for students with moderate and severe disabilities. Creates instruction and assessment that includes accommodations, adaptations and materials appropriate for teaching individuals with moderate and severe disabilities. Evaluates methods of assessment for purposes of classification and educational placement.

**EDSP 4200**  
**Classroom Management I**  
**2**

\* Prerequisite(s): (Admission to Professional Education Program or permission of department chair) and University Advanced Standing

Provides effective classroom management procedures (including classroom setup). Develops strategies to build strong student-teacher relationships and classroom management philosophy, rules, and consequences. Identifies strategies for 1st day success and strategies to handle behavior problems encountered in the classroom.

**EDSP 4250**  
**Classroom Management II**  
**2**

\* Prerequisite(s): (Admission to Professional Education Program or permission of department chair) and University Advanced Standing

Develops strategies for planning and conducting instruction. Establishes appropriate strategies for handling chronic misbehavior and students with behavioral or emotional disorders. Explores practical and appropriate responses, including internal control and behavior modification strategies with an emphasis on self-monitoring. Prepares preservice teachers to interact well with parents.

**EDSP 4440**  
**Content Literacy**  
**3**

\* Prerequisite(s): (Admission to Professional Education Program or permission of department chair) and University Advanced Standing

Prepares preservice teachers to facilitate reading, writing and study skills achievement in the content areas. Includes field experience in public schools.

**EDSP 445G**  
**Multicultural Education/ESL**  
**3**

\* Prerequisite(s): (Admission to Professional Education Program or permission of department chair) and University Advanced Standing

Prepares pre-service teachers to understand and facilitate achievement for ethnically and linguistically diverse students in the classroom. Covers foundations of multicultural education and instructional methodology for adaptations for ethnically and linguistically diverse students. Emphasizes inclusive, anti-bias classroom strategies for supporting learning and development of diverse students. Encourages examination of personal beliefs and attitudes about diversity. Introduces teachers to the teaching of English as a second language not only for linguistic development, but for cognitive, academic and social development. Covers both theoretical and applied aspects of second language learning and teaching and provides techniques, activities, strategies and resources to plan instruction for English language learners (ELLs).

**EDSP 455G**  
**Curriculum Design and Assessment**  
**3**

\* Prerequisite(s): (Admission to Professional Education Program or permission of department chair) and University Advanced Standing

Examines state standards to prepare preservice teachers to write objectives, lesson plans, and units using appropriate models of instruction and assessment. Includes a field experience component.

**EDSP 4885**  
**Special Education Student Teaching--**  
**Grades K-6**  
**4 to 10**

\* Prerequisite(s): Admission to Professional Education Program, Successful completion of all professional education courses, and University Advanced Standing

\* Corequisite(s): EDSC 4250 and EDSP 4990

Provides a 13-week teaching experience in a special education classroom setting, grades K-6. Provides consultation and feedback through observation forms administered by their university consultant and student teaching mentor. Monitors application of knowledge, skills, and attitudes derived in previous course work and program experience. May be graded Credit/No Credit. Course Lab fee of \$200 for practical experience applies.

**EDSP 4895**  
**Special Education Student Teaching--7-12**  
**8**

\* Prerequisite(s): Admission to Professional Education Program or permission of department chair, successful completion of all other professional coursework, and University Advanced Standing

\* Corequisite(s): EDSC 4250 and EDSP 4990

Provides a 13-week teaching experience in a special education classroom setting, grades 7-12. Provides consultation and feedback through observation forms administered by their university consultant and student teaching mentor. Monitors application of knowledge, skills, and attitudes derived in previous course work and program experience. Course Lab fee of \$200 for practical experience applies.

**EDSP 4990**  
**Teacher Performance Assessment Project**  
**WE**  
**2**

\* Prerequisite(s): University Advanced Standing, admission to Professional Education Program or permission of department chair, and successful completion of all other professional coursework

\* Corequisite(s): EDSC 4250 and (EDSP 4885 or EDSP 4895)

Introduces the teaching and learning cycle: planning, instruction, and assessment. Assists students in completing an authentic assessment tool that shows how they develop and evaluate student learning. Documents authentic practices from the student's teaching experience that address planning, instruction, assessment, analyzing teaching, and academic language to reveal the impact of a candidate's teaching performance on student learning. May be graded credit/no credit. Course lab fee of \$300 for edTPA Performance Assessment applies.

**Education Curr and Instruction (EDUC)**

**EDUC 5100**  
**Personal Finance in Education**  
**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Focuses on teaching how to better manage personal finances. Requires students to develop lesson plans on personal financial planning, including goal setting, time value of money, personal financial statements, cash management, credit cards, credit, loans, buying skills, insurance, taxes, housing, investment alternatives, estate and retirement plans.

# Course Descriptions

## **EDUC 5201**

### **Teacher Performance Assessment Project**

**2**

\* Prerequisite(s): Employment by a state approved LEA, state associates license, completion of LEA required coursework.

Introduces the teaching and learning cycle: planning, instruction, and assessment. Assists students in completing an authentic assessment tool that shows how they develop and evaluate student learning. Documents authentic practices from the student's teaching experience that address planning, instruction, assessment, analyzing teaching, and academic language to reveal the impact of a candidate's teaching performance on student learning.

## **EDUC 5202**

### **Creating a Positive Learning Environment**

**3**

\* Prerequisite(s): Bachelor's degree, employment as teacher of record for a state approved LEA, Utah Associate educator's license.

Provides first-hand, supervised, clinical experience in observing and implementing effective class management practices.

## **EDUC 520R**

### **Special Topics in Education**

**.5 to 3**

\* Prerequisite(s): University Advanced Standing

Provides professional educators, administrators, policy makers, and interested members of the public with increased understanding of the latest research affecting K-12 education. Focuses on helping participants keep abreast of effective teaching strategies and curriculum design, alternative learning structures, innovative teaching technologies, educational policies and legislation, etc. May be repeated as many times as desired.

## **EDUC 5300**

### **Content-based Curriculum and Instruction and Assessment**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides a foundation in curriculum theory and practice. Introduces instructional design theories, principles and models. Outlines the historical development, current processes and practices of curriculum development, instructional design, implementation, and assessment. Examines applications and processes of curriculum decision making and the impact of national standards on curriculum design and development at the classroom, district, state, and national levels. Requires 15 field experience/practicum hours in addition to class time.

## **EDUC 5310**

### **Introduction to Special Education**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean

Provides a comprehensive introduction of characteristics of children and youth with disabilities and topics related to models of service delivery, documentation procedures, and legal/ethical issues. Includes historical factors, legislation, etiology, characteristics, needs, educational strategies, including existing and emerging technologies, assessment, and support services for individuals with disabilities ranging from mild, moderate to severe levels of varying disabilities. Studies the impact of disabilities on academic and social/emotional performances.

## **EDUC 5330**

### **Diversity and Differentiation in the Classroom**

**3**

\* Prerequisite(s): Bachelor's degree, employment as teacher of record for a state approved LEA, Utah Associate educator's license.

Provides an in-depth understanding of differentiated instructional design and delivery. Focuses on planning and implementing instruction for a diverse classroom community.

## **EDUC 5340**

### **Methods of Second Language Acquisition for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Prepares teachers to teach content in students' second language in U.S. public schools. Includes applied aspects of second language learning and teaching. Provides general and special educators, and dual language or second language specialists the techniques, activities, strategies, and resources needed to plan instruction for second language learners. Emphasizes the development of teaching skills in language development, literacy, and content-area instruction for K-12 students. Requires 15 hours of field experience/practicum hours as part of course assignments.

## **EDUC 5350**

### **Theories of Second Language Acquisition for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Examines the intricate web of variables that interact in the second language learning process, including linguistic, cognitive, social, cultural, and political factors. Examines each of these factors in turn and develops understanding of how they work together to foster or inhibit successful second language learning and acquisition. Requires 15 hours of field experience/practicum hours as part of course assignments.

## **EDUC 5360**

### **Multicultural Education for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Identifies the connections between language, culture, and identity. Examines multicultural education in the classroom through a focus on the historical, sociological, and philosophical foundations of education in the development of the United States and its education system. Outlines methods to create multicultural / multilingual curricula with a special focus on culturally/ linguistically-responsive instruction and assessment techniques.

## **EDUC 5370**

### **Assessment for Second Language Learners for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Examines methods and practice for the testing of bilingual students at the classroom level. Focuses on assessment of language proficiency in English language learners (ELL) and the assessment of academic achievement of bilingual students in specific content areas. Develops and reviews tasks (test items), response formats, scoring systems, and test administration procedures as critical to attaining validity and fairness. Examines major current testing policies for linguistic minority students. Practicum required.

## **EDUC 5380**

### **Second Language Literacy Development for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides teachers with a theoretical framework for understanding literacy and linguistic development of students learning in a second language. Provides an understanding of the literacy instructional needs of these students. Increases knowledge and skill in instructional practices that support second language literacy learning.

**EDUC 5390**  
**Family and Community Involvement for Practitioners**

**3**  
 \* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides strategies classroom teachers may use for facilitating community participation in the education of minorities. Examines how the teacher's role impacts the adjustment of students to the classroom environment. Studies the techniques of family-school collaboration as well as constructive methods of evaluation. Practicum required.

**EDUC 5411**  
**Foundations of Instructional Coaching**

**3**  
 \* Prerequisite(s): Five years of classroom experience or equivalent with at least one year in the Utah Educational system with a Utah Professional Educator license; instructional coaching experience; experience providing professional learning for adults; three consecutive years of effective or higher rating on Utah Effective Teaching Standards (UETS).

Teaches the Utah State Board of Education (USBE) Instructional Coaching Framework. Ensures a level of consistency statewide among all institutions providing courses for the Instructional Coaching Endorsement.

**EDUC 5412**  
**Adult Learning Theory**

**3**  
 \* Prerequisite(s): Five years of classroom experience or equivalent with at least one year in the Utah Educational system with a Utah Professional Educator license; instructional coaching experience; experience providing professional learning for adults; three consecutive years of effective or higher rating on Utah Effective Teaching Standards (UETS).

Ensures that those obtaining the Utah State Board of Education Instructional Coaching endorsement are prepared with the requisite, foundational skill-set to effectively coach their fellow educators' practice to improve student outcomes and overall educator effectiveness.

**EDUC 5500**  
**Teaching K-6 Numbers and Operations for Practitioners**

**3**  
 \* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Designed for K-6 teachers. Covers the content of Number and Operations to develop a comprehensive understanding of our number system and relate its structure to computation, arithmetic, algebra, and problem solving. Includes number, number sense, computation, and estimation through a coordinated program of activities that develop number concepts and skills. Special attention in this course will be given to planning lessons in the mathematical content of number and operations and problem solving strategies. Emphasizes interpreting and assessing students' work and learning, and the integration of the NCTM process standards and the Utah Intended Learning Outcomes (ILOs).

**EDUC 5510**  
**Teaching K-6 Rational Numbers and Proportional Reasoning for Practitioners**

**3**  
 \* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides practicing teachers a deeper understanding of rational numbers, operations with rational numbers, proportionality, and instructional strategies to facilitate the instruction of this content for elementary students.

**EDUC 5520**  
**Teaching K-6 Algebraic Reasoning for Practitioners**

**3**  
 \* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides practicing teachers a deeper understanding of algebraic expressions, equations, functions, real numbers, and instructional strategies to facilitate the instruction of this content for elementary students.

**EDUC 5530**  
**Teaching K-6 Geometry and Measurement for Practitioners**

**3**  
 \* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides practicing teachers a deeper understanding of the geometry and measurement content that exists in the state core and instructional strategies to facilitate the instruction of this content. Special attention in this course will be given to applying content understanding in geometry and measurement to classroom practice, interpreting and assessing students' work and learning, and to integrating NCTM process standards and the Utah Intended Learning Outcomes (ILOs) into instruction.

**EDUC 5540**  
**Teaching K-6 Data Analysis and Problem Solving for Practitioners**

**3**  
 \* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Develops a firm problem-solving foundation. Using skills and strategies applied in mathematical contexts practicing teachers will learn to think, work with others, present solutions orally to the whole class, and write up detailed solutions. Provides practicing teachers a deeper understanding of probability and data representation and analysis. Special attention in this course will be given to applying content understandings to classroom practice, to interpreting and assessing students' work and learning, and to integrating NCTM process standards and the Utah Intended Learning Outcomes (ILOs) into instruction.

**EDUC 5550**  
**Teaching K-6 Assessment and Intervention for Practitioners**

**3**  
 \* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides practicing teachers a deeper understanding of the various types of assessment and their appropriate use for guiding instruction, intervention, and evaluation of student learning of mathematics content. Special attention will be given to the application of mathematical content understandings to planning for classroom instruction and assessment of student learning that is consistent with NCTM process standards and Utah instructional learning outcomes.

**EDUC 5560**  
**Curriculum Instruction and Assessment for Elementary Mathematics Leaders**

**3**  
 \* Prerequisite(s): Previously earned Elementary Mathematics Endorsement

Develops a broader perspective of curriculum, instruction, and assessment in elementary mathematics education. Emphasizes methods that support teachers and systems.

**EDUC 5570**  
**Elementary Mathematics Education Leadership for School Change**

**3**  
 \* Prerequisite(s): Earned Elementary Mathematics Endorsement

Develops education leadership knowledge and skills. Analyzes policy and curriculum issues. Analyzes research informing instructional practice. Examines the implementation and evaluation of professional development. Evaluates educational structures that affect equity including use of materials. Examines responsibilities of math coaches and mentors.

## Course Descriptions

### **EDUC 5600**

#### **Learning Development and Individual Learning Differences in Gifted Education**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Introduces the characteristics and needs of gifted children and youth. Includes types of programs available to gifted children and youth, the historical and philosophical foundations required of professionals in the field, the history of the gifted child movement, and advocacy for gifted children and youth.

### **EDUC 5610**

#### **Learning Environments for Gifted Students**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides an introduction to creating safe learning environments that foster emotional well-being, positive social interaction, leadership, and cultural understanding for success in a diverse society. Develops knowledge of the impact of giftedness and diversity on social-emotional development. Provides support on how to design environments, within a continuum of services, that encourage independence, motivation, and self-efficacy of individuals from all backgrounds.

### **EDUC 5620**

#### **Assessment in Gifted Education**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Examines how to collect multiple types of assessment information so that all students are able to demonstrate gifts and talents. Develops competence in differentiating curriculum and instruction by using pre- and post-, performance-based, product-based, and out-of-level assessments. Promotes the importance of using non-biased, technically adequate, and equitable approaches in order to identify students from diverse backgrounds for gifted programs.

### **EDUC 5630**

#### **Theory into Practice in Gifted and Talented Education**

**2**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Prepares teachers to understand societal influences on the development of curricula. Helps teachers to develop long- and short-range units of instruction anchored in both general and special curricula for gifted and talented students, taking into consideration each individual's abilities and needs, the learning environment, and cultural and linguistic factors.

### **EDUC 5635**

#### **Methods and Materials in Gifted Education for Practitioners**

**2**

\* Prerequisite(s): Utah Teaching License or permission from the Dean of the School of Education

Requires teacher-participants to locate, create, and or adapt curricular materials needed to implement differentiated instruction for gifted and talented learners. Helps teachers develop materials and methods of instruction that will encourage creative problem-solving and should be adaptable for a variety of student abilities and needs, the learning environment, and cultural and linguistic factors that may influence instruction.

### **EDUC 5640**

#### **Curriculum/Instructional Planning in Gifted Education**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides research-based models of curriculum and instruction related to students with gifts and talents. Includes responding to student needs by planning, selecting, adapting, and creating culturally relevant curriculum and by using a repertoire of evidence-based instructional strategies to ensure specific student outcomes. Explains the purpose of using a comprehensive and sequenced core curriculum that is aligned with local, state, and national standards, and how to differentiate and expand it in order to meet the unique needs of students with gifts and talents. Develops competence in selecting, adapting, and planning for the use of a variety of evidence-based instructional strategies to advance learning of gifted and talented individuals.

### **EDUC 5650**

#### **Leadership in Gifted and Talented Education**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Prepares teachers to effectively use leadership principles to collaborate with students and their families, other educators, and related service providers to advocate for individuals with gifts and talents as they promote the learning and well-being of individuals with gifts and talents across settings and diverse learning experiences.

### **EDUC 5660**

#### **Reading Assessments and Instructional Interventions for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Helps practicing teachers become proficient in developing and using a variety of formal and informal assessments and instructional procedures to increase or accelerate students' reading achievement as appropriate. Prepares teachers to screen for reading problems, diagnose reading strengths and needs, and monitor progress to ensure students achieve optimal growth in reading within the context of a Multi-Tiered System of Supports. Develops procedures for gathering, analyzing, and interpreting data to inform instruction, and presents an overview of methods for communicating findings to stakeholders.

### **EDUC 5661**

#### **Foundations of Literacy**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Helps practicing teachers acquire foundational and declarative knowledge about literacy instruction, including historical perspectives on reading instruction, an introduction to theories and models of literacy acquisition, and discussions of research related to lifelong literacy and its instructional implications. Requires students to examine the history of the field of literacy, including the debates and various stances of reading researchers and the instructional directives developed as a result of the research.

### **EDUC 5662**

#### **Instruction with Literature and Informational Texts for Children and Young Adults**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Provides an overview of literary and informational texts for children and young adults, with emphasis on classic and recent publications, and their appropriate use in the classroom. Discusses important authors, historical context, and background, and considers current trends and classroom applications in literacy.

**EDUC 5663****Content Area Reading and Writing Instruction for Practitioners****3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Helps practicing teachers develop an in-depth understanding of the research findings, issues, principles, and practices related to exemplary, research-based literacy instruction in the content areas. Prepares teachers to provide every student with meaningful and engaging opportunities to learn high-level skills through reading, writing, and speaking while working with graphics and texts, including images, video, and audio, in the K-12 curriculum. Teaches how to evaluate texts in various content areas or topics to identify the qualitative and quantitative features of a text and address reader and task considerations.

**EDUC 5664****Instructional Implications of Literacy Development for Practitioners****3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Focuses on emergent literacy development for students in grades K-12 and how that development is well-designed for appropriate literacy learning environments, experiences, and instructional interventions for emergent language learners. Covers the history, major perspectives, and theories about how students understand and develop literacy. Develops understandings of developmentally appropriate instruction, reading behaviors, and literacy development within the larger framework of the communicative arts, i.e., oracy, written expression, reading, spelling, handwriting, listening, the visual and performing arts, and the social community, i.e., family, socio-economic conditions, culture, ethnicity, language, etc.

**EDUC 5665****Reading Comprehension Instruction for Practitioners****3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Helps practicing teachers acquire knowledge and understanding of current theories and models that impact reading comprehension and apply that knowledge in instruction. Focuses on understanding reading comprehension, increasing the range, quality and complexity of reading materials used by students, and supporting student responses to text. Builds teachers' ability to help their students use texts efficiently and effectively to develop and express complex, critical thinking.

**EDUC 5666****Effective Writing Instruction for Practitioners****3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Examines theories, concepts, and methodologies that promote the development of strategic writers. Prepares teachers to provide research-based methods for teaching K-12 students to develop a range of writing skills and applications including how to compose opinion/argumentation, informational/expository, and narrative writing. Facilitates teachers' ability to assess K-12 student writing.

**EDUC 5667****Science of Literacy I - Learning to Read****3**

\* Prerequisite(s): Utah Professional Educator License

Explores the difficulties that students face in learning to read and how teachers can use assessments to support student learning and differentiate. Teaches how phonological skills are developed, taught, and assessed. Builds a deep understanding of how students learn and why some students may struggle. Focuses on ways to differentiate instruction to meet the varying need of students. Requires practice and implementation in the classroom.

**EDUC 5668****Science of Literacy II – Phonics/Spelling/ Word Recognition****3**

\* Prerequisite(s): Utah Professional Educator License

Provides an overview of phonics and how to assess phonics and word recognition. Focuses on how letters and sounds are connected. Considers best practices to teach spelling and reading fluency. Builds a deeper understanding of how students learn and why some students may struggle. Empowers teachers to differentiate their instruction to meet the varying need of students in their classroom. Requires practice and implementation in the classroom.

**EDUC 5669****Science of Literacy III – Oral Language/ Vocabulary****3**

\* Prerequisite(s): Utah Professional Educator License

Focuses on language comprehension and vocabulary. Describes why each is important and which instructional strategies are effective. Explores ways to create a language-rich classroom environment, and plan effective comprehension instruction. Builds a deeper understanding of how students learn and why some students may struggle. Focuses on ways to differentiate instruction to meet the varying need of students. Requires practice and implementation in the classroom.

**EDUC 5670****Basic Skills in the Arts****2**

\* Prerequisite(s): Previously earned Elementary Arts Endorsement

Encourages the development of a personal identity as an artist and teacher of the arts. Applies the philosophy of aesthetics to the exploration of the nature of art and personal artistic preferences. Teaches educators to develop and assess the cognitive, physical, social, and emotional needs and abilities of individual learners and meet those needs through arts instruction and experiences.

**EDUC 5671****Teaching the Arts in the Elementary Classroom****2**

\* Prerequisite(s): EDUC 5670

Continues the development of a personal identity as an artist and teacher who uses the arts. Enables participants to construct and facilitate learning experiences in each art form based on National and State Core Art Standards. Teaches educators to develop and assess the cognitive, physical, social, and emotional needs and abilities of individual learners and meet those needs through arts instruction and experiences. Prepares participants to advocate for the arts by applying and describing how arts education aligns with effective educational theories.

**EDUC 5672****Arts Integration Across the Curriculum****2**

\* Prerequisite(s): EDUC 5671

Guides the construction and facilitation of learning experiences in each art form based on National and State Core Art Standards. Facilitates learning experiences to develop and assess the cognitive, physical, social, and emotional needs and abilities of individual learners through the arts. Continues to develop participants as advocates for high quality arts education that aligns with effective educational theories. Encourages participants to apply the cultural and historical meaning of the arts to connect arts experiences with differing context and aspects of life. Introduces ways to construct, implement, and assess arts-integrated learning experiences.

# Course Descriptions

## **EDUC 5673**

### **Leadership in the Arts**

**2**

\* Prerequisite(s): EDUC 5672

Guides the development of arts exhibits, performances, informances, or explorations demonstrating student competency in the arts. Applies the philosophy of aesthetics to the exploration of the arts and personal preferences. Develops participants as advocates for high quality arts education that aligns with effective educational theories. Identifies and connects various programs and practices at district, region, state, and national levels to help participants promote and experience the arts, while meeting shared goals.

## **EDUC 5674**

### **Seminar Capstone and Practicum**

**2**

\* Prerequisite(s): EDUC 5673

Examines the individual's personal identity as an artist, and as a teacher who uses the arts, to benefit themselves and others. Provides opportunities for participants to exhibit work and/or produce performances, informances, or explorations demonstrating student competency in the arts. Assists participants to advocate for the arts by applying and describing how arts education aligns with effective educational theories. Evaluates participant ability to apply the cultural and historical meaning of the arts to connect arts experiences with differing contexts and aspects of life. Requires participants to construct, implement, and assess arts-integrated learning experiences.

## **EDUC 5675**

### **Performance and Excellence in the Arts**

**2**

\* Prerequisite(s): EDUC 5674

Provides opportunity for participants to share a personal identity as an artist, and as a teacher who uses the arts, to benefit themselves and others. Assesses participant ability to exhibit work and/or produce performances, informances, or explorations demonstrating student competency in the arts. Requires participants to advocate for the arts by applying and describing how arts education aligns with effective educational theories. Analyses participant's ability to apply the cultural and historical meaning of the arts to connect arts experiences with differing contexts and aspects of life. Asks participants to construct, implement, and assess arts-integrated learning experiences. Evaluates participant's practice in identifying and connecting various programs and practices at district, region, state, and national levels to promote and experience the arts, while meeting shared goals.

## **EDUC 5677**

### **Science of Literacy IV – Reading Comprehension and Writing**

**3**

\* Prerequisite(s): Utah Professional Educator License

Identifies effective comprehension strategies. Describes ways to guide comprehension with questioning. Explores the reading-writing connection to support students in learning foundational writing skills. Builds a deeper understanding of how students learn and why some students may struggle. Focuses on ways to differentiate instruction to meet the varying need of students. Requires practice and implementation in the classroom.

## **EDUC 5700**

### **Foundations of Dual Language Immersion Education**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Presents a historical overview and the theoretical and research foundations for dual language and immersion education. Emphasizes the practical application of theory and research in immersion programs.

## **EDUC 5710**

### **Instructional Strategies and Curriculum and Classroom Management for the Elementary Classroom**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Designed to acquaint secondary teachers seeking a K-12 Dual Language Immersion (DLI) endorsement with instructional strategies and classroom management for the elementary classroom. Focuses on helping students to understand the elementary curriculum and plan units of instruction, and to build a repertoire of teaching strategies, tasks, and resources for use in the elementary classroom. Requires 15 hours of field experience/practicum hours in a DLI classroom in addition to class time.

## **EDUC 5741**

### **STEM for Teaching K-6 Science**

**3**

\* Prerequisite(s): Utah professional educator license

Focuses on STEM integration through the lens of science. Identifies and distinguishes STEM models as they examine, engage in, and implement three dimensions of science instruction, Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting concepts (CCCs), through the use of authentic phenomena. Teaches participants to apply pedagogical practices that help K-6 students develop the disciplinary literacy needed to authentically communicate in science and helps students develop the skills needed to integrate science with other disciplines. Instructs participants to model practices to build their capacity to create effective student-centered learning environments and instruction. Emphasizes authentic connections between science and technology, engineering design, and mathematics.

## **EDUC 5742**

### **STEM for Teaching K-6 Technology and Engineering**

**3**

\* Prerequisite(s): Utah professional educator license

Focuses on STEM integration through the lens of engineering and technology. Teaches participants to identify and distinguish STEM models as they examine, engage in, and implement engineering design and the Science and Engineering Practices (SEPs) through the use of effective technological tools. Applies pedagogical practices that help K-6 students develop the disciplinary literacy needed to authentically communicate in engineering and helps students develop the skills needed to integrate the engineering design process with other disciplines. Models practices to build participant capacity to create effective student-centered learning environments and instruction. Emphasizes authentic connections with science and mathematics.

**EDUC 574A****STEM for Teaching K-6 Mathematics****3**

\* Prerequisite(s): Utah professional teaching license.

Focuses on STEM integration through the lens of mathematics. Identifies and distinguishes STEM models as they examine, engage in, and implement mathematical concepts, Standards for Mathematics Practices (SMPs), and Effective Mathematics Teaching Practices through the use of rich mathematical tasks. Applies pedagogical practices that help K-6 students develop discourse skills needed to authentically communicate in mathematics and help students develop the skills needed to integrate mathematics with other disciplines. Models practices to build their participant capacity to create effective student-centered learning environments and instruction. Emphasizes authentic connections between mathematics and science, technology, and engineering design.

**EDUC 5750****Energy in STEM for Elementary Teachers****3**

\* Prerequisite(s): Recommended: Education Majors or Licensed Educators

Provides teachers with a deep and useful understanding of energy and the nature of how students use concepts of energy to make sense of phenomena across life, earth, and physical science. Enhances teacher insights into: 1) how matter and energy interact, 2) the relationships of energy to forces and interactions within fields, and 3) pedagogical content knowledge around teaching and learning about energy. Also connects knowledge of energy concepts to practices in technology, engineering, and mathematics.

**EDUC 5760****Force in STEM for Elementary Teachers****3**

\* Prerequisite(s): Recommended: Education Majors or Licensed Educators

Provides teachers with a deep and useful understanding of force and the nature of how students use concepts of force to make sense of phenomena across life, earth, and physical science. Enhances teacher insights into: 1) how force, matter and energy interact, 2) the relationship of force to energy and interactions within fields, and 3) pedagogical content knowledge around teaching and learning about force. Also connects knowledge of concepts of force to practices in technology, engineering and mathematics.

**EDUC 5770****Matter in STEM for Elementary Teachers****3**

\* Prerequisite(s): Recommended: Education Majors or Licensed Educators

Provides teachers with a deep and useful understanding of matter and the nature of how students use concepts of matter to make sense of phenomena across life, earth, and physical science. This understanding enhances teacher insights into: 1) how matter and energy interact, 2) the relationships of matter to forces and interactions within fields, and 3) pedagogical content knowledge around teaching and learning about matter. Also connects knowledge of concepts of matter to practices in technology, engineering and mathematics.

**EDUC 5780****Nature of Science and Engineering****3**

\* Prerequisite(s): Recommended: Education Majors or Licensed Educators

Explores the nature of science using science and engineering principles, practices, and processes. Explores applications to Science, Technology, Engineering and Mathematics using learner-based pedagogy. Develops teaching practices to assist participants in educating K-6 students in selected Earth and Life Science Standards.

**EDUC 5782****Systems in Science****3**

\* Prerequisite(s): EDUC 5780

Examines systems at various scales from the universe to the molecular level. Identifies systems as a crucial component to all science investigation and understanding. Teaches system components including matter, forces, and energy that cause phenomena to occur. Requires participants to develop and use models to represent systems and their interactions. Assists participants in analyzing student work to assess conceptual understanding and scientific literacy. Considers ways to promote effective and equitable science instruction both in personal practice and in the science education community.

**EDUC 5783****Matter and Energy in Science****3**

\* Prerequisite(s): EDUC 5780 and EDUC 5782

Develops a conceptual understanding of energy and matter flows into, out of, and within systems through reading, discussion, and use of models. Analyzes examples of student models and critiques multiple assessments to prepare participants to enact phenomena-based, three-dimensional science instruction that supports the development of students' conceptual understanding and scientific literacy related to energy and matter. Considers ways to promote effective and equitable science instruction both in personal practice and in the science education community.

**EDUC 5784****Cause and Effect in Science****3**

\* Prerequisite(s): Previously earned professional educator license

Engages participants in experiences that support learning with and about scientific literacy. Deepens content knowledge, includes authentic science sensemaking, integrates science conceptual ideas with classroom practice and engages in explicit and reflective discourse about science learning and science instruction.

**EDUC 5785****Stability and Change in Science****3**

\* Prerequisite(s): EDUC 5780, EDUC 5782, EDUC 5783, EDUC 5784

Develops a conceptual understanding that natural systems are usually stable until changes occur from either natural or human caused (anthropogenic) events over time and/or scale. Demonstrates that stability and change are interconnected and one cannot be explained without the other. Teaches participants to construct explanations of how changes occur as natural systems interact. Teaches students to present arguments supported by evidence that change in systems occurs in differing temporal scales, spatial scales, and scales of magnitude.

**EDUC 5786****Classroom Practice in Science****3**

\* Prerequisite(s): EDUC 5780, EDUC 5782, EDUC 5783, EDUC 5784 and EDUC 5785

Provides a capstone to the Elementary Science Endorsement. Requires participants to demonstrate and put into practice all that they have learned through the ESE experience. Evaluates participants' ability to use the crosscutting concepts and disciplinary core ideas to support sensemaking, create and implement practices in their own classrooms to engage all students in authentic science learning. Requires participants to show evidence of collaboration with other educators to develop and analyze learning opportunities for students, and promote effective and equitable science instruction both in personal practice and in the science education community.

**EDUC 5790****STEM Practices with a Focus on Technology and Problem-Based Learning****3**

\* Prerequisite(s): Recommended: Education Majors or Licensed Educators

Engages participants in developing meaningful understandings of problem-based approaches to teaching, learning, and the integration of STEM practices across the curriculum using appropriate technology. Requires the development and creation of problem-based, hands-on experiences.

## Course Descriptions

### **EDUC 5800** **Cognition Education and Technology for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Examines the increasingly pervasive role of electronic media in educating and socializing young students, especially as it affects the K-12 classroom. Explores the range of content available to these students, their families, and their classrooms and reviews research on the role of media in shaping individual identity and affecting school performance; analyzes public policies that affect teachers and students.

### **EDUC 5810** **Instruction Curriculum & Educational Leadership in the Digital Age for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Examines issues surrounding the use of technology in curricular and instructional design, especially in designing coursework for an online learning environment. Requires students to incorporate appropriate digital media formats to create an online learning environment. Addresses issues of school leadership, as participants may become mentors in the area of educational technology.

### **EDUC 5820** **Designing and Producing Media for Instruction for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Helps students produce educational media materials for their particular classroom. Requires students to collaborate with others to design, produce, test, and revise a unique project tailored for their instructional practice. Requires students to use a variety of digital tools to conceptualize, design, fashion, and evaluate media projects.

### **EDUC 5830** **Digital Models of Instruction for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Focuses on using instructional design and Web page design principles for specific classroom populations. Examines the best instructional use of online options, including flipped and hybrid course design, and gaming. Requires completion of an instructional design plan for an instructional unit of the participants' choice for a learner group of their choice.

### **EDUC 5840** **Universal Design for Learning for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Focuses on universal design for learning (UDL) that differentiates curricula and learning environments for a wide range of student abilities and disabilities. Requires students to learn to apply the UDL approach in designing differentiated learning experiences for their classrooms using educational technology.

### **EDUC 5850** **Digital Course Design Capstone for Practitioners**

**3**

\* Prerequisite(s): Professional educator license or permission of the Dean of the School of Education

Teaches students to design and create media for content-specific units of instruction. Requires students to use technology specific to a given discipline, and to incorporate instructional design and digital media to create an online unit of study.

### **EDUC 6080** **Cognition, Education, and Technology**

**3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Examines the increasingly pervasive role of electronic media in educating and socializing young students. Explores the range of content available to these students and their families; documents the developing child's patterns of use and understanding of media; examines theories and methods for assessing media effects; reviews research on the role of media in shaping individual identity and responses to social issues; and analyzes public policies that affect teachers and students.

### **EDUC 6081** **Instruction, Curriculum and Educational Leadership in the Digital Age**

**3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Examines issues surrounding teachers and the use of technology in curricular and instructional design. Emphasizes designing coursework for an online learning environment. Explores the history and models of instructional design and teaches incorporation of appropriate digital media formats to create an online learning environment. Introduces the integrated nature of Technological Pedagogical Content Knowledge (TPACK) and the National Educational Technology Standards (NETS) as frameworks for identifying and applying the knowledge needed to teach and assess student learning with technology. Addresses issues of leadership, as students may become mentors in the area of educational technology.

### **EDUC 6082** **Equitable Technology Integration for Practitioners**

**3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, or permission of the graduate program director.

Integrates information and communication technologies into instruction and prepares teachers to use technologies to differentiate their instruction to meet the needs of all students. Uses technology to revitalize pedagogy and provides teachers with the skills to develop lesson activities that empower students to make meaningful connections and develop 21st Century skills.

### **EDUC 6083** **Digital Models of Instruction**

**3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Focuses on using instructional design and Web page design principles. Examines the best instructional use of online options, including flipped and hybrid course design, and gaming. Requires completion of an instructional design plan for an instructional unit of the participants' choice for a learner group of their choice.

**EDUC 6085**  
**Digital Course Design Capstone**

**3**  
\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Teaches students to design and create media for content-specific units of instruction. Covers the use of technology specific to a given discipline, and teaches how to incorporate instructional design and digital media to create an online unit of study.

**EDUC 6100**  
**Research Methodology**

**3**  
\* Prerequisite(s): Matriculation into a School of Education graduate program or matriculation into Master of Science-Mathematics, M.S., program, or approval of graduate program director.

Introduces the principal methodologies used in research in education. Presents basic information about the purposes of research, the scientific method, and basic qualitative and quantitative research. Identifies methods for locating, reading, interpreting and using research reports and in applying measurement issues and research methods to classroom problems. Investigates teacher research practices and ways it can be used to study teaching and teacher education.

**EDUC 6110**  
**Applied Statistics for Education**

**3**  
\* Prerequisite(s): Acceptance into a School of Education graduate program or acceptance into Master of Science-Mathematics, M.S. program, or approval of graduate program director.

Introduces elementary statistics in educational settings and includes descriptive statistics, sampling, central tendency, and inferential methods. Emphasizes reading, understanding and evaluating statistics in research reports.

**EDUC 6200**  
**Masters Project**

**3**  
\* Prerequisite(s): Matriculation into a School of Education graduate program or matriculation into Master of Science-Mathematics, M.S., program, or approval of graduate program director

Provides working knowledge of action research methods in the public schools. Sets the standards for the professional M.Ed. action research-based project. Utilizes APA guidelines. Establishes techniques and strategies for successful project completion.

**EDUC 6201**  
**Teacher Performance Assessment Project**

**2**  
\* Prerequisite(s): Admission to Secondary Teaching, Graduate Certificate Program  
\* Corequisite(s): EDUC 6203

Introduces the teaching and learning cycle: planning, instruction, and assessment. Assists students in completing an authentic assessment tool that shows how they develop and evaluate student learning. Documents authentic practices from the student's teaching experience that address planning, instruction, assessment, analyzing teaching, and academic language to reveal the impact of a candidate's teaching performance on student learning. Graduate fee of \$300 applies.

**EDUC 6202**  
**Classroom Management Practicum**

**3**  
\* Prerequisite(s): Admission to Secondary Teaching, Graduate Certificate Program

Provides first-hand, supervised, clinical experience in observing and implementing effective class management practices.

**EDUC 6203**  
**Student Teaching Graduate Licensure**

**6**  
\* Prerequisite(s): Admission to Secondary Teaching, Graduate Certificate Program  
\* Corequisite(s): EDUC 6201

Includes 400 hours of student teaching experience in a secondary classroom, grades 7-12. Includes application of knowledge, skills, and attitudes derived in previous course work and program experience. Is required for students to be recommended for a secondary education license from the Utah State Office of Education. May be Graded Credit/No Credit. Graduate fee of \$200 applies.

**EDUC 6210**  
**Masters Project School Counseling Internship**

**3**  
\* Prerequisite(s): Matriculation into School of Education graduate program or approval of graduate program director and Completion of School Counseling Practicum

Provides Internship students with weekly interaction with supervisors that averages one hour per week of individual and/or triadic supervision throughout the internship, provided by (1) the site supervisor, (2) counselor education program faculty, or (3) a student supervisor who is under the supervision of a counselor education program faculty member. Engages internship students in an average of 1½ hours per week of group supervision on a regular schedule throughout the internship. Provides group supervision by a counselor education program faculty member or a student supervisor who is under the supervision of a counselor education program faculty member. Requires students to complete 300 of the 600 required clock hours of supervised counseling internship in roles and settings with clients relevant to their specialty area.

**EDUC 6300**  
**Curriculum Design**

**3**  
\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean

Provides a foundation in curriculum theory and practice. Introduces instructional design theories principles and models. Outlines the historical development, current processes and practices of curriculum development, instructional design, implementation, and assessment. Investigates research and theory about educational contexts, motivation, curriculum, learning, and development as they relate to models of instruction. Examines applications and processes of curriculum decision making and the impact of national standards for content areas to curriculum design and development in classroom and district settings.

**EDUC 6311**  
**Introduction to Exceptional Students**

**3**  
\* Prerequisite(s): Admission to School of Education Graduate Program or permission of the Dean

Provides a comprehensive introduction of characteristics of children and youth with disabilities and topics related to models of service delivery, documentation procedures, and legal/ethical issues. Includes historical factors, legislation, etiology, characteristics, needs, educational strategies, including existing and emerging technologies, assessment, and support services for individuals with disabilities ranging from mild, moderate to severe levels of varying disabilities. Studies the impact of disabilities on academic and social/emotional performances.

**EDUC 6320**  
**21st Century Instruction and Assessment**

**3**  
\* Prerequisite(s): Matriculation into a School of Education graduate program or matriculation into Master of Science-Mathematics, M.S., program, or approval of graduate program director

Focuses on instructional design and delivery incorporating 21st century learning design and assessment. Introduces a range of instructional models and assessment tools. Requires planning and implementing instruction and assessment using several selected models.

## Course Descriptions

### **EDUC 6330**

#### **Diversity and Differentiation in the Classroom**

**3**

\* Prerequisite(s): Acceptance into a School of Education graduate program or acceptance into Master of Science-Mathematics, M.S. program, or approval of graduate program director.

Provides an in-depth understanding of differentiated instructional design and delivery. Focuses on planning and implementing instruction for a diverse classroom community.

### **EDUC 6340**

#### **English as a Second Language Methods**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean or the instructor

Prepares teachers to teach English as a second language in U.S. public schools. Includes both theoretical and applied aspects of second language learning and teaching. Provides general and special educators and second language specialists techniques, activities, strategies and resources to plan instruction for English language learners (ELLs). Emphasizes oral language development, literacy and content-area instruction for teaching K-12 students.

### **EDUC 6350**

#### **Theories of Second Language Acquisition**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean or the instructor

Describes the variables that interact in the second language learning process, including linguistic, cognitive, social, cultural, and political factors. Examines learning a second language as both an individual and social experience. Examines the linguistic, cognitive, psychological, and emotional elements of learning a second language. Identifies the interactions between the individual and the contexts in which s/he interacts and then attempts to understand how they work together to foster or inhibit successful second language learning and acquisition.

### **EDUC 6360**

#### **Multicultural Education**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean or the instructor

Identifies the connections between language, culture, and identity. Examines multicultural education through a focus on the historical, sociological, and philosophical foundations of education. Emphasizes the role of ethnicity in the development of the United States and its education system. Outlines multicultural / multilingual curricula with a special focus on culturally/ linguistically-responsive instruction and assessment techniques.

### **EDUC 6370**

#### **Assessment of Second Language Learners**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean or the instructor

Examines theory, methods, and practice in the testing of bilingual students at both the classroom level and the large-scale level in the context of school accountability. Focuses on assessment of language proficiency in English language learners (ELL) and the assessment of academic achievement of bilingual students in specific content areas. Develops and reviews tasks (test items), response formats, scoring systems, and test administration procedures as critical to attaining validity and fairness. Examines testing major current testing policies for linguistic minority students. Practicum required.

### **EDUC 6380**

#### **Literacy and Linguistics in English as a Second Language**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean or the instructor

Focuses on how teachers can best meet the literacy and language needs of students from a variety of cultural, socioeconomic and language groups. Explores frameworks for providing high-quality literacy instruction to all students. Analyzes classrooms and schools that have been successful in accomplishing this. Examines ethnic identities and personal conceptions of diversity, and how these may impact instructional decisions. Analyzes students and families represented in their classrooms. Discusses ways to build bridges between home and school cultures.

### **EDUC 6390**

#### **Family and Community Involvement**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean or the instructor

Provides strategies for facilitating community participation in the education of minorities. Examines the role of the teacher in the classroom and community with the intention of developing insight and understanding of how the teacher's role in these areas impacts the adjustment of adolescents during grades 7-12. Considers models and methods for facilitating positive relationships. Studies the techniques of family-school collaboration as well as constructive methods of evaluation. Practicum required.

### **EDUC 6400**

#### **Contemporary Issues in Teacher Leadership**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean

Introduces students to critical concepts about contemporary teacher leadership. Examines current issues and strategies impacting teacher leadership. Analyzes contemporary theories of learning and teaching from personal and public perspectives and how those theories converge with professional practice in classrooms and schools. Examines the philosophical foundations of curriculum and instruction in American schools, the social and cultural conditions that influence education, and new concepts in education curriculum materials, and methods of instruction from the perspective of teacher leadership.

### **EDUC 6410**

#### **Contemporary Issues**

**3**

\* Prerequisite(s): Admission to Graduate Status Admission to the School of Education Masters Degree Program Or permission of the Dean

Presents contemporary theories of learning and teaching from personal and public perspectives and how those theories converge with professional practice in classrooms and schools. Provides a study of the philosophical foundations of curriculum and instruction in American schools, the social and cultural conditions that influence education, and new concepts in education curriculum materials, and methods of instruction.

**EDUC 6411****Instructional Coaching****3**

\* Prerequisite(s): Acceptance into the Teacher Leader or Earned Endorsement emphasis in the M.Ed. program, or permission of the program director.

Ensures that those obtaining the Utah State Board of Education (USBE) Instructional Coaching endorsement are prepared with the requisite, foundational skill-set to effectively coach their fellow educators' practice to improve student outcomes and overall educator effectiveness using the USBE Coaching Framework. Teaches the USBE Coaching Framework to ensure a level of consistency statewide among all institutions providing courses for the Instructional Coaching Endorsement.

**EDUC 6412****Adult Learning--Theory and Practice****3**

\* Prerequisite(s): Acceptance into the UVU SOE master of education program.

Builds theoretical background knowledge and skills required for teaching adults in professional development or coaching, mentoring settings. Ensures that those pursuing and obtaining the Utah State Board of Education Instructional Coaching endorsement are prepared with the requisite, foundational skill-set to effectively coach their fellow educators' practice to improve student outcomes and overall educator effectiveness.

**EDUC 6500****Teaching K-6 Numbers and Operations****3**

\* Prerequisite(s): Admission to School of Education graduate program; professional educator license; or permission of the Dean of the School of Education

Designed for K-6 teachers. Covers the content of Number and Operations to develop a comprehensive understanding of our number system and relate its structure to computation, arithmetic, algebra, and problem solving. Includes number, number sense, computation, and estimation through a coordinated program of activities that develop number concepts and skills. Special attention in this course will be given to how children learn and connect the fundamental concepts of number systems, children's developmental trajectories in the mathematical content of number and operations, how children construct their understanding of various number systems and arithmetic, children's typical error patterns, problem solving strategies, interpreting and assessing students' work and learning, and integration of the NCTM process standards and the Utah Intended Learning Outcomes (ILOs).

**EDUC 6510****Teaching K-6 Rational Numbers and Proportional Reasoning****3**

\* Prerequisite(s): Admission to School of Education graduate program, professional educator license; EDUC 6500, or permission of the Dean of the School of Education.

Provides practicing teachers a deeper understanding of rational numbers, operations with rational numbers, proportionality, and instructional strategies to facilitate the instruction of this content for elementary students.

**EDUC 6520****Teaching K-6 Algebraic Reasoning****3**

\* Prerequisite(s): Admission to School of Education graduate programs; professional educator license; or permission of the Dean of the School of Education.

Provides practicing teachers a deeper understanding of algebraic expressions, equations, functions, real numbers, and instructional strategies to facilitate the instruction of this content for elementary students.

**EDUC 6530****Teaching K-6 Geometry and Measurement****3**

\* Prerequisite(s): Acceptance to graduate studies in the School of Education; professional educator license, or permission of the Dean of the School of Education.

Provides practicing teachers a deeper understanding of the geometry and measurement content that exists in the state core and instructional strategies to facilitate the instruction of this content. Special attention in this course will be given to how children learn and connect the fundamental concepts of geometry and measurement, children's developmental trajectories in this mathematical content, how children construct their understanding of various geometric concepts, children's typical error patterns, problem solving strategies, interpreting and assessing students' work and learning, and integration of the NCTM process standards and the Utah Intended Learning Outcomes (ILOs).

**EDUC 6540****Teaching K-6 Data Analysis and Problem Solving****3**

\* Prerequisite(s): Professional educator license; admission to graduate program in the School of Education; or permission of the Dean of the School of Education.

Develops a firm problem-solving foundation. Using skills and strategies applied in mathematical contexts practicing teachers will learn to think, work with others, present solutions orally to the whole class, and write up detailed solutions. Provides practicing teachers a deeper understanding of probability and data representation and analysis. Special attention in this course will be given to children's typical error patterns, problem solving strategies, interpreting and assessing students' work and learning, and integration of the NCTM process standards and the Utah Intended Learning Outcomes (ILOs).

**EDUC 6550****Teaching K-6 Assessment and Intervention****3**

\* Prerequisite(s): Professional educator license; admission to graduate level in the School of Education; or permission of the Dean of the School of Education.

Provides practicing teachers a deeper understanding of the various types of assessment and their appropriate use for guiding instruction, intervention, and evaluation of student learning of mathematics content. Teaches how to screen students for mathematics problems or potential mathematics problems, diagnose students' mathematics strengths and needs, and monitor students' progress to ensure students will make optimal progress in mathematics. Teaches procedures for managing and analyzing assessment data.

**EDUC 6600****High Ability Education****3**

\* Prerequisite(s): Admission into the Master of Education program

Prepares teachers of GT learners to better understand the field as an evolving and changing discipline influenced by history, philosophies, research-based principles and theories, relevant laws and policies, cultural and historical points of view, and human issues that influence professional practice, including assessment, instructional planning, delivery, and program evaluation. Explores characteristics of gifted individuals with emphasis on identifying needs and a general overview of possible services for gifted learners. Prepares teachers to advocate for GT students and their programs in schools and school districts. Emphasizes discussing and finding applications from current research in gifted, talented, and advanced education.

# Course Descriptions

## **EDUC 6610**

### **Social and Emotional Needs of High Ability Learners**

**3**

\* Prerequisite(s): Admission to the Master of Education program

Explores current research and material relevant to the social and emotional issues that may arise for gifted and talented students. Focuses on current research through discussions, projects, and classroom observation. Develops a deeper understanding of social and emotional issues that students with gifts and talents experience in K-12 classrooms. Applies findings from current and seminal literature in the field. Includes classroom observations of connections between cognitive development and affective domain. Includes 15 hours of field experience/practicum in addition to class time.

## **EDUC 6620**

### **Identification/Evaluation of High Ability Learners**

**3**

\* Prerequisite(s): Admission to Master of Education program

Prepares teachers to use the results of a variety of assessment tools for both identification and learning progress decisions. Defines the processes of identification, legal policies, and ethical principles of measurement and assessment related to referral, eligibility, program planning, instruction, and placement. Includes current and historic documents and research to contrast ideas of determining "giftedness" throughout history with modern conceptions underlying gifted and talented education. Includes 15 field experience/practicum hours in addition to class time.

## **EDUC 6630**

### **Theory into Practice for High Ability Education**

**3**

\* Prerequisite(s): Admission to Master of Education program

Prepares teachers to understand societal influences on the development of curricula. Focuses on long- and short-range units of instruction anchored in both general and special curricula for gifted and talented students. Addresses individual's abilities and needs, the learning environment, and cultural and linguistic factors. Includes current research-based classroom practices.

## **EDUC 6635**

### **Methods and Materials for High Ability Learners**

**3**

\* Prerequisite(s): Admission to Master of Education program

Requires teacher-participants to locate, create, and or adapt curricular materials and methods of instruction needed to implement differentiated instruction for gifted and talented learners. Encourages creative problem-solving for a variety of student abilities and needs, the learning environment, and cultural and linguistic factors that may influence instruction. Requires application of current findings from the literature to the evaluation of methods and materials for gifted and talented instruction.

## **EDUC 6640**

### **High Ability Curriculum and Instruction in the Content Areas**

**3**

\* Prerequisite(s): Admission to Master of Education program

Prepares teachers of gifted and talented students with the selection, adaptation, creation, and implementation of differentiated instructional models and strategies, especially those related to fostering creativity. Evaluates current research on outcomes from instruction based on creative processes that are designed to foster creative, critical, and analytic thinking. Requires 15 field experience/practicum hours in addition to class time.

## **EDUC 6660**

### **Reading Assessments and Instructional Interventions**

**3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Focuses on curriculum-based measurement, the assessment/instructional cycle, and how to use assessment data to design and implement instructional interventions to increase students' reading achievement. Studies the four federal assessment categories: screening, progress monitoring, diagnosis, and outcomes, as well as assessment instruments within the various categories and the 3-tiered model. Focuses on building students' oral language and background knowledge, teaching alphabet knowledge and phonemic awareness, teaching students to use and recognize and use common phonic spelling patterns, building vocabulary, increasing fluency, teaching students to apply comprehension strategies, and fostering students reading engagement. Describes reading assessments and interventions that are appropriate at the primary, intermediate, and secondary levels.

## **EDUC 6661**

### **Literacy and Cognition of Reading**

**3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Provides foundational knowledge about literacy instruction, including an historical perspective on reading instruction, an introduction to theories and models of literacy acquisition, a study of language systems and language acquisition, and theories related to the literacy development of people across the lifespan and their instructional implications. Includes the debates and various stances of reading researchers, and the instructional directives that grew out of the research.

## **EDUC 6662**

### **Early Literacy Instruction**

**3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Designed to help students understand the history, major perspectives and theories about how young children understand literacy. Focuses on developmentally appropriate instruction and the value of play relating to oral and print literacy in kindergarten and the primary grades. Examines literacy development within the larger framework of the communicative arts, i.e., oracy, written expression, reading, spelling, handwriting, listening, the visual and performing arts, and the social community, i.e., family, socioeconomic conditions, culture, ethnicity, language, etc.

## **EDUC 6663**

### **Content Area Reading**

**3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Designed to help practicing teachers develop an in-depth understanding of the research findings, issues, principles and practices related to exemplary, research-based reading and writing instruction in the content areas. Covers the use of textbooks and nonfiction reading materials for young students who are beginning readers and writers. Focuses on how to assist all learners to read, understand and learn from nonfiction reading materials. Covers assisting students at all grade levels in their reading of materials and writing of text related to science, social studies, history, math art, music, etc.

**EDUC 6664****Adolescent Literacy****3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Provides practicing secondary teachers with concepts, models, and strategies to support adolescent literacy instruction. Familiarizes teachers with practical constructs for understanding adolescent literacy, its importance, how it can be fostered and employed for student learning, how the challenges of adolescent literacy differ from the challenges of early reading instruction, and how systematic interventions can help remediate chronic failure in literacy and learning. Teaches effective literacy improvement practices that can be realistically implemented in the context of secondary teachers' many demands.

**EDUC 6665****Reading Comprehension Instruction****3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Focuses on reading comprehension instruction as the essence of reading. Emphasizes the theoretical foundations that support comprehension such as schema theory and the construction-integration theory. Includes the following five research-supported strategies: activating prior knowledge, questioning, analyzing text structure, creating mental or visual images and summarizing. Teaches how to offer explicit teacher-led comprehension strategy instruction that will lead to helping their students coordinate a set of comprehension strategies. Teaches how to help students construct meaning through rich discussions and interactions around a variety of text structures and genres. Prepares teachers to provide scaffolded support including demonstrations, pictures, diagrams, and collaboration with other students.

**EDUC 6666****Effective Writing Instruction****3**

\* Prerequisite(s): Admission to Graduate Status, Admission to the School of Education Masters Degree Program, Or permission of the Dean

Focuses on using effective strategies for teaching writing across the curriculum and for diverse populations. Teaches application of the writing process, writing workshop, and interactive writing procedures in the classroom. Covers the development of orthographic knowledge and how to assess student work using the Qualitative Spelling Inventory and the Six-Trait Writing Model.

**EDUC 6750****Energy in Elementary STEM Education****3**

\* Prerequisite(s): Admission to Graduate Status; Admission to the School of Education Masters Degree Program; Or permission of the Dean or the instructor

Prepares teachers to teach English as a second language in U.S. public schools. Includes both theoretical and applied aspects of second language learning and teaching. Provides general and special educators and second language specialists techniques, activities, strategies and resources to plan instruction for English language learners (ELLs). Emphasizes oral language development, literacy and content-area instruction for teaching K-12 students.

**EDUC 6760****Force in Elementary STEM Education****3**

Provides teachers with a deep and useful understanding of force and the nature of how students use concepts of force to make sense of phenomena across life, earth, and physical science. Explores the theory of and enhances teacher insights into: 1) how force, matter and energy interact, 2) the relationship of force to energy and interactions within fields, and 3) pedagogical content knowledge around teaching and learning about force. Also connects knowledge of concepts of force to practices in technology, engineering and mathematics, and engages participants in evaluating technology appropriate to elementary STEM instruction. Requires participants to make connections between current learning theories and methods of STEM instruction.

**EDUC 6770****Matter in Elementary STEM Education****3**

Models effective and engaging instructional practices for teaching about matter in the elementary classroom, and connects knowledge of concepts of matter to practices in technology, engineering and mathematics. Requires participants to design and implement STEM lessons that will help elementary students use content knowledge about matter to make sense of phenomena across life, earth, and physical science. Designed to help participants gain insights into: 1) how matter and energy interact, 2) the relationships of matter to forces and interactions within fields, and 3) pedagogical content knowledge for teaching about matter. Involves participants in active instructional strategies and pedagogical theories. Focuses on designing learning environments that support collaborative learning and engagement in STEM lessons.

**EDUC 6780****Science and Engineering in Elementary STEM Education****3**

Explores the nature of science using science and engineering principles, practices, and processes. Investigates applications of learning theory to Science, Technology, Engineering and Mathematics using problem-based learning experiences. Requires participants to develop teaching practices to assist them in integrating engineering practices across disciplines as they apply Utah Science Standards to elementary STEM instruction.

**EDUC 6790****Technology and Problem-Based Learning in Elementary STEM Education****3**

Engages participants in developing meaningful understandings of problem-based approaches to teaching, learning, and the integration of STEM practices across the curriculum using appropriate technology. Requires participants to demonstrate their skills through the development of problem-based, hands-on learning experiences for elementary students, based on findings from current research and theory of cognitive development. Critically evaluates technology for STEM education, based on current national guidelines.

**EDUC 691R****Project I****1**

\* Prerequisite(s): EDUC 6200 and Matriculation into a School of Education graduate program or matriculation into Master of Science-Mathematics, M.S., program, or approval of graduate program director

Provides instruction regarding writing a formal classroom-based research project proposal to present to the School of Education Graduate Board. Supports students in obtaining human subject clearance. May be repeated for a maximum of 2 credits toward graduation. Course will be graded credit/no credit.

**EDUC 692R****Project II****1**

\* Prerequisite(s): EDUC 691R and Matriculation into a School of Education graduate program or matriculation into Master of Science-Mathematics, M.S., program, or approval of graduate program director

Provides support regarding Implementation of the classroom-based applied research project. Course will be graded credit/no credit. May be repeated for a maximum of 2 credits toward graduation.

# Course Descriptions

## **EDUC 693R**

### **Project III**

**1**

\* Prerequisite(s): Matriculation into a School of Education graduate program or matriculation into Master of Science-Mathematics, M.S., program, or approval of graduate program director

\* Prerequisite(s) or Corequisite(s): EDUC 691R and EDUC 692R

Provides support regarding completion of a classroom-based applied research project and acceptance of the classroom-based applied project by the School of Education graduate Board. Course will be graded credit/no credit. May be repeated for a maximum of 9 credits toward graduation.

## **EDUC 694R**

### **Directed Individual Study**

**.5 to 3**

\* Prerequisite(s): Admission to Graduate Status; Admission to the School of Education Masters Degree Program or permission of the Dean

Provides individual instruction for Master of Education students wishing to further their understanding of the field of education. Focuses on individual research regarding instructional methods and/or assessment. May be repeated for a maximum of 6 credits. Graded Credit/No Credit.

## **Eng Graphics/Design Tech (EGDT)**

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### **EGDT 1000**

#### **Introduction to Engineering Drawing and Technical Design**

**2**

Covers basic sketching, instruments and their use, lettering, geometric construction, dimensioning, multi-view drawings, and section views, using CAD (computer-aided drafting) and traditional hand tools. Teaches introductory skills required in several first-year drafting technology courses. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### **EGDT 1010**

#### **Electrical Drafting and Design**

**3**

\* Prerequisite(s): EGDT 1040 with a grade of C- or higher

Introduces several types of electrical drawings such as Block, Connection, Logic, Schematic, Wiring, and Panel Diagrams. Covers basic DC theory, electricity and electrical terms. Includes the principles of Ohm's law, Watt's law, Logic Truth Tables, Series and Parallel Circuits, and Printed Circuit Board Design. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### **EGDT 1020**

#### **3D Architectural Modeling**

**3**

Utilizes a Building Information Modeling system (BIM) to design 3D architectural models. Covers 3D modeling design theory, parametric modeling methods, generation of residential and commercial construction plans and details, building components and systems, and manipulation of model information. May be delivered hybrid and/or online. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### **EGDT 1040**

#### **Fundamentals of Technical Engineering Drawing**

**3**

Introduces fundamental technical engineering drawings, practices, and standards used by various engineering disciplines. Provides basic sketching, computer-aided drafting (CAD) tools, geometric construction, drawing layout, standard dimensioning, multi-view drawings, sectioning, plotting, checking, correcting, and other CAD and drafting skills. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### **EGDT 1050**

#### **Intro to 3D Printing and Fabrication**

**3**

Introduces the history of design and fabrication. Explores how design and fabrication applies to, affects, and connects various fields, environments, cultures, and workplaces. Teaches basic design and fabrication competencies through analyzing and solving real-world problems using current technology. Encourages an appreciation for the evolution of design and fabrication and its application in diverse fields of academia and industry. Investigates the possibilities of new emerging technologies in these fields.

### **EGDT 1060**

#### **MicroStation Infrastructure Design**

**3**

Teaches the MicroStation Open Roads drafting software system used to draw and plot various types of infrastructure projects. Demonstrates civil design skills needed in an infrastructure design workflow for a typical UDOT or civil engineering transportation project. Includes Digital Terrain Models (DTM's), horizontal and vertical alignments, plan and profiles, grading design, and utilities/piping design and drafting. Focuses on the development of a civil engineering infrastructure plan set for a typical state highway or freeway. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### **EGDT 1070**

#### **3 Dimensional Modeling Inventor**

**3**

Teaches basic 3D computer modeling course which emphasizes the development of 3D machine parts, assemblies, and drawings in a constraint-based modeling environment using AutoDesk Inventor. Emphasizes the feature based design process, which simulates actual manufacturing processes with 2D sketching tools and with 3D modeling tools including extrusions, revolutions, sweeps, lofts, coils, shells, placed features, patterns, and many others. Also teaches creation of basic multi-part assemblies, constraint-driven assembly animation, and generation of detailed production drawings. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### **EGDT 1071**

#### **3 Dimensional Modeling--Solidworks**

**3**

Teaches basic 3D computer modeling, which emphasizes the development of 3D machine parts, assemblies, and drawings in a constraint-based modeling environment using Solidworks. Emphasizes the feature based design process, which simulates actual manufacturing processes with 2D sketching tools and with 3D modeling tools including extrusions, revolutions, sweeps, lofts, coils, shells, placed features, patterns, and many others. Also teaches creation of basic multi-part assemblies, constraint-driven assembly animation, and generation of detailed production drawings. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### **EGDT 1090**

#### **Introduction to Architectural Drafting and Design**

**2**

Covers basic procedures used in the development of residential plans. Includes architectural drafting standards, symbols, and techniques. Uses lectures and text reading assignments related to the drawings and worksheets. Introduces students to the architectural profession and related fields. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### **EGDT 1100**

#### **Architectural Drafting and Design**

**3**

\* Prerequisite(s): EGDT 1020 with a grade of B- or higher

Covers procedures used in developing a complete set of architectural residential plans. Includes architectural drafting standards and code requirements. Reinforces math skills using dimensioning and estimating exercises. Utilizes lectures and text reading assignments with related worksheets and drawings. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 1200  
Mechanical Drafting and Design**

**3**  
\* Prerequisite(s): EGDT 1070 or EGDT 1071 or EGDT 1040, with a grade of C- or higher

Requires previous knowledge of CAD software including geometric construction, linework, and dimensioning. Focuses on the design and documentation of mechanical components with proper tolerancing using design layouts, the Machinery's Handbook, and manufacturer's reference materials including retaining rings, bearings, oils seals, and other hardware. Details the form, fit, and function of mechanical components using the ASME Y14.5 Standard. Introduces geometric dimensioning and tolerancing in detailing the components. Includes precision dimensioning, gear design, shaft design, surface finish, materials, threaded holes, threaded fasteners, manufacturing methods, and machining processes and applications. Course fee of \$10 applies. Software fee of \$18 applies. Lab access fee of \$45 applies.

**EGDT 1300  
Structural Drafting and Design**

**3**  
\* Prerequisite(s): EGDT 1040 with a grade of C- or higher

Covers fundamentals of structural design. Studies structural steel detailing of beams, columns, braces, templates, marking and numbering systems, bill of materials, welding symbols, and erection drawings to AISC standards. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 1400  
Surveying Applications and Field Techniques I**

**3**  
For people seeking a surveyor's license, civil engineering majors, Engineering Graphics and Design Technology majors, Construction Management majors, and anyone else wishing to learn fundamentals of surveying. Covers history of surveying, mathematics, field notes, measurement and computations, basic surveying instruments and equipment, leveling procedures, bearing computations, topography, mathematical traverse closures, area computations, and basic property surveying. Completers should be able to work in the job-entry phase of the surveying field. Course fee of \$12 for materials applies. Software fee of \$18 applies. Lab access fee of \$45 computers applies.

**EGDT 1600  
Technical Math Algebra**

**3**  
\* Prerequisite(s): MAT 0920 or equivalent with "C-" grade or better or appropriate test scores

Covers the basic principles of algebra, geometry, and trigonometry as they relate to problem solving on the job. Includes solving equations, percent, proportion, variation, calculator operations, measurements, formula rearrangement, functions and graphs, and solving right and oblique triangles.

**EGDT 1610  
Technical Math Geometry Trig**

**3**  
\* Prerequisite(s): EGDT 1600 or equivalent course with a grade of C- or higher

Covers more advanced principles of algebra, geometry, and trigonometry as they relate to problem solving on the job. Includes systems of equations, powers and roots, trigonometry functions, vectors, polynomials, quadratic equations, exponents and radicals, and circle concepts.

**EGDT 1720  
Architectural Rendering**

FF

**3**  
Discusses how Architectural Rendering plays an important role in the way we view and present the world around us. Includes: elements in the physical and natural world, as well as the influences human cultures have on our society through the construction of buildings, structures, and other works of man. Introduces the necessary skills and practices required in architectural rendering theory and presentation. Develops skills in perspective, layout, shading, color theory and presentations of interior and exterior architectural rendering projects. Course fee of \$10 applies.

**EGDT 2010  
Advanced Electrical CAD**

**2**  
\* Prerequisite(s): EGDT 1010 and EGDT 1040, with "C-" grade or higher

For second year Drafting Technology majors. Concentrates on the completion of electrical-electronic diagrams using CAD procedures. Those layout procedures studied will include logic and schematic diagrams. Printed wiring board and AC motor control wiring diagram layout from reference schematics will also be covered. Includes a basic introduction to AC electrical theory including inductance and capacitance and their relationship to AC motors and motor controls. Completers should have entry-level skills for an electrical-electronic drafting position. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 2020  
Descriptive Geometry**

**3**  
\* Prerequisite(s): EGDT 1040 with a grade of C- or higher

Covers advanced orthographic projection principles used to render views of objects from any conceivable direction. Explains the creation of views needed to solve problems graphically rather than mathematically. Includes true length and angle, true size and shape, clearance, bearing, slope and grade, intersections, shortest distance, dihedral angle, and revolution. Reinforces the use and application of accurate scaling techniques. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 2040  
Piping Drafting**

**2**  
\* Prerequisite(s): EGDT 1040 with a grade of C- or higher

Includes single-line and double-line pipe symbols. Covers both isometric and orthographic projection. Studies piping connections such as welded, screwed, soldered, flanged, and bell and spigot. Uses manufacturer's and reference materials specifications. Includes information on copper tubing and brass fittings. Uses hydraulic theory and formulas. Also uses computer (CAD) to develop drawings. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 2050  
Plate Layout**

**2**  
\* Prerequisite(s): EGDT 2020 with a grade of C- or higher

A continuation of Descriptive Geometry (EGDT 2020). Patterns are made of rolled or folded surfaces such as bins, hoppers, duct work, vent pipes, tanks, storage containers, etc. Patterns are also made for pipe end cuts, pipe intersections, transition pieces and twist angles. Emphasizes three types of pattern development: (1) parallel line, (2) radial line, (3) triangulation. Includes practical problems in finding the line of intersection between surfaces and drawing patterns. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 2100  
Architecture Materials and Methods**

**3**  
\* Prerequisite(s): EGDT 1020 with a grade of C- or higher

Introduces traditional architectural materials and methods of design and construction. Covers wood, masonry, and concrete construction as well as finish materials. Builds skills related to organizing, detailing, dimensioning, and scheduling construction documents for a commercial type building. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **EGDT 2200**

### **Advanced Mechanical**

**3**

\* Prerequisite(s): EGDT 1200 and (EGDT 1070 or EGDT 1071) all with a grade of C- or higher

Employs 3D modeling software to enhance design processes, including sketching, parametric modeling, 3D assemblies, and producing 2D working drawings. Included are sheet metal, structural parts, mass property, and stress analysis. Software fee of \$18 applies. Lab access fee of \$45 computers applies.

## **EGDT 2300**

### **Advanced Structural CAD**

**3**

\* Prerequisite(s): EGDT 1300 and (MATH 1060 or EGDT 1610) both with a grade of C- or higher

A second year class for students who have completed first year structural drafting and want to enhance their knowledge of structural steel detailing. Includes the proper views and dimensioning practices for columns, stairways, handrails, cross-bracing, anchor bolt layout, erection drawing, and field bolt lists. Completers should be ready for entry-level employment as a structural steel detailer for small detailing companies or large construction companies. Software fee of \$18 applies. Lab access fee of \$45 computers applies.

## **EGDT 2310**

### **Structural Steel Modeling**

**3**

\* Prerequisite(s): EGDT 1040 and EGDT 1300 both with a grade of C- or higher

Teaches Tekla Structures modeling software. Includes modeling of structural steel buildings, hoppers, stairs, piping, and miscellaneous steel projects. Prepares students for detail and erection drawings which are produced for fabrication and erection of structural steel projects. Software fee of \$18 applies. Lab access fee of \$45 computers applies.

## **EGDT 2400**

### **Surveying Applications and Field Techniques II**

**3**

\* Prerequisite(s): EGDT 1040 or equivalent, EGDT 1400 and (EGDT 1600 or MATH 1060) both with a grade of C- or higher

Covers advanced concepts in the U.S. Public Land and State Plane Coordinate systems. Utilizes advanced surveying instruments such as total station, automatic level, GPS equipment, and data collectors. Covers advanced leveling procedures, volume computations, monumentation, mapping, boundary surveys, and route surveys. Features the writing of legal property descriptions. Builds upon knowledge of safe surveying procedures. Includes use of surveying calculation softwares. Covers horizontal curve calculations and highway staking. Completers should be able to work as an instrument person on survey crews and also prepare the drawings related to the surveys. Lab access fee of \$45 for computers applies. Software fee of \$18 applies. Course fee of \$12 for materials applies

## **EGDT 2500**

### **3 Dimensional Modeling--Civil 3D**

**3**

\* Prerequisite(s): EGDT 1040, EGDT 1400

Describes design workflows of typical civil engineering firms. Employs functions of Autodesk Civil 3D application software for civil design and modeling. Includes Digital Terrain Models (DTM's), street alignments, plan and profiles, grading, and utilities/piping design and drafting. Develops a full set of civil engineering improvement plans for a residential subdivision. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

## **EGDT 2600**

### **Applied Structures I - Statics**

**3**

\* Prerequisite(s): MATH 1050 or MATH 1055 or (EGDT 1600 and 1610)

Covers architectural structures for low-rise and light construction projects. Applies trigonometry and technical math. Covers lateral, wind, seismic, and snow loads. Introduces the basic principles of statics including; force systems, moments, resultants of force systems, analysis of structures, centroids and centers of gravity, and moments of inertia.

## **EGDT 2610**

### **Applied Structures II - Strength of Materials**

**3**

\* Prerequisite(s): EGDT 2600 with a grade of B- or higher

Examines architectural long-span and high-rise structures with an emphasis on steel and concrete construction. Covers stresses, strains, properties of materials, Poisson's ratio, thermal effects, shear force, bending moments, lateral loads, deflection, connections, beam design and column design.

## **EGDT 2710**

### **Special Problems Mechanical**

**2**

\* Prerequisite(s): EGDT 2200 with a grade of C- or higher

An advanced course in mechanical layout and design using solid modeling techniques. Students, with approval, may design and layout projects of their choice. Final details are fabricated in the machine shop. Lab access fee of \$45 for computers applies.

## **EGDT 2720**

### **Special Problems Surveying**

**2**

\* Prerequisite(s): EGDT 2400 and (MATH 1060 or EGDT 1610) both with a grade of C- or higher

For people seeking a surveyor's license, civil engineering, drafting and construction management majors. Covers instrument maintenance and calibration, basic photogrammetry and surveying for photogrammetry, mine surveying, construction surveying, resection, and legal aspects of land surveying. Completers should have job skills for surveying and civil technology. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

## **EGDT 2730**

### **Special Problems Civil Drafting**

**2**

\* Prerequisite(s): EGDT 1400 with a grade of C- or higher

For people seeking a surveyor's license or intended Civil Engineering and Engineering Graphics and Design majors desiring a civil drafting emphasis. Covers preparation of drawings associated with surveying and civil engineering and design. Projects include: property surveys and subdivision design, geotechnical investigations, wastewater treatment, storm drains, highway design, topographic mapping, earthen and concrete dams, and NICET certifications. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

## **EGDT 2740**

### **Special Problems Architectural**

**2**

\* Prerequisite(s): EGDT 1100 with a grade of C- or higher

A special problems course in architectural drafting. Teaches how to layout and detail a floor plan using a 3D modeling package. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 2750**  
**Special Problems Architectural Rendering**  
**2**

For students who wish to develop additional architectural rendering skills to enhance their job performance. Covers theory of perspective, laying out a building perspective from blueprints, inking techniques to develop a finished rendering, and quick coloring methods for ink renderings. Course fee of \$10 for materials applies.

**EGDT 2760**  
**Special Problems Structural**  
**2**

\* Prerequisite(s): EGDT 1300 with a grade of C- or higher

Provides opportunities for in-depth study in structural steel drafting. Teaches beam sizing and selection for design drawing. Requires a special class project with complete objectives and goals outlined and presented to the instructor for approval. Emphasizes project documentation. Computer graphics are an important part of this course. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 2780**  
**Special Problems Electrical**  
**2**

\* Prerequisite(s): EGDT 1010 with a grade of C- or higher

For students who wish to advance beyond EGDT 2010 through the development of an outside project which incorporates advanced theory and drawing procedures. The instructor will review project outline to ensure that it meets course objectives and will monitor student progress, establishing progressive goals. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 281R**  
**Internship**  
**1 to 3**

\* Prerequisite(s): Department approval and completion of: EGDT 1010, EGDT 1040, EGDT 1070 or EGDT 1071, EGDT 1020, EGDT 1100, EGDT 1200, EGDT 1300, and EGDT 1400, all with a C- or higher

Provides on-the-job work experience in the student's major. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated for a maximum of 3 credits toward graduation. May be graded Credit/No Credit.

**EGDT 285R**  
**AEC Design Lecture Series**  
**.5**

Provides student opportunities to network and collaborate with industry professionals. Provides exposure to career options within the architecture and other related design industries. Emphasizes the importance of professional ethics and communicating with others. May be Graded Credit/No Credit. May be repeated for a maximum of 3 credits toward graduation.

**EGDT 2860**  
**Cooperative Correlated Instruction Skills**  
**USA**  
**.5**

SkillsUSA is a first year class for Engineering Graphics and Design Technology majors. Includes leadership training, parliamentary procedure, job interview skills, prepared speaking, extemporaneous speaking, and organizational skills. Upon completion, the student should understand the SkillsUSA organization and how it helps to build leadership skills.

**EGDT 2870**  
**Portfolio and Career Preparation**  
**1**

Required for Engineering Graphics and Design Technology majors. Teaches necessary job acquisition skills. Instructs students in the job search process, including production of typical types of correspondence, job interview techniques, and creation of presentation-quality portfolios. Correspondence includes letters of application, resumes, follow-up letters, letters of acceptance and rejection, and references. Interview techniques include interview preparation, appearance, and question/answer techniques. Final project is portfolio of samples of work in all areas of Engineering Graphics & Design Technology learned for the degree. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**EGDT 3450**  
**Civil Design Systems**  
**3**

\* Prerequisite(s): EGDT 2500, EGDT 3500, and University Advanced Standing

Teaches theories, principles, and practices of traffic systems design, gravity and pressure piping systems design, surface grading systems, and hydrology. Explores various computational and design software used to develop finished construction drawings for public and private infrastructure projects.

**EGDT 3500**  
**Advanced Civil Drafting and Design**  
**3**

\* Prerequisite(s): [(EGDT 1040 or EGDT 1060) and EGDT 1400 each with a grade of C- or higher] and University Advanced Standing

Covers the analysis, design and preparation of drawings associated with the surveying and civil engineering fields. Exposes the student to the NICET certification process. Focuses on GPS and GIS technologies to acquire design data. Develops a working knowledge of the Utah Department of Transportation Standard Plans and Specifications. Projects include: property surveys, topographic mapping, subdivision design, geotechnical investigations, Water and Wastewater Treatment Plants, storm drainage, highway design, traffic flow diagrams, and earthen and concrete dams. Lab access fee of \$45 for computers applies.

## Literacies and Composition (ENGH)

**ENGH 0890**  
**Literacies and Composition Across the University**  
**5**

\* Prerequisite(s): Appropriate placement scores.

Teaches reading-based writing (reading-to-write). Helps students bridge the gap between personal and academic writing and practice ways their personal literacies, experiences, opinions, and observations extend to particular academic conversations. Emphasizes extensive reading throughout the semester using models for organization, style and primary sources for classroom discussions and essay content. Lab access fee of \$15 for computers, software applies.

**ENGH 1005** **CC**  
**Literacies and Composition Across Contexts**  
**5**

\* Prerequisite(s): ENGH 0890 or appropriate placement scores.

Focuses on reading-based writing with strong rhetorical concentration; expands critical reading, writing, and thinking concepts from 0890 and prepares students for reading, writing, and thinking in ENGL 2010 and other future courses and future situations. Provides strong skills development in digital literacy for multi-media content creation, research, and presentations. Provides a project-based curriculum, along with best-practices pedagogies, providing students with authentic contexts, audiences, and opportunities to be intrinsically motivated to develop writing and reading skills and knowledge. May be delivered hybrid and/or online. Canvas Course Mats of \$33/Fountain Head Press applies. Lab access fee of \$15 applies.

## Course Descriptions

### English (ENGL)

#### **ENGL 1010** **CC** **Introduction to Academic Writing**

**3**  
\* Prerequisite(s): Appropriate test scores taken within the last five years.

Teaches rhetorical knowledge and skills, focusing on critical reading, writing, and thinking. Introduces writing for specific academic audiences and situations. Emphasizes writing as a process through multiple drafts and revisions. May be delivered hybrid and/or online.

#### **ENGL 101H** **CC** **Introduction to Writing**

**3**  
\* Prerequisite(s): Appropriate test scores taken within the last five years.

Teaches rhetorical knowledge and skills, focusing on critical reading, writing, and thinking. Introduces writing for specific academic audiences and situations. Emphasizes writing as a process through multiple drafts and revisions. Provides an educational experience targeted to Honors students through smaller class size and rigorous readings, activities, and assignments.

#### **ENGL 2010** **CC** **Intermediate Academic Writing**

**3**  
\* Prerequisite(s): Appropriate ACT test scores taken within the last three years or completion of ENGL 1010 or ENGL 101H with a grade of C- or higher, or ENGH 1005 with a grade of C or higher.

Emphasizes academic inquiry and research. Explores issues from multiple perspectives. Teaches careful reasoning, argumentation, and rhetorical awareness of purpose, audience, and genre. Focuses on critically evaluating, effectively integrating, and properly documenting sources. May be delivered hybrid and/or online.

#### **ENGL 201H** **CC** **Intermediate Academic Writing**

**3**  
\* Prerequisite(s): Appropriate ACT test scores taken within the last three years or completion of ENGL 1010 or ENGL 101H with a grade of C- or higher, or ENGH 1005 with a grade of C or higher.

Emphasizes academic inquiry and research. Explores issues from multiple perspectives. Teaches careful reasoning, argumentation, and rhetorical awareness of purpose, audience, and genre. Focuses on critically evaluating, effectively integrating, and properly documenting sources. Provides an educational experience targeted to Honors students through smaller class size and rigorous readings, activities, and assignments.

#### **ENGL 2030** **HH** **Writing for Social Change**

**3**  
\* Prerequisite(s): ENGL 2010 with a grade of C- or higher

Introduces theories and strategies of persuasion to help students understand and use basic tools of civic literacy, including critical thinking, reading, and writing. Uses writing to engage with complex social issues. Includes analysis and production of texts such as letters to the editor, opinion-editorials, writing for non-profit organizations, and political speeches.

#### **ENGL 2050** **Editing**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005

Covers the essentials of editing manuscripts for publication. Provides students with the necessary knowledge of punctuation, grammar and usage as well as the symbols and conventions of editing.

#### **ENGL 2100** (Cross-listed with: ENGL 2210) **HH** **Technical Communication WE**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005

Teaches basic technical writing skills used in a variety of professional settings. Emphasizes audience analysis, document design, and using precise language for a particular audience.

#### **ENGL 2120** **Fantasy Literature**

**3**  
\* Prerequisite(s) or Corequisite(s): ENGL 1010 or ENGH 1005

Surveys major fantasy authors from the 19th century to the present. Teaches key elements of the genre, including world creation, character, and significant themes. May include a creative writing component.

#### **ENGL 2130** **HH** **Science Fiction**

**3**  
\* Prerequisite(s) or Corequisite(s): ENGL 1010 or ENGH 1005

Presents a chronological survey of major Science Fiction authors from Mary Shelley (1818) to the present. Emphasizes the importance of character, setting, plot, and scientific ideas in analyzing literature. Uses discussion, lectures, videos, and films to help students increase appreciation for the literary genre and its works. Completers will have a better understanding of science fiction, plus enhanced writing skills.

#### **ENGL 2150** (Cross-listed with: CINE 2150) **HH** **Critical Introduction to Cinema Studies**

**3**  
\* Prerequisite(s): ENGL 2010

Studies film as an aesthetic and cultural medium. Teaches the fundamentals of film, including narrative form, *mise en scene*, cinematography, editing, sound, and non-narrative forms. Teaches film analysis, including ideological approaches, and considers film as a cultural institution. May be delivered hybrid.

#### **ENGL 217G** (Cross-listed with: CINE 217G, COMM 217G) **HH** **Race Class and Gender in U S Cinema GI**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005

Raises cultural awareness through aesthetic, critical, and interdisciplinary examination of the evolution of the representation of race, class, and gender in American cinema. Focuses on both Hollywood and independent minority filmmakers. Some films screened may carry an "R" rating.

#### **ENGL 220G** **Introduction to World Literature** **HH**

**3**  
Introduces literary appreciation of world literatures. Teaches criticism and terminology as applied to various types of literature, including fiction, poetry, and drama. Requires students to consider texts from positions, of Race, Ethnicity, Culture, Gender, Sexuality and (Dis)ability, Uses discussion, lecture, films, videos, and tests.

#### **ENGL 2210** **HH** **Introduction to Folklore**

**3**  
\* Prerequisite(s) or Corequisite(s): ENGL 1010 or ENGH 1005

Introduces the study of folklore. Presents the dynamics of the traditional expressions of a variety of folk groups. Emphasizes folklore performance and its cultural context. Provides practical experience in folklore collection.

#### **ENGL 2230** **HH** **Myths and Legends in Literature**

**3**  
\* Prerequisite(s) or Corequisite(s): ENGL 1010 or ENGH 1005

Introduces students to myths and legends that are the foundation of literature. Uses discussion, storytelling, videos, journals, and portfolios.

#### **ENGL 223H** **HH** **Myths and Legends in Literature**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005

Provides a thorough foundation for the study of classical mythology; explores common myth themes through guided research and projects in world myth; analyzes myth through a variety of theoretical perspectives. Focuses on lecture, discussion, written and oral presentations, myth analysis, exams, and papers.



# Course Descriptions

## **ENGL 2800**

### **Introduction to the English Major**

**3**

\* Prerequisite(s) or Corequisite(s): ENGL 2010

Introduces students to the English major and the practice of reading, discussing, and writing about texts and cultural productions across a variety of modes, including poetry, fiction, film, and professional, multimodal and digital texts, among others. Explores a range of genres and textual artifacts from Western and non-Western literary traditions. Builds skills in critical, technical, and creative production through assignments that represent the multiple disciplines in the English department. Previews the four different emphases offered by the English department: literary studies, creative writing, writing studies, and English education, to provide students with a foundation in studies in the humanities. Surveys the professional skills, careers, and opportunities fostered by a degree in English.

## **ENGL 281R**

### **Internship**

**1 to 8**

\* Prerequisite(s): Approval of Cooperative Coordinator

Designed for English majors. Provides experience in the student's major. Students who receive credit for an internship must establish learning objectives with their Faculty Sponsor at the beginning of their internship and reflect on their learning through academic work (i.e. papers, journal, etc.). Students are required to submit an evaluation of their experience at the end of the semester. Credit is determined by the number of hours a student works during the semester. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

## **ENGL 2850**

### **Literary History I**

**3**

\* Prerequisite(s) or Corequisite(s): ENGL 2800

Examines texts from the British Isles to approximately 1700. Develops interpretive skills emphasizing form, genre, culture, and history. Explores major intellectual and literary movements in the period. Defines and practices literary terminology in interpretations of representative canonical and noncanonical texts. Focuses on discussion, analysis, and a variety of textual productions.

## **ENGL 2870**

### **Literary History II**

**3**

\* Prerequisite(s) or Corequisite(s): ENGL 2800

Surveys Anglophone literature from approximately 1700 to the present. Provides a critical introduction to literary periods and the relationship between literary artifacts and their historical, geographical, and cultural contexts. Develops and applies critical reading and analytical skills through discussion and interpretive projects.

## **ENGL 290R**

### **English Scholarly Forum**

**1**

\* Prerequisite(s): ENGL 2010

Requires attendance at academic campus events of student's choice (conferences, lectures, colloquia, symposia, workshops, reading groups, etc.) and composing reflective, written assignments. Includes informal meetings with instructor at the beginning and end of the course. May be taken three times for credit.

## **ENGL 299R**

### **Independent Study**

**.5 to 3**

Provides independent study as directed in reading and individual projects at the discretion and approval of the Dean and/or Department Chair. Limited to three credits toward graduation with an AS/AA degree.

## **ENGL 3000**

### **Professional Considerations for the**

### **English Major**

**1**

\* Prerequisite(s): Completion of ENGL 2010 with a grade of C- or higher and University Advanced Standing

Discusses various career choices for English majors. Familiarizes students with curricular emphases and department faculty. Emphasizes internships and other available activities. Features a regular rotation of English faculty guest speakers.

## **ENGL 3010**

### **Rhetorical Theory**

**3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Considers prominent theories of rhetoric and accompanying methods for the production of texts in various contexts, encouraging adopting, amending, and/or developing hybrid theories of rhetoric.

## **ENGL 3020**

### **Modern English Grammars**

**3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Explores language structures, discovering connections between grammar (linguistic structure) and language uses (discourse and/or rhetoric). Includes the study of and practice in informed decision-making in the process of developing language structures (grammatical choices) appropriate to a particular rhetorical aim.

## **ENGL 304G**

### **History of the English Language**

**3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Focuses on the origins of the English language and how it has grown and continues to change. Introduces historical origins of the English language and changes that produced our present speech in its many dialects, creoles, and pidgins. Combines linguistic and rhetorical histories.

## **ENGL 3050**

### **Advanced Editing and Design for Print**

### **Media**

**3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing; ENGL 2050 recommended

Refines student editing, design, and publishing skills. Provides students with the opportunity to take manuscripts from editing to press-ready. Teaches industry standards for current publishing tools. Includes projects such as designing books, marketing literature, and corporate identities. Covers design, typography, and pre-press issues as they relate to writing and editing documents. Recommended for students involved with student publications, including journals and campus newspaper.

## **ENGL 3060 (Cross-listed with: HUM 3060)**

### **Visual Rhetoric**

**3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Investigates the growing academic and cultural interest in the rhetorical nature of visual texts. Teaches critical thinking about the consumption and productions of images and multimodal texts. Explores visual grammars and other theories of visual rhetoric as articulated by contemporary image, language, and scholars of rhetoric. Encourages the development of theoretical and practical knowledge through reading, discussion, and analysis as well as through the production of visual texts and written work.

**ENGL 3070**  
**Public Rhetorics****3**

\* Prerequisite(s): ENGL 2010 with a C- or higher and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): ENGL 3010

Investigates the structure and nature of rhetorical identities and arguments in public discourse. Introduces genres of public discourse to examine their rhetorical construction and circulation to mass audiences. Explores and critiques theories of democratic deliberation. Studies texts in media such as advertising, blogs, film, social networking venues, television, and websites through specific theories of public rhetoric. Examines arguments regarding the complex nature of public ethos. Includes reading, discussion, analysis, research, and production of public rhetorics through a variety of media and methods.

**ENGL 3085****Rhetorical Approaches to Popular Culture****3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): ENGL 3010

Explores popular culture as a contested site of meaning-making, identity-formation, and shared experiences. Reviews historical theories that construct the status of the popular or the mainstream versus the comparative labels of the "highbrow" and the "subcultural." Analyzes how media access, socioeconomic context, cultural movements, and generational differences formulate taste preferences and different styles of engagement with popular texts. Focuses on the rhetorical practices of pop culture creation and consumption with an emphasis on personal and political ramifications. Examines texts that are industry-produced and texts created through the practices of fans, critics, and theorists.

**ENGL 3090****Academic Writing for English Majors WE****3**

\* Prerequisite(s): ENGL 2600 with a grade of C- or higher and University Advanced Standing  
 \* Corequisite(s): ENGL 3000 Recommended

Centers on scholarly research and writing in fields related to English Studies, drawing on students' areas of focus. Emphasizes analysis, rhetorical theories of writing, development, style, oral presentations, and primary and secondary research techniques. Prepares students to extend their abilities with researched writing in other upper-division courses and teaches students advanced scholarly attitudes toward researched writing.

**ENGL 3110 (Cross-listed with: COMM 3110, THEA 3110)****Non Fiction Cinema History****3**

\* Prerequisite(s): ENGL 2150 and University Advanced Standing

Surveys the history of non-fiction/documentary film from 1896 to the present. Includes study of early pioneers from Flaherty's NANOOK OF THE NORTH to the current trend of reality television and popular documentaries. Some films screened may carry an "R" rating.

**ENGL 314G (Cross-listed with: COMM 314G, THEA 314G)****Global Cinema History****3**

\* Prerequisite(s): (ENGL 2150 or THEA 1023) and University Advanced Standing

Studies the evolution of global film styles, movements, stars, and genres with a focus on international cinema chronologies outside the United States. Some films screened may be considered controversial and carry an "R" rating.

**ENGL 3150 (Cross-listed with: CINE 3150)****Cinema and Television Theory****3**

\* Prerequisite(s): (CINE 2150 or ENGL 2150) and University Advanced Standing

Examines major theoretical approaches to the screen arts. Explores how cinema and television reflect and are created by historical and contemporary cultural contexts. Includes the study of various approaches such as fan studies, spectatorship, stars, authorship, genre, long-form narrative and production. Includes lecture, film and media screenings, and critical discussions of assigned readings.

**ENGL 3300****Collaborative Communication for Technology Professions****3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Teaches technical communication skills and methodologies in demand by business and industry. Provides collaborative experience in the development of a professional, team-oriented project, using suitable technology. Integrates textual and visual rhetorics through effective design practices. Emphasizes primary and secondary research as well as usability testing. Lab access fee of \$12 for computers applies.

**ENGL 3320****Grant and Proposal Writing****3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Introduces students to private and governmental funding sources. Demonstrates successful proposal and grant writing strategies. For interested upper-division students and Technical Writing emphases and minors.

**ENGL 3340****Digital Document Design****3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Teaches web-based document design and other digital genres. Introduces HTML, CSS, and industry standard tools. Emphasizes rhetorical differences between digital and print documents and focuses on the collaborative and viral nature of web texts.

**ENGL 3420****Intermediate Fiction Writing****3**

\* Prerequisite(s): ENGL 2250 or ENGL 225H with a C- or higher, and University Advanced Standing

Provides intermediate instruction in practices and techniques for generating, writing, and revising original short fiction. Focuses on contemporary fiction and critical theories associated with contemporary fiction. Explores and provides practice in various categories of fiction. Utilizes the creative writing workshop as the primary method of critical engagement with and critique of original short fiction.

**ENGL 3430****Play Writing for Creative Writers****3**

\* Prerequisite(s): ENGL 2250 or ENGL 225H with a C- or higher, and University Advanced Standing

Provides intermediate instruction in practices and techniques for generating, writing, and revising original plays. Focuses on critical theories associated with contemporary play writing. Explores and provides practice in various categories of drama. Utilizes the creative writing workshop as the primary method of critical engagement with and critique of original writing.

## Course Descriptions

### **ENGL 3440**

#### **Intermediate Poetry Writing**

**3**

\* Prerequisite(s): ENGL 2250 or ENGL 225H with a C- or higher and University Advanced Standing

Provides intermediate instruction in practices and techniques for generating, writing, and revising original poetry. Focuses on contemporary poetry and critical theories associated with contemporary poetry. Utilizes the creative writing workshop as the primary method of critical engagement with and critique of original poetry. May include attendance at poetry readings, memorizations, and submission of original poetry to literary journals.

### **ENGL 3450**

#### **Intermediate Creative Nonfiction Writing**

**3**

\* Prerequisite(s): ENGL 2250 or ENGL 225H with a C- or higher and University Advanced Standing

Provides intermediate instruction in practices and techniques for generating, writing, and revising original creative nonfiction. Focuses on contemporary nonfiction and critical theories associated with contemporary nonfiction. Explores and provides practice in various categories of nonfiction. Utilizes the creative writing workshop as the primary method of critical engagement with and critique of original writing. Addresses the challenges of transforming experience into writing.

### **ENGL 3460**

#### **Wilderness and Environmental Writing**

**3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Introduces students to the literary conversation of appreciation and responsibility for our natural world and teaches them how to engage meaningfully in that conversation. Requires (1) extensive readings in literature of the natural world, including scientific, polemic, creative non-fiction, and fiction writing modes bearing on environmental stewardship and (2) a writing portfolio that includes polemic, creative non-fiction, fiction, and poetry. Includes discussion of assigned readings and workshoping of student manuscripts. Requires overnight wilderness field trips; students with disabilities will be accommodated on field trips.

### **ENGL 347R**

#### **Popular Genre Writing**

**3**

\* Prerequisite(s): English 2250 or English 225H with a C- or better, and University Advanced Standing

Provides an overview of genre conventions and required skills for composing original creative writing in a specified genre. Focuses on genres such as science fiction, fantasy, visual poetry, young adult writing, wilderness writing, or travel writing, among others. Utilizes readings, writing exercises, workshops, and other strategies to build competency in writing in the chosen genre. May be repeated up to 6 credits toward graduation.

### **ENGL 348R**

#### **Creative Writing Craft and Theory**

**3**

\* Prerequisite(s): English 2250 or English 225H with a C- or better, and University Advanced Standing

Investigates a specific writing skill or skills relevant to the creative writing process. Focuses on craft concepts such as the construction of the sentence, line, image, metaphor, or other essential components of literary writing. Provides more intensive practice on an element of writing craft than general workshops. Topics for this course may be focused on a specific genre, or they may be appropriate for writers working in multiple genres. Requires reading and study of representative works and creating original writing. May be repeated for up to 6 credits toward graduation.

### **ENGL 3510**

#### **Early American Literature**

**3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Examines selected authors and themes in American literature from its beginnings through the 1820s. Identifies texts within their cultural and historical contexts. Explores multiple genres, including autobiography, essay, poetry, drama, and fiction.

### **ENGL 3520**

#### **Nineteenth Century American Literature**

**3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Explores American literature of the romantic period, the Civil War, and the post-war movements of realism and naturalism (c. 1830-1900). Examines multiple genres, authors, and texts in relation to intellectual and historical developments.

### **ENGL 3530**

#### **Modern American Literature**

**3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Studies modern American literature (c. 1900-1960s) in relation to intellectual, historical, and ethical developments. Emphasizes important works by major fiction writers, poets, and playwrights responding to radical changes in America brought on by industrial-capitalist transformation, shifting demographics, women's rights, minority rights, artistic experimentation, and world wars.

### **ENGL 3540**

#### **Contemporary American Literature**

**3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Studies significant authors, themes, and topics in American literature (c. 1968 to present) in relation to historical and intellectual developments and contemporary literary theory. Explores multiple genres, including fiction, poetry, drama, and film.

### **ENGL 357G**

#### **Native American Literature**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Surveys a wide range of Native American literature. Examines the cultures and identities of Native Americans through the study of literary texts including mythology and works by contemporary writers such as N. Scott Momaday, Leslie Marmon Silko, Louise Erdrich, and Sherman Alexie, among others.

### **ENGL 3610**

#### **Medieval Literature**

**3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Explores major authors and works from Old and Middle English Literature and related literary traditions (such as Celtic, Anglo-Norman, and Latin) from approximately 700 to 1485 CE. Analyzes relevant cultural, philosophical, and historical influences on texts from the period. Authors may include the "Beowulf" poet, Marie de France, Dante, Julian of Norwich, the "Pearl" poet, Langland, Chaucer, Hoccleve, Margery Kempe, Malory, and the York and Wakefield Play Cycles.

**ENGL 3620****Tudor and Stuart Literature****3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Explores major authors, works, and themes from the Tudor period (1485-1603). Includes works by authors such as Surrey, Wyatt, Skelton, Moore, Marlowe, Sydney, Spenser, Queen Elizabeth I, Raleigh, Mary Herbert, Shakespeare, Drayton, Campion, Nashe, and others. Analyzes relevant cultural, philosophical, and historical aspects of the period.

**ENGL 3640****British Literature of the Long Eighteenth Century****3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Examines literary history from the Glorious Revolution through the Romantic period (1688-1819), including key political, philosophical and cultural developments such as the Enlightenment, transatlantic slavery and colonialism, literature by women, the gothic, the rise of the novel, and the industrial revolution. Authors may include Behn, Blake, Coleridge, Defoe, Haywood, Johnson, Keats, Shelley, Swift, Pope, Wollstonecraft, Wordsworth and others.

**ENGL 3650****Victorian Literature****3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Explores British literature and culture of the Victorian period (approx. 1830-1900) in relation to intellectual and historical developments. Emphasizes critical engagements with key political and cultural issues, such as Victorian gender roles and women's rights, industrialization and class conflict, imperial expansion and racial pseudoscience, technological and scientific advancement, and religion. Authors may include Dickens, Tennyson, Eliot, the Brownings and Rossettis, the Brontës, Hardy, and Wilde.

**ENGL 3660****British Literature since 1900****3**

\* Prerequisite(s): ENGL 2010 and (ENGL 2850 or ENGL 2870), both with a grade of C- or higher, and University Advanced Standing

Explores modern and contemporary British literature in relation to intellectual and historical developments. Emphasizes the literature of empire and of the world wars, literary modernism, postmodernism, and postcolonial writing. Authors may include T. S. Eliot, Virginia Woolf, W. H. Auden, Salman Rushdie, Zadie Smith, and Hilary Mantel, among others.

**ENGL 3710****Literature by Women****3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Provides a substantive framework of important critical issues regarding literature by or about women. Applies feminist critical theory to fiction, poetry, personal essays, or drama written by women.

**ENGL 373R****Literature of Cultures and Places****3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Studies literature written in English by authors from outside the United States and Britain or by authors in the United States and Britain defined by regional or cultural traditions (e.g. Southern US, Welsh, urban working-class). May be repeated twice with different designations.

**ENGL 374G****Literature of the Sacred****3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Focuses on reading and interpreting primary texts of Hinduism, Buddhism, Judaism, Christianity, Islam, and others emphasizing resonances of these texts in later works of literature. Discusses texts from a literary standpoint within the genre of "religious writings."

**ENGL 376G****World Literature****3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Studies literature from outside of Britain and the United States. Focuses on texts selected by region, culture, time period, or author (or closely related group of authors).

**ENGL 377G****Latina/o Literature in America****3**

\* Prerequisite(s): University Advanced Standing

Studies Latina/o literature written in and about the United States and North America through close readings of novels, poetry, and other media from a variety of national, ethnic, and cultural traditions and perspectives including Mexico, the Caribbean, and the Brazuca/o experience. Examines issues such as identity, language, culture, race, ethnicity, and national borders, alongside questions of style, form, symbolism, and narrative. Integrates active class discussions, film screenings, student presentations, examinations, and papers. All texts are either written in English or taught in translation.

**ENGL 3780****Mormon Literature****3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Surveys the foundations of Mormon literature as expressed through short fiction, novels, personal essays, drama, history and criticism.

**ENGL 3790****Contemporary LGBTQ Literature****3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Surveys literary, historical, critical, and cultural texts that reflect the diversity inherent among sexually marginal communities in the United States. Includes, but is not limited to novels, short stories, drama, poetry, film, and visual art.

**ENGL 3820****History of Literary Criticism****3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Explores strategies and theories influencing the reading and writing of literary texts from classical antiquity to the present.

**ENGL 3890****Contemporary Critical Approaches to Literature WE****3**

\* Prerequisite(s): Completion of ENGL 2600 with a grade of C- or higher and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ENGL 3090

Provides in-depth study of one contemporary theoretical and critical approach to literature using primary texts. Explicates how interpretive techniques function within the discipline of English Studies. Required for English majors. Should be taken beginning of junior year.

**ENGL 401R****Topics in Rhetoric****3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ENGL 3010

Examines advanced topics in rhetoric and writing. Studies writing's central role in education, communication, and culture. Emphasizes discourse communities and genres. Analyzes how writing constructs meaning in academic, professional, media, and personal texts. Situates writing as an instrument for community engagement and service learning. May be repeated for a maximum of 6 credits toward graduation.

## Course Descriptions

### **ENGL 402G** **Multicultural Rhetorics**

**3**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): ENGL 3010

Investigates multicultural forms of rhetoric through various historical and spatial contexts. Theorizes ways to view rhetoric and conduct research through an intercultural lens by tracing the shifting nature of rhetoric through multiple ideological frameworks. Fosters a deeper understanding of how cultures and rhetorics interface.

### **ENGL 412R** **Studies in Literary Genres**

**3**  
\* Prerequisite(s): (ENGL 2250 or ENGL 225H) with a C- or higher and University Advanced Standing

Provides an historical and craft overview of developments in a specific genre of creative writing. Engages with literary texts from the position that reading widely and critically is vital to authoring literary works. Utilizes creative, critical, and reflective components to help students situate their own work within a history of a certain genre. Focuses on a different creative writing genre each semester, including fiction, non-fiction, poetry, or drama. May be repeated with different genres for a maximum of 6 credits toward graduation

### **ENGL 414R** **Special Topics in Cinema History**

**3**  
\* Prerequisite(s): ENGL 2150 and University Advanced Standing

Focuses study on a specific U.S. or International period or movement. Representative topics may include German Expressionism, Italian Neorealism, New Hollywood Cinema, and etc. May be repeated for a maximum of 9 credits toward graduation. Some films screened may carry an "R" rating.

### **ENGL 416R (Cross-listed with: CINE 416R, THEA 416R)** **Special Topics in Film Studies**

**3**  
\* Prerequisite(s): (ENGL 2150 or CINE 2150 or THEA 1023) and University Advanced Standing

Covers cinema directors, genre, theory, and social change on a rotating basis. Explains course focus, defines terminology involved, then studies evolution and/or specific texts or contexts, and considers theoretical discourse. May be repeated for a maximum of 9 credits toward graduation. Some films screened may carry an "R" rating. Course fee of \$40 for support applies.

### **ENGL 4220** **Teaching Reading and Literature**

**3**  
\* Prerequisite(s): EDSC 1010 and University Advanced Standing  
\* Corequisite(s): ENGL 4225

Emphasizes the teaching of reading and literature in the secondary English classroom. Includes an introduction to the field of English Education and to lesson planning. Presents strategies for teaching skills and concepts outlined in state and national standards. Explores issues and research related to adolescent literacy through reading and discussion including social and cultural influences on literacies and learning. Requires students to create lesson plans and teaching materials.

### **ENGL 4225** **Teaching Reading Practicum**

**1**  
\* Prerequisite(s): University Advanced Standing  
\* Corequisite(s): ENGL 4220

Focuses on classroom observations and working with current secondary teachers in their classrooms. Requires a minimum of eight hours of observations/work in approved secondary schools. Entails reading, observations, practical work in classrooms, and critical reflection.

### **ENGL 4230** **Teaching Writing**

**3**  
\* Prerequisite(s): University Advanced Standing  
\* Corequisite(s): ENGL 4235  
\* Prerequisite(s) or Corequisite(s): ENGL 4220

Emphasizes developing a writing program in the secondary English classroom, including assigning and assessing student writing. Presents strategies for teaching writing to secondary students. Includes designing assessments (including rubrics and scoring guides) and lessons to teach skills in each of the major writing modes: informative, argumentative, and narrative. Entails class discussion, scholarly reading, and creation of teaching materials.

### **ENGL 4235** **Teaching Writing Practicum**

**1**  
\* Prerequisite(s): University Advanced Standing  
\* Corequisite(s): ENGL 4230

Focuses on classroom observations and working with current secondary teachers in their classrooms. Requires a minimum of eight hours of observations/work in approved secondary schools as well as work providing feedback to secondary student writing. Entails reading, observations, practical work in classrooms, and critical reflection.

### **ENGL 4240** **Grammar and Unit Design in the English Classroom**

**3**  
\* Prerequisite(s): ENGL 4230 and University Advanced Standing  
\* Corequisite(s): ENGL 4245

Continues to examine issues related to teaching English in secondary schools. Focuses on writing long-term unit plans for teaching based on best practices and current educational approaches. Refines understanding of pedagogical theories and approaches with special emphasis on teaching the conventions of writing instruction. Treats modern grammars as multi-faceted, socially-driven practices. Focuses on curriculum design and assessment. Entails class discussion, critical reading, and creation of teaching materials.

### **ENGL 4245** **Grammar and Unit Design Practicum**

**1**  
\* Prerequisite(s): University Advanced Standing  
\* Corequisite(s): ENGL 4240

Focuses on classroom observations and working with current secondary teachers in their classrooms. Requires a minimum of fifteen hours of observations/work in approved secondary schools. Requires the teaching of three class periods. Entails reading, observations, practical work in classrooms, and critical reflection.

### **ENGL 4250** **Adolescent Literature**

**3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Explores attitudes towards adolescence as a distinctive psychological, social and moral state, using contemporary and time-honored works from various cultures. Pays particular attention to contemporary adolescent issues, history of young adult literature, significant trends in young adult literature, and the role of young adult literature in the literacy development process.

### **ENGL 4340** **Advanced Technical Communication**

**3**  
\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and ENGL 2100 and University Advanced Standing

Introduces advanced theory to critically reflect upon workplace genres and values to situate technical communication into broader political and global contexts. Teaches user-centered document design, including initial proposals and research, drafting, collaboration, usability testing, and document management. Emphasizes designing documents for local and university clients.

**ENGL 436R**

**Topics in Technical Communication**

**3**

\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and ENGL 2100 and University Advanced Standing

Examines key issues and theories in technical communication. May be taken twice with different topics.

**ENGL 4390**

**Writing Studies Capstone**

**3**

\* Prerequisite(s): ENGL 2100, ENGL 3010, Senior Status, and University Advanced Standing

Prepares students to enter careers and graduate school by critically reflecting on the relevance and value of Writing Studies. Presents strategies for professional written and oral presentations related to application processes. Requires the creation of professional and departmental portfolios. Promotes opportunities for internships, service learning, and other academic or workplace experience.

**ENGL 4420**

**Advanced Fiction Writing WE**

**3**

\* Prerequisite(s): ENGL 3420 and University Advanced Standing

Provides advanced instruction in practices and techniques for generating, writing, and revising original short fiction. Focuses on contemporary fiction and critical theories associated with contemporary fiction. Investigates various approaches to fiction writing through a series of readings, writing exercises, and revision assignments. Utilizes the creative writing workshop as the primary method of critical engagement with original fiction writing.

**ENGL 4425**

**Advanced Fiction Writing II**

**3**

\* Prerequisite(s): ENGL 4420 and University Advanced Standing

Applies a variety of advanced techniques for writing and especially revising fiction which includes readings in form, theory, and published works, with an emphasis on workshoping, revising, and preparing for publication, public readings, and graduate school.

**ENGL 4440**

**Advanced Poetry Writing WE**

**3**

\* Prerequisite(s): ENGL 3440 and University Advanced Standing

Provides advanced instruction in practices and techniques for generating, writing, and revising original poetry. Focuses on contemporary poetry and critical theories associated with contemporary poetry. Investigates various approaches to writing poetry through a series of readings, writing exercises, and revision assignments. Utilizes the creative writing workshop as the primary method of critical engagement with original poetry writing.

**ENGL 4445**

**Advanced Poetry Writing II**

**3**

\* Prerequisite(s): ENGL 4440 and University Advanced Standing

Puts into practice a variety of techniques for writing and revising original poetry. Includes poetry readings, memorizations, workshoping, and submission of original poetry to literary journals. Focuses on contemporary poetry and critical theories associated with contemporary poetry. Includes workshop methodology.

**ENGL 4450**

**Advanced Creative Nonfiction Writing WE**

**3**

\* Prerequisite(s): ENGL 3450 and University Advanced Standing

Provides advanced instruction in practices and techniques for generating, writing, and revising original creative nonfiction. Focuses on contemporary nonfiction and critical theories associated with contemporary nonfiction. Investigates various approaches to writing nonfiction through a series of readings, writing exercises, and revision assignments. Utilizes the creative writing workshop as the primary method of critical engagement with original nonfiction writing.

**ENGL 4455**

**Advanced Creative Nonfiction Writing II**

**3**

\* Prerequisite(s): ENGL 4450 and University Advanced Standing

Provides advanced instruction in revising, editing, and preparing Creative Nonfiction manuscripts for submissions in well-selected quality venues. Provides practice in finishing work previously shaped in ENGL 3450 and ENGL 4450. Addresses challenges of style, balance, compositional complexity, tradition, and experimentation.

**ENGL 4490**

**Creative Writing Capstone**

**3**

\* Prerequisite(s): (ENGL 4420, or ENGL 4440, or ENGL 4450) and ENGL 3090, each with a C- or better. Senior Status. University Advanced Standing.

Applies a variety of advanced techniques for preparing creative manuscripts in a number of genres. Focuses on revising, editing, and polishing work previously shaped in intermediate and advanced creative writing courses. Addresses challenges of composition, theory, and practical tools for pursuing publication. Focuses on the production of a final portfolio acceptable for graduate school applications, submissions to appropriate publications, and presenting in readings and other public events. Investigates processes for bridging the gap between generating drafts and moving successfully into the community of active writers.

**ENGL 4570**

**Studies in the American Novel**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Explores formal and thematic developments in the American novel. Includes historical, regional, cultural, and theoretical perspectives.

**ENGL 463R**

**Topics in Shakespeare**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Examines various topics related to Shakespeare's drama and poetry. Discusses relevant cultural and historical aspects of his times. May be repeated for a maximum of 6 credits for graduation with different topics.

**ENGL 471R**

**Eminent Authors**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Introduces important works of eminent authors. Emphasizes forms of literary expression and their place in the historical development of world literature. Examines relevant cultural and historical aspects of the authors' milieu. May be repeated twice with different topics.

**ENGL 473R**

**Topics in Gender Studies**

**3**

\* Prerequisite(s): ENGL 2010, ENGL 2600, and University Advanced Standing

Focuses student reading, research, and discussion on specific areas of concentration within the field of gender studies. Analyzes how gender affects and is affected by culture, ideology, socio-economic factors, history, etc. May be repeated for up to 6 credits toward graduation.

**ENGL 474R**

**Topics in Folklore**

**3**

\* Prerequisite(s): (ENGL 2210 or instructor/ advisor approval) and University Advanced Standing

Studies one folk genre, one folk group, or one theme which crosses genres and/or groups. Students will collect folklore related to topic under discussion. Uses discussion, readings, folk events, and students' writings. May be repeated twice with different topics.

**ENGL 476G**

**Multi-ethnic Literature in America**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Surveys multi-ethnic literature, reflecting the rich diversity inherent in the American experience. Includes but is not limited to works by Native American, Hispanic American, Asian American, and African American authors.

## Course Descriptions

### **ENGL 4790** **Literary Studies Capstone**

**3**  
\* Prerequisite(s): ENGL 3090 and ENGL 3890, both with a grade of C- or higher, Senior Status. University Advanced Standing.

Explores the value and relevance of an English Literary Studies degree. Professionalizes students by assisting them with career or graduate school preparation. Offers students the opportunity to reflect on their major and to optimize writing and communication skills. Includes revision of an existing paper as a scholarly writing sample and creation of a professional portfolio to display knowledge and abilities. Culminates with submission of a reflective portfolio to the department.

### **ENGL 481R** **Internship**

**1 to 8**  
\* Prerequisite(s): Departmental approval, senior status, and University Advanced Standing

For senior English majors and minors. Internships are intended to offer students opportunities to work with instructors and other professionals on task related to the field of English. Students who receive credit for an internship must establish learning objectives with their Faculty Sponsor at the beginning of their internship and reflect on their learning through academic work (i.e., papers, journal, etc.). Students are required to submit an evaluation of their experience at the end of the semester. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

### **ENGL 486R** **Topics in Literature**

**3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Studies topics in literature such as ethics, the environment, war, civil rights, families, marriage, death, politics, adolescence, and immigrant narratives.

### **ENGL 488H** **English Honors Seminar**

**3**  
\* Prerequisite(s): (ENGL 3090 and ENGL 3890) and University Advanced Standing

Emphasizes rigorous analysis and synthesis of topics in British and American literature, rhetoric, and writing, with specific content varying by semester. Uses a seminar approach to enable significant participation by students through discussion, presentations, and written analyses.

### **ENGL 490R** **Directed Readings**

**1 to 3**  
\* Prerequisite(s): Department Chair, Instructor Approval, and University Advanced Standing

Reading and writing assignments designed in consultation with a faculty member to meet special needs or interests not available through regular course work. May be repeated two times for a total of up to 9 credits.

### **ENGL 498H** **Honors Thesis Preparation**

**3**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): ENGL 488H

Serves as the first half of the thesis experience for Departmental Honors in English. Reviews and improves students' research methodologies. Requires that students initiate collaboration with one or more instructors in a directed research and writing project. Explores and develops thesis topic in consultation with faculty. Builds on skills and knowledge gained in earlier courses, including research skills in primary and secondary sources, critical thinking, and literary analysis.

### **ENGL 499H** **Honors Thesis**

**3**  
\* Prerequisite(s): ENGL 498H and University Advanced Standing

Serves as the second half of the thesis experience for English Honors. Operates as an independent study. Continues the research begun in ENGL 498H. Requires students to write a high-quality, publishable/presentable senior thesis. Requires defense of the thesis and its method before a committee of three faculty.

### **ENGL 5340** **Technical Communication Theory and Practice**

**3**  
\* Prerequisite(s): Acceptance into a Graduate Program or Instructor Approval

Emphasizes the application of technical writing theory through composing a variety of documents commonly used by professionals in technical fields, which may include life sciences, engineering, and pharmacology. Builds off previous work in technical writing classes and/or industry experience to foster a rhetorical foundation for ethical and legal decision making in bureaucratic and global contexts. Stresses critical analysis of successful documents and their place within networks of relevant stakeholders, compliance expectations, and historical restraints. Places further emphasis on managing complex documents and satisfying the needs of diverse audiences. Topics may include: regulatory affairs, environmental hazards, and protocol specification.

## **Engineering (ENGR)**

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### **ENGR 1000** **Introduction to Engineering WE**

**3**  
Introduces engineering-problem-solving techniques, design processes, modelling of simple engineering systems using CAD, and systems analysis in Excel. Emphasizes engineering design procedures by incorporating group projects and presentations. Course Lab fee of \$11 for computers applies. Lab access fee of \$45 for computers applies.

### **ENGR 1020** **Survey of Engineering**

**1**  
Introduces the various areas of engineering to pre-engineering majors and others interested in learning more about the contributions engineers make to our modern society. Includes a brief history of engineering and discussions about what engineers really do. Discusses professional ethics, responsibilities, and career opportunities. Includes lectures, guest speakers, and in-class exercises. Lab access fee of \$45 applies.

### **ENGR 1030** **Engineering Programming**

**3**  
\* Prerequisite(s) or Corequisite(s): MATH 1210  
Involves modelling and analysis of electro-mechanical systems using projects. Applies scientific principles to solve and model engineering problems. Involves developing and writing programs to gather data, guide, and control electro-mechanical devices to achieve predefined objectives. Course fee of \$11 for supplies/materials applies. Lab access fee of \$45 applies.

### **ENGR 2010** **Engineering Statics**

**3**  
\* Prerequisite(s): PHYS 2210  
Teaches principles of engineering mechanics as applied to bodies at rest. Discusses the concepts of position and force vectors, free body diagrams, equilibrium, center of gravity, centroids, distributed loading, friction, area and mass moments of inertia. Applies principles learned in the analysis of trusses, frames and machines. Lab access fee of \$45 for computers applies. Canvas Course Mats \$85/McGraw applies.

**ENGR 2030**  
**Engineering Dynamics**

**3**  
\* Prerequisite(s): ENGR 2010, MATH 1220, and PHYS 2210

Teaches principles of engineering mechanics as applied to bodies in motion. Studies kinematics and kinetics of particles and rigid bodies. Develops the concepts of force and acceleration, work, energy, impulse, momentum, impact, and vibration. Utilizes theory and methodology developed in the solution of practical engineering problems. Lab access fee of \$45 for computers applies. Canvas Course Mats of \$85/McGraw applies.

**ENGR 2140**  
**Mechanics of Materials**

**3**  
\* Prerequisite(s): ENGR 2010 and PHYS 2210

Studies behavior of materials under axial, torsional, flexural, transverse shear and combined loading conditions. Analyzes nature of stress and strain for ductile and brittle materials, stress and strain diagrams, stress concentration, and failure of materials. Includes analysis of repeated and dynamic loading, and basic design techniques related to above topics. Lab access fee of \$45 for computers applies. Canvas Course Mats \$85/McGraw applies.

**ENGR 2160**  
**Introduction to Materials Science and Engineering**

**3**  
\* Prerequisite(s): CHEM 1210

Introduces students to properties of materials from macro and micro point of view. Includes failure analysis of materials, altering properties of materials, and fracture mechanics. Introduces properties of solid materials and their behavior as applied to engineering. Lab access fee of \$45 applies.

**ENGR 2300**  
**Engineering Thermodynamics**

**3**  
\* Prerequisite(s): MATH 1220, PHYS 2210

Covers static pressure, phase diagrams, equations of state, and mass balance. Studies laws of thermodynamics and their application in engineering problem solving. Includes analysis of open and closed systems, steady state, and unsteady flow problems. Studies heat engine, refrigeration, and other important thermodynamic cycles. Discusses the concept of Entropy and Entropy balance. Lab access fee of \$45 applies.

**ENGR 2450**  
**Computational Methods for Engineering Analysis**

**3**  
\* Prerequisite(s) or Corequisite(s): MATH 2250

Discusses computational and symbolic methods for the solution of complex engineering problems. Discusses computer representation of numbers and algorithm error analysis. Covers the solution of algebraic and differential equations. Includes the use of modern software tools. Lab access fee of \$45 for computers applies. Canvas Course Mats \$85/McGraw applies.

**ENGR 295R**  
**Special Topics**  
**1 to 3**

\* Prerequisite(s): Permission of Department Chair

Presents various engineering topics. Examines current technology, techniques, processes and equipment. Includes oral and written reports. May be repeated for a maximum of 3 credits toward graduation.

**Environmental Studies**  
**(ENST)****ENST 3000**  
**Introduction to Environmental Studies**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores the complex relationships of culture, technology, and nature within an interdisciplinary framework of the natural sciences, social sciences, business, and humanities. Addresses the integration of humanity and nature in the age of globalization.

**ENST 3100**  
**Environmental Justice**

**3**  
\* Prerequisite(s): University Advanced Standing

Introduces student to basic environmental justice issues and cases at the national and global level. Teaches basic theories of environmental injustice. Examines root causes and possible solutions to environmental injustice.

**ENST 3520 (Cross-listed with: SOC 3520)**  
**Environmental Sociology**

**3**  
\* Prerequisite(s): SOC 1010 and ENGL 2010 with a C+ grade or higher and University Advanced Standing

Explores in detail several different approaches to understanding the social causes of and solutions to environmental degradation. Discusses the development of a wide variety of theory-based critiques of various social institutions (e.g., economic, political, religious) and how these institutions' values can create and perpetuate unsustainable practices.

**ENST 490R**  
**Topics in Environmental Studies**

**3**  
\* Prerequisite(s): University Advanced Standing

Addresses cross-disciplinary issues within environmental studies. Includes topics that will vary from semester to semester. Addresses topics such as sustainability, climate change or political ecology, in an interdisciplinary way. May be repeated for a maximum of 6 credits toward graduation.

**Entrepreneurship**  
**(ENTR)****ENTR 2500** **SS**  
**Creativity and Entrepreneurial Thinking**  
**3**

Introduces the concepts of innovation and entrepreneurial creativity. Draws upon the inspired thinking and entrepreneurial pursuits of leaders in a variety of disciplines in order to understand the process of innovation and appreciate the role of creativity in making innovation possible. Includes topics such as the customer/problem/solution framework, design thinking, prototyping, intellectual property, creative idea development, lead user research methodology, peer feedback, new venture financing, and the lean start-up.

**ENTR 3170**  
**Entrepreneurship - Feasibility Analysis**

**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Provides an overview of the practice of entrepreneurship and focuses on the role of the entrepreneur in identifying, evaluating and developing opportunities. Considers the application of knowledge of the technical, market, financial and human aspects of a business as they relate to the start-up and development of business opportunities. Lab access fee of \$25 for computers applies.

**ENTR 3180**  
**Developing Small Business**

**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Provides a practical and theoretical foundation for managing SMEs (small and medium enterprises). Emphasizes identifying, evaluating and developing opportunities for growth. Covers the basic elements of the business focusing on best practices in the technical, market, financial, and human resource aspects of existing small business as well as the interaction between these elements. Covers legal aspects of operating a business.

## Course Descriptions

### **ENTR 3190** **Early-stage Financing**

**3**  
\* Prerequisite(s): University Advanced Standing

Provides students an overview of financial modeling for entrepreneurship and small business, as well as the sources and processes involved in financing new ventures. Teaches financial management, pro-forma financial statements, cash flow, bootstrapping, and debt and equity financing in an entrepreneurial environment.

### **ENTR 3220 (Cross-listed with: LEGL 3000)** **Entrepreneurship Law**

**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

For entrepreneurship students and others desiring a to start a business. Presents current U.S. legal framework as they concern start-ups and new businesses. Topics include the American legal system, constitutional law, statutory law, common law, and administrative law and alternatives to courts. Discusses crimes, torts, negligence, contracts, negotiable instruments, and contractual relationships.

### **ENTR 4200** **Innovative Opportunity Development**

**3**  
\* Prerequisite(s): ENTR 3170 and University Advanced Standing

Focuses on the development of both (a) the key value proposition of a product/service offering, and (b) the business entity that provides that offering. Covers the use of client-centered development and design thinking to create, modify and validate business solutions. Emphasizes client feedback from concept through prototype development. Lab access fee of \$25 for computers applies.

### **ENTR 4210** **Career Development for Entrepreneurs**

**3**  
\* Prerequisite(s): ENTR 3170 and University Advanced Standing

Considers the personal and interpersonal development of entrepreneurs and other business professionals. Addresses issues and provides specific guidance in areas such as business and personal financial strategies, business and family interpersonal relationships, networking, human resource management, and professional self-image.

### **ENTR 4300** **The Art of the Pitch**

**3**  
\* Prerequisite(s): (ENTR 2500 or ENTR 3170) and University Advanced Standing

Teaches entrepreneurial strategic communications skills to help the entrepreneur prepare for and present business ideas to prospective investors, partners, employees and customers. Focuses on skill development in written, visual, verbal and vocal communications to pitch business ideas. Develops confidence and the ability to handle questions regarding presentations. Lab access fee of \$25 for computers applies.

### **ENTR 4400** **New Venture Financing**

**3**  
\* Prerequisite(s): ENTR 3170 and University Advanced Standing

Covers advanced concepts and skills in entrepreneurship/small business management. Emphasizes how new and emerging companies are financed. Applies functional tools to case situations. Lab access fee of \$25 for computers applies.

### **ENTR 4450** **Enterprise Formation**

**3**  
\* Prerequisite(s): ENTR 3170 and University Advanced Standing

Provides an integrated, engaged learning opportunity in entrepreneurship through the development of a business opportunity. Focuses on creating and managing the formation of a business enterprise from the formation of a legal entity to launching a product of service and creating a financial model. Emphasizes documenting the process in a business model and/or a complete business plan.

### **ENTR 4455** **New Venture Consulting**

**3**  
\* Prerequisite(s): ENTR 3170 and University Advanced Standing

Integrates the identification, evaluation, and/or development of the small- and medium-sized business opportunities of community-based entrepreneurs. Makes use of an engaged learning opportunity for business students interested in learning how consultants work by consulting with and assisting entrepreneurs. Includes projects that cover and examine all functional areas of business and the interaction between them. Covers consulting processes and strategies as well as provide tools and techniques for developing business models and assessing opportunities.

### **ENTR 493R** **Entrepreneurship Lecture Series**

**1**  
\* Prerequisite(s): University Advanced Standing

Presents lectures by guest speakers on current entrepreneurship issues and topics. Speakers and topics vary each semester. May apply a maximum of 3 credits toward graduation.

## **Environmental Management (ENVT)**

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### **ENVT 1110** **PP** **Introduction to Environmental Management**

**3**  
Surveys environmental issues and the impact of people on the environment. Covers how we can sustainably use our natural resources and how we can prevent and remediate the degradation of the environment while using these natural resources.

### **ENVT 1200** **Environmental Worker Safety**

**3**  
Discusses occupational safety and health for environmental management. Prepares students for future health and safety laws and regulation, training requirements, and the hierarchy of safety control. Covers management of a safety program, risk assessment, OSHA compliance, and development of a safety culture.

### **ENVT 1270** **Environmental Microbiology**

**3**  
\* Prerequisite(s): MICR 2060 recommended  
Provides an understanding of microbiology tailored to the needs of water managers, public health workers, and environmental managers. Discusses the role microorganisms in water treatment, wastewater treatment, agriculture, environmental change, and others.

### **ENVT 1300** **Environmental Lab and Sampling**

**2**  
Studies basic laboratory and environmental field techniques used by labs working on environmental projects and in sampling programs within the field. Covers safety, pH, dissolved oxygen, BOD, turbidity, organics, and others. Includes opportunities for undergraduate research. Course Lab fee of \$38 for supplies/materials/lab applies.

**ENVT 1510****Hazardous Materials Emergency Response****3**

Meets the requirements for the OSHA 40 hour training. Includes personal protection, identifying hazardous materials, spill control, and incident management. Completers may obtain OSHA certification for handling hazardous materials. Course fee of \$28 for materials applies.

**ENVT 2560****Environmental Health****3**

\* Prerequisite(s): BIOL 1010 and CHEM 1110 recommended

Addresses environmental health issues for multiple environmental-related degree programs. Benefits students pursuing careers in nursing, biology, and other related fields. Examines infectious and non-infectious diseases, vectors and their control. Discusses the fundamentals of environmental health, water and wastewater management, population pyramid and associated environmental concerns in developed and developing nations. Includes topics of solid and hazardous waste management, recreation safety, air quality and environmental regulations.

**ENVT 2710****Environmental Careers****1**

Explores the career opportunities in environmental areas for students in environmental careers. Covers resumes, letters of inquiry, networking, interviews, and other methods of job seeking.

**ENVT 2730****Introduction to Soils****4**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

An introductory course for majors and non-majors. Covers basic topics such as soil classification, soil-water relations, fertility, soil strength, and soil conservation. Offers important background information for those involved in pollution prevention and remediation, environmental monitoring, and home gardening.

**ENVT 3010****Environmental Toxicology****3**

\* Prerequisite(s): University Advanced Standing (BIOL 1010 and CHEM 1210 Recommended)

Discusses the history, scope, and importance of environmental toxicology and the toxicokinetic of pollutants in living organism when exposed. Reviews dose response relationships and the role of regulatory toxicology when creating exposure limits for toxicants in the workplace. Examines the fate and movements of toxicants in different compartments in the environment. Provides a knowledge base that is beneficial to environmental health and safety managers and students pursuing careers in nursing, biology, and other related fields.

**ENVT 3210****Water Quality and Reclamation****4**

\* Prerequisite(s): CHEM 1210 and University Advanced Standing

Covers identifying and analyzing the major pollutants and parameters related to water quality and remediation. Provides basic training to remediate and mitigate the potential contamination of water sources and how to treat and manage wastewater (i.e. primary treatment, biological treatment, and chemical treatment processes).

**ENVT 3280****Environmental Law****3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005 (ENGL 2010 recommended), and University Advanced Standing.

Covers the Clean Water Act, the Safe Drinking Water Act, and the Clean Air Act. Reviews the Toxic Substances Control Act, the Resource Conservation and Recovery Act, the Superfund law, DOT regulations, and OSHA regulations.

**ENVT 3290****Environmental Reporting WE****3**

\* Prerequisite(s): ENGL 1010 recommended, University Advanced Standing

Covers reporting frameworks and applications for environmental aspects of organizations. Focuses on reporting related to various aspects of environmental initiatives, including carbon, carbon credits, voluntary and mandatory reporting, buildings, products, and others. Introduces software and programs related to environmental reporting. Emphasizes systems thinking and holistic analysis.

**ENVT 3320****Hydraulics of Water****3**

\* Prerequisite(s): PHYS 2010 or PHYS 2210; and University Advanced Standing

Prepares students to manage and quantitatively analyze the flow of water; including the use of the continuity equation, Hazen-Williams formula, and the Bernoulli Theorem. Integrates basic principles of engineering and geotechnical techniques with environmental management techniques to aid in the understanding of how to operate water equipment in a professional manner (i.e irrigation techniques, wastewater operation, and water processing).

**ENVT 3330****Water Resources Management****3**

\* Prerequisite(s): University Advanced Standing

Examines the broad issues that affect water quality and supply. Covers watershed management, limnology, stormwater management, and wetlands. Discusses the biological and physical processes that occur and the legal constraints that affect management decisions.

**ENVT 3530****Environmental Management Systems****3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005 (ENGL 2010 recommended), and University Advanced Standing

Covers the systems and organization necessary to effectively manage environmental issues. Provides background and historical development for continuous process improvement and statistical process control. Discusses the ISO 14001 standard and its effect upon management practices. Introduces students to the National Environmental Protection Act (NEPA) including its processes and strategies for public input.

**ENVT 3550****Site Investigation****3**

\* Prerequisite(s): University Advanced Standing; CHEM 1110 recommended

Covers the investigation and preliminary cleanup of a contaminated site. Includes planning, training, site characterization, sampling, and site control. Completers should have a basic understanding of the process used to remediate an environmentally damaged site.

**ENVT 3600****Appropriate Technology and Sustainable Development for the Developing World****3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Reviews the origins of poverty and the current conditions of people in developing countries. Offers development solutions being pursued around the world. Empowers students to play an active role in international poverty reduction by introducing international development and its challenges. Teaches students how to determine appropriate technologies based on design, physical, and social considerations.

**ENVT 3630****Introduction to Geographic Information Systems****4**

\* Prerequisite(s): University Advanced Standing

Introduces the operation of Geographic Information Systems (GIS). Focuses on GIS software and basic theory of geographic information science. Offers valuable preparation for careers in geography, planning, surveying, marketing, environmental technology, biology, engineering, and other related fields. Lab access fee of \$30 for computers applies

## Course Descriptions

### ENVT 3700

#### Current Topics in Environmental Management

3

\* Prerequisite(s): University Advanced Standing; ENVT 1110 recommended

Studies local environmental issues, new technologies, and the challenges faced by environmental managers. Issues discussed will vary with the semester. Prepares students for a thoughtful discussion of environmental issues.

### ENVT 3750

#### Land Use Planning

3

\* Prerequisite(s): University Advanced Standing; ENVT 3280 recommended

Covers key issues in land use planning and how they affect the environment. Includes multiple use concepts, focused uses, zoning, mapping, and the political processes used in planning. Discusses the importance of strategic planning and public relations.

### ENVT 3770

#### Natural Resources Management

3

\* Prerequisite(s): University Advanced Standing; BIOL 1010 recommended

Introduces the management and conservation of natural resources. Discusses forestry, range management, wildlife management, and outdoor recreation. Provides the opportunity for students to learn how to create conservation and research plans that are common in the industry.

### ENVT 3790

#### Applied Hydrology WE

4

\* Prerequisite(s): MATH 1060 or MATH 1080 or MATH 1210 or PHYS 1100, GEO 1010, and University Advanced Standing (PHYS 2210 or PHYS 2010 and GIS 3600 Recommended)

Provides the students with a water budget approach to understanding how surface water applies to all aspects of the hydrologic cycle, including interactions with the atmosphere and geosphere. Reviews how surface water resources are managed by analyzing flood frequencies, intensity-duration-frequency curves for rainfall/snowfall, estimation of gauged and ungauged stream locations, stream flow measurement techniques, analyzing consumptive use demands, watershed modeling, legal water rights, water contamination, and risk assessment in hydrologic design. Provides opportunities to investigate a specific problem, field site, and/or service learning project related to hydrology. Course fee of \$21 applies.

### ENVT 3800 (Cross-listed with: CHEM 3800, PHYS 3800)

#### Energy Use on Earth

3

\* Prerequisite(s): (PHYS 1010 or PHSC 1000 or GEO 1010 or GEO 2040 or METO 1010) and (MATH 1050 or MATH 1055) and CHEM 1010 and University Advanced Standing

Covers the science of energy production and consumption. Quantitatively analyzes various methods of energy production, distribution, and end use in all sectors of our society, including transportation, residential living, and industry. Examines the impacts of our energy consumption on the environment and prospects for alternative energy sources. Is intended for science majors interested in energy use in society or in an energy related career, and for students in other majors who feel that a technical understanding of energy use will help them to understand and mitigate its impact in our society.

### ENVT 3850

#### Environmental Policy WE

3

\* Prerequisite(s): ENVT 1110 and University Advanced Standing

For upper-division students with an interest in environmental policy. Discusses the process by which policies are made and the factors that influence policy formation. Includes political factors, economics, international issues, public awareness and others.

### ENVT 482R (Cross-listed with: GEO 482R)

#### Geologic Environmental Internship

1 to 3

\* Prerequisite(s): GEO 1010 or ENVT 1110; 12 credit hours of any GEO, GEOG, or ENVT courses; declared major in any Earth Science program and University Advanced Standing

Engages students in supervised geologic or environmental work in a professional setting. Requires approval by the Chair of the Department of Earth Science. Includes maintaining a journal of student experiences and preparing a paper summarizing their experience. A maximum of 3 credit hours may be counted toward graduation. May be graded Credit/No Credit.

### ENVT 495R

#### Special Projects in Environmental Management

1 to 3

\* Prerequisite(s): Instructor Permission and University Advanced Standing

Allows students to pursue undergraduate research projects. Includes instructor directed practical research. Students will prepare a report of their findings. May be repeated for a maximum of 6 credits toward graduation.

## Emerg Serv Aircraft Resc FF (ESAF)

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### ESAF 2100

#### Airport Firefighter

3

Explores the theories and fundamentals associated with airport rescue fire fighting. Addresses safety, operations and agents associated with aircraft rescue and firefighting procedures. Provides an overview of communications, apparatus, tools and equipment specific to the aerospace emergency service delivery.

### ESAF 2110

#### Aircraft Related Mass Casualty Incidents

3

Involves the planning, response, mitigation and management of a mass casualty incident resulting from a crashed aircraft. Includes issues relating to medical treatment, triage and transportation. Examines how the command structure functions as well as how operations personnel work on the scene of mass casualty incident.

### ESAF 2120

#### Aircraft Mishaps

3

Teaches how to locate and use past aircraft accident and mishap data from various government agencies in order to develop relevant lesson plans and training courses for emergency responders. Examines how to research and interpret aircraft mishap data to strengthen emergency service agencies involved in aircraft rescue firefighting. Includes developing or reviewing relevant guidelines, protocols, procedures, and training evolutions based on current mishaps and findings.

### ESAF 2140

#### Airport Operations for the Emergency Responder

3

Provides an understanding of ground operations, communications, layout, movements and functions in order to operate effectively within the boundaries of an airport. Discusses the complex, unfamiliar setting responders face associated with daily operations of an airport.

## Emergency Services Emerg Care (ESEC)

### ESEC 1013 Emergency Medical Response 3

Prepares students for certification as an Emergency Medical Responder through the Utah Bureau of EMS, National Registry, and American Heart Association-Basic Life Support-Provider. Focuses on assessment and care for patients of all ages with a variety of medical conditions and traumatic injuries prior to the arrival of professional emergency care providers. Includes introduction to emergency medical services systems, roles and responsibilities of Emergency Medical Responders, anatomy and physiology, medical emergencies, trauma, and special considerations for working in the pre-hospital setting. Lab access fee of \$84 applies.

### ESEC 1140 Emergency Medical Technician Basic 9

Provides fundamental knowledge of the EMS system to include safety and well-being of the EMT. Includes medical, legal and ethical issues related to emergency care. Teaches entry level cognitive and kinesthetic skills including; medical and trauma assessment, basic pharmacology and EMS operations. Prepares students for certification as an Emergency Medical Technician-Basic through the Utah Bureau of EMS. Course lab fee of \$147 applies.

### ESEC 114A Emergency Medical Technician-Part I 3

\* Corequisite(s): ESEC 114B and ESEC 114C

Applies fundamental knowledge of the EMS system, safety and well-being of the EMT, medical and legal and ethical issues to the provision of emergency care. Prepares students for certification as an Emergency Medical Technician-Basic through the Utah Bureau of EMS. First of three courses required for EMT-Basic certification. May be delivered online.

### ESEC 114B Emergency Medical Technician-Part II 4

\* Corequisite(s): ESEC 114A and ESEC 114C

Provides background information and knowledge about EMT kinesthetic skills, including medical assessments, trauma assessment, pharmacology, special patient populations, and EMS operations.

### ESEC 114C Emergency Medical Technician-Part III 2

\* Corequisite(s): ESEC 114A and ESEC 114B

Demonstrates mastery of kinesthetic skills, including medical assessments, trauma assessment, pharmacology, special patient populations, and EMS operations. Course lab fee of \$71 applies. Course lab fee of \$143 for FISDAP study tools applies.

### ESEC 3060 Emergency Medical Technician-Advanced 9

\* Prerequisite(s): EMT Level Certification and University Advanced Standing

Prepares students for certification as an Emergency Medical Technician-Advanced through the Utah Bureau of EMS. Includes Life span development, advanced airway management, intravenous access, medication administration, cardiac rhythm interpretation and other advanced medical skills. Course lab fee of \$126 for supplies applies. Course fee of \$62 for certification materials applies.

### ESEC 3210 Paramedic I-Operations 3

\* Prerequisite(s): Matriculated into Paramedic Program and University Advanced Standing

Reinforces concepts and clinical skills students previously learned at the EMT level. Introduces advanced concepts in EMS Systems, illness and injury prevention, medical-legal issues, anatomy, physiology, pathophysiology, scene leadership and incident management for the paramedic. Course fee of \$418 applies.

### ESEC 3220 Paramedic II-Cardiac and Respiratory Patient Care 3

\* Prerequisite(s): Matriculated into the paramedic program and University Advanced Standing

\* Corequisite(s): ESEC 3225

\* Prerequisite(s) or Corequisite(s): ESEC 3210

Reinforces concepts and clinical skills students previously learned at the EMT level. Introduces advanced concepts in Cardiology, Airway Management, Respiratory Distress and Resuscitation. Identifies patient assessment and management within the paramedic scope of care. Course fee of \$7 applies.

### ESEC 3225 Paramedic II Lab-Cardiac and Respiratory Emergencies 1

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): ESEC 3220

Reinforces concepts and clinical skills discussed in ESEC 3220. Emphasizes patient assessment, airway management, cardiac care, pathophysiology, pharmacology, critical decision-making skills and appropriate interventions while caring for cardiac, respiratory, or resuscitation emergencies. Assessment based management and evidenced based practices will be applied. Course fee of \$123 applies.

### ESEC 3230 Paramedic III-Trauma Patient Care 3

\* Prerequisite(s): Matriculated into the paramedic program and University Advanced Standing

\* Corequisite(s): ESEC 3235

\* Prerequisite(s) or Corequisite(s): ESEC 3210

Reinforces and expands upon the materials and clinical skills learned as an EMT. Integrates prior learning with enhanced advanced life support concepts and skills. Emphasizes patient assessment and recognition of significant findings, differential diagnoses and treatment strategies for trauma patients. Course fee of \$46 applies.

### ESEC 3235 Paramedic III Lab-Trauma Emergencies 1

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): ESEC 3230

Reinforces concepts and clinical skills discussed ESEC 3230. Emphasizes patient assessment, airway management, pathophysiology, pharmacology, critical decision-making skills and appropriate interventions during traumatic emergencies. Assessment based management and evidenced based practices will be applied. Course lab fee of \$85 applies.

### ESEC 3240 Paramedic IV-Medical and Geriatric Patient Care 3

\* Prerequisite(s): Matriculated into the paramedic program and University Advanced Standing

\* Corequisite(s): ESEC 3245

\* Prerequisite(s) or Corequisite(s): ESEC 3210

Reinforces and expands upon the materials and clinical skills learned as an EMT. Integrates prior learning with enhanced advanced life support concepts and skills. Emphasizes patient assessment and recognition of significant findings, pre-hospital diagnosis and differential diagnosis, and treatment strategies for medical and geriatric patients. Course fee of \$54 applies.

## Course Descriptions

### **ESEC 3245**

#### **Paramedic IV Lab-Medical Emergencies**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): ESEC 3240

Reinforces concepts and clinical skills discussed in the ESEC 3240. Emphasizes patient assessment, airway management, pathophysiology, pharmacology, critical decision-making skills and appropriate interventions while caring for medically emergent patients. Assessment based management and evidenced based practices will be applied. Course lab fee of \$11 applies.

### **ESEC 3250**

#### **Paramedic V-Obstetric and Pediatric Patient Care**

**3**

\* Prerequisite(s): Matriculated into the paramedic program and University Advanced Standing

\* Corequisite(s): ESEC 3255

\* Prerequisite(s) or Corequisite(s): ESEC 3210

Reinforces and expands upon the materials and clinical skills learned as an EMT. Integrates prior learning with enhanced advanced life support concepts and skills. Emphasizes patient assessment and recognition of significant findings, pre-hospital diagnosis and differential diagnosis, and treatment strategies for obstetric and pediatric patients. Course fee of \$216 applies.

### **ESEC 3255**

#### **Paramedic V Lab-Obstetric and Pediatric Emergencies**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): ESEC 3250

Reinforce concepts and clinical skills discussed in the ESEC 3250. Emphasizes patient assessment, airway management, pathophysiology, pharmacology, critical decision-making skills and appropriate interventions while caring for patients with obstetrics and pediatric emergencies. Assessment based management and evidenced based practices will be applied. Course fee of \$45 applies.

### **ESEC 4150**

#### **Critical Care Emergency Medical Transport Program**

**6**

\* Prerequisite(s): Department Approval and University Advanced Standing

Brings paramedics and nurses together in an effort to bridge the gap between pre-hospital and hospital care. Prepares specialized care providers to have an understanding of both aspects of patient care, and to use that understanding to provide a higher level of care to critical patients during transport. Designed to prepare paramedics and nurses to function as members of a critical care transport team. Offers an understanding of the special needs of critical patients during transport, become familiar with the purpose and mechanisms of hospital procedures and equipment, and develop the skills to maintain the stability of hospital equipment and procedures during transport.

### **ESEC 4210**

#### **Paramedic VI-Research**

**2**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESEC 3240, ESEC 3245

Provides opportunity to apply previously learned knowledge and skills in on-line scenario activities, research current EMS trends, as well as recognition assignments for clinical site preceptors.

### **ESEC 4220**

#### **Paramedic VII-Clinical Internship Hospital and Field Phase I and II**

**4**

\* Prerequisite(s): ESEC 3250, ESEC 3255 and University Advanced Standing

Provides the paramedic student with an opportunity to apply previously learned knowledge and skills while in a supervised clinical setting. Rotations include: Emergency Departments, Medical/Surgical Intensive Care Units, Labor and Delivery, Psychiatric, and Prehospital experiences with field-based internships. Course lab fee of \$60 applies.

### **ESEC 4230**

#### **Paramedic VIII-Practical Preparation and Testing**

**3**

\* Prerequisite(s): ESEC 3210, ESEC 3220, ESEC 3225, ESEC 3230, ESEC 3235, ESEC 3240, ESEC 3245, ESEC 3250, ESEC 3255, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESEC 4210, ESEC 4220

Provides practical and small group lecture activities using current assessment and treatment techniques for cardiac, multiple system trauma, medical, and pediatric victims. Reinforces patient priority assessment and management concepts needed for successful patient outcomes. National Registry psychomotor preparation and testing included. Course lab fee of \$101 applies.

### **ESEC 4240**

#### **Paramedic Capstone**

**3**

\* Prerequisite(s): ESEC 3210, ESEC 3220, ESEC 3225, ESEC 3230, ESEC 3235, ESEC 3240, ESEC 3245, ESEC 3250, ESEC 3255, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESEC 4210, ESEC 4220, ESEC 4230

Provides opportunity to practice as a paramedic providing pre-hospital care for emergent and non-emergent patients. Integrates knowledge, behavior and skills from previous courses, labs and internships. Prepares students for national certification exam. Course fee of \$19 applies.

## **Emergency Services (ES)**

### **ES 1150**

**SS**

#### **Introduction to Emergency and Disaster Management**

**3**

Examines emergency and crisis preparedness for the individual, family, and community as practiced at the state, national and international levels. Explores prevention and disaster recovery strategies against all hazards threats to home, neighborhood and community whether natural or human caused.

### **ES 1160**

#### **Responders Role in Emergencies and Disasters**

**3**

\* Prerequisite(s) or Corequisite(s): (ENGL 1010 or ENGH 1005) or department permission

Prepares emergency services students to respond effectively in both day-to-day emergency circumstances as well as extreme disasters. Examines the theory and skills to effectively handle emergency operations and deal with people in the context of emergencies. This course will be offered as a hybrid or online course.

### **ES 1170**

#### **Citizen Role in Emergencies and Disasters**

**3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005 recommended

Designed for students of emergency management and volunteer private agencies. Discusses disaster preparedness, planning, and mitigation. Extends the discussion of the public role in emergencies and disasters to disaster response and recovery. Describes the variety of actions taken by individuals, private and voluntary organizations, first responders, and government agencies in response to a disaster and to assist in recovery.

**ES 2130  
Terrorism and the Emergency Services**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005

Deals with the threats associated with terrorism as they relate to emergency service response. Examines past acts of terror along with present and future threats and their connection to emergency services planning and response. Identifies various aspects of security and control in correlation to the emergency response operations.

**ES 2210  
Community Mitigation Response and Recovery**

**3**  
\* Prerequisite(s): ENGL1010 recommended

Provides an introduction to emergency management for community members, emergency service volunteers, and future disaster relief workers. Prepares them with the knowledge and the skills to allow them to work in emergency services in government or non-profit agencies. Introduces emergency management principles, doctrines and authorities, emergency management functions and capabilities, and the integrated emergency management system. Addresses the coordination of various systems, networks, and agreements among various governmental and other organizations under the National Incident Management System (NIMS).

**ES 2220  
Resiliency and Vulnerability in Crises**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005 recommended

Expands the knowledge of disasters so that students of emergency management, volunteers, and community members understand the nature of multiple hazards, both man-made and natural, and are aware of their impact on vulnerable populations. Presents risk management tools to assist in mitigating, planning and preparing for disasters.

**ES 2230  
Non-profit Organizations and Volunteerism**

**3**  
\* Prerequisite(s): ENGL1010 recommended

Improves participant abilities to deal with a broad range of issues in the management of volunteers. Covers publicity and recruitment, skill development and maintenance, and motivation strategies to promote continued involvement and quality performance. Addresses the planning and operations of an effective donations management system, and explores the coordination of state and local government and representatives of Voluntary Organizations Active in Disaster (VOAD) when working with undesignated and spontaneous volunteers during a disaster.

**ES 290R  
Special Topics in Emergency Services**

**1 to 3**  
Provides students the opportunity to study special topics in emergency services. Requires students to identify emergency service topics and evaluate their application to emergency services. Calls for the creation of a research paper, presentation, academic report, or a significant project. May be repeated for a maximum of 6 credits toward graduation.

**Emergency Services  
FireFighter (ESFF)****ESFF 1000  
Introduction to Emergency Services**

**4**  
Explores career opportunities and job requirements of fire and rescue emergency services. Discusses the various duties within emergency services, including structural fire fighting, wildland fire fighting, technical rescue, hazardous materials control, fire protection, fire investigations, and incident command. Explains the employment testing and selection processes of federal, state, municipal, and industrial emergency service organizations. Provides information, skills, and facilities to help students develop personal fitness plans in preparation for fire service physical ability testing. Course fee of \$30 for computers applies.

**ESFF 1010  
Firefighting Fundamentals I**

**3**  
\* Corequisite(s): ESFF 1210

Discusses the history and background of the fire service. Teaches terms, definitions, and concepts of NFPA 1001 Professional Qualifications for Firefighters Level I. Includes fire behavior, ventilation rescue, forcible entry, ladders, ropes and knots, self-contained breathing apparatus, firestreams, fire hose, salvage, overhaul, fire suppression techniques, communications, fire sprinklers, and fire inspection. Course fee of \$20 for state services & testing applies.

**ESFF 1120  
Principles of Fire and Emergency Services  
Safety and Survival**

**3**  
Introduces the basic principles and history that relate to the 16 national firefighter life safety initiatives. Focuses on the need for cultural and behavioral change related to health and safety throughout the fire and emergency services profession. Develops professional written communication skills as well as introduces the basics of research.

**ESFF 1210  
Firefighting Skills I**

**4**  
\* Corequisite(s): ESFF 1010

Teaches basic manipulative skills according to NFPA 1001 Firefighter Professional Standards, Level 1. Includes using forcible entry tools, using self-contained breathing apparatus, tying knots and using ropes, handling salvage covers, utilizing hose nozzles and appliances, manipulating ladders, ventilation practices, search for and removal of victims, sprinkler operations, initiating emergency response, and safety procedures. Students are required to furnish their own approved firefighter safety clothing as follows: gloves, boots, helmet, and hood. Course fee of \$95 for specialized clothing and materials applies.

**ESFF 1220  
Firefighting Fundamentals and Skills II**

**3**  
\* Prerequisite(s): ESFF 1010 or Departmental approval

Teaches intermediate skills as described in NFPA 1001 Level II. Builds upon the basic skills taught in ESFF 1010 and introduces new skills and knowledge in water supplies, portable extinguisher practices, inspection techniques, and rescue operations. Course fee of \$100 for specialized clothing and materials applies.

**ESFF 1340  
Hazardous Materials First Responder**

**3**  
\* Prerequisite(s): ESFF 1000 or department approval

Addresses the Hazardous Materials First Responder requirements of NFPA 470 and 29 CFR 1910.120. Includes definitions and classes of hazardous materials; physiological and toxicological considerations; DOT, UN and NFPA 704 labeling and placarding systems; container types and container identification. Features incident size-up using the DOT Emergency Response Guide, use of personal protective equipment and decontamination procedures. Prepares the participant to certify at both the Hazardous Materials Awareness and Operations levels. Course fee of \$119 for materials, state services & testing applies.

**ESFF 1360  
Recruit Candidate Academy Internship**

**3**  
\* Prerequisite(s): ESFF 250A, ESFF 250B, and department approval.

Provides an opportunity to apply knowledge, skills, and abilities learned in a realistic environment. Emphasizes work ethic, attitude, and abilities, while experiencing the fire service as a fully integrated member of a fire company in a career fire department. Establishes the importance of work ethic, attitude, and ability to adapt to highly stressful and sometimes dangerous situations. May be graded credit/no credit. Course lab fee of \$200 for specialized clothing and materials applies.

## Course Descriptions

### **ESFF 1370** **Fundamentals of Apparatus Operation**

**3**

Provides basic information on driving and operating a variety of fire apparatus by meeting the knowledge requirements as listed in NFPA 1000 Professional Qualifications for Fire Apparatus Driver Operator. Includes fire pump operation, emergency driving techniques, regulations and laws, fire ground operations, apparatus maintenance and testing procedures.

### **ESFF 1380** **Fire Apparatus Skills**

**3**

Teaches manipulative skills as described in Firefighter Professional Qualification Standard NFPA 1002. Includes fire apparatus operation, defensive driving, emergency driving techniques, and equipment care and maintenance. Emphasizes hands-on lab activities. Course fee of \$55 for transportation, state services & testing applies.

### **ESFF 2100** **Servant-Leadership for the Emergency Services**

**3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Explores the aspiring and current emergency services learner's desire to serve and relates it to the theoretical constructs and characteristics of servant leadership. Discusses the roles and responsibilities of leadership/followership, internal and external, associated with the emergency services. Develops basic leadership/followership traits, based upon the philosophy of servant leadership.

### **ESFF 2410** **Hazardous Materials Technician Fundamentals**

**3**

\* Prerequisite(s): ESFF 1340

Teaches the knowledge requirements of NFPA 470, and CFR 1910.120 regulation for a Hazardous Materials Technician. Includes emergency response plans, classification of materials, ICS roles, personnel protective equipment needs, masks, containment and confinement concepts, decon requirements, termination concepts, toxicological and chemical terms and definitions.

### **ESFF 2420** **Hazardous Materials Technician Skills**

**2**

\* Prerequisite(s): ESFF 2410

Presents the manipulative skill requirements of NFPA 470, and CFR 1910.120 regulation for a Hazardous Materials Technician. Teaches handling simulated incidents, classifying materials, performing in ICS roles, using personnel protective equipment, containment and confinement operations, setting up and operating decon, diking, plugging, and patching operations. Course fee of \$55 for specialized clothing, state services & testing applies.

### **ESFF 2430** **Hazardous Materials Chemistry**

**3**

Presents in-depth chemical information for hazardous materials responders. Teaches basic knowledge of how to evaluate potential hazards and behaviors of hazardous materials. Provides the underlying reasons for chemical reactions of hazardous materials. Includes decision-making abilities, safe operations, and handling. Course fee of \$40 for specialized clothing, materials applies.

### **ESFF 250A** **Firefighter Recruit Candidate Academy I**

**8**

\* Prerequisite(s): Matriculated into the Recruit Candidate Academy or Department approval

Addresses the first part of the cognitive and psychomotor requirements of Firefighter I and Firefighter II certification. Includes basic firefighting topics and related skills, including fire behavior, building construction, personal protective equipment, tools, appliances, firefighter safety, forcible entry, and apparatus. Prepares students to certify at the Fire Fighter I and Fire Fighter II levels.

### **ESFF 250B** **Firefighter Recruit Candidate Academy II**

**8**

\* Prerequisite(s): Matriculated into the Recruit Candidate Academy or Department approval

\* Prerequisite(s) or Corequisite(s): ESFF 250A

Addresses the second part of the cognitive and psychomotor requirements of Firefighter I, Firefighter II, and Hazardous Materials Awareness and Operations certification. Includes basic firefighting topics and related skills. Addresses the Hazardous Materials First Responder requirements of NFPA 470 and 29 CFR 1910.120. Includes definitions, classes of hazardous materials, physiological and toxicological considerations, and labeling and placarding systems. Prepares students to certify at the Fire Fighter I, Fire Fighter II, and Hazardous Materials Awareness and Operations levels.

### **ESFF 2700** **Technical Rescue Principles**

**3**

For those with limited fire and emergency services training. Addresses the prerequisite knowledge and skills for technical rescue job performance. Applies the Incident Command System to the management of technical rescue operations, resources and hazards. Includes search and rescue techniques, victim care and extrication, and the use of ropes and rigging. Course fee of \$70 for equipment, materials applies.

### **ESFF 2710** **Environmental Rescue**

**3**

\* Prerequisite(s): ESFF 1220

Includes analysis and simulation of problems such as wilderness search and rescue, still and swift water rescue, avalanche and mountain rescue. Discusses disaster planning and management as well as rescues from the work place and industrial settings. Course fee of \$70 for specialized clothing, materials, and transportation applies.

### **ESFF 2730** **Rope Rescue**

**3**

\* Prerequisite(s): ESFF 1340; or departmental approval

Meets the rope rescue job performance requirements of NFPA 1006, Standard for Rescue Technician Professional Qualifications. Addresses various types and configurations of rope rescue systems. Includes compound mechanical advantage systems, rescuer suspension systems, high-angle and vertical victim rescue systems, construction and operation of highline systems, and ascent/decent procedures. Course fee of \$70 for equipment, materials applies.

### **ESFF 281R** **Emergency Services Internship**

**1 to 6**

\* Prerequisite(s): Department approval

Provides a paid or unpaid, on-the-job work experience that includes faculty, peer and/or employer evaluations. Includes on-site work visits when appropriate, written assignments, and oral presentations if required. Provides experience in writing and completing individualized work objectives and/or projects that improve present work performance. May require student advocate services to current students. May be repeated for a maximum of 6 credits towards graduation. May be graded credit/no credit.

## **Emergency Services** **Fire Officer (ESFO)**

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### **ESFO 1100** **Fire Behavior and Combustion**

**3**

Explores the theories and fundamentals of how and why fires start, spread and how they are controlled. Addresses the fire problem in America, background of research, and how to approach the study of fire. Provides an overview of various flames, smoldering, and spontaneous combustion.

**ESFO 1110**  
**Fire Prevention**  
**3**

Provides fundamental information regarding the history and philosophy of fire prevention. Introduces the organization and operation of a fire prevention bureau. Covers the use of fire codes, identification and correction of fire hazards. Discusses the relationships of fire prevention with built-in fire protection systems, fire investigation, and fire and life-safety education.

**ESFO 1350**  
**Fire Protection Hydraulics and Water Supply**  
**3**

Introduces basic mathematical operations, including fractions, decimals, percentages, measurements, statistics, graphs, formulas and equations. Completers should be able to apply mathematical skills in solving basic fire service hydraulic and water supply problems.

**ESFO 2020**  
**Incident Command**  
**3**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

Presents the basic principles of managing an emergency scene through the utilization of an incident command system for simple single unit, to complex multi unit response. Requires use of personnel, equipment, and additional resources to manage an incident by completing a size-up, analyze, develop and implement an action plan, maintain on scene accountability of personnel and resources by following IMS principles. Meets the incident command requirements for Fire Officer I, Fire Officer II, NFPA 1021, Presidential Directive #5, and NIMS compliance.

**ESFO 2030**  
**Fire Inspector I**  
**3**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

For Fire Science and Building Inspection Technology students. Addresses the principles of fire inspection and application of the International Fire Code. Topics include identification of fire hazards, fire prevention measures, inspection techniques, and pre-fire planning. Includes classroom discussion and actual inspections of both under-construction and occupied buildings. Successful completers should be prepared to attain Fire Inspector I certification. Course fee of \$80 for state services & testing, materials applies.

**ESFO 2050**  
**Fire Protection and Detection Systems**  
**3**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

Teaches students to become familiar with the various types of fire protection and detection systems. Explains how each type of system functions, where such systems are required by code and how the various systems are serviced and maintained. Course fee of \$17 for materials applies.

**ESFO 2080**  
**Building Construction for the Fire Services**  
**3**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

For second year Fire Science students. Explores components of building construction that relate to fire and life safety. Explains construction and design factors to be considered during fire inspections, pre-fire planning and fire fighting operations. Emphasis is placed on firefighter safety.

**ESFO 2100**  
**Fire Officer I Supervision and Leadership**  
**3**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

For second year Fire Science students and experienced firefighters. Addresses the NFPA requirements for Fire Officer I. Discusses human resource management, community and government relations, application of fire department policies, fire investigation procedures, emergency service delivery and safety considerations. Completers should be prepared to certify as Fire Officer I. Course fee of \$40 for state services & testing applies.

**ESFO 2110**  
**Fire Instructor I and II**  
**3**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

Teaches the NFPA 1041 requirements for Instructor I and II. Includes job factors that influence teaching, developing behavior objectives and lesson plans, organizing the learning environment, methods of instruction, training aids, and principles of testing and evaluations. Lab activities include classroom presentations, preparing audiovisuals, and developing objectives. Course fee of \$83 for state services & testing, materials applies.

**ESFO 211A**  
**Fire Service Instructor I**  
**1**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

For second year Fire Science students. Addresses the knowledge and skills required to deliver a training lesson from a prepared outline and instructor's guide. Includes psychology of learning, instructional techniques, instructional media, evaluation techniques, and legal considerations. Completers should be prepared to instruct a fire service audience and certify as Fire Service Instructor I. Course fee of \$43 for state services & testing, materials applies.

**ESFO 211B**  
**Fire Service Instructor II**  
**2**

\* Prerequisite(s): ESFO 211A or Departmental Permission

For those who have already completed ESFO 211A or attained Fire Service Instructor I certification. Explores job factors that influence teaching, developing behavior objectives and lesson plans, organizing the learning environment, methods of instruction, training aids, and principles of testing and evaluations. Completers should be able to prepare and conduct classroom presentations, prepare audiovisual materials and equipment, and be prepared to certify as Fire Service Instructor II. Course fee of \$40 for state services & testing applies.

**ESFO 2200**  
**Fire Officer II**  
**3**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

Addresses the administrative skills and abilities required for Fire Officer II certification. Includes occupational health and safety concepts, injury prevention, risk management, application of departmental policies and procedures, preparation of budget requests, preparation of news releases, and preparation and maintenance of departmental records and reports.

**ESFO 2310**  
**Fire Investigator I**  
**3**

\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences

Presents basic requirements for fire investigators as found in NFPA 1033. Includes scene examination, documenting the scene, evidence collection and preservation, interviewing techniques, post incident investigation and presenting investigation findings.

## Course Descriptions

### **ESFO 2320** **Fire Investigator II**

**3**  
\* Prerequisite(s): ESFO 2310 or Departmental Approval

Presents advanced skills for fire investigators. Explores all aspects of the investigative process, scene documentation, advance collection tools and evidence preservation, advanced investigative techniques, case preparation, presenting findings in a legal/court proceeding.

### **ESFO 2330** **Public Fire Education I**

**2**  
\* Prerequisite(s): ESFF 1000 or sufficient emergency services work experiences.

Teaches professional qualifications of NFPA 1035. Identifies fire risks and problems in a community. Teaches selecting, designing, and implementing fire prevention and education programs.

### **ESFO 2400** **Fire Officer Work Experience**

**3**  
\* Prerequisite(s): ESFO 2020 and ESFO 2200

Provides an opportunity for students to complete the Fire Officer II work place performance requirements of NFPA 1021, Standard for Fire Officer Professional Qualifications. Under the supervision of an experienced fire officer, requires meeting performance objectives in areas of human resource management, community relations, governmental relations, inspection procedures, investigation procedures, emergency service operations, emergency services planning and personnel safety procedures, through a non-paid work experience.

## **English as a Second Lang (ESL)**

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### **ESL 0100** **Basic English Language Immersion**

**12**  
\* Prerequisite(s): Department Approval

For beginning ESL students, with little or no previous English experience. Integrates essential language tools and skills-reading, writing, listening, speaking, and vocabulary-needed to perform basic communicative tasks. Emphasizes building a learning community within the classroom. Includes lecture, discussion, collaborative class work, and outside experience with native English speakers.

### **ESL 0810** **Beginning Listening/Speaking Level I**

**4**  
\* Prerequisite(s): Department Approval

For students whose native language is other than English with little or no previous English learning experience. Explores use of simple statements, questions, and commands. Develops vocabulary on concrete topics. Provides listening opportunities in a variety of contexts. Introduces concepts of pronunciation, intonation, and stress. Includes weekly use of the ELL Language Lab where beginning listening skills are emphasized. Focuses on communicative interaction with classmates and authentic conversation practice with native English speakers.

### **ESL 0820** **Beginning Reading and Writing Level I**

**5**  
\* Prerequisite(s): Department Approval

For beginning ESL students, with little or no previous English experience. Teaches basic competence and fluency in reading and writing. Focuses on reading fluently with meaningful comprehension and natural vocabulary acquisition. Covers writing sentences and short paragraphs on familiar topics. Includes weekly use of the ELL computer lab to practice reading and writing skills.

### **ESL 0821** **Beginning Reading Level I**

**4**  
For students whose native language is other than English. Focuses on reading skills, specifically essential phonetic skills needed to decode English words and sounds. Studies comprehension of main ideas of short academic texts, examines plots from simple novels, and develops acquisition of basic interpersonal vocabulary through context cues and English dictionary usage. Encourages reading for pleasure and for information.

### **ESL 0825** **Beginning Vocabulary Level I**

**4**  
\* Prerequisite(s): Department Approval

For beginning ESL students, with little or no previous English experience. Teaches a 1000-word vocabulary necessary for English survival. Explores vocabulary in context around relevant themes, focusing on communicative practice.

### **ESL 0830** **Beginning Writing Level I**

**5**  
For students whose native language is other than English. Introduces English writing conventions including idea development, organization, grammar usage, and editing. Explains construction of simple and compound sentences into short paragraphs. Includes weekly use of the ELL computer classroom where beginning writing skills are emphasized and practiced.

### **ESL 0840** **Beginning Grammar Level I**

**5**  
\* Prerequisite(s): Departmental Approval

For students whose native language is other than English with little or no English experience. Focuses on helping students recognize beginning grammar structures and correctly incorporate them into their speech and writing. Introduces correct word order, simple verb tenses, irregular and helping verbs, question formation, adverbs of frequency, pronouns and articles.

### **ESL 0910** **High-Beginning Listening/Speaking Level II**

**4**  
\* Prerequisite(s): Department Approval

For students whose native language is other than English with some previous English learning experience. Explores use of simple statements, questions, and commands. Develops vocabulary on concrete topics. Provides listening opportunities in a variety of contexts. Introduces concepts of pronunciation, intonation, and stress. Includes weekly use of the ELL Language Lab where beginning listening skills are emphasized. Focuses on communicative interaction with classmates and authentic conversation practice with native English speakers.

### **ESL 0911** **High-Beginning Pronunciation Level II**

**1**  
\* Prerequisite(s): Departmental Approval

For high-beginning ESL speakers with some previous English experience. Introduces phonetic alphabet for corresponding English alphabet sounds. Focuses on pronunciation of individual sounds along with how to produce naturally sounding syllables, words, and sentences through intonation, stress and linking.

### **ESL 0920** **High-Beginning Reading Level II**

**4**  
\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies comprehension of main ideas and details of short academic texts, examines literary themes and plots from simple novels, and develops basic interpersonal vocabulary as well as some academic vocabulary through context cues and English dictionary usage. Encourages reading for pleasure and for information. Introduces students to academic and job-related reading skills.

**ESL 0930****High-Beginning Writing Level II****5**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Introduces English writing conventions including pre-writing, idea development, organization, genre style, word choice, applied grammar usage, editing, and technical accuracy. Explains construction of simple and complex sentences into well-formed paragraphs. Includes weekly use of the ELL Computer Classroom where beginning writing skills are emphasized and practiced.

**ESL 0940****High-Beginning Grammar Level II****5**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Focuses on helping students recognize high-beginning grammar structures and correctly incorporate them into their speech and writing. Focuses on verb tenses, irregular and helping verbs, question formation, adverbs of frequency, pronouns, and articles.

**ESL 1210****Low-Intermediate Listening/Speaking Level III****4**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Expands use of simple statements, questions, and commands on familiar topics to academic conversations and lectures. Develops vocabulary on concrete and abstract topics. Studies low-intermediate concepts of pronunciation, intonation, stress, and reductions. Includes weekly use of the ELL Language Lab where low-intermediate listening skills are emphasized and practiced.

**ESL 1211****Low-Intermediate Pronunciation Level III****1**

\* Prerequisite(s): Departmental Approval

For low-intermediate ESL speakers with previous English experience. Introduces International Phonetic Alphabet symbols that correspond to American English alphabet sounds. Focuses on pronunciation of individual sounds along with how to pronounce naturally sounding syllables, words, and sentences through intonation, stress, and linking.

**ESL 1220****Low-Intermediate Reading Level III****4**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies comprehension of main ideas and supporting details of low-intermediate texts and acquisition of vocabulary through context and utilizing American English dictionaries. Focuses on interpreting literary themes and analyzing academic and literary texts. Encourages reading for pleasure and for information.

**ESL 1230****Low-Intermediate Writing Level III****5**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies low-intermediate English writing conventions including pre-writing, idea development, organization, word choice, and editing for organization and grammatical accuracy. Focuses on short academic writing tasks that culminate into a multi-paragraph essay. Includes weekly use of the ELL Computer Classroom where low-intermediate writing skills are emphasized and practiced.

**ESL 1240****Low-Intermediate Grammar Level III****5**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies low-intermediate English grammar usage in written and verbal speech. Focuses on verb tenses, phrasal verbs, modals, question formation, pronouns, and sentence connectives.

**ESL 1260****Intermediate Listening/Speaking Level IV****4**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Expands use of statements, questions, and commands on familiar topics to academic conversations and lectures. Develops vocabulary on concrete and abstract topics. Studies low to high intermediate concepts of pronunciation, intonation, stress, and reductions. Includes weekly use of the UVU Language Lab where intermediate listening skills are emphasized and practiced.

**ESL 1261****Intermediate Pronunciation IV****1**

\* Prerequisite(s): Departmental Approval

For intermediate ESL speakers with previous English experience. Introduces International Phonetic Alphabet symbols that correspond to American English phonemes. Focuses on pronunciation of individual sounds along with how to pronounce naturally sounding syllables, words, and sentences through intonation, stress, and linking.

**ESL 1270****Intermediate Reading Level IV****4**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies comprehension of main ideas and supporting details, acquisition of intermediate vocabulary through context and utilizing American English dictionaries, interpreting literary themes, and critically analyzing academic and literary texts. Encourages reading for pleasure and for information.

**ESL 1280****Intermediate Writing Level IV****5**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies intermediate English writing conventions such as pre-writing, idea development, organization, word choice, and editing work for grammatical accuracy. Focuses on writing well written paragraphs that evolve into essays. Includes weekly use of the ELL computer lab where intermediate writing skills are emphasized and practiced.

**ESL 1290****Intermediate Grammar Level IV****5**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies intermediate English grammar usage in written and verbal speech. Focuses on parts of speech, verb tenses, nouns, comparisons, modals, adjectives, adjective clauses, infinitives, and the passive construction.

**ESL 1310****High-Intermediate Listening/Speaking Level V****4**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Explores listening strategies for academic news programs and academic lectures. Emphasizes active participation in academic and social conversations. Develops ability to give academic presentations. Studies high-intermediate concepts of pronunciation, intonation, stress, and reductions. Includes weekly use of the UVU Language Lab where high-intermediate listening skills are emphasized and practiced.

**ESL 1311****High-Intermediate Pronunciation Level V****1**

\* Prerequisite(s): Departmental Approval

For high-intermediate ESL speakers with previous English experience. Introduces and reviews phonetic alphabet for corresponding English alphabet sounds. Focuses on pronunciation of individual sounds along with how to produce naturally sounding syllables, words, and sentences through intonation, stress, linking, and reductions.

**ESL 1320****High-Intermediate Reading Level V****4**

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies comprehension of main ideas and supporting details of academic texts, making inferences and expanding vocabulary through context and English dictionary usage. Encourages students to read for pleasure and increase fluency through extensive reading outside of class. Develops critical reading and thinking skills.

## Course Descriptions

### ESL 1330

#### High-Intermediate Writing Level V

5

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies high-intermediate English writing conventions including pre-writing techniques and idea development, organization of written papers according to genre expectations, and editing and revising work for grammatical accuracy. Focuses on writing 5+ paragraph essays, and letters or articles from 2-5 pages in length. Includes weekly use of the ELL computer lab where high-intermediate writing skills are emphasized and practiced.

### ESL 1340

#### High-Intermediate Grammar Level V

5

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies high-intermediate English grammar usage in written and verbal speech. Focuses on higher level verb tenses and their related structures, use of nouns and adjective clauses, passive voice and definite/indefinite articles. Expands use of modal auxiliaries, conditionals, and verb complementation using gerunds and infinitives.

### ESL 2111

#### Advanced Pronunciation

1

\* Prerequisite(s): Departmental Approval

For advanced ESL speakers with previous English experience. Reviews International Phonetic Alphabet for corresponding English alphabet sounds. Focuses on pronunciation of individual sounds along with how to produce naturally sounding syllables, words, and sentences through intonation, stress, rhythm, linking and reductions.

### ESL 211G

#### Advanced Listening Speaking

4

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Explores American culture through an in-depth critical analysis of American fundamental values and beliefs while eliciting critical reflection upon the learners' own native cultures. Provides a variety of speaking opportunities from informal discussions to public speaking. Emphasizes listening in advanced academic situations such as lecture note-taking and summarizing audio news excerpts. Develops academic vocabulary, increases fluency, reduces grammatical errors, and incorporates advanced features of pronunciation, stress, intonation and linking in oral communication. Includes weekly use of the UVU Language Lab.

### ESL 2120

#### Advanced Reading Vocabulary

4

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Emphasizes comprehension and identification of stated main ideas and supporting details, inferences, skimming, scanning, recognizing patterns of organization and author's purpose, interpreting literature, and using advanced level vocabulary. Includes lectures, group discussions, lab activities, and multimedia. Satisfies AA/AS Humanities requirements.

### ESL 2130

#### Advanced Composition

5

\* Prerequisite(s): Department Approval

For international students whose native language is other than English. Using the English language, emphasizes developmental activities in essay organization, outlining, essay writing, editing and punctuation, and research paper writing. Includes lectures, small and large group activities, peer editing, and lab activities. Satisfies AAS Humanities requirements. Satisfies AAS Humanities requirements.

### ESL 2140

#### Advanced Grammar

5

\* Prerequisite(s): Department Approval

For students whose native language is other than English. Studies advanced English usage, correct speech and writing forms and patterns related to tense, time, parts of speech, modifiers, clauses, phrases, conditionals, active/passive voice, and modals. Emphasizes grammatical fluency in English speech and writing. Satisfies AAS Humanities requirements.

### ESL 2150

#### Academic Skills--TOEFL

5

\* Prerequisite(s): ESL 1310, ESL 1320, ESL 1330, ESL 1340 and ESL Compass Test with a score of 81

Focuses on the integration of all four language skills. Prepares students to pass the TOEFL test. Provides ample opportunities to practice integrated speaking, reading, writing and listening tasks commonly encountered in academic settings.

### ESL 2160

#### Aviation English--Advanced Listening and Speaking

3

\* Prerequisite(s): Departmental Approval

Prepares non-native English speakers to achieve operational English language proficiency in radiotelephony communication within the field of Aviation Science. Focuses primarily on pilot-controller communication in the English language. Provides opportunities to improve speaking, pronunciation, and overall English fluency in both routine and non-routine procedures using standard aviation phraseology and plain language. Provides opportunities to improve listening and comprehension skills through authentic pilot-controller radio recordings and dialogues. Builds vocabulary in both standard phraseology and non-routine domains. Addresses communication skills in the language skill areas of pronunciation, grammatical structures, vocabulary, fluency, and comprehension.

## Emergency Services Emerg Mgmt (ESMG)

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### ESMG 310G

#### Introduction to Homeland Security

3

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Introduces student to global and intercultural issues regarding homeland security at the national, regional, state and local levels. Discusses the history of homeland security, including its political history, and evolution, particularly as it relates to terrorism. Addresses demands state and local authorities must meet when dealing with national programs and requirements which affect funding and operations on the state and local level during natural or man-made disasters and emergencies.

### ESMG 3150

#### Principles of Management for the Emergency Services

3

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Examines critical skills used in the management of emergency services operations. Proposes possible applications of the skills using real-life examples. Emphasizes the development process and analytical skills necessary to assess problems in the workplace and select appropriate solutions.

**ESMG 3200**  
**Health and Safety Program Management****3**  
\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Teaches development, management, and evaluation of departmental safety programs. Includes compilation of accident and injury data from local jurisdictions. Develops programs that target safety concerns identified from research. Students will develop a plan to track effectiveness of safety programs to reduce personal injuries and property damage resulting from accidents within their department.

**ESMG 3250**  
**Managing Emergency Medical Services****3**  
\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Teaches action planning procedures for emergency incidents requiring multiple agency operations. Includes determining resources, assigning and placement of resources to mitigate incidents requiring multi-agency responses. Studies coordination of changing roles and responsibilities of fire service based EMS providers with the requirements set forth by local ordinances, state statutes, and federal laws. Presents personnel, resource management, and quality improvement techniques.

**ESMG 3300**  
**Master Planning for Public Emergency Services****3**  
\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Prepares students for developing long-range plans, given current organization status and local resources, emphasizing the attainment of both organizational, and community needs. Teaches planning for growth and for major disasters. Integrates resources and budgets while mitigating the impacts on a community. Develops and evaluates projected training requirements.

**ESMG 3350**  
**Analytical Research Approaches to Public Emergency Services****3**  
\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Explores basic research designs, the use of selective analytical tools, and common issues faced by public emergency services managers. Examines tools and techniques using research methods to facilitate the decision making process in public emergency services organizations.

**ESMG 3400**  
**Critical Infrastructure Protection****3**  
\* Prerequisite(s): ESGM 310G and University Advanced Standing

Introduces critical infrastructure and key resources (CI/KR) and explores the interdependencies between government and private industry in sustaining and protecting critical infrastructure. Provides an overview of the elements and processes to develop and sustain successful critical infrastructure partnerships and to protect critical infrastructure and key resources.

**ESMG 3600**  
**Psychology of Emergency Services****3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Examines the general psychological aspects of police, fire, and emergency medical services responders including dimensions of personality, family, organizational, cultural and diversity issues. Examines models of emergency and crisis decision making. Analyzes stress, anxiety, and trauma theories and clinical issues and examines current interventions being used for related disorders and building resilience.

**ESMG 3710**  
**Comparative Approaches to Homeland Security****3**  
\* Prerequisite(s): University Advanced Standing

Discusses shared terrorism threats as well as policies and strategies employed by a range of democratic countries to cope with terrorism and other homeland security-related threats. Examines issue areas such as bio-threats, health system preparedness, airport security and anti-radicalization policies across a number of countries. Reviews the practices of other countries and translates those practices into policies applicable in the United States. Prepares students to engage with their international partners at the local, state, or federal levels as Homeland Security becomes an increasingly global undertaking requiring greater international outreach.

**ESMG 4000**  
**Advanced Emergency Services Leadership****4**  
\* Prerequisite(s): University Advanced Standing

Explores advanced leadership topics as they relate to the first responder. Discusses leadership theories used in both emergency and non-emergency environments and develops skills necessary to lead small and large organizations under the unique atmosphere of time, pressure, and consequence. Provides an understanding of the role an emergency services leader plays in a paramilitary environment.

**ESMG 4150**  
**Humanitarian Services and Disaster Relief****3**  
\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Examines both theoretical and applied aspects of complex humanitarian emergencies and reviews disasters in the context of humanitarian relief. Explores the needs of displaced persons and the systems and practices currently in place to meet these needs. Reviews the principles of preparedness, resilience, and sustainability in terms of short-term response to disasters and long-term community recovery.

**ESMG 4200**  
**Public Information and Disasters****3**  
\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G or department approval

Prepares emergency services students to respond effectively to public information needs in both day-to-day emergency circumstances as well as in more extreme disaster conditions. Explores the theory and develops skills to effectively respond in crisis situations. Presents case studies in crisis response that demonstrate how information can help the public prepare, respond, and recover from disasters.

**ESMG 425G**  
**Crisis and Disaster Management****3**  
\* Prerequisite(s): ENGL 1010, ENGH 1005, ESGM 310G, or departmental permission. University Advanced Standing

Deals with the operations side of humanitarian action. Establishes principles that can be used in local, national, and international relief efforts. Applies best practices from emergency management to the field of humanitarian services and disaster relief. Meets the global and international requirements to foster greater understanding of, interaction with, and appreciation for, cultures that reflect the diversity present within the local and campus communities, up to the larger state and global context.

**ESMG 4300**  
**Disaster Recovery and Mitigation****3**  
\* Prerequisite(s): University Advanced Standing.

Focuses on how planning and policy processes and interventions can help reduce disaster vulnerabilities and increase resilience through effective recovery and mitigation strategies. Explores how demographic changes, human settlement patterns, land-use decisions, and political and social policy dynamics have increased vulnerability to natural and man-made disasters.

## Course Descriptions

### **ESMG 4400**

#### **Legal Considerations for the Emergency Services**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Examines regulatory, political, and social aspects of government's role in emergency services agencies, including regulatory issues, emergency services operations, employment, personnel issues, roles, legislative issues, and political influence.

### **ESMG 445G**

#### **Human Factors in Emergency Management**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ENGL 2010

Introduces students to an emergency response approach to understanding hazards and disasters grounded in social vulnerability analysis. Examines historical, geographical, social, and cultural factors and conditions that put people differentially at risk before, during, and after disasters. Utilizes a multi-disciplinary approach. Focuses on global, national, regional, and local patterns of development. Explores how vulnerable social groups globally are affected by and cope with hazardous conditions and events, and strategies for community-based mitigation engaging those most at risk.

### **ESMG 4500**

#### **Customer Service and Marketing for the Emergency Services**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Explores the principles and importance of customer oriented service delivery within the emergency services. Looks at current practices and delves into emerging needs and solutions for marketing and public relations. Includes research and critical thinking strategies for local, national, and global perspectives on customer service.

### **ESMG 4550**

#### **Principles of Disaster and Emergency Management**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Introduces the student to the need for and creation of comprehensive emergency planning operations. Explores risk assessment techniques and critical analysis strategies for communities and governmental agencies. Teaches the components of a comprehensive emergency plan and presents the National Incident Management System (NIMS), mandated by presidential directive.

### **ESMG 4600**

#### **Public Administration for the Emergency Services**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

For Public Emergency Services Management students. Examines the relationship between the emergency management function in government and the professional field of public administration. Topics include public policy making, implementation and analysis, disaster analysis, problem solving and solution formulation.

### **ESMG 4650**

#### **Emergency Services Capstone WE**

**3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 4600

Examines cutting-edge issues under the guidance of top professionals. Includes interviews with local and state officials to identify potential critical issues. Discusses personal leadership philosophy and strategies for decision making. Writing enriched course, which facilitates relevant communication in the discipline.

### **ESMG 481R**

#### **Emergency Services Internship**

**1 to 6**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

For upper-division students working toward a Bachelor of Science Degree in Emergency Services Management. Provides a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job experience. May be repeated for a maximum of 6 credits toward graduation. May be graded credit/no credit.

### **ESMG 489R**

#### **Special Topics in Emergency Management**

**1 to 6**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ESGM 310G

Provides students the opportunity to study special leadership topics in Emergency Management. Requires students to identify standard leadership topics and evaluate their application to Emergency Services. Calls for the creation of a significant research paper that is characteristic of the Emergency Leadership discipline and worthy of communication to a broader audience. May be repeated for a maximum of 9 credits toward graduation.

### **ESMG 491R**

#### **Topics in Cardiology and Medical Trends**

**1 to 3**

\* Prerequisite(s): ENGL 2010, (ESFF 1000 or departmental approval), and University Advanced Standing

Surveys a specific topic in cardiology and medical trends related to Emergency Medicine. Topic varies each semester. May be repeated for a maximum of 6 credits toward graduation.

### **ESMG 492R**

#### **Topics in Trauma and Pharmacology**

**1 to 3**

\* Prerequisite(s): ENGL 2010, (ESFF 1000 or departmental approval), and University Advanced Standing

Surveys a specific topic in trauma and pharmacological trends. Topic varies each semester. May be repeated for a maximum of 6 credits toward graduation.

### **ESMG 493R**

#### **Topics in Medical Litigation**

**1 to 4**

\* Prerequisite(s): ENGL 2010, (ESFF 1000 or departmental approval), and University Advanced Standing

Surveys a specific topic in medical litigation. Topic varies each semester. May be repeated for a maximum of 4 credits toward graduation.

### **ESMG 6100**

#### **Psychology and the Emergency Services Responder**

**3**

\* Prerequisite(s): Acceptance into the Masters of Public Services Program

Examines the psychological impact the emergency services profession has on the responder. Explains the effects of emergency response and bureaucracy on the psyche of the responder. Identifies the need for post-traumatic growth.

### **ESMG 6110**

#### **Disasters/Vulnerability/and Impacts**

**3**

\* Prerequisite(s): Acceptance into the Masters of Public Services Program

Evaluates the impact of natural and manmade disasters locally, nationally, and internationally. Analyzes historical disaster case studies in order to examine the aggregate costs of disasters.

### **ESMG 6120**

#### **Emergency Planning and Response**

**3**

\* Prerequisite(s): Acceptance into the Masters of Public Services Program

Examines the need for emergency planning and response criteria associated with emergency services delivery. Teaches how to generate a community wide emergency planning and response matrix. Identifies systems thinking within an emergency framework.

**ESMG 6130**  
**Social Vulnerability in Emergencies****3**

\* Prerequisite(s): Acceptance into the Master of Public Administration Program

Appraises social vulnerabilities within a community. Evaluates the sociological aspects of emergency response. Compares sociological and economic factors to resiliency.

**ESMG 6140**  
**Homeland Security Fundamentals****3**

\* Prerequisite(s): Acceptance into the Masters of Public Service program

Explains the history, formation, and growth of the Department of Homeland Security (DHS) since September 11, 2001. Estimates impact homeland security has on local emergency service agencies. Appraises the current state of national and international homeland security operations. Evaluates the existing DHS structure and its ability to meet the organization's strategic mission.

## Emergency Services

### Wildland FF (ESWF)

**ESWF 1310**  
**S131 Wildland Firefighter Type I****.5**

\* Prerequisite(s): Departmental approval

Meets the training needs of a Type 1 Wildland Firefighter (FFT1). Presents several tactical decision scenarios designed to facilitate learning the objectives and class discussion. Introduces the student to the Fireline Handbook and provides an overview of its application.

**ESWF 1330**  
**Look Up Look Down Look Around****.5**

\* Prerequisite(s): Meet NWCG pre-qualifications or departmental approval

Examines the wildland fire environment and the indicators firefighters should observe on the fire line in order to anticipate fire behavior.

**ESWF 1400**  
**Wildland Firefighting Fundamentals****4**

Designed to meet the Wildland Firefighter 1 knowledge and skill requirements of NFPA 1051, Wildland Fire Fighter Professional Qualifications. Teaches students to recognize the "Situations That Shout Watchout," apply the appropriate Standard Fire Orders and how to deploy a fire shelter. Includes orientation to the Incident Command System. Teaches basic fireline construction, fire weather, and fire behavior. Each subject covered in this course meets and/or exceeds NWCG standards for the following classes: S-130, S-190, I-100, and L-180. Course fee of \$118 for materials, specialized clothing, equipment, and state services & testing applies.

**ESWF 1410**  
**Wildland Firefighter Internship I****5**

\* Prerequisite(s): ESWF 1400 or departmental approval

Provides experience in fighting fires at wildfire and urban interface incidents. Studies wildland fire behavior, fire weather, and fire mitigation. Teaches size-up, chain of command, communications, strategy, and tactics. Includes developing water sources, learning engine tactics, understanding procedures for aircraft, firing and felling operations. Completers should develop skills beyond the entry level firefighter. May be graded credit/no credit. Course fee of \$86 for specialized clothing, materials, and equipment applies.

**ESWF 1420**  
**Wildland Firefighter Internship II****5**

\* Prerequisite(s): ESWF 1410

Provides students with the training and experience that will assist them in gaining a job in wildland fire management and suppression. Features participation in a 20-person wildland fire suppression crew sponsored by the Utah Division of Forestry, Fire and State Lands. Also teaches about wildland fire behavior as well as fire suppression strategies and tactics. Requires students to participate in physically demanding assignments with long periods of time away from home. Exposes students to wildland fire and the various organizational and mechanical tools used to manage and suppress them, such as; aircraft, bulldozers, large engines and other fire management and suppression equipment. May be graded credit/no credit.

**ESWF 2000**  
**S200 Initial Attack Incident Commander Type IV****1**

\* Prerequisite(s): Departmental approval

Designed to meet the the training needs of the Initial Attack Incident Commander Type 4 (ICT4). Covers foundational skills, intelligence gathering and documentation, incident size up, development of a plan of action, post-fire activities, evaluation of incident objectives and incident management. Meets and/or exceeds NWCG standards for S-200.

**ESWF 2010**  
**Basic Incident Command System for Initial Response****1**

\* Prerequisite(s): Meet NWCG prequalifications or departmental approval

Introduces the principles of the Incident Command System (ICS) associated with incident-related performance. Includes leadership and management, delegation of authority, management by objectives, functional areas and positions, briefings, organizational flexibility, transitions and transfers. Built on the same lesson objectives and content as the NWCG I-200 course.

**ESWF 2110**  
**S211 Portable Pumps and Water Use****1.5**

\* Prerequisite(s): Departmental approval

Covers three skill areas: supply, delivery, and application of water. Includes correct water use, basic hydraulics, and equipment care. Requires set up, operation, and maintenance of pump equipment in the field exercise. Meets and/or exceeds NWCG standards for S-211

**ESWF 2150**  
**S215 Fire Operations in the Wildland Urban Interface****2**

\* Prerequisite(s): Departmental approval

Designed to assist structure and wildland firefighters who will be making tactical decisions when confronting wildland fire that threatens life, property, and improvements in the wildland/urban interface. Includes interface awareness, size-up, initial strategy and incident action plan, structure triage, structure protection tactics, incident action plan assessment and update, follow up and public relations, and firefighter safety in the interface. Meets and/or exceeds NWCG standards for S-215.

**ESWF 2212**  
**S212 Chain Saw Use in Wildland Fire Operations****2**

\* Prerequisite(s): Department approval

Introduces the function, maintenance, and use of internal combustion engine powered chain saws and their tactical wildland fire application. Provides field exercises to support entry-level training for firefighters with little or no previous experience in operating a chain saw. Provides hands-on cutting experience in surroundings similar to fireline situations. Meets or exceeds the requirements for NWCG S-212 Chain Saws.

**ESWF 2231**  
**S231 Wildland Fire Engine Boss****1**

\* Prerequisite(s): Department Approval

Focuses on the tasks, tactical decision-making, and leadership concepts required to safely manage an engine and its personnel at a wildland fire incident. Meets or exceeds the requirements of NWCG S-231 Engine Boss.

**ESWF 2236**  
**S236 Heavy Equipment Boss****2**

\* Prerequisite(s): Department Approval

Teaches requirements of a Heavy Equipment Boss, Single Resource (HEQB) on wildland fire incidents as outlined in the NIMS: Wildland Fire Qualification System Guide, PMS 310-1, and the position taskbook developed for the position. Explores tactical use and safety precautions required to establish and maintain an effective heavy equipment operation. Requires a field exercise as part of the course. Meets or exceeds the requirements of NWCG S-236 Heavy Equipment Boss.

# Course Descriptions

## **ESWF 2244**

### **S244 Field Observer**

**2**

\* Prerequisite(s): Department Approval

Provides the skills necessary to perform as a Field Observer (FOBS) and/or a Fire Effects Monitor (FEMO) in an ALL-RISK environment. Introduces roles and responsibilities of the FOBS and FEMO; how to make observations and document those observations; how to produce hand drawn and GPS field maps; and how to navigate using a compass and GPS. Meets or exceeds the requirements of NWCG S-244 Field Observer.

## **ESWF 2261**

### **S261 Applied Interagency Incident Business Management**

**1**

\* Prerequisite(s): Department Approval

Teaches interagency incident business management for entry-level finance positions of (a) Equipment Time Recorder (EQTR), (b) Compensation for Injury Specialist (INJR), (c) Claims Specialist (CLMS), and (d) Personnel Time Recorder (PTRC). Provides an understanding of management procedure and basic policy and direction for incident business management. Meets or exceeds the requirements of NWCG S-261 Applied Interagency Incident Business Management.

## **ESWF 2301**

### **S230 Crew Boss Single Resource**

**2**

\* Prerequisite(s): Departmental approval

Designed to produce proficiency in the single resource boss position from initial dispatch through demobilization to the home unit. Introduces operational leadership, preparation and mobilization, assignment preparation, risk management, entrapment avoidance, safety and tactics, offline duties, demobilization, and post incident responsibilities. Meets or exceeds requirements for NWCG S230 Crew Boss Single Resource.

## **ESWF 2340**

### **Firing Operations**

**2**

\* Prerequisite(s): Department Approval

Introduces the roles and responsibilities of a Firing Boss, Single Resource (FIRB), and outlines duties of other personnel who may engage firing operations. Discusses and illustrates common firing devices and techniques. Demonstrates a real ignition or the use of an actual firing device. Meets or exceeds the requirements of NWCG S219 Firing Operations.

## **ESWF 2430**

### **Wildland Firefighter Internship III**

**5**

\* Prerequisite(s): ESWF 1420 and departmental approval

Increases the level of leadership training and responsibility for individual firefighters. Includes work on Advanced Firefighter/Squad Boss Task book. Teaches and improves upon the following skills; firefighter safety, supervision, communication, situational awareness and other fire suppression skills needed to advance to the Squad boss level. Offers valuable experience in wildland fire suppression techniques as well as safety and organizational skills. May be graded credit/no credit.

## **ESWF 2600**

### **S260 Interagency Incident Business Management**

**1**

\* Prerequisite(s): Departmental approval

Studies the human resources aspect of emergency services in depth. Concentrates on personnel issues associated with day to day emergency service organizational management. Includes topics of ethical conduct, recruitment, resources, and financial management. Meets or exceeds the NWCG standards for S260 Interagency Incident Business Management.

## **ESWF 2700**

### **S270 Basic Air Operations**

**1**

\* Prerequisite(s): Departmental approval

Introduces aircraft types and capabilities, aviation management and safety for flying in and working with agency aircraft, tactical and logistical uses of aircraft, and requirements for helicopter take-off and landing areas. Addresses regulations, procedures and policies that primarily govern federal agency and ICS operations. Meets and/or exceeds NWCG standards for S270 Basic Air Operations.

## **ESWF 2800**

### **L280 Followership to Leadership**

**1**

\* Prerequisite(s): Departmental approval

Provides a self-assessment opportunity for individuals preparing to step into a leadership role. Includes leadership values and principles, transition challenges for new leaders, situational leadership, team cohesion factors, ethical decision-making, and after action review techniques. Meets or exceeds the requirements for NWCG L280 Followership to Leadership.

## **ESWF 2900**

### **S290 Intermediate Wildland Fire Behavior**

**2**

\* Prerequisite(s): Departmental approval

Designed to prepare the prospective fireline supervisor to undertake safe and effective fire management operations. Second course in a series that collectively serves to develop fire behavior prediction knowledge and skills. Meets or exceeds the requirements of WFCG S290 Intermediate Wildland Fire Behavior.

## **ESWF 3000**

### **S300 Incident Commander Extended Attack**

**1**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Meets the training needs of the Incident Commander Type 3 (ICT3). Focuses on the lessons of leadership and command as they relate to the ICT3 position. Includes multiple tactical decision games for students to practice new knowledge. Covers foundation skills, situational awareness, command and control, managing the incident, transitional activities, post-fire activities and a final simulation. Meets or exceeds requirements for S300 Incident Commander Extended Attack.

## **ESWF 3020**

### **I300 Intermediate Incident Command System**

**1**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Provides description and detail of the Incident Command System (ICS) organization and operations in supervisory roles on expanding or Type 3 incidents. Includes: ICS fundamentals review, incident/event assessment and agency guidance in establishing incident objectives, Unified Command, incident resource management, planning process, demobilization, transfer of command, and incident close out. Meets or exceeds the requirements of NWCG I300 and ICS300 Intermediate Incident Command System.

## **ESWF 3300**

### **S330 Task Force-Strike Team Leader**

**1**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Teaches the application of risk management processes found in the Incident Response Pocket Guide (IRPG) to various incidents. Includes scenarios and exercises that assess the application of tactics specific to wildland fire suppression. Meets or exceeds requirements for NWCG S330 Task Force Strike Team Leader.

## **ESWF 3301**

### **RX301 Prescribed Fire Implementation**

**2**

\* Prerequisite(s): Department Approval and University Advanced Standing

Introduces the tools and techniques used to perform in the role of a Prescribed Fire Burn Boss. Describes the duties and responsibilities associated with the position of the Prescribed Fire Burn Boss including evaluation and implementation of a prescribed fire plan. Meets or exceeds the requirements of NWCG RX 301-Prescribed Fire Implementation.

**ESWF 3341**

**RX341 Prescribed Fire Plan Preparation**

**2**

\* Prerequisite(s): Department Approval and University Advanced Standing

Focuses on the skills/knowledge to prepare a prescribed fire plan for technical review and approval in accordance with the Interagency Prescribed Fire Planning and Implementation Procedures Guide, PMS 484. Meets or exceeds the requirements of NWCG RX-341 Prescribed Fire Plan Preparation.

**ESWF 3360**

**S336 Tactical Decision Making in Wildland Fire**

**1**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Meets training requirements in the Operations section of the Incident Command System. Includes examples and exercises specific to wildland fire suppression. Meets or exceeds requirements for NWCG S336 Tactical Decision Making in Wildland Fire.

**ESWF 3380**

**L380 Fireline/Fire Service Leadership**

**3**

\* Prerequisite(s): Department Approval and University Advanced Standing

Provides leadership development training for wildland/fire service supervisors. Focuses on application of leadership styles and team building. Designed for incident personnel with supervisory responsibilities. Meets or exceeds the requirements of NWCG L-380 Fireline/Fire Service Leadership.

**ESWF 3381**

**L381 Incident Leadership**

**3**

\* Prerequisite(s): Department Approval and University Advanced Standing

Focuses on leadership development training, recommended for command-level incident response personnel who will function in an ALL-RISK environment. Provides future leaders of divisions, groups, and Type 3 incidents with the leadership tools to effectively exert command and control over a quickly assembled team in a time constrained and rapidly changing incident environment. Meets or exceeds the requirements of NWCG L-381 Incident Leadership.

**ESWF 3390**

**S339 Division or Group Supervisor**

**1**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Prepares students to perform in the role of division/group supervisor. Includes division/group management, organizational interaction, division operations, and all-hazard operations. May include tactical decision games. Meets or exceeds the requirements of NWCG S-339, Division / Group Supervisor.

**ESWF 4000**

**I400 Advanced Incident Command System**

**1**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Provides an operational understanding of large single-agency and complex multi-agency/multi-jurisdictional incident responses. Includes: review for command and general staff, major and/or complex incident/event management, area command, and multi-agency coordination. Meets or exceeds the requirements for NWCG I400 Advanced Incident Command System or ICS 400.

**ESWF 4390**

**S390 Introduction to Wildland Fire Behavior Calculations**

**2**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Introduces fire behavior calculations by manual methods, using nomograms and the Fire Behavior Handbook. Covers the determinants of fire behavior through studying inputs (weather, slope, fuels, and fuel moisture). Teaches how to interpret fire behavior outputs, documentation processes, and fire behavior briefing components. Meets or exceeds the requirements of NWCG S390 Introduction to Wildland Fire Behavior Calculations.

**ESWF 4410**

**M410 Facilitative Instructor**

**2**

\* Prerequisite(s): Department Approval

Develops effective facilitative instructors. Improves training delivery and quality by presenting instructional methods with an emphasis on student-oriented adult training techniques. Meets National Wildfire Coordinating Group (NWCG) instructor qualifications. Meets or exceeds requirements of NWCG M-410 Facilitative Instructor.

**ESWF 4480**

**L480 Organizational Leadership in the Wildland Fire Service**

**3**

\* Prerequisite(s): Department Approval

Provides mid and upper-level organizational and Incident Management Team members with the leadership tools to deliver strategic direction and influence others to achieve team goals. Meets the NWCG requirements for L480.

**ESWF 4481**

**L481 Advanced Leadership for Command and General Staff**

**3**

\* Prerequisite(s): Department Approval

Focuses on leadership within the context of large/complex incident management, to include team collective tasks and functions accomplished by large Incident Management Teams (IMTs). Describes individual tasks including functioning as a productive member of a staff organization, being a positive contributor to staff decision-making, maintaining a common operating picture, demonstrating staff member ethos, and projecting operational culture and leader's intent. Meets or exceeds the requirements for NWCG L-481 Advanced Leadership for Command & General Staff.

**ESWF 4580**

**L580 Leadership in Action**

**3**

\* Prerequisite(s): Department Approval

Designed for senior fire management leaders. Fosters exchange of knowledge and experience in the art of leading during high-risk and complex incidents. Meets or exceeds the requirements for NWCG L-580 Leadership in Action.

**Ethics Studies (ETHS)**

**ETHS 2500**

**Introduction to Ethnic Studies**

**3**

\* Prerequisite(s) or Corequisite(s): ENGH 1005 or ENGL 1010

Explores how Ethnic Studies came to be an academic discipline, for terminology, for theories, for concepts, and for laying groundwork to comprehend the multidisciplinary work in the field and in the minor.

**ETHS 2510**

**Foundations of Ethnic Studies**

**3**

\* Prerequisite(s): ETHS 2500

Illustrates the knowledge gained in Introduction to Ethnic Studies in the learning of terminology, concepts, and theories as that knowledge applies to various professions and everyday life.

## **Exercise Science (EXSC)**

### **EXSC 1097 Fitness for Life 2**

TE

Provides information, tools, and skills to aid students in engaging in an active, healthy lifestyle throughout life. Offers the opportunity to learn about exercise program design, physiological adaptations that underlie fitness, and strategies to maintain an active lifestyle across the lifespan. Features access to high quality exercise facilities. Requires participation in exercise 2-3 days per week outside of the scheduled class activities. Stresses comprehensive principles in health, wellness, physical activity, and fitness assessment. Canvas Course Mats \$70/McGraw applies

### **EXSC 2500 Sports Medicine 3**

\* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), all with a C- or higher and (MATH 1050 or MATH 1055). PETE and REC Majors: ZOOL 1090.

\* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: PETE 2700 with a C- or higher and (MATH 1050 or MATH 1055). REC Majors: REC 2200.

Explores the field of Sports Medicine. Provides instruction on injury management, including knowledge, skills and abilities in preventing, identifying, treating and rehabilitating sport related injuries. Teaches appropriate vocabulary, injury mechanisms, and the nature of tissue response to training, trauma and treatment.

### **EXSC 270G Foundations of Exercise Science 3**

\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L) all with a C- or higher, and (MATH 1050 or MATH 1055)

Introduces the study of the Exercise Sciences and discusses the global influence on the development of the field. Studies the national and international history and philosophy of the field of Exercise and sport science. Analyzes problems in areas covered under the umbrella of Exercise Science and Physical Education. Explores related career and employment opportunities in this area.

### **EXSC 3270 Exercise Testing and Prescription 3**

\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), all with a C- or higher, and (MATH 1050 or MATH 1055), and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), and EXSC 270G

Evaluates key concepts related to exercise testing, prescription, and program design for healthy populations. Examines concepts in team, group, and individualized exercise assessment and programming. Emphasizes principles in exercise physiology, health promotion, fitness assessment and prescription. Prepares students to sit for certification exams upon course completion. Course fee of \$20 for supplies.

### **EXSC 3400 Statistical Analysis in Exercise Science 3**

\* Prerequisite(s): (MATH 1050 or higher) and University Advanced Standing

Provides an introduction to statistics, as well as the role of statistics in experimental design that is necessary to evaluate data collected from measurements commonly used in exercise science, health, physical education and recreation.

### **EXSC 3500 Kinesiology 3**

\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), all with a C- or higher and MATH 1050 or MATH 1055. PETE Majors: ZOOL 1090 and PETE 2700 both with a C- or higher and MATH 1050 or MATH 1055. REC Majors: ZOOL 1090 and REC 2200 both with a C- or higher and STAT 1040 or STAT 1045 or MATH 1050 or MATH 1055. All: University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), and EXSC 270G

Studies human movement. Includes the structure of the human body and fundamental mechanics. Emphasizes kinesiological and mechanical analysis.

### **EXSC 3550 Motor Learning and Control WE 3**

\* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: ZOOL 1090 and PETE 2700 both with a C- or higher and (MATH 1050 or MATH 1055). REC Majors: ZOOL 1090 and REC 2200 both with a C- or higher and (STAT 1040 or STAT 1045 or MATH 1050 or MATH 1055). All: University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G

Examines motor and cognitive characteristics of individuals involved in learning or performing motor skills. Examines conditions that influence learning. Analyzes how humans learn complex movement skills and control voluntary, coordinated movement. Analyzes the basic psychological processes involved in learning and control of movement and their effect on instruction and practice conditions for the learner. Studies motor development and its effect on skill acquisition. Course fee of \$14 for equipment, software applies.

### **EXSC 3700 (Cross-listed with: ZOOL 3700) Exercise Physiology 3**

\* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), and EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: PETE 2700 and ZOOL 1090 with a C- or higher and (MATH 1050 or MATH 1055). All: University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L)

Studies acute and chronic physiological responses to exercise, as well as nutritional and environmental effects on these responses. Requires separate weekly laboratory. Canvas Course Mats \$70/McGraw applies.

### **EXSC 3705 (Cross-listed with: ZOOL 3705) Exercise Physiology Laboratory 1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): EXSC 3700

Investigates acute and chronic physiological responses to exercise, as well as nutritional and environmental effects on these responses. Provides a hands-on experience where students conduct a variety of testing procedures, as well as analyze and interpret the various physiological responses. Course Lab fee of \$28 for materials applies.

**EXSC 3730**  
**Biomechanics**

**3**  
\* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), and all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: ZOOL 1090 and Pre or Co-requisite PETE 2700 both with a C- or higher and (MATH 1050 or MATH 1055). REC Majors: ZOOL 1090 and Pre or Co-requisite REC 2200 both with a C- or higher and (STAT 1040 or STAT 1045 or MATH 1050 or MATH 1055). All: University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G, and EXSC 3500

Emphasizes the application of engineering principles and technology in sports performance through interdisciplinary methodologies. Includes human gait analysis, locomotion, trunk biomechanics, computer modeling, and tissue biomechanics. Course fee of \$20 for equipment, supplies, and lab applies.

**EXSC 3750**  
**Psychosocial Aspects of Human Performance**

**3**  
\* Prerequisite(s): University Advanced Standing.  
\* Prerequisite(s) or Corequisite(s): ZOOL 1090 or ZOOL 2320 (or 232H) and ZOOL 2325 (or 232L)

Provides students with the necessary skills and understanding to adequately deal with the psychological and social aspects of human and sport performance. Develops techniques and psychological skills to enhance performance and establish a learning and social environment that would enhance the effectiveness of coaches and maximize the skill and personal growth of athletes.

**EXSC 3850**  
**Ethical Concerns in Exercise Science**

**3**  
\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), and Pre or Co-requisite EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055) and University Advanced Standing

Surveys applied concepts of ethical codes and legal liability. Explores systems used by community and adventure education programs for aspects protective of participants, staff, and institutions.

**EXSC 4000**  
**Clinical Exercise Physiology**

**3**  
\* Prerequisite(s): ZOOL 2420 (or 242H), EXSC 270G, and EXSC 3270 all with a C- or higher, and University Advanced Standing

Emphasizes information and skills related to exercise testing and prescription in healthy and clinical populations. Teaches American College of Sports Medicine (ACSM) exercise testing guidelines.

**EXSC 4050**  
**Obesity Physiology and Physical Activity**

**3**  
\* Prerequisite(s): EXSC 270G and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): ZOOL 2420 and ZOOL 2425

Provides a broad understanding of the negative health impacts of obesity on physiology. Focuses on exercise modalities that are safe and appropriate as means to treat and ameliorate the negative health consequences of obesity. Canvas Course Mats \$48/HumanK applies.

**EXSC 4100**  
**Physiology of Aging**

**3**  
\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), and Pre or Co-requisite EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing.

Examines physiological changes which accompany the advancement of age, including age-related changes in body composition, musculoskeletal, cardiovascular, pulmonary, and endocrine systems. Addresses solutions to exercise barriers and adherence, physical activity and exercise recommendations for functional health.

**EXSC 4200**  
**Exercise Metabolism**

**3**  
\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Examines how exercise affects the functioning of human and animal organisms at the molecular level. Focuses on the tools of basic principles of biochemistry and teaches how to use the tools to understand how exercise affects metabolism. Studies how to use biochemical tests to assess an exercising person's health and performance. Canvas Course Mats \$62/HumanK applies.

**EXSC 4300**  
**Research Methods in Exercise Science and Outdoor Recreation WE**

**3**  
\* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2420 (or 242H), and Pre or Co-requisite EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055). REC Majors: ZOOL 1090 and Pre or Co-requisite REC 2200 both with a C- or higher and (STAT 1040 or STAT 1045 or MATH 1050 or MATH 1055). All: University Advanced Standing.

Introduces students to key research in their field. Emphasizes analytical and interpretive skills. Develops scientific writing skills. Promotes design and utilization of comprehensive research methodologies commonly applied in Exercise Science and Outdoor Recreation.

**EXSC 4400**  
**Physical Activity Promotion in the Community**

**3**  
\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Emphasizes concepts related to physical activity promotion in the community. Critically reviews literature associated with physical activity programming in communities including barriers to physical activity participation, behavioral change theory, and social, environmental, and biological factors that influence physical activity behavior. Promotes application of concepts developed in class through introductory supervised field experience.

**EXSC 4500**  
**Advanced Sports Nutrition**

**3**  
\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G and Pre or Co-requisite EXSC 3700 and 3705 all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Designed to provide exercise science students a comprehensive understanding of basic nutritional principles as they relate to sports. Canvas Course Mats \$57/HumanK applies.

**EXSC 4550**  
**Principles of Strength and Conditioning**

**3**  
\* Prerequisite(s): EXSC 3500 and EXSC 3700 and EXSC 3705 all with a C- or higher and University Advanced Standing

Evaluates knowledge of physiological principles and training techniques used in strength and conditioning. Investigates guidelines from the National Strength and Conditioning Association (NSCA). Prepares students for several sections of the NSCA Certified Strength and Conditioning Specialist exam.

**EXSC 4600**  
**Advanced Biomechanics**

**3**  
\* Prerequisite(s): ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), ZOOL 2420 (or 242H), ZOOL 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): EXSC 3730

Teaches the application of mechanical principles to the development of motor skills. Includes research and technology utilized in the field of biomechanics.

# Course Descriptions

## **EXSC 4650** **Applied Sports Science**

**3**  
\* Prerequisite(s): ZOO 2320 (or 232H), ZOO 2325 (or 232L), ZOO 2420 (or 242H), ZOO 2425 (or 242L), EXSC 270G, EXSC 3500, EXSC 3700, EXSC 3705, and (MATH 1050 or MATH 1055), all with a C- or higher, and University Advanced Standing

Introduces students to tasks commonly completed by sports scientists. Students will learn how and when to use state-of-the-art technology to collect and analyze human performance data and disseminate the results.

## **EXSC 4700** **Advanced Gross Motor Assessment**

**3**  
\* Prerequisite(s): ZOO 2320 (or 232H), ZOO 2325 (or 232L), ZOO 2420 (or 242H), ZOO 2425 (or 242L), EXSC 270G, EXSC 2500 and EXSC 3500 all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Provides the students with advanced instruction on and the development of knowledge, skills and abilities to be able to safely and effectively evaluate and interpret / qualify gross motor function. Includes but is not limited to surface anatomy, boney and soft tissue palpation, Range of Motion (ROM), muscular strength, neurologic enervation and stress tests of supportive structures.

## **EXSC 481R** **Internship in Exercise Science**

**1 to 8**  
\* Prerequisite(s): ZOO 2320 (or 232H), ZOO 2325 (or 232L), ZOO 2420 (or 242H), ZOO 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Provides students with hands-on professional experience in the field of exercise science. May be repeated for a maximum of 8 credits toward graduation. Graded credit/no credit.

## **EXSC 489R** **Undergraduate Research for Exercise Science**

**1 to 4**  
\* Prerequisite(s): ZOO 2320 (or 232H), ZOO 2325 (or 232L), ZOO 2420 (or 242H), ZOO 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Provides students the opportunity to conduct research under the mentorship of a faculty member. Students will put in practice the theoretical knowledge gained in prior major courses. Students will create a significant intellectual or creative product that is characteristic of the Exercise Science discipline and worthy of communication to a broader audience. May be repeated for a maximum of 8 credits toward graduation.

## **EXSC 4950** **Senior Seminar**

**2**  
\* Prerequisite(s): ZOO 2320 (or 232H), ZOO 2325 (or 232L), ZOO 2420 (or 242H), ZOO 2425 (or 242L), EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055), and University Advanced Standing

Emphasizes critical evaluation of classic and current research in Exercise Science. Promotes research and writing skills within the discipline of Exercise Science. Promotes student centered learning and supports specialization within the field of Exercise Science.

## **Facilities Management (FAC)**

### **FAC 1010** **Survey of Facilities Management**

**3**  
Orients Facilities Management (FAC) majors with core responsibilities in the industry. Uses case studies and theory to gain experience with problem solving and resource management.

### **FAC 1020** **Space Planning and Management**

**3**  
\* Prerequisite(s) or Corequisite(s): ENGL1010 or ENGH 1005

Focuses on the forecasting, growth, planning, allocation, and management of occupied space. Discusses the role of the facilities manager in planning and managing growth.

## **Family Science (FAMS)**

### **FAMS 1150** **SS** **Marriage and Relationship Skills**

**3**  
Guides students in building a lasting intimate relationship of their own and in understanding and teaching relationship maintenance and improvement strategies based on large-scale scientifically derived marriage and relationship principles. Utilizes cutting edge research on factors and issues related to relationship success and outcome including whom and when to marry and how to build stable and happy relationships over time. Stresses increased understanding of desirable relationship outcomes and how to achieve them.

## **FAMS 1500** **Human Development Life Span**

**3**  
Explores genetic and environmental influences on human development and behavior from conception and birth through old age and death. Examines typical physical, cognitive, and psychosocial changes at each developmental stage throughout the lifespan. Explores major theoretical perspectives on human development. Emphasizes how the context of family influences development of the individual.

## **FAMS 240G** **Contemporary Family Relations**

**3**  
Examines dynamics of the healthy family using family theory, individual life span development, research, and active learning experiences. Analyzes variations within families due to form, gender, socioeconomic status, culture, race, and other factors. Focuses on the diversity of family organization, interaction patterns, parenting practices, values, and prejudice in a multicultural society. Fulfills the Global/Intercultural requirement. Canvas Course Mats \$76/Sage applies.

## **FAMS 2705** **Ethics for Family Interventions WE**

**3**  
\* Prerequisite(s): ENGL 1010, ENGL 101H, or ENGH 1005 with a C+ or higher

Explores the ethical and legal responsibilities of the helping professional in various types of family intervention, including counseling, education, and case management. Examines the broad scope of these ethical and legal concerns and how they are applied in a variety of settings.

## **FAMS 2800** **Teaching Human Sexuality**

**3**  
\* Prerequisite(s): (ENGL 1010, ENGL 101H, or ENGH 1005 with a C+ or higher)

Introduces basic concepts of human sexuality and effective methods to teach these topics to adults, adolescents, and children. Discusses gender roles, sexual orientation, sexual dysfunction, and sexually transmitted disease. Examines sexuality from the perspective of ethics, religion, the law, and education. Requires students to assess their own sexual attitudes and acquire information that should enable them to make responsible sexuality decisions. Educates students in how to teach human sexuality effectively regardless of any biases or individual beliefs. Note: Due to Utah State Laws regarding sexuality education, students registering for FAMS 2800 must be 18 years of age or a high school graduate.

**FAMS 3000 (Cross-listed with: SW 3000)**

**Social Work Practice I**

**3**

\* Prerequisite(s): Admission to the BSW program or declared major in Family Science and University Advanced Standing

Teaches students to apply the generalist social work Planned Change Model with individuals: engagement, assessment, goal setting/contracting, implementation, evaluation, and transition/ending. Prepares students to utilize core social work interpersonal communication skills to engage clients in a professional partnership with intervention and planning. Emphasizes the importance of cultural humility, principles of strengths-based and anti-oppressive social work practice, empirical research, and theories of human behavior and person-in-environment. Discusses ethical and professional demeanor and practice.

**FAMS 3020**

**Research Methods for Family Science WE**

**3**

\* Prerequisite(s): University Advanced Standing

Surveys the most common research designs in the social sciences. Highlights experiments, quasi-experiments, correlational designs, survey research, single case, and the philosophy of qualitative methods. Includes the design of a study, original data collection, data analysis, presentation of results.

**FAMS 3100**

**Career and Graduate School Preparation**

**3**

\* Prerequisite(s): University Advanced Standing

Emphasizes the development of skills necessary to apply for employment and/or graduate school in the field of family studies. Includes resume writing, cover letters, basic interview skills, preparation of application packages, and networking skills used with school and community resources to find employment and/or graduate school opportunities.

**FAMS 3250**

**Applied Parenting**

**3**

\* Prerequisite(s): (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Exposes students to classical and contemporary parenting theory, research, and practice. Focuses on the application of the guidance of children. Includes the study of parenting concepts, challenges, risks, and alternatives while considering the social, physical, emotional, intellectual, and spiritual environments of the child.

**FAMS 3300**

**Trauma-Informed Care**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces trauma-informed care in working with vulnerable populations (e.g. addictions, adoption, domestic violence, abuse & neglect, military service, emergency management, etc.). Explores a broad range of neurobiosocial factors that influence the development and presentation of trauma in individuals, and will explore several frameworks used to identify the ways that trauma may present in those for which we serve. Investigates current evidence-informed frameworks and modalities for conceptualizing trauma. Requires a foundational knowledge of human development and family systems.

**FAMS 3500**

**Family Demography**

**3**

\* Prerequisite(s): University Advanced Standing

Explores family life, modern and historical, through the lens of population science. Focuses on how patterns of fertility, mortality, and migration have shaped global and domestic family life and projections for the future of families.

**FAMS 3800**

**Early Development in Families**

**3**

\* Prerequisite(s): (ENGL 2010 with a C+ or higher) and University Advanced Standing

Studies physical, social, emotional, and cognitive development from conception through adolescence. Emphasizes normal child development within family, social, and cultural contexts.

**FAMS 3850**

**Adult Development and Aging**

**3**

\* Prerequisite(s): (ENGL 2010 with C+ or higher) and University Advanced Standing

Explores the dynamic process of adult development from emerging adulthood to death. Focuses on current adult developmental research and theory and the development of adults within and without the family system. Includes the examination of physical, familial, emotional, and social development.

**FAMS 4040**

**Secondary Data Analysis**

**3**

\* Prerequisite(s): PSY 3110; BESC 3020; (ENGL 2010 with a C+ or higher); and University Advanced Standing

Focuses on research in the academic discipline of Family Studies. Teaches how to use the tools of research as a problem solving resource in real-life and applied settings. Includes how to form a research question or hypothesis, develop a proposal, create measurement, and apply for IRB approval. Requires completion of a research project.

**FAMS 4300**

**Family Dispute Resolution**

**3**

\* Prerequisite(s): COMM 3410 or instructor approval; and University Advanced Standing

Builds on fundamentals learned in the basic mediation course. Reviews research and theories on family dynamics and conflicts. Examines the most effective mediation approaches, techniques, and skills for resolving family disputes. Presents information on specialized family mediation situations such as family mediation divorce, parent/teen, adoption, elder care. Prepares students to effectively participate in family mediations by utilizing an interactive workshop format with role-play, observation, and actual mediations.

**FAMS 4400**

**Family Policy**

**3**

\* Prerequisite(s): (FAMS 240G or PSY 1010 or SOC 1010) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Creates an understanding of the role of family professionals as advocates for the institution of the family. Covers family theories and research methods which aid in critically analyzing current policy development and implementation patterns in Utah and the United States. Utilizes the developmental theory in support of advocacy for family members in all their diverse structures, ages, and life stages.

**FAMS 4500**

**Family Life Education Methodology WE**

**3**

\* Prerequisite(s): (FAMS 240G) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Explores the field of family life education. Includes the history, development, and theory of family life education, as well as discussing the types of family-life education programs. Develops the knowledge and practical skills that are required to identify needs, design programs, teach family-life education, facilitate groups, and evaluate participants and programs in a wide variety of settings with a broad range of populations. Develops an appreciation for the impact of diversity in family-life education, which includes an awareness of multicultural factors, family structure, culture, economics, gender, race, religion, disability, ageism, and sexual orientation.

**FAMS 4600**

**Relationship Education Certification**

**3**

\* Prerequisite(s): FAMS 240G and (ENGL 2010 or 2020 with a C+ or higher) and University Advanced Standing. FAMS 4500 is strongly encouraged but not required.

Certifies students in the Prevention and Relationship Enhancement Program and other relationship curricula.

## Course Descriptions

### **FAMS 4660**

#### **Family Financial and Resource Management**

**3**

\* Prerequisite(s): FAMS 240G strongly recommended; University Advanced Standing

Introduces students to the fundamentals of family financial management. Focuses on norms, roles, values, and traditions of financial management in family systems. Evaluates emotional, subjective, and unstructured patterns, which contribute to financial mismanagement. Considers personal and social influences, including, marketing, holidays, spending pressure, goal definition, and debt accumulation. Canvas Course Mats \$85/McGraw applies.

### **FAMS 4670**

#### **Family Dynamics and Systems**

**3**

\* Prerequisite(s): (FAMS 240G) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Introduces the fundamentals of family dynamics and systems as they relate to family structure and function. Focuses on historical development, theoretical underpinnings, and applied utility of dynamics and systems. Includes boundary management, infraction, and renewal in contemporary family systems.

### **FAMS 4680**

#### **Family Theory**

**3**

\* Prerequisite(s): FAMS 240G and (ENGL 2010 or 2020 with a C+ or higher) and University Advanced Standing

Explores the development and application of the major family theories and their tenets. Discusses the effectiveness of these theoretical approaches to family.

### **FAMS 4700**

#### **Introduction to Marriage and Family Therapy**

**3**

\* Prerequisite(s): FAMS 240G, and University Advanced Standing

Introduces the field of marriage and family therapy. Addresses history, theory, prominent clinicians and modalities, and therapeutic topics and techniques. Develops the knowledge of such topics as the systemic nature of therapy. Focuses on knowledge of theory and specific topics in therapy rather than skill development. Includes research, training, professional issues, and ethics in the field.

### **FAMS 475R**

#### **Current Topics in Family Studies**

**1 to 3**

\* Prerequisite(s): FAMS 240G and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Presents a selected topic in Family Studies and will vary each semester. Requires a project demonstrating competency in the specific topic. May be repeated with different topics for nine credits toward graduation.

### **FAMS 481R**

#### **Community Practicum**

**1 to 8**

\* Prerequisite(s): Department approval and University Advanced Standing

Provides practical experience in a governmental, corporate, or private agency to prepare for regular employment. Practicum placements require program approval by the faculty coordinator. May be repeated for up to 8 credits toward graduation. Course fee of \$35 applies.

### **FAMS 482R**

#### **Stronger Families Practicum**

**1 to 8**

\* Prerequisite(s): Senior Standing in the Family Science program, FAMS 3000, FAMS 4500, permission of the instructor, and University Advanced Standing

Provides practical and research experience interning in the Strengthening Families Program. Supervised by faculty, staff, and agency representatives. Requires faculty approval. May be repeated for a maximum of 8 credits toward graduation. Course fee of \$35 applies.

### **FAMS 483R**

#### **Research Assistant Independent Study**

**1 to 8**

\* Prerequisite(s): Department approval and University Advanced Standing

Provides research experience. Includes idea formation, survey creation, data collection, marketing, data cleaning, qualitative coding, codebook creation, data analysis, gathering or summarizing literature, or preparing presentations/manuscripts. May be graded credit/no credit. May be repeated for up to eight credits toward graduation.

### **FAMS 485R**

#### **Internship Seminar**

**1**

\* Prerequisite(s): Junior standing in the Family Studies emphasis, FAMS 4500, permission of instructor, and University Advanced Standing

Provides integration of classroom learning with learning that takes place in an on-site internship. Intended to be taken concurrently with FAMS 481R or FAMS 482R. May be repeated for a maximum of 8 credits toward graduation.

### **FAMS 490R**

#### **Independent Study**

**1 to 3**

\* Prerequisite(s): BESC Department major; instructor approval and University Advanced Standing

Requires students to complete a well-defined project or directed study related to an area of special interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. May include writing a publishable paper, passing a competency exam, producing an annotated bibliography, oral presentation, or other options as approved by instructor. May be repeated for a maximum of six credits toward graduation.

## **Fine Arts Music and Theatre (FAMT)**

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### **FAMT 281R**

#### **Cooperative Work Experience**

**2 to 9**

\* Prerequisite(s): Approval of Cooperative Coordinator

Designed for Fine Arts majors. Provides paid work experiences in the student's major. Course content is individualized, with students setting objectives in consultation with their faculty coordinator and their on-the-job supervisor. Credit is determined by the number of hours a student works during the semester. May be repeated four times for credit. May be graded credit/no credit.

## **Finance (FIN)**

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### **FIN 1060**

#### **Personal Finance**

**3**

Designed as elective credit toward a business degree and for individuals interested in acquiring personal financial planning skills. Covers personal financial management with emphasis on decision making, budgeting, financial institutions, personal and family risk management, credit management, and estate planning. Methods include lectures, guest speakers, films, tapes, computer simulations and research. Completers should be able to prepare complete personal budgets and other family financial planning instruments. Lab access fee of \$25 for computers applies. Canvas Course Mats \$66/Wiley applies.

**SS**

**FIN 3020**  
**Family Financial Management and Development**

**3**  
 \* Prerequisite(s): MAT 1030 or higher and University Advanced Standing

Personal and family financial management and development for non PFP Majors. Focuses on norms, roles, values, and traditions for the management of family resources. Examines the interactions and best practices of individuals and family members in processing financial management issues such as goal definitions, budgeting, debt management, and related functions.

**FIN 3060**  
**Introduction to the PFP Profession**

**3**  
 \* Prerequisite(s): MATH 1050 or MATH 1055 or MATH 1090 and University Advanced Standing

Introduces the processes appropriate for entry into the personal financial planning (PFP) profession. Provides an overview of the skills and knowledge sets required to be a PFP professional including an outline of business models and practice management issues within the industry. Includes a review of basic PFP process such as the time value of money, cash and debt management, personal financial statement analysis, education funding, and related issues.

**FIN 3100**  
**Principles of Finance**

**3**  
 \* Prerequisite(s): (MGMT 2340 or STAT 2040 or STAT 2050) and (ACC 2110 or ACC 2020 or ACC 3000) and University Advanced Standing

Examines financial management in the business environment; time value of money; fundamentals of security valuation; the capital asset pricing model and capital budgeting. Introduces finance terminology and quantitative techniques used in financial analysis. Covers financial ratios and financial statement analysis, cost of capital, working capital policies, dividend policy, and a brief overview of international finance. Lab access fee of \$25 for computers applies. Canvas Course Mats \$78/Cengage applies.

**FIN 3150**  
**Financial Management**

**3**  
 \* Prerequisite(s): FIN 3100 and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): MGMT 3345

Examines financial aspects of firm decisions; presents theoretical underpinnings for financial management, together with quantitative techniques used to analyze financial questions. Covers financial analysis and planning; valuation methods; determination of required return; effect of capital structure decisions; funding alternatives; and corporate risk management. Requires analysis of a capital budgeting problem, including a written paper, quantitative analysis and presentation. Lab access fee of \$25 for computers applies. Canvas Course Mats of \$85/McGraw applies.

**FIN 3160**  
**Financial Management for Accounting Majors**

**3**  
 \* Prerequisite(s): FIN 3100, MATH 1050, MATH 1055, or MATH 1090, and University Advanced Standing

Prepares accounting majors with the information and skills necessary to prepare for the certified management accounting (CMA) accreditation process. Includes coverage of financial statement analysis, evaluation of profitability, managing financial risk, management of capital issues, and other financial decision making processes.

**FIN 3170**  
**Financial Statement Analysis**

**3**  
 \* Prerequisite(s): FIN 3100 and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): MGMT 3345

Teaches the application of professional financial management processes required to analyze markets, sectors, obtaining experience with optimization, data analysis, and quantitative techniques appropriate to be successful in the profession. Promotes the skills necessary to determine the value of firms assets and the worth of those assets in financial markets.

**FIN 3200**  
**Financial Counseling**

**3**  
 \* Prerequisite(s): FIN 3060 and University Advanced Standing. For PFP Majors Only

Prepares students to be effective financial counseling practitioners. Trains students to begin their role as effective financial counselors and planners. Develops counselor and client relationships skills as well as communication techniques to help identify and assist clients in an integrated financial planning environment. Provides an overview of the learning process needed to recognize the financial issues and concerns of many individuals and families and how to appropriately recommend solutions to help clients help themselves, while focusing on counselor sincerity and effectiveness in client reality.

**FIN 3220**  
**Risk Management and Insurance**

**3**  
 \* Prerequisite(s): University Advanced Standing, and For PFP Majors Only.  
 \* Prerequisite(s) or Corequisite(s): FIN 3060

Examines risk management and insurance planning for individual clients as well as employers of small corporations. Teaches the development of risk management and insurance plans with economic and behavioral theory. Uses a case study approach to apply and integrate the material. Emphasizes evaluation of financial alternatives. Provides learning activities that facilitate growth and development in written and oral communication skills.

**FIN 3400**  
**Investment Management**

**3**  
 \* Prerequisite(s): FIN 3100 and University Advanced Standing

Overviews the field of investments. Introduces stocks, bonds, put and call options, commodity and financial futures. Emphasizes both theory and practical aspects of investment management. Includes security valuation, market hypothesis, capital asset pricing, strategies of portfolio construction, performance measures, and risk/return relationships. Lab access fee of \$25 for computers applies.

**FIN 3410**  
**Introduction to Venture Capital Skills**

**3**  
 \* Prerequisite(s): University Advanced Standing, FIN 3100 strongly recommended.

Uses cases, supplemented with classroom instruction, to illustrate the various forms of financing a company can obtain. Provides insight into identifying and assessing investable opportunities using both qualitative and quantitative methods. Prepare students for more advanced coursework in venture capital and for professional roles after graduation in venture capital and private equity.

## Course Descriptions

### **FIN 342R**

#### **Wolverine Fund**

**3**

\* Prerequisite(s): FIN 3410, Instructor Approval and University Advanced Standing, FIN 3100 strongly recommended.

Provides a hands-on learning experience in venture capital. Provides opportunity alongside syndicate partners for investment of Wolverine Fund monies in current venture capital deals. Uses evaluation methods including market, cash flow and hybrid methods, as well as various data sources, to analyze a company's financial statements and predict future growth. Builds skill in constructing basic financial models and forecasting to evaluate the investable nature of a business. May be repeated for a maximum of 6 credits toward graduation.

### **FIN 4020**

#### **Enterprise Risk Management**

**3**

\* Prerequisite(s): FIN 3100, MGMT 2340, and University Advanced Standing

Introduces the risks and exposures to loss which affect businesses and non-profit entities. Includes pure, financial, operational, and strategic risk. Emphasizes data collection, analysis, and evaluation methods. Provides an in-depth examination of risk management program objectives and goals. Provides the tools for identification and treatment.

### **FIN 4030**

#### **Foundations of Risk Management and Insurance**

**3**

\* Prerequisite(s): FIN 3100, MGMT 2340, and University Advanced Standing

Introduces fundamental risk management and insurance principles as essential components of global business operations and personal risk management. Provides an in-depth examination of risk identification, risk analysis, global risk exposures, insurance company operations, legal principles, loss prevention and safety concepts, and the social and economic relevance of risk management and insurance.

### **FIN 4040**

#### **Business Law for Insurance Professionals**

**3**

\* Prerequisite(s): FIN 3100, MGMT 2340, and University Advanced Standing

Introduces the fundamentals of insurance law. Provides an in-depth examination of the definition of insurance, risk and the nature of the insurance relationship, insurable interests, indemnity, fortuity, and subrogation. Studies the coordination of benefits, interpretation of policies, rights at variance with policy provisions, contract formation, warranties, misrepresentation and concealment, conditions, agents and brokers, insurance regulation, and introduction to insurance coverage.

### **FIN 4050**

#### **Commercial Property Risk Management and Insurance**

**3**

\* Prerequisite(s): FIN 3100, MGMT 2340, and University Advanced Standing

Introduces commercial property risk management, with an emphasis on risk control, risk financing and using insurance as an essential component of an enterprise risk management program. Provides an in-depth examination of risk assessment, loss prevention, and the treatment of risk and insurance in the areas of commercial property, loss of business income, cyber risk, and equipment breakdown.

### **FIN 4060**

#### **Commercial Liability Risk Management and Insurance**

**3**

\* Prerequisite(s): FIN 3100, MGMT 2340, and University Advanced Standing

Introduces business liability exposures to risk and loss arising from negligence and/or other legal doctrines. Examines insurance as an essential component of an enterprise risk management program. Provides an in-depth examination of risk assessment, loss prevention, and treatment of risk in the areas of general liability, business auto, worker's compensation, cyber risk, and management and professional liability.

### **FIN 4100**

#### **Management of Financial Institutions**

**3**

\* Prerequisite(s): FIN 3100 and University Advanced Standing

Studies the U.S. financial system and its primary institutions and markets. Includes the role of the Federal Reserve System, American and international financial markets. Explores the impact of monetary policy on financial institutions and financial intermediation. Presents the term structure of interest rates, money, capital and mortgage markets, and management of thrift institutions and insurance companies. Lab access fee of \$25 for computers applies.

### **FIN 4160**

#### **Portfolio Management**

**3**

\* Prerequisite(s): FIN 3400 and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MGMT 3345

Examines portfolio theory and applied techniques used in selecting appropriate securities and managing the risk and return of a portfolio, with a focus on meeting investment objectives. Considers both stock and bond portfolios, and includes discussion of market efficiency, diversification, measurement of risk and of performance, bond duration and portfolio immunization, advanced bond pricing principles, bond swaps, term structure of interest rates, asset allocation, and portfolio hedging strategies.

### **FIN 4170**

#### **Derivative Securities**

**3**

\* Prerequisite(s): FIN 3100 and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MGMT 3345

Covers characteristics and institutional information about derivative securities, including forward and futures, options and swaps. Examines pricing models for these securities, risk inherent in derivative investments, and the role of derivatives in risk management. May include discussion of real options and other topics dealing with financial engineering.

### **FIN 4180**

#### **International Finance Management**

**3**

\* Prerequisite(s): FIN 3100 and University Advanced Standing

Examines financial aspects of firms operating in an international business environment. Includes currency valuation and forecasting; international flow of funds; foreign and international capital markets; valuation of multinational enterprises; and the effect of decisions about structure of the business and its transactions on firm value; and management of currency, political, and other risks arising from multinational operations. Canvas Course Mats of \$85/McGraw applies. Lab access fee of \$25 for computers applies.

### **FIN 4185**

#### **International Trade and Finance**

**3**

\* Prerequisite(s): FIN 3100 and University Advanced Standing

Examines aspects of trade and finance in an international business environment. Includes firm and currency valuation and forecasting; international flow of funds; foreign and international trade and capital markets; valuation of multinational enterprises; and the effect of decisions about structure of trade agreements and international supply chains on firm value, and management of trade, currency, political, and other risks arising from multinational operations.

### **FIN 4190**

#### **Applied Asset Diversification and Management**

**3**

\* Prerequisite(s): FIN 3400 and University Advanced Standing

Teaches a wide variety of investment asset classes including performance measurement, analysis of portfolio investment assets, quantitative analyses of investment portfolios. Discusses complex investment concepts through simplification and modeling of these issues to help clients better understand the benefits of these investment concepts.

**FIN 4200**  
**Financial Counseling Practicum**

**3**  
\* Prerequisite(s): FIN 3060, FIN 3200, Instructor Approval, Matriculation into WSB, and University Advanced Standing

Examines financial counseling with an engaged and practical focus. Uses actual client data in a supervised environment to integrate the material and core learning objectives, then apply them to financial counseling situations. Emphasizes the evaluation of credit and debt management, housing decisions and budgeting and forecasting. Provides learning activities designed to facilitate student growth and development in written, oral and presentation skills. Works with local practitioners to provide an engaged learning experience.

**FIN 4250**  
**Personal Financial Planning Practicum**

**3**  
\* Prerequisite(s): FIN 3200, FIN 5210, FIN 5260, FIN 3220, FIN 3400, ACC 3400, and University Advanced Standing

Examines practice management in various financial planning firms. Teaches the basics of practice management with an understanding of the core areas of personal financial planning. Uses a case study approach to apply and integrate the material and evaluate financial alternatives. Emphasizes the benefits and drawbacks of various management methods. Provides learning activities that will facilitate student growth and development in written and oral communication skills.

**FIN 4270**  
**Wealth Management Seminar**

**3**  
\* Prerequisite(s): FIN 3060, FIN 3100, and FIN 3400, Matriculation into the Woodbury School of Business, University Advanced Standing, and for PFP Majors Only.

Introduces investment theory, literature and theories which describe the unique process of household investment decision making. Introduces quantitative investment analysis and the instruments used to construct an efficient household portfolio. Uses quantitative and theoretical material which will require a basic knowledge of economics and finance, and the ability to work with spreadsheets. Applies practical concepts to prepare students to work as wealth managers in financial planning firms.

**FIN 4290**  
**Technological Applications in Personal Financial Planning**

**3**  
\* Prerequisite(s): FIN 3060, WSB matriculation, University Advanced Standing, and For PFP Majors Only.

Introduces various financial planning software packages. Includes both goal based and cash flow based financial planning software, client relationship management software, investment research software, portfolio management software, and office support software. Provides access to a variety of premier software companies in the U.S. and Canada. Certification in core software packages is required. Includes training material and standards as outlined by software companies.

**FIN 4310**  
**Real Estate Investment and Securities**

**3**  
\* Prerequisite(s): FIN 3100 and University Advanced Standing

Examines real estate investments and debt and equity capital markets linked to real estate assets. Focuses primarily on real estate investments and valuation of debt and equity securities, including commercial and residential mortgages, real estate investment trusts, and mortgage-backed securities, and some related instruments such as CDOs. Examines the process of securitization and the secondary markets for real estate securities, together with the role of financial institutions in this sector. Provides an overview of real estate investment, measurement of prices, and fundamental determinants of value with particular attention given to the effect of interest rate risk, default risk, and the embedded prepayment options on the value of mortgages and mortgage-backed securities.

**FIN 457R**  
**Advanced Topics in Finance**

**3**  
\* Prerequisite(s): FIN 3100, Instructor Approval, and University Advanced Standing

Uses case method, examination of current academic and professional literature and/or student research to explore selected finance topics in considerable detail. Emphasizes student analysis, exposition and presentation of information. May be repeated four times for a maximum of 12 credits toward graduation.

**FIN 4600**  
**AFC Examination Preparation**

**3**  
\* Prerequisite(s): FIN 3200 and (FIN 1060 or FIN 3060), and University Advanced Standing

Prepares Personal Financial Planning students to sit for the Accredited Financial Counselor (AFC®) accreditation exam. Provides a review of the concepts and issues students need to be successful, including financial counseling, personal finance, and debt management.

**FIN 481R**  
**Personal Financial Planning Internship**

**2 to 8**  
\* Prerequisite(s): Departmental Approval and University Advanced Standing

Provides supervised, practical, and professional experience for students preparing for careers in Personal Financial Planning. May be repeated for a maximum of 8 credit hours. May be graded Credit/No Credit.

**FIN 482R**  
**Internship**

**2 to 8**  
\* Prerequisite(s): Instructor Approval and University Advanced Standing

For upper-division students in Finance. Provides a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job paid experience commensurate with upper-division classroom instruction. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and oral presentations. Completers should obtain experience in establishing and accomplishing individualized work objectives that improve work performance. May be repeated for 6 credits toward graduation. May be graded credit/no credit.

**FIN 483R**  
**Colloquium in PFP Professionalism**

**1**  
\* Prerequisite(s): University Advanced Standing and For PFP Majors Only.

Prepares PFP Program students for internships and other professional development activities. Features industry professionals who interact with students and discuss opportunities within the industry and their specific professional practices. Covers special topics such as business etiquette, dressing for success, preparing professional resumes, correspondence, etc. May allow students to experience extended personal interaction with visiting professionals by hosting them, providing transportation to/from the airport, escorting them to local points of interest, and more. May be repeated for a maximum of 3 credits toward graduation.

**FIN 5130**  
**Financial Statement Analysis and Modeling**

**3**  
\* Prerequisite(s): FIN 3100

Explains the relationships among the three primary financial statements including income statement, balance sheet, and cash flow statements. Analyzes companies in three primary sectors and does reviews and valuations of these companies. Describes basic merger, acquisition, and initial public offering valuation concepts.

## Course Descriptions

### **FIN 5160**

#### **International Financial Management**

**3**

\* Prerequisite(s): FIN 3100

Translates financial topics within an international perspective. Teaches international corporate finance transactions and the impact of currency implications on company financial translations. Provides a global context for cultural differences of financial concepts and practices in varied countries. Provides additional financial perspectives about international business transactions within the context of earlier financial courses.

### **FIN 5170**

#### **Investment Analysis and Portfolio Analysis**

**3**

\* Prerequisite(s): FIN 3100

Provides an introduction to the global securities market and its role in capital formation, wealth-creation, economic development, risk mitigation, wealth management, and other finance-related goals.

### **FIN 5180**

#### **CFA Examination Preparation**

**3**

\* Prerequisite(s): Permission of instructor or department chair

Prepares participants to sit for the Chartered Financial Analysis (CFA) Level 1 section of the exam. Requires students to work through a modular process covering outlined topics required for the exam including ethics, quantitative methods, economics, corporate finance, financial reporting/analysis, security analysis, and portfolio management.

### **FIN 5210**

#### **Retirement Planning**

**3**

\* Prerequisite(s): FIN 3060, Matriculation into the Woodbury School of Business, University Advanced Standing, and For PFP Majors Only.

Examines the topics of retirement planning and retirement plans from both employer and individual client settings. Uses a case study approach to apply and integrate the material. Emphasizes the evaluation of financial alternatives. Provides learning activities that will facilitate student growth and development in written and oral communication skills.

### **FIN 5260**

#### **Estate Planning Fundamentals**

**3**

\* Prerequisite(s): FIN 3060, Matriculation into the Woodbury School of Business, University Advanced Standing, and For PFP Majors Only.

Teaches gift, estate, and generation skipping transfer taxation, including financial and estate planning applications. Applies gift, estate, and generation skipping transfer taxation rules to personal financial planning scenarios. Studies financial regulations and taxation policy. May be delivered hybrid.

### **FIN 5300**

#### **Tax Planning for Personal Financial Planners**

**3**

\* Prerequisite(s): FIN 3060, Matriculation into WSB, University Advanced Standing, and for PFP majors only

Examines the topic of income tax planning and forecasting for individual clients and small business owners. Uses a case study approach to integrate the material and apply it to personal financial planning situations. Emphasizes the evaluation of financial alternatives. Provides learning activities that will facilitate student growth and development in written and oral communication skills. Works with local practitioners to provide an engaged learning experience.

### **FIN 5510**

#### **Investment Products**

**3**

\* Prerequisite(s): Permission of instructor or department chair and University Advanced Standing

Helps students prepare for the CFA Level I exam by analyzing investment products. Defines major investment and sub-types of equity investments, fixed income investments, derivatives, and alternative investments. Introduces essential features and related risks of investment products.

### **FIN 5520**

#### **Financial Markets**

**3**

\* Prerequisite(s): Permission of instructor or department chair and University Advanced Standing

Analyzes fundamental economic concepts, including market structures and business cycles. Examines corporate governance, stakeholder management, and capital structure. Explores the role ethics and professionalism play in the investment industry.

### **FIN 5700**

#### **CFP Examination Preparation**

**3**

\* Prerequisite(s): FIN 3060, FIN 3220, FIN 3400, FIN 5210, FIN 5260, FIN 5300 and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): FIN 5800

Prepares personal financial planning students completing his/her bachelor of science degree who are planning to take the Certified Financial Planner accreditation exam. Provides review of the concepts and issues individuals need to be successful. Uses Dalton Education materials.

### **FIN 5800**

#### **Personal Financial Planning Capstone**

**3**

\* Prerequisite(s): FIN 3060, FIN 5210, FIN 3220, FIN 5260, FIN 3400, University Advanced Standing, and For PFP Majors Only.

Develops the concept of a comprehensive plan. Reviews each of the major aspects of financial planning in the context of a comprehensive case. Analyzes the financial planning profession and the various types of financial planning models. Provides an overview of software applications as well as interview skills, data gathering, working with clients, presentation skills, and the creation of a comprehensive financial plan.

### **FIN 6060**

#### **Financial Planning for Professionals**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Provides an overview of personal financial planning. Presents a framework for how financial planners assist clients in effectively planning to achieve their goals. Applies financial concepts to households, including time value of money, capital needs analyses, and risk management. Examines concepts related to education funding, insurance products, and professional ethics.

### **FIN 6130**

#### **Financial Statement Analysis and Modeling**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Develops fluency with the three primary financial statements including income statement, balance sheet, and cash flow statement. Projects statements for companies in three primary sectors and conducts a full enterprise valuation for projected companies. Conducts a mock merger, acquisition, and initial public offering valuation.

### **FIN 6140**

#### **Regulatory Policy in Financial Services**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Describes the functions and purposes of regulatory policy within the financial services industry. Outlines alternative philosophies which influence regulatory policy development including implementation of public policy for these purposes. Reviews varied government, industry, and other agencies responsible for regulatory policy in the financial service industry.

**FIN 6150**  
**Financial Management**

**3**  
\* Prerequisite(s): Acceptance in the MBA program

Discusses corporate financial management cases and analyses dealing with problems of working capital management, capital budgeting, cost of capital evaluation, and corporate restructuring. Canvas Course Mats \$78/Cengage applies.

**FIN 6160**  
**International Financial Management**

**3**  
\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Offers a financial perspective treating international business. Focuses on international corporate finance transactions and the currency implications of financial statement translations. Provides a global context for cultural differences of financial concepts and practices around the world.

**FIN 6170**  
**Investment Analysis and Portfolio Analysis**

**3**  
\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Provides an introduction to the global securities market and its role in capital formation, wealth-creation, economic development, risk mitigation, wealth management, and other finance-related goals. Uses Bloomberg Terminals in the development of company and industry analyses. Canvas Course Mats \$78/Cengage applies.

**FIN 6210**  
**Retirement Planning**

**3**  
\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Examines topics of retirement planning and retirement plans at the graduate level from both employer and individual client perspectives. Uses case study approach to apply and integrate the material. Emphasizes the evaluation of financial alternatives. Provides learning activities that will facilitate student growth and development in written and oral communication skills.

**FIN 6260**  
**Estate Planning**

**3**  
\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Describes elements of estate planning including gift, estate, generation skipping, tax implications and other relevant issues financial planners need to identify client needs. Identifies planning concepts, tools, and varied processes important to meet needs of individual clients.

**FIN 6300**  
**Income Tax Planning**

**3**  
\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Examines the topic of income tax planning and forecasting for individual clients and small business owners. Executes a case study approach to integrate material and apply it within a personal financial planning context. Implements materials to facilitate student growth and development in written and oral communication skills. Organizes activities with local practitioners to provide an engaged learning experience.

**FIN 6340**  
**Analytics and Advanced Statistics**

**3**  
\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Describes processes and methods that statisticians use to analyze business, financial, and related issues. Teaches how to determine types of data required to address specific problems, how to gather, analyze, and report that information to suggest solutions to identified problems. Evaluates the effectiveness of varied statistical processes in applying those techniques to address specific types of issues. Practices the application of statistical methods to the evaluation of identified problems.

**FIN 6350**  
**Retirement Income Planning**

**3**  
\* Prerequisite(s): Admission into the MFPA program in the Woodbury School of Business

Describes the special issues related to managing and sustaining retirement income for people depending on that source for livelihood. Evaluates alternative sources of income for retired individuals including social security, pensions, 401K, and other sources. Describes varied strategies for sustaining value, evaluating withdraws from principal, reviews of sustainability, and other related concepts.

**FIN 6370**  
**Wealth Management**

**3**  
\* Prerequisite(s): Admission into the MFPA program in the Woodbury School of Business

Introduces investment theory, literature and theories relating to the unique processes of household investment decision making. Implements quantitative investment analyses and the instruments appropriate to the development of an efficient household portfolio. Teaches quantitative and theoretical concepts requiring a basic knowledge of economics, finance, and the ability to work with spreadsheets. Applies practical concepts to prepare students to work as wealth managers in financial planning firms.

**FIN 6380**  
**Advanced Estate Planning and Asset Protection**

**3**  
\* Prerequisite(s): FIN 6260 recommended; admission into any graduate program in the Woodbury School of Business

Describes a variety of processes for evaluating asset values and paring those processes with client's requirements. Reviews alternative trust types, policies for achieving varied client objectives, and evaluating trust effectiveness.

**FIN 6390**  
**Financial Technology**

**3**  
\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Provides an overview of financial software commonly used in financial planning and financial analytics. Evaluates software training processes. Introduces information technology used in financial services. Engages students in the process of financial technology system development.

**FIN 6400**  
**Managing Client Relationships**

**3**  
\* Prerequisite(s): Admission into the MFPA program in the Woodbury School of Business

Outlines processes for developing and sustaining client relationships to manage a professional financial planning operation. Reviews alternative electronic applications designed to support client relationships. Evaluates the effectiveness of alternative client management systems including both strengths and challenges of such systems.

**FIN 6450**  
**Planning for Financial Planning Business Owners**

**3**  
\* Prerequisite(s): Acceptance into the Masters of FPA Program

Reviews varied business organizations, structures, processes, and other related activities necessary to the effective management of a financial planning business. Evaluates client management, financial planning software, business and tax accounting software, and other needed technology support. Teaches professional development activities for planning professionals and staff. Analyzes marketing, human resources, and other business function processes. Integrates best business practices.

## Course Descriptions

### **FIN 6510**

#### **CFA I Investment Products**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Helps students prepare for the CFA Level I exam by analyzing investment products. Defines major investment and sub-types of equity investments, fixed income investments, derivatives, and alternative investments. Introduces essential features and related risks of investment products.

### **FIN 6520**

#### **CFA I Financial Markets**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Analyzes fundamental economic concepts, including market structures and business cycles. Examines corporate governance, stakeholder management, and capital structure. Explores the role ethics and professionalism play in the investment industry.

### **FIN 6700**

#### **CFP Exam Preparation**

**3**

\* Prerequisite(s): FIN 6060, FIN 6170, FIN 6210, FIN 6300, and FIN 6260

\* Prerequisite(s) or Corequisite(s): FIN 6800

Prepares personal financial planning students completing master's degree who are planning to take the Certified Financial Planner accreditation exam. Provides review of the concepts and issues individuals need to be successful.

### **FIN 679R**

#### **Special Topics in Finance**

**3**

\* Prerequisite(s): Admission into the MFPA program in the Woodbury School of Business

Reviews special topics such as new tax laws, revisions of charitable giving procedures, developing specialized trusts, changes in financial industry regulatory processes, and other related topics. May be repeated for a maximum of 6 credits toward graduation.

### **FIN 6800**

#### **Financial Planning Capstone and Case Analysis**

**3**

\* Prerequisite(s): FIN 6060, FIN 6170, FIN 6210, FIN 6300

\* Prerequisite(s) or Corequisite(s): FIN 6260

Reviews each of the major aspects of financial planning in the context of a comprehensive case. Analyzes the financial planning profession and the various types of financial planning models. Provides an overview of client servicing and management, including data gathering, working with clients, presentation skills, and the creation of a comprehensive financial plan.

### **FIN 6810**

#### **CFA Exam Preparation**

**3**

\* Prerequisite(s): FIN 6510, FIN 6520

\* Prerequisite(s) or Corequisite(s): FIN 6170, FIN 6340

Prepares participants to sit for the Chartered Financial Analysis (CFA) Level 1 section of the exam. Requires students to work through a modular process covering outlined topics required for the exam including ethics, quantitative methods, economics, corporate finance, financial reporting/analysis, security analysis, and portfolio management.

### **FIN 6820**

#### **Research Methods**

**3**

\* Prerequisite(s): Admission into the MFPA program in the Woodbury School of Business

Describes graduate level research methods, processes, and skills appropriate to the analysis of applied business projects. Reviews scientific methods analysis, research design, measurement and scaling, testing reliability and validity, communication of research results, and other relevant concepts.

### **FIN 6840**

#### **Behavioral Finance Seminar**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Explores how deviations from the classic model of rationality impact decision making processes and outcomes. Evaluates the assumptions of human decision making. Analyzes the various biases and heuristics that can influence decision-making, especially about financial decisions. Applies behavioral finance research to the practices of financial planning and financial analytics.

### **FIN 689R**

#### **Internship**

**1 to 6**

\* Prerequisite(s): Admission into any Woodbury School of Business graduate program.

Provides supervised, applied experience for students preparing for careers in finance and/or financial services. Facilitates opportunities to apply theory and other concepts to real-world scenarios. Includes student, employer, and coordinator evaluations, written assignments, and oral presentations. Facilitates opportunities for students to establish individualized work objectives designed to improve performance. Requires completion of an internship application. May be graded credit/no credit. May be repeated for a maximum of 6 credits toward graduation.

### **FIN 690R**

#### **Independent Study**

**1 to 3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Provides independent study of topics within financial planning and/or analytics. Guides students with reading, individual projects, and other engagements at the discretion and approval of the instructor. May be repeated for a maximum of 3 credits toward graduation.

## **French (FREN)**

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### **FREN 1010**

**LH**

#### **Beginning French I**

**4**

Emphasizes speaking, reading, writing, and listening skills. Teaches basic language usage and cultural understanding. Focuses on acquiring understanding through activity-based approaches. Lab access fee of \$10 applies.

### **FREN 1020**

**LH**

#### **Beginning French II**

**4**

\* Prerequisite(s): Students need equivalent knowledge of FREN 1010

Completes the first year of study. Includes the remaining grammar, language concepts, and culture associated with the beginning language sequence. Introduces students to literature in French. Lab access fee of \$10 applies.

### **FREN 115R**

#### **French Conversation I**

**1**

Offers novice French speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen listening comprehension for natural conversational flow. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

<p><b>FREN 1500</b> <b>French Travel Study</b> <b>3</b></p> <p>Introduces students to a French-speaking foreign country for a minimum of 10 days of intensive language and culture study. Course entails several meetings prior to departure and at least one after the return home to facilitate observation and analysis of data to be gathered on the tour. An organized presentation of that data will be contained in a multimedia project due no later than one month after tour.</p>	<p>LH</p>	<p><b>FREN 215R</b> <b>French Conversation II</b> <b>1</b></p> <p>* Prerequisite(s): Students should have equivalent knowledge of FREN 1020</p> <p>Offers lower division / novice speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, sharpen listening comprehension, and develop conversational strategies such as circumlocution and managing a conversation with useful expressions for starting a conversation, gaining time to think, helping the other speaker, seeking agreement, etc. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.</p>	<p><b>FREN 3050</b> <b>Advanced French</b> <b>3</b></p> <p>* Prerequisite(s): It is recommended that students take FR 202G prior to enrolling in FR 3050. If you have advanced study of French, you may also contact the French Program Director for a placement test.</p> <p>Building upon lower-division courses, continues to emphasize reading, writing, and conversational skills through studies in literary and other texts, including films dealing with Francophone cultures. Includes an in-depth review of grammar. Lab access fee of \$10 applies.</p>	<p>LH</p>
<p><b>FREN 2010</b> <b>Intermediate French I</b> <b>4</b></p> <p>* Prerequisite(s): Students need equivalent knowledge of FREN 1020</p> <p>Reviews grammar, reading, writing, and conversation skills learned throughout the first year. Introduces readings and discussions on the history, culture, and literature of the French world. Lab access fee of \$10 applies.</p>	<p>LH</p>	<p><b>FREN 3030</b> <b>French Composition and Conversation WE</b> <b>3</b></p> <p>* Prerequisite(s): (FREN 202G or instructor approval) and University Advanced Standing</p> <p>Advances mastery of French grammar while emphasizing production skills of speaking and writing. Expands reading and listening skills to a lesser degree. Reviews and extends lexical depth. Allows students without experience living in a French immersion setting to advance in their communication skills to where they may participate more comfortably in future upper division courses with other students who do have immersion experience. Offers a variety of topics presented in a variety of media as content basis for real communicative practice in French. Conducts all course work primarily in French.</p>	<p><b>FREN 3116</b> <b>Adventure and Discovery-Journeys through the French and Francophone Worlds</b> <b>3</b></p> <p>* Prerequisite(s): Pass French AP Exam with minimum score of 3.</p> <p>This course is part of the French Bridge Program in the State of Utah, open only to high school students in the Bridge Program. Not to be taught on main campus, and not open to students who are not enrolled in a participating high school. Explores themes of discovery, adventure, and journey in the French and Francophone world through the prism of the fine arts, history, music, texts, films, and other areas. Taught in French.</p>	
<p><b>FREN 202G</b> <b>Intermediate French II</b> <b>4</b></p> <p>* Prerequisite(s): Students need equivalent knowledge of FREN 2010</p> <p>Emphasizes reading, writing, and conversational skills through socio-cultural studies in history, literature and art. Lab access fee of \$10 applies.</p>	<p>HH</p>	<p><b>FREN 3040</b> <b>Introduction to Literary Genres in French</b> <b>3</b></p> <p>* Prerequisite(s): (FREN 202G or equivalent) and University Advanced Standing</p> <p>Explores different literary genres in the French language throughout the centuries. Provides extensive opportunity for improvement in oral and reading/writing development of language skills, as well as new ways of thinking about literature in cultural contexts. Completers should considerably improve their ability to express themselves in the foreign language. Taught entirely in French.</p>	<p><b>FREN 3117</b> <b>Francophonie-Past/Present/Future</b> <b>3</b></p> <p>* Prerequisite(s): Pass French AP Exam with a minimum score of 3.</p> <p>This course is part of the French Bridge Program in the State of Utah, open only to high school students in the Bridge Program. Not to be taught on main campus, and not open to students who are not enrolled in a participating high school. Explores themes such as coming of age, rite of passage, and education as encountered in cultural artifacts and literatures from France and the Francophone world. Taught in French.</p>	
<p><b>FREN 2050</b> <b>Advanced French Grammar and Composition</b> <b>3</b></p> <p>* Prerequisite(s): FREN 202G or equivalent</p> <p>Explores grammar of French focusing on areas typically difficult for English speakers. Provides extensive instruction in, and opportunity for the students' improvement in language production, both oral and written. Completers should improve considerably their ability to express themselves in the foreign language both orally and in written form.</p>		<p><b>FREN 3118</b> <b>Paris City of Lights</b> <b>3</b></p> <p>* Prerequisite(s): Pass French AP Exam with a minimum score of 3.</p> <p>This course is part of the French Bridge Program in the State of Utah, open only to high school students in the Bridge Program. Not to be taught on main campus, and not open to students who are not enrolled in a participating high school. Explores the City of Lights through the prism of important themes, including, but not limited to, the arts, history, commerce, technology, sports, etc. Examines course themes through a variety of approaches, such as project based instruction, class discussion, and reaction papers. Taught in French.</p>		

## Course Descriptions

### **FREN 3200** **Business French**

**3**  
\* Prerequisite(s): (FREN 3050 or equivalent knowledge) and University Advanced Standing

For those who plan to pursue careers in international business or related fields, learn French business language, understand French corporate culture, or plan to major or minor in French. Teaches French business terminology and prepares students to take the Chambre de Commerce et d'Industrie de Paris exam. Explores technological, personal, and professional aspects of business. Will be taught entirely in the French language. Lab access fee of \$10 applies.

### **FREN 351G** **Culture and Civilization to 1700**

**3**  
\* Prerequisite(s): FREN 3050 and University Advanced Standing

Explores chronologically to 1700 the formation and development of French speaking societies and cultures. Traces the ethnic development and linguistic history of these societies and peoples, as well as examines manifestations of their aesthetic endeavors. Presentations and class instruction conducted entirely in French.

### **FREN 352G** **Culture and Civilization from 1700**

**3**  
\* Prerequisite(s): FREN 3050 and University Advanced Standing

Explores chronologically to 1700 the formation and development of French speaking societies and cultures. Traces the ethnic development and linguistic history of these societies and peoples, as well as examines manifestations of their aesthetic endeavors. Presentations and class instruction conducted entirely in French.

### **FREN 353G** **Contemporary French Civilization and Culture**

**3**  
\* Prerequisite(s): (FREN 3050 or equivalent) and University Advanced Standing

Examines contemporary French culture topics (family, education, love and the couple, religion, social challenges, governmental functions, etc.) through studying a variety of French sources: readings, film, lecture, individual research, etc. Analyzes topics through active class discussion in French. Integrates new cultural perspectives in papers and assignments researched and written in French. Conducted entirely in French.

### **FREN 3610** **French Literature to 1700**

**3**  
\* Prerequisite(s): (FREN 3050 or equivalent knowledge) and University Advanced Standing

Introduces chronologically to 1700 representative French authors. Emphasizes literary analysis and criticism. Completers should develop knowledge of literary history, acquire skills in interpreting literary texts, and deepen understanding of the French language. Presentations and class instruction conducted entirely in French.

### **FREN 3620** **French Literature from 1700 WE**

**3**  
\* Prerequisite(s): (FREN 3050 or equivalent knowledge) or department approval; University Advanced Standing

Introduces representative French authors chronologically from the year 1700. Emphasizes literary analysis and criticism. Focuses on literary history, interpretation of literary texts, and deeper understanding of the French language. Presentations and class instruction conducted entirely in French. Emphasizes writing skills.

### **FREN 4050** **Special Topics in Grammar Usage and Style**

**3**  
\* Prerequisite(s): FREN 3050 and University Advanced Standing

Focuses on understanding French grammar in context. Uses various literary texts and other print materials in an effort to underscore the grammar concepts studied.

### **FREN 4100** **Teaching French Grammar**

**3**  
\* Prerequisite(s): FREN 4050, instructor approval, and University Advanced Standing

Focuses on the fundamental concepts and practices of teaching French grammar in context. Prepares students to teach French language in secondary school settings. Requires a portfolio of best teaching practices as related to grammar instruction.

### **FREN 4200** **Advanced Business French**

**3**  
\* Prerequisite(s): (FREN 3200 or equivalent knowledge) and University Advanced Standing

For those taking the exam leading to the Diplome de francais des affaires (DFA 2) awarded by the Chambre de Commerce et d'Industrie de Paris. Emphasizes case studies, marketing, resumes, cover letters, job interviews, computers, and the Internet. Taught entirely in French.

### **FREN 4900** **French Capstone Seminar**

**3**  
\* Prerequisite(s): FREN 4050, instructor approval, and University Advanced Standing

Provides the opportunity to showcase language abilities through various oral and written assignments. Culminates in a final research project in the target language. Requires a selected subject to explore for the capstone project. Possible research areas include literary, film, and gender studies.

### **FREN 490R** **Special Topics in French**

**3**  
\* Prerequisite(s): (FREN 202G or instructor approval) and University Advanced Standing

Studies topic in detail not offered in other courses. Addresses key aspects of the topic. Engages students in critical analysis and discourse. Develops language skills requisite to such analysis and specific to the topic. Possible topics include French Film, Translation and Interpretation, Francophone Literature, Women's Texts, Courtly Love. Conducted entirely in French. May be repeated for up to 9 credit hours towards graduation.

## **Forensic Science (FSCI)**

### **FSCI 3300** **Forensic Photography**

**3**  
\* Prerequisite(s): Forensic Science Majors Only and University Advanced Standing

Explains the basic concepts of Forensic Photography while exploring the fundamental skills for the selection and use of photography equipment. Identifies the basic principles and fundamentals of using photography with regard to crime scenes, forensic evidence, and identification photography. Illustrates skills utilizing a DSLR camera with various types of lighting, camera settings, and common camera accessories. Explains techniques involving surveillance, impression, close up, alternate light sources, infrared photography, and the legal aspects of forensic photography as it pertains to criminal investigations. Course fee of \$155 applies. Lab access fee of \$15 applies.

### **FSCI 3400** **Criminalistics**

**3**  
\* Prerequisite(s): Forensic Science Majors only and University Advanced Standing

Introduces entry-level forensic skills instrumental in conducting a complete and thorough criminal investigation. Discusses effective crime scene management as well as types of information, which can be gleaned from physical evidence as result of laboratory analysis. Applies scientific and technical methods used in the examination and analysis of physical evidence. Course Lab fee of \$142 for materials applies. Lab access fee of \$15 applies.

**FSCI 3500****Footwear and Tire Mark Evidence and Examination****3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Presents the history of footwear and tire impression evidence and introduces the examination of impression evidence. Explains crime scene protection and searching procedures for impression evidence. Identifies and lists the basic equipment needed for footwear and tire impression recovery at a crime scene. Identifies applicable chemical formulas and instructs in the preparation of chemical reagents used to visualize impression evidence. Teaches the recovery of footwear and tire evidence through photography, lifting, and casting. Includes the methodology of footwear and tire identification by image comparison techniques. Course fee of \$128 for materials applies. Lab access fee of \$15 applies.

**FSCI 3540****Forensic Trace Analysis I****3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Emphasizes the learning and proper use of technical vocabulary as it relates to forensic trace evidence. Teaches theory of techniques and operation of spectroscopic instruments. Explains spectroscopic analyses of various types of physical evidence. Teaches stereo and compound light microscopes to prepare small samples for examination. Teaches forensic comparison analysis and technical report writing. Lab access fee of \$15 for computers applies. Course fee of \$135 for materials applies.

**FSCI 3550****Forensic Trace Analysis II****3**

\* Prerequisite(s): FSCI 3540, Forensic Science Majors only, and University Advanced Standing

Teaches theory of chromatographic/mass spectrometry techniques and operation of their analytical instruments. Teaches proper use of technical vocabulary related to forensic analysis. Explains chromatographic and mass spectrum analyses of physical evidence commonly found in criminal investigations. Teaches sample preparation, forensic comparison analysis and technical report writing. Lab access fee of \$15 for computers applies.

**FSCI 3600 (Cross-listed with: ZOO 3600)****Forensic Anthropology I****3**

\* Prerequisite(s): ZOO 1090, or ZOO 2320 and ZOO 2325, University Advanced Standing

Provides instruction on the study of human bones and their remains as physical evidence in criminal investigations. Teaches the importance of dentition in determining an age estimate of human remains. Identifies the differences among the sexes, whether the remains are human or nonhuman, and what is of forensic significance. Explains crime scene methodology and clinical applications in Forensic Anthropology. Teaches problem solving and analytical thinking in order to develop a biological profile based on population-specific data and standards. Investigates different pathological conditions and variables which must be taken into consideration when determining the cause of death.

**FSCI 3700****Fingerprint Processing****3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Teaches professional conduct in fingerprint processing. Explains the differences in latent fingerprints as they relate to the physical condition in which they are found. Describes and utilizes the equipment needed for fingerprint development, lifting, and comparison. Course fee of \$143 for materials applies. Lab access fee of \$15 applies.

**FSCI 3720****Fingerprint Examination****3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Presents the history of fingerprint examination. Teaches recent technical advances in fingerprint development and examination. Describes the theory and make-up of fingerprints, palm prints, and footprints. Explores charting and comparison techniques. Teaches criteria used to determine successful identification versus non-identification. Lab access fee of \$15 for computers applies. Course fee of \$30 materials applies.

**FSCI 3780****Bloodstain Pattern Analysis****3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Teaches the basics of handling blood evidence typically encountered at a crime scene. Explains terminology and the techniques of documentation as it relates to the analysis of bloodstain patterns. Presents the physical properties of blood as they apply to forensic investigation. Identifies characteristic patterns and computer applications to interpret the impact patterns of spattered blood. Illustrates the concepts of motion, directionality, area of convergence, and the area of origin of impact bloodstain patterns. Teaches traditional and modern techniques in crime scene reconstruction for documenting and reconstructing the crime scene. Describes guidelines for presenting bloodstain evidence at trial. Course lab fee of \$75 for materials applies. Lab access fee of \$15 applies.

**FSCI 3820****Crime Scene Investigation Techniques I WE****3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Explains the fundamental goals of crime scene investigation and the importance of physical evidence. Teaches fundamental crime scene documentation skills including note taking, sketching, and photography. Teaches evidence identification, collection, and packaging procedures. Provides experience in evidence identification, documentation, collection, and packaging procedures. Course Lab fee of \$145 applies

**FSCI 3830****Crime Scene Investigation Techniques II****WE****3**

\* Prerequisite(s): FSCI 3820, Forensic Science Majors only, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): FSCI 3780

Teaches computer-based crime scene measurement and diagram tools utilized to properly document crime scenes including clandestine human graves, scattered human remains, and under water, fire, and arson scenes. Provides instruction in proper approach, documentation, and analysis of complex crimes scenes. Teaches crime scene reconstruction techniques in bloodstain patterns and shooting incident scenes. Course fee of \$155 for materials applies. Course fee of \$30 applies.

## Course Descriptions

### **FSCI 3850**

#### **Marijuana Identification Certificate**

**3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Teaches the botanical and chemical methodology required for the legal identification of marijuana. Explains the microscopic morphological features of the plant material. Describes thin layer chromatography to detect hallucinogenic chemicals. Teaches the Duquenois-Levine Test to detect the cannabinoid family of chemicals and how to recognize false-positive results. Teaches the methodology to detect marijuana residues in charred debris. Explains data interpretation used for writing a marijuana analysis report to present in criminal proceedings. Course fee of \$155 for materials applies. Lab access fee of \$15 applies.

### **FSCI 3860**

#### **Forensic Microscopy**

**3**

\* Prerequisite(s): Forensic Science Major only, and University Advanced Standing

Lays the foundation of forensic microscopy. Describes the major variants and functions of the compound microscope including the stereo, polarized light and comparison varieties. Establishes acceptable performance criteria and image quality as it relates to compromises among resolution, magnification, and visibility. Presents the use of specialized contrast enhancement methods and illumination techniques. Explains the theory and use of the polarized light microscope in the examination of crystalline materials. Describes the use of the microscope as a quantitative measuring tool. Introduces instrument systems calibration methods for both the microscope as well as imaging software. Describes the collection and examination of micro-traces and the use of micro-trace catalogs. Lab access fee of \$15 for computers applies. Course fee of \$152 for materials applies.

### **FSCI 3880**

#### **Forensic Experts/Professional Practices and the Legal System**

**3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Explores the legal environment pertaining to forensic expert witnessing. Teaches the litigation process and aspects of courtroom testimony. Discusses forensic expert qualifications, ethics and credibility. Teaches the processes and importance of training, certification, periodic proficiency testing and review. Evaluates the role of professional organizations within forensic science. Examines national guidelines and reports affecting the practice, methodology and scientific validity within forensic disciplines.

### **FSCI 4000**

#### **Firearms Examination**

**3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Identifies modern firearms and ammunition while teaching how they operate and are manufactured. Explains how to collect, preserve, transport, and safely handle firearms and ammunition. Discusses the procedures of firing and the recovery of test bullets. Teaches the procedures of serial number restoration, gun shot residue tests, distance determinations, microscopic and chemical examinations. Includes how to interpret data, write reports of findings, and present results in a court of law. Course fee of \$65 applies. Lab access fee of \$15 applies.

### **FSCI 4050**

#### **Forensic Approaches to Cold Case Investigations**

**3**

\* Prerequisite(s): Forensic Science Major only, and University Advanced Standing

Teaches key procedures directly related to cold case investigations with a focus on how advancing forensic technological advances provide new avenues for solving cases. Teaches investigative procedure and forensic evidence in cold case investigations. Teaches investigative theory, practices, crime scene investigative techniques, physical evidence and new forensic technical approaches to investigations. Explains new options or investigative leads for cold case investigations. Requires a 20-hour service-learning component.

### **FSCI 4100**

#### **Forensic Pathology**

**3**

\* Prerequisite(s): ZOO 1090, or ZOO 2320 and 2325, University Advanced Standing

Teaches the fundamentals of scientific techniques used by forensic pathologists in medicolegal investigations. Differentiates between sudden or unexpected deaths, homicides, suicides, accidental deaths, and trauma.

### **FSCI 4200**

#### **Medicolegal Death Investigations**

**3**

\* Prerequisite(s): FSCI 4100, Forensic Science Majors only, and University Advanced Standing

Discusses the foundation for understanding death scene analysis by an investigator in conjunction with a medical examiner. Teaches the integration of medical, scientific, and legal methodology to medicolegal death investigations. Examines various techniques used in the study of forensic science and medicine. Teaches the interpretation of the facts and evidence to help determine and reconstruct the sequence of events at a variety of classic death scenes.

### **FSCI 4300**

#### **Forensic Genealogy**

**3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Teaches the application of forensic genealogy to non-criminal and criminal cases. Provides an analysis of scientific methods used to create genetic profiles, which establish genetic relationships. Examines ethical implications, current laws and policies governing genetic genealogy in forensic investigations.

### **FSCI 4320**

#### **Genealogy Research Methods and Standards**

**3**

\* Prerequisite(s): FSCI 4300, Forensic Science Majors only, and University Advanced Standing

Teaches traditional genealogy research methods and subsequent analysis of documentary evidence. Discusses the overall process of documenting, research, data collection and organization. Explores effective search methods such as vital records, census, immigration and historical documents. Teaches the standards of the Board for Certification of Genealogists and The Genealogical Proof Standard.

### **FSCI 4350**

#### **Forensic Genealogy Seminar**

**3**

\* Prerequisite(s): FSCI 4300, FSCI 4320, Forensic Science Majors only, and University Advanced Standing

Provides a capstone experience in Forensic Genealogy. Applies forensic genetic genealogy knowledge to the development of a real world investigation project in consultation with a faculty member.

### **FSCI 443R**

#### **Directed Research in Forensic Science 2 to 7**

\* Prerequisite(s): Forensic Science Majors only, Instructor Approval and University Advanced Standing

Provides guided research studies in forensic science under the direction of a Forensic Science faculty mentor. Involves students in the methodology of research within various forensic science disciplines. Includes the process of forming a testable hypothesis through the combination of literature and data review, experimental design, data acquisition, interpretation of results and overall conclusive findings. May be repeated for a maximum of 7 credits toward graduation. Lab access fee of \$15 for computers applies. Course fee of \$310 for materials applies.

**FSCI 475R**  
**Current Topics in Forensic Science**  
**3**  
 \* Prerequisite(s): (CJ 1350 or FSCI 3400) with a 'C+' or higher, Forensic Science Majors only, and University Advanced Standing

Presents selected topics in Forensic Science and Forensic Investigations. May be repeated with different topic areas for a maximum of 9 credits toward graduation.

**FSCI 481R**  
**Forensic Science Internship**  
**1 to 9**  
 \* Prerequisite(s): Forensic Science Majors, department approval and University Advanced Standing

Provides actual, on-the-job work experience on a paying or non-paying (volunteer) basis in a Forensic Science profession or other approved related discipline. Emphasizes successful work experience through job shadowing of a professional. May be repeated for a maximum of 9 credits toward graduation. May be graded Credit/No Credit.

**FSCI 489R**  
**Research in Forensic Investigations**  
**2 to 7**  
 \* Prerequisite(s): Forensic Science Majors only, Instructor Approval and University Advanced Standing

Teaches research techniques within forensic investigation disciplines on a project determined by the student and under the direction of a forensic science faculty mentor. Consists of any combination of literature reviews, original research, and/or participation in ongoing departmental projects. Emphasizes experimental technique, data collection, methodology, analysis, and preparation of research for presentation to an audience of peers. May be repeated for a maximum of 7 credits toward graduation.

**FSCI 491R**  
**Directed Reading and Special Projects**  
**1 to 3**  
 \* Prerequisite(s): Forensic Science Majors only, Department Approval and University Advanced Standing

Offers independent study as directed in theoretical, experimental, or practical discipline emphasis in an area not covered by regular courses. May be Graded Credit/No Credit. May be repeated for a maximum of 9 credits toward graduation.

**FSCI 4990**  
**Forensic Investigation Capstone**  
**3**  
 \* Prerequisite(s): FSCI 3300, FSCI 3830, Forensic Science Majors only, and University Advanced Standing

Applies qualitative, quantitative, and/or mixed research methods for selected issues in forensic investigation. Requires the student to develop and present an undergraduate research project both orally and in writing. Students should plan to register for this course in their last semester of the program.

## Geography (GEOG)

**GEOG 1000** **PP**  
**Introduction to Physical Geography**  
**3**

Explores the world through each of the major components of physical geography: climatology, hydrology, geomorphology, and biogeography, focusing on how they are interrelated. Emphasizes the dynamic interactions among climate, vegetation, soils, and landforms. Can be taken in conjunction with laboratory exercises in GEOG 1005.

**GEOG 1005**  
**Introduction to Physical Geography Lab**  
**1**  
 \* Prerequisite(s) or Corequisite(s): GEOG 1000

Designed to be taken in conjunction with GEOG 1000. Explores the world from a broad perspective, examining each of the major components of physical geography: climatology, hydrology, geomorphology, and biogeography. Investigates physical processes of and interactions among climate, vegetation, soils, and landforms.

**GEOG 130G** **SS**  
**Survey of World Geography GI**  
**3**

Explores the world in which we live. Studies major countries of the world with special emphasis on location, physical environment, culture, resources, and current events. May be delivered online.

**GEOG 140G** **SS**  
**Introduction to Human Geography**  
**3**

Examines the theoretical, spatial, and relational aspects of human activity across the Earth's surface. Discusses the analytical frameworks for understanding the interactions of social, cultural, economic and political systems. Includes topics of population dynamics, culture, language, religion, international development, human conflicts, and urbanization.

**GEOG 1800** **PP**  
**Mapping the World with Geospatial Technology**  
**3**

Introduces how the Earth's natural and social features, processes, and systems are mapped and visualized. Is designed for non-science and science majors alike. Provides an overview of satellite and land-based technologies, such as Global Navigation Satellite Systems (e.g., GPS) and uncrewed aerial systems (drones), for determining locations, monitoring change, and imaging the Earth over years and in real-time. Familiarizes students with cartography (map-making and reading), mapping and map visualization software, acquisition and use of location data with handheld devices, interpretation of aerial and satellite imagery, and spatial reasoning and communication skills. Incorporates modern cutting-edge technology and applications to environmental, social, and business issues.

**GEOG 2000**  
**Sustainability and Environment SS**  
**3**

Explores relationships of human and natural systems, how cultural groups experience nature, and global sustainability. Examines different ways of perceiving nature, resources, the environment, and society. Critically analyzes links between social, economic, political, historical, cultural, and environmental processes. Discusses environmental problems and ways to build more sustainable futures. Includes participation in locally sustainability issues.

**GEOG 2100** **SS**  
**Geography of the United States**  
**3**

Surveys primarily the regional geography of the United States. Explores each of the subregions of the United States in terms of human geographies and also their relationship to the environment. Emphasizes contemporary issues such as sustainability, social geographies, political issues, and their interrelationships. Includes topics such as culture, environment, economy, urbanization, transportation systems, territory and political borders.

**GEOG 2200**  
**Geography of Europe**  
**3**

Provides a regional survey of Europe including topics such as economic development, environment, politics, society and culture. Explores the place of Europe in geopolitical and global economic systems. Discusses internal relationships within the European Union, Eastern Europe and Russia.

# Course Descriptions

## **GEOG 2500** **Geography of Latin America and the Caribbean** **3**

Surveys the Americas south of the United States. Explores each subregion of Latin America and the Caribbean in detail. Includes topics such as development, environment, indigenous peoples, history, and national political and financial crises.

## **GEOG 3000** **Climate Change in Science and Society** **3** \* Prerequisite(s): University Advanced Standing

Offers a fundamental understanding of the science behind contemporary climate change and what to expect in a warming world. Examines observational and other scientific data of different aspects of climate science and the predicted impacts on natural systems around the world. Explores societal and human responses to impacts of climate change. Investigates possible solutions and the politics of climate negotiations.

## **GEOG 3010** **Economic Geography** **3** \* Prerequisite(s): University Advanced Standing

A course encompassing the study of humankind's economic activities on the earth, including hunting, gathering, agriculture, mining, manufacturing, forestry, fishing, high technology, and world trade. Studies population, environmental issues, urban patterns, and travel and tourism. Uses lectures, oral response, field trips, and audiovisual aids.

## **GEOG 3100** **Cartography** **3**

\* Prerequisite(s): (MAT 1030, MAT 1035, STAT 1040, STAT 1045, MATH 1050, MATH 1055, or higher) and (GEO 1010 or GEOG 1000 or GEOG 1300 or equivalent); and University Advanced Standing

Introduces fundamental principles of cartography including perception, visualization, topographic and thematic map interpretation, field mapping techniques (including GPS), and creating computer-based maps. Includes concepts of direction, scale, grids, projections, spatial transformations, spatial data analysis, data manipulation decisions, color theory and application, and principles of cartographic design and critical evaluation.

## **GEOG 3110** **Urban Geography WE** **3** \* Prerequisite(s): University Advanced Standing; GEOG 1300 preferred

Focuses on the origins, growth, structure and function of cities. Examines social and political dimensions of urban life and the emergence of new urban spaces around the world. Includes case studies in the decline of urban industrial America and the rise of Sunbelt and Edge Cities.

## **GEOG 3200** **Geography of Utah** **3** \* Prerequisite(s): University Advanced Standing

Applies principles and methods of physical, cultural, and human-environment geography to the study of Utah's people, places, and environments; considers problems of adjustment, including natural hazards, environmental concerns, and human problems.

## **GEOG 3250** **Cultural Geography** **3** \* Prerequisite(s): (ENGL 2010 or instructor approval) and University Advanced Standing

Explores the cultural landscape of the world's peoples. Describes the geographic complex of cultural forms including language, religion, music, art, architecture, folklore, food, clothing and land use. Topics include cultural conflicts, globalization, and the international entertainment industry.

## **GEOG 3300** **Biogeography** **4** \* Prerequisite(s): (BIOL1010, or BIOL1620, or GEOG1000) and University Advanced Standing

Examines the geography of nature. Expands on the subjects of ecology, biology, and history to examine nature over time and space. Examines nature at different scales: from the molecule to the global biome. Explores the foundations, major concepts, and trends in biogeography, as well as related analytical and data visualization techniques.

## **GEOG 3350** **Geography of Africa** **3** \* Prerequisite(s): University Advanced Standing

Examines the historical and contemporary human geographies of Africa. Focuses on the impact of colonialism on societies, economies, politics, and environments across the continent and the historical context of contemporary challenges. Analyzes human-environment relationships across both rural and urban areas. Problematises the concept of development and outlines key challenges facing the continent in the future.

## **GEOG 3400** **Environmental Remote Sensing** **3** \* Prerequisite(s): GEOG 3600 or GIS 3600; and an upper division course in natural science recommended; and University Advanced Standing

Introduces the history, theory, and operation of remote sensing software. Includes an introduction to the electromagnetic spectrum and signals, sensors, image processing, and classification techniques. Provides a survey of the concepts and techniques of remote sensing and image analysis for mapping and monitoring natural resources, environment and land use, and an array of geoscientific applications at different scales. Software fee of \$18 applies. Lab access fee of \$35 applies.

## **GEOG 3430** **Political Geography** **3** \* Prerequisite(s): University Advanced Standing

Surveys the geographic dimensions of political action and theory at local, national and global scales. Covers topics such as geopolitics, nationalism, territoriality, and political conflicts. Examines subjects such as American electoral patterns, Cold War geographies, and 21st century global security.

## **GEOG 3500 (Cross-listed with: GEO 3500)** **Geomorphology WE** **4** \* Prerequisite(s): GEO 1010 or GEOG 1000; University Advanced Standing

Examines the geologic processes operating at the Earth's surface to understand the origin of our planet's varied landscapes. Explores how landforms respond to climate change, tectonic forcing, and changes in land use. Addresses common geomorphic processes including weathering, soils, hill slope processes, fluvial processes and landforms, aeolian transport, glacial and periglacial environments, karst, and coastal processes. Course lab fee of \$21 applies.

## **GEOG 3600 (Cross-listed with: ENVT 3630, GIS 3600)** **Introduction to Geographic Information Systems** **4** \* Prerequisite(s): [Completion of a course that meets the PP (Physical Science) or SS (Social Science) general education requirement is recommended] and University Advanced Standing

Introduces the history, theory, and operation of Geographic Information Systems (GIS). Includes an introduction to GIS data sources, database design, data input, spatial analysis, and map production. Offers valuable preparation for careers in geology, geography, geographic information systems, geomatics, planning, surveying, marketing, environmental technology, biology, engineering, and other related fields. Lab access fee of \$35 for computers applies. Software fee of \$18 applies.

**GEOG 3650**  
**Advanced Geographic Information Systems**

**4**  
\* Prerequisite(s): GEOG 3600 and University Advanced Standing

Expands on GEOG 3600, Introduction to Geographic Information Systems (GIS), and reviews advanced GIS functions and applications to the sciences. Fundamental topics include spatial analysis, geostatistical analysis, 3-D modeling, and project development and implementation. Lab access fee of \$35 applies. Software fee of \$18 applies.

**GEOG 3700**  
**Wetland Studies**

**3**  
\* Prerequisite(s): GEOG 1000 OR GEO 1010 OR ENVT 1110 OR BIOL 1010 OR CHEM 1210 OR Instructor Approval; University Advanced Standing

Examines the structure and function of wetlands with emphasis on wetland biogeochemistry processes, soils, hydrology, flora and fauna, mitigation and restoration, policies and regulations. Explores research methods applied in wetland studies. Provides students with essential skills to critically evaluate wetland issues to make informed decisions. Prepares students to conduct research and communicate scientific information.

**GEOG 3705**  
**Wetland Studies Laboratory**

**1**  
\* Prerequisite(s): GEO 1010 OR ENVT 1110 OR BIOL 1010 OR CHEM 1210 OR Instructor Approval; and University Advanced Standing  
\* Corequisite(s): GEOG 3700

Designed to be taken in conjunction with GEOG 3700. Applies techniques for sampling and mapping of wetland soils, plants, water, etc. and analyzes chemistry of wetland samples using modern instrumentation to address outstanding scientific questions related to wetlands. Addresses skills to interpret and present scientific data. Normally includes field trips.

**GEOG 3800 (Cross-listed with: HIST 3800)**  
**Environmental History of the United States**

**3**  
\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Examines human modification of the American landscape. Surveys the physical geography of the United States, landscape change during Native American to European transition, and causes of agricultural and industrial pollution. Topics include land ethics, processes of environmental degradation, technological remedies, history of federal laws and protection agencies. May include field experiences.

**GEOG 4100**  
**Geospatial Field Methods**

**3**  
\* Prerequisite(s): (GEOG 3600 or GIS 3600) and MATH 1060; University Advanced Standing

Provides an introduction to measuring, recording, and finding geographic locations in the field using GPS and other methods widely used in industry and research. Applies GPS and other field techniques to scientific problems, and emphasizes hands-on experience with field equipment. Covers geographic reference frames, and integrates field data with desktop GIS software. Software fee of \$18 applies. Lab access fee of \$35 applies.

**GEOG 482R**  
**GIS Internship**

**1 to 3**  
\* Prerequisite(s): (GEOG 3600 and GEOG 3650 or equivalent), department approval, declared major in any Earth Science program, and University Advanced Standing

Engages students in supervised GIS work in a professional setting. Includes maintaining a journal of student experiences and preparing a paper summarizing their experience. A maximum of 3 credit hours may be counted toward graduation. May be graded Credit/No Credit.

**GEOG 489R**  
**Student Research in Geography**

**1 to 4**  
\* Prerequisite(s): Junior or Senior standing, instructor approval, and University Advanced Standing

Provides the opportunity to conduct research under the mentorship of an Earth Science department faculty member. Includes any combination of literature reviews, original research, and/or participation in ongoing departmental projects. Involves students in the methodology of original geographic research. Requires preparation and presentation of oral and/or written reports, typically presented in a public forum. May be repeated for a maximum of 4 credits toward graduation.

**GEOG 490R**  
**Special Topics in Geography**

**1 to 4**  
\* Prerequisite(s): Instructor approval and University Advanced Standing

Explores or examines special topics in geography. Topics vary depending on student demand and current topics of significance in geography. May be repeated for a maximum of 4 credits toward graduation.

**Geology (GEO)****GEO 1010** **PP**  
**Introduction to Geology**

**3**  
Studies planet earth: its materials, structure, dynamics, and surface features. Taken alone it is designed for non-science students who want a broad introduction to earth science and a greater appreciation of their physical surroundings. Taken in conjunction with laboratory exercises in GEO 1015, the class is sufficiently rigorous to articulate as an introductory geology class.

**GEO 1015**  
**Introduction to Geology Laboratory**

**1**  
Designed to be taken in conjunction with GEO 1010. Includes the identification of rocks, minerals, basic land forms and structures. Studies geologic processes occurring in desert, glacial, mountainous and other environments. Taken with GEO 1010, the class will articulate as an introductory earth science class. Course Lab fee of \$10 for transportation, lab applies.

**GEO 101H** **PP**  
**Introduction to Geology**

**3**  
Studies the structural and dynamic systems of the earth that create our environment. Stresses geology and related topics chosen for astronomy and meteorology.

**GEO 1020 (Cross-listed with: BIOL 1200)** **PP**  
**Prehistoric Life**

**3**  
\* Prerequisite(s): BIOL 1010 or GEO 1010 recommended  
Studies prehistoric life. Uses the concepts of biology and physical science. Studies major groups of ancient animals and plants as found in the rock record. Includes aspects and fundamental concepts of biology, ecology, and geology.

**GEO 1030** **PP**  
**Natural Disasters and the Environment**

**3**  
Provides a broad introduction to Geology and the Earth Sciences through the lens of natural disasters and environmental interactions. Prepares students to think critically about what constitutes scientific knowledge and how such knowledge is produced and used. Studies the structure, composition, and dynamics of the Earth and how it changes through time. Examines how geologic processes, operating on many temporal scales, can impact humans and ecosystems through disasters related to tectonics (e.g., volcanism and earthquakes), surface processes (e.g., landslides, floods, sinkholes, permafrost melt) and environmental change (e.g., global warming and sea level rise). Builds foundation of knowledge about geology and pairs that with basic analytical skills to evaluate critical issues related to the environment and society.

# Course Descriptions

## **GEO 1040** **PP**

### **The Dinosaurian World**

**3**

Provides a broad introduction to Geology and the Earth Sciences through the lens of dinosaurs and other life during the Mesozoic Period of Earth's history. Prepares students to think critically about what constitutes scientific knowledge and how such knowledge is produced and used, especially when applied to organisms and ecosystems that no longer exist. Examines how plate tectonic processes and mass extinctions shaped dinosaurian evolution and how knowledge of rocks, minerals, and fossilization allows us to reconstruct ancient ecosystems. Encourages students to work collaboratively in evaluating paleontological data, thinking critically about unknown issues related to dinosaurian evolution, and to devise testable hypotheses to answer complex research questions.

## **GEO 1050** **PP**

### **Geology of National Parks**

**3**

Teaches the fundamentals of physical geology through the lens of the United States National Parks with a special focus on Arches, Zion, Canyonlands, Capitol Reef, and Bryce Canyon National Parks of Utah.

## **GEO 1080** **PP**

### **Introduction to Oceanography**

**3**

Introduces the origin and development of the oceans, marine geology and its effect on life in the seas. Discusses waves, tides, currents, and their impact on shorelines, the ocean floor, and basins. Examines physical processes as they relate to oceanographic concepts. Includes media as an alternative to the actual oceanic experience. Completers should have a basic knowledge and appreciation of the ocean's impact to the world's ecology.

## **GEO 1085**

### **Introduction to Oceanography Laboratory**

**1**

A basic laboratory experience in the physical aspects of Oceanography. Introduces applied skills in Oceanography such as Marine Geology and Oceanographic Chemistry. Studies the physical parameters that allow marine life to flourish. Uses maps to study the structure of the sea floor and its relationship to plate tectonics. Provides hands-on experiences with salinity and marine chemistry. Course lab fee of \$10 applies.

## **GEO 1220** **PP**

### **Historical Geology**

**3**

\* Prerequisite(s): GEO 1010

Examines the physical and biological evolution of the Earth from its origins 4.6 billion years ago up to present day. Reviews fundamental processes and principles of geology and biology. Develops tools for interpreting rocks and the fossil record. Explores important changes through geologic time, including plate tectonics, paleogeography, mountain building, geochemical cycles, climate, sea level, and the origin and evolution of the great diversity of life on Earth.

## **GEO 1225**

### **Historical Geology Laboratory**

**1**

\* Prerequisite(s): GEO 1010

\* Prerequisite(s) or Corequisite(s): GEO 1220

Is designed to be taken in conjunction with GEO 1220. Reviews fundamental processes and principles of geology and biology. Develops skills for identifying main types of minerals, rocks, and fossils. Develops tools for interpreting Earth history through analysis of rocks, fossils, and paleoclimate data. Develops skills for correlating strata and reading geologic maps. Includes field trips to study local outcrops. Course lab fee of \$10 applies.

## **GEO 202R (Cross-listed with: BIOL 202R)**

### **Science Excursion**

**1**

For students interested in the natural world. Explores a wide variety of topics in science, including geology, botany, astronomy, zoology, ecology, and archeology. Consists of a minimum of a four-day field trip. Participants should gain an increased understanding of several fields of scientific study. May be repeated as many times as desired for interest, however a maximum of 3 credits may count toward graduation.

## **GEO 204R (Cross-listed with: BIOL 204R)** **PP**

### **Natural History Excursion**

**3**

For students interested in the natural world. Promotes an in-depth look at a wide variety of topics in science, including geology, botany, astronomy, zoology, ecology, and archeology. Consists of 15 hours of lecture plus an appropriate field trip. Participants should gain an interdisciplinary understanding of science and nature. May be repeated for up to six credits toward graduation.

## **GEO 2070 (Cross-listed with: BIOL 2070)**

### **Desert Natural History**

**3**

Integrates the teaching of geological and biological systems of the southwestern deserts. Discusses the ecology and geology of unique desert ecosystems; the rocks and strata providing the foundation of the landscape; the evolutionary and geological processes that mold the landscape and the species within it over time; and, the relationships between the physical and biological aspects of the ecosystem, including humans. Provides an intense, hands-on field course where faculty and students participate together in daily activities in a natural setting. Is held for part of the time on the UVU main campus and part of the time at the Capitol Reef Field Station. Requires students to live and learn at the field station for approximately 1/3 of the course.

## **GEO 2500**

### **Introduction to Field Geology**

**3**

\* Prerequisite(s): GEO 1015, GEO 1225

Introduces students to qualitative and quantitative methods used for field geology building upon introductory courses in physical geology and historical geology. Provides students an opportunity to learn and apply field geology skills at a lower-division level, and prepares students for upper-division classes, such as Earth Materials, Sedimentary Geology, Structure and Tectonics, Geomorphology, Paleontology, and Field Experience. Includes a weekly lecture, introducing students to geologic mapping concepts, and several practical field-based experiences occurring outside of normal class schedules.

## **GEO 3000**

### **Environmental Geochemistry**

**3**

\* Prerequisite(s): GEO 1010, (MATH 1050 or MATH 1055), CHEM 1210, University Advanced Standing

Introduces low temperature, environmental geochemistry with a focus on the use of quantitative measures to understand surficial geologic processes. Includes equilibrium thermodynamics and kinetics of chemical reactions, aqueous solutions, sorption and complexation, oxidation-reduction reactions, and the chemistry of the continental, marine, and atmospheric environments. Incorporates numerous examples to demonstrate how the conceptual framework can be applied in solving practical problems.

**GEO 3070 (Cross-listed with: BIOL 3070)****Advanced Desert Natural History****3**

\* Prerequisite(s): University Advanced Standing

Integrates the geological and biological systems of the southwestern deserts. Includes discussion of the ecology and geology of unique desert ecosystems; the rocks and strata providing the foundation of the landscape; the evolutionary and geological processes that mold the landscape and the species within it over time; and, the relationships between the physical and biological aspects of the ecosystem, including humans. Provides an intense, hands-on field course where faculty and students participate together in daily activities and experimental design in a natural setting. Is held part of the time on the UVU main campus and part of the time at the Capitol Reef Field Station. Requires students to live and learn at the field station for approximately 1/3 of the course.

**GEO 3080****Earth Materials WE****3**

\* Prerequisite(s): GEO 1010, GEO 1015, and University Advanced Standing; CHEM 1210 or other chemistry course recommended

\* Corequisite(s): GEO 3085

Investigates the physical characteristics, chemical properties, formation, and distribution of geologically significant igneous and metamorphic rocks and minerals. Develops ability to examine rocks and minerals, and analyze their chemical properties to understand geologic processes. Involves field trips, including the possibility of weekend trips. Course lab fee of \$22 for transportation, lab applies.

**GEO 3085****Earth Materials Laboratory****1**

\* Prerequisite(s): GEO 1010, GEO 1015, and University Advanced Standing; CHEM 1210 or other chemistry course recommended

\* Corequisite(s): GEO 3080

Focuses on identification and classification of common rocks and minerals in hand sample and introduces optical mineralogy and petrography. Investigates the occurrence and formation of common rocks and minerals through direct observation of their properties and occurrence. Involves field trips, including the possibility of weekend trips.

**GEO 3100****Isotope Geochemistry****3**

\* Prerequisite(s): GEO 1010, (MATH 1050 or MATH 1055), CHEM 1210 and University Advanced Standing

Provides an introduction to the principles and applications of isotope geochemistry, which plays an important role in a wide variety of geological, biological, and environmental investigations, and summarizes the analytical techniques used in the field. Examines the theory of radiometric dating and provides an overview of the most commonly used geochronometers. Focuses on stable isotopes with emphasis on oxygen, hydrogen, carbon, nitrogen, and sulfur and with applications in paleoclimatology, ecology and paleoecology, archeology, and hydrology.

**GEO 3105****Isotope Geochemistry Laboratory****1**

\* Prerequisite(s): GEO 1010, (MATH 1050 or MATH 1055), CHEM 1210 and University Advanced Standing

Explores the analysis and interpretation of real isotope data and provides hands-on experience in their use to solve problems and answer questions in geochronology, paleoclimatology, hydrology, and archaeology. Requires data analysis utilizing Microsoft Excel.

**GEO 3200****Geologic Hazards****3**

\* Prerequisite(s): GEO 1010, GEO 1015, and University Advanced Standing

\* Corequisite(s): GEO 3205

Examines the ways in which geologic hazards (including earthquakes, landslides, volcanoes, problem soils, ground subsidence and earth fissures) impact civilization. Studies the processes responsible for these hazards, how to geologically assess whether each of these hazards is a concern at a particular site, how each type of hazard can be planned for, and what laws and regulations need to be considered during site investigations. Facilitates discussion of hazards, vulnerability, risk and societal planning/mitigation. Course Lab fee of \$21 for transportation, lab applies.

**GEO 3205****Geologic Hazards Laboratory****1**

\* Prerequisite(s): GEO 1010, GEO 1015, and University Advanced Standing

\* Corequisite(s): GEO 3200

Investigates geologic hazards through field observation, mapping, geospatial analyses, quantitative analyses, and report writing. Applies geologic hazards science to associated laws and regulations. Facilitates discussion of hazards, vulnerability, risk and societal planning/mitigation.

**GEO 3500 (Cross-listed with: GEOG 3500)****Geomorphology WE****4**

\* Prerequisite(s): GEO 1010 or GEOG 1000; University Advanced Standing

Examines the geologic processes operating at the Earth's surface to understand the origin of our planet's varied landscapes. Explores how landforms respond to climate change, tectonic forcing, and changes in land use. Addresses common geomorphic processes including weathering, soils, hill slope processes, fluvial processes and landforms, aeolian transport, glacial and periglacial environments, karst, and coastal processes. Course lab fee of \$21 applies.

**GEO 3700****Structure and Tectonics****4**

\* Prerequisite(s): GEO 1220, GEO 3080, (PHYS 2010 or PHYS 2210), and University Advanced Standing

Investigates the fundamentals of global plate tectonics and rock deformation. Includes applications to petroleum geology, environmental geology, and engineering geology. Explores geometric techniques of structural analysis in the laboratory. Involves field trips, possibly including weekend trips. Course lab fee of \$21 for transportation, lab applies.

**GEO 4080****Petrology****3**

\* Prerequisite(s): GEO 3080, CHEM 1220, and University Advanced Standing

\* Corequisite(s): GEO 4085

Examines the Earth's rock factories, specifically igneous and metamorphic processes and how they are related to plate tectonics. Delves into geochemistry, applied thermodynamics, and kinetics in igneous, sedimentary, and metamorphic rocks as it pertains to the genesis of these rocks. Further explores the techniques of petrographic microscopy and introduces other analytical techniques such as scanning electron microscopy, electron probe microanalysis, and mass spectrometry. Requires students to collect, analyze, and interpret petrologic data to gain insight into a petrogenetic process. Course lab fee of \$21 applies.

**GEO 4085****Petrology Laboratory****1**

\* Corequisite(s): GEO 4080

Takes a hands-on approach to petrology. Provides opportunities for the student to collect and work with data to illuminate a variety of petrologic processes. Implements rock and mineral sample reference collections, field trip(s), petrographic microscopes, sample preparation labs, analytical instrumentation to investigate petrogenetic processes.

# Course Descriptions

## **GEO 4500** **Sedimentary Geology**

**4**

\* Prerequisite(s): GEO 1220, GEO 1225, GEO 3080, and University Advanced Standing; CHEM 1210 or other chemistry recommended

Explores the origin, classification, and spatiotemporal distribution of sedimentary rocks. Examines the fundamental principles of sedimentology, petrology, and stratigraphy. Reviews weathering processes and soil formation. Develops analytical skills regarding particle erosion, transportation, and deposition. Develops skills for identifying and classifying sedimentary rocks. Develops tools for describing stratigraphic sections and interpreting the rock record. Develops skills for correlating strata and reading geologic maps. Develops critical thinking and writing skills. Includes field trips to study various outcrops in the state of Utah. Lab access fee of \$21 applies.

## **GEO 4510** **Paleontology**

**4**

\* Prerequisite(s): GEO 1220, GEO 1225, GEO 3080, (BIOL 1010 or BIOL 1610), and University Advanced Standing; GEO 4500 recommended

Exposes students to a wide variety of topics encompassed within the field of paleontology. Offers substantial knowledge of the major groups of life represented in the fossil record. Discusses the most fundamental concepts in paleontology, such as key principles of evolution and paleoecology. Offers an understanding of what paleontologists do, why the field is so crucial, and why all earth scientists should have at least a basic understanding of paleontology. Requires two weekend field trips (dates will be discussed in class). Course lab fee of \$21 for transportation, lab applies.

## **GEO 4600** **Field Experience**

**6**

\* Prerequisite(s): GEO 3080, GEO 3700, GEO 4500, and University Advanced Standing

Is an intensive field course giving students hands-on experience with several aspects of Earth Science field work. Involves 8 to 10 hours of field work per day, for three to five days per week, for four to six weeks. Is the required capstone experience for Geology majors. Course lab fee of \$650 for practical experience applies.

## **GEO 4790** **Hydrogeology**

**4**

\* Prerequisite(s): MATH 1050 or MATH 1080, GEO 1010, and University Advanced Standing (MATH 1210, PHYS 2210 OR PHYS 2010, and GEOG 3600 or GIS 3600 Recommended)

Reviews concepts related to the occurrence and flow of groundwater and the management of these resources. Examines the governing equations, analyses of aquifer properties, well tests and construction, regional groundwater flow, field methods, groundwater modeling, and groundwater contamination. Provides opportunities for students to investigate a specific problem, field site, and/or service learning project related to hydrogeology. Course fee of \$21 applies.

## **GEO 480R** **Earth Science Seminar**

**.5**

\* Prerequisite(s): University Advanced Standing

Exposes students to current research topics in Earth Science and related fields. Provides an opportunity for students to attend bi-weekly lectures presented by department faculty and invited speakers. Incorporates lectures that are usually a summary of the speaker's recent research results, or investigative projects in an earth science industry. May be repeated for a maximum of 1 credits toward graduation.

## **GEO 482R (Cross-listed with: ENVT 482R)** **Geologic Environmental Internship**

**1 to 3**

\* Prerequisite(s): GEO 1010 or ENVT 1110; 12 credit hours of any GEO, GEOG, or ENVT courses; declared major in any Earth Science program and University Advanced Standing

Engages students in supervised geologic or environmental work in a professional setting. Requires approval by the Chair of the Department of Earth Science. Includes maintaining a journal of student experiences and preparing a paper summarizing their experience. A maximum of 3 credit hours may be counted toward graduation. May be graded Credit/No Credit.

## **GEO 489R** **Student Research**

**1 to 4**

\* Prerequisite(s): GEO 1015, Junior or Senior standing, instructor approval, and University Advanced Standing

Provides students the opportunity to conduct research under the mentorship of an Earth Science department faculty member. Includes any combination of literature reviews, original research, and/or participation in ongoing departmental projects. Involves students in the methodology of original geologic research. Requires preparation and presentation of oral and/or written reports, typically presented in a public forum. May be repeated for a maximum of 6 credits total toward graduation.

## **GEO 490R** **Special Topics in Geology**

**1 to 4**

\* Prerequisite(s): GEO 1010, GEO 1015, Junior or Senior standing, instructor approval, and University Advanced Standing

Explores or examines special topics in geology. Topics vary depending on student demand and current topics of significance in geology. May be repeated for a maximum of 8 credits toward graduation.

## **GEO 495R** **Independent Study**

**1 to 4**

\* Prerequisite(s): GEO 1010, GEO 1015, and University Advanced Standing

Requires an independent study program to be developed with one or more Earth Science faculty member and approved by a committee of Earth Science faculty. Includes some combination of literature review, field work, numerical analysis, and/or laboratory analysis. Involves the preparation of a written report. An oral presentation may also be required. May be repeated for up to 4 credits.

## **GEO 525R** **Advanced Topics for Geology Teachers**

**1 to 5**

\* Prerequisite(s): Departmental Approval

For licensed teachers or teachers seeking to recertify their earth science or integrated science endorsements from the Utah State Office of Education. Teaches principles of geology and pedagogy of teaching geology for teachers in public or private schools. Emphasis will be placed on correlation with the Utah Core Curriculum, the National Science Education Standards, and the Benchmarks of Project 2061. Topics will vary.

# **German (GER)**

## **GER 1010** **Beginning German I**

**LH**

**4**

Provides an introduction to the language and culture of German-speaking countries. Emphasizes listening, speaking, reading, and writing skills along with basic grammar and vocabulary within the cultural context of modern German-speaking societies. Uses an eclectic method of instruction, with extra attention given to oral and written proficiency. Requires weekly lab. Lab access fee of \$10 applies.

<p><b>GER 1020</b> <b>Beginning German II</b> <b>4</b> * Prerequisite(s): Student should have equivalent knowledge of GER 1010</p> <p>Provides a second-semester introduction to the language and culture of German-speaking countries. Emphasizes listening, speaking, reading, and writing skills along with basic grammar and vocabulary within the cultural context of modern German-speaking societies. Uses an eclectic method of instruction, with extra attention given to oral and written proficiency. Requires weekly lab. Lab access fee of \$10 applies.</p>	LH	<p><b>GER 202G</b> <b>Intermediate German II</b> <b>4</b> * Prerequisite(s): Students need equivalent knowledge of GER 2010</p> <p>Studies fourth-semester conversational German that is used in daily settings. Includes culture study, pronunciation, reading, and grammar. Emphasizes conversation in real life situations. Uses field trips and guest lecturers. Prepares students to enter the advanced level of German. Completers should be able to converse enough to visit or work in a German speaking country. Lab access fee of \$10 applies.</p>	HH	<p><b>GER 3030</b> <b>German Composition and Conversation</b> <b>3</b> * Prerequisite(s): (GER 202G or equivalent experience) and University Advanced Standing</p> <p>Expands knowledge and skill base developed in lower-division courses with an emphasis in idiomatic expression in spoken and written German. Using authentic texts, students will learn to read, speak, and write with more precision and accuracy. Successful completion of this course will prepare students to participate fully in subsequent advanced courses.</p>
<p><b>GER 1110</b> <b>German Conversation I</b> <b>4</b></p> <p>A total immersion course taught in a classroom in a German speaking country. Students live in native, German-speaking homes or other total immersion environments. Practices creative language in conversation to develop proficiency in the German language at the novice level. Includes intensive listening and speaking experience to improve aural-oral proficiency. Students will attend cultural and sporting events. Offered only with the Summer Study Abroad program. May be taken concurrently with GER 2700.</p>	LH	<p><b>GER 215R</b> <b>German Conversation II</b> <b>1</b> * Prerequisite(s): Students should have equivalent knowledge of GER 1020</p> <p>Offers lower division / novice German speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, sharpen listening comprehension, and develop conversational strategies such as circumlocution and managing a conversation with useful expressions for starting a conversation, gaining time to think, helping the other speaker, seeking agreement, etc. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.</p>		<p><b>GER 3050</b> <b>Advanced German</b> <b>3</b> * Prerequisite(s): It is recommended that students have GER 202G, one-year residency in German speaking country, or instructor approval</p> <p>Designed for non-native German speakers who have lived in a German speaking country for at least one year. Includes a review of grammar and an introduction to German literature, art, music, and expository writing. Lab access fee of \$10 applies.</p>
<p><b>GER 115R</b> <b>German Conversation I</b> <b>1</b></p> <p>Offers novice German speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen listening comprehension for natural conversational flow. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.</p>		<p><b>GER 2700</b> <b>Immersion German Civilization and Culture</b> <b>4</b></p> <p>A total immersion course of classroom study and experience in a German speaking country. Students will live in native, German-speaking homes or other total immersion environments. Includes classroom study, supervised travel of cultural interest, and attendance at various cultural and sporting events. Includes written response, journals, and examinations. Offered only with the Summer Study Abroad program. May be taken concurrently with GER 1110.</p>	LH	<p><b>GER 3117</b> <b>Stories and Storytelling Young Voices and Cultural Identity</b> <b>3</b> * Prerequisite(s): Students will pass the AP German exam prior to enrolling in this course.</p> <p>This course is part of the State of Utah German Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Explores how young people see the world through the analysis and interpretation of works of German literature, film, and popular media in German-speaking cultures. Develops language proficiency. Communicate in detail and in an organized way about events and experiences in various time frames, to confidently handle routine situations with an unexpected complication, and to share their point of view in discussions on some complex cultural and historical issues. Course will be taught in German.</p>
<p><b>GER 2010</b> <b>Intermediate German I</b> <b>4</b> * Prerequisite(s): Students should have equivalent knowledge of GER 1020</p> <p>Reviews and builds upon the grammar, reading, writing and conversational skills learned in the first year courses. Introduces readings and discussions on the history, culture, and literature of the German speaking world, maintaining a focus on oral proficiency. Lab access fee of \$10 applies.</p>	LH			<p><b>GER 3200</b> <b>Business German</b> <b>3</b> * Prerequisite(s): (GER 3050 or equivalent knowledge) and University Advanced Standing</p> <p>Teaches language structures and terminology specific to the German language in the field of Business. Examines the cultural issues present in the interactions with German-speaking clients. Prepares students to work with German-speaking clients in future careers in business, marketing, banking or translation/interpreting. Explores how students can effectively do business with German companies within the framework of German culture. Includes current materials dealing with today's issues. Will be taught entirely in the German language. Lab access fee of \$10 applies.</p>

## Course Descriptions

### GER 351G

#### German Culture and Civilization

3

\* Prerequisite(s): GER 3050 and University Advanced Standing

Explores chronologically the cultural formation and development of German-speaking societies and cultures in Germany, Austria, Switzerland, and other German-speaking regions. Discusses the ethnic development and linguistic history of these societies and countries. Presentations and class instruction conducted entirely in German.

### GER 380R

#### Topics in German Studies

3

\* Prerequisite(s): University Advanced Standing

Explores a variety of subjects relevant to the study of German language, literature, history and culture. Engages students in critical analysis and discourse. Possible topics may include Medieval German literature, Weimar film, History of the German Language, current events in Germany, or the Holocaust. May be repeated for a maximum of 6 credits toward graduation.

### GER 4200

#### Advanced Business German

3

\* Prerequisite(s): (GER 3200 or equivalent knowledge) and University Advanced Standing

For those planning to pursue the Bachelor of Science with an emphasis in International Business or related field. Traces in depth German business terminology, documentation, case studies and transactions. Reviews and builds upon the business terminology learned in German 3200. Explores how students can effectively do business with German companies within the framework of German culture. Includes current materials dealing with today's issues. Taught entirely in German.

### GER 4410

#### History of the German Language

3

\* Prerequisite(s): GER 3050 and University Advanced Standing

Explores the history of the German language from its Indo-European roots to its present form today. Investigates the differences between the major families of Germanic languages and looks at examples of these languages in the literary record, with a focus on the direct predecessors of modern German, especially Old High German, Middle High German, and Early New High German. Introduces historical linguistics to understand the processes of change in terms of morphology, phonology, and syntax, and basic phonetics.

## Geographic Information Systems (GIS)

### GIS 1600

#### Principles of Geographical Information Science

3

Introduces strategies for integrating GIS to support instruction and learning on any topic of spatial data. Discusses concepts of basic GIS activities that enhance student learning and critical thinking. Teaches skills to visualize global, regional and local data and establish connections to those disciplines. Explains design standards and processes for investigating a problem and preparing a GIS map. Introduces ArcGIS Online to increase GIS applicability to the workplace.

### GIS 2640

#### Fundamentals of Geographic Information Systems

3

Introduces the concepts and components of a Geographic Information System (GIS). Includes the essential skills of operating a functional GIS through the use of ArcGIS 10.x software. Explains the operational processes of spatial data acquisition, editing, file geodatabase design, spatial query and display, spatial analysis, map layouts and various visualizations, preliminary application development, and project applications. Describes various GIS data sources. Lab access fee of \$45 for computers applies.

### GIS 3600 (Cross-listed with: ENVT 3630, GEOG 3600)

#### Introduction to Geographic Information Systems

4

\* Prerequisite(s): [Completion of a course that meets the PP (Physical Science) or SS (Social Science) general education requirement is recommended] and University Advanced Standing

Introduces the history, theory, and operation of Geographic Information Systems (GIS). Includes an introduction to GIS data sources, database design, data input, spatial analysis, and map production. Offers valuable preparation for careers in geology, geography, geographic information systems, geomatics, planning, surveying, marketing, environmental technology, biology, engineering, and other related fields. Lab access fee of \$35 for computers applies. Software fee of \$18 applies.

### GIS 3620

#### Advanced Geographic Information Systems

3

\* Prerequisite(s): (GIS 3600 or GEOG 3600) and University Advanced Standing

Presents Geospatial data and modeling principles and techniques using raster and vector geoprocessing. Teaches Geovisualization and Geospatial information sources, digital terrain modeling, spatial data analysis, and mapping project implementation. Describes concepts of real property related to land registration and information systems and the value of maps for governance, commerce, and research of social and environmental systems regionally, nationally, and globally. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

### GIS 3630

#### Geographic Information Systems Application Development

3

\* Prerequisite(s): GIS 3600 or GEOG 3600, GIS 3620 or GEOG 3650, and University Advanced Standing

Develops customization skills for geospatial data, modeling, and automation. Introduces and defines basic Python concepts and scripting environments for the most common GIS software. Delineates common scripting errors and applies Python syntax rules when writing scripts. Lab access fee of \$45 applies.

### GIS 3640

#### Thematic Mapping Environmental Impacts

3

\* Prerequisite(s): GIS 2640 and University Advanced Standing

Analyzes ways to geographically visualize the impact of natural disasters, energy processes, human impacts, and other impacts on the environment. Reviews the regional and global interrelationships of land, water, and atmosphere to the environment. Involves producing a thematic global and regional mapping project(s) considering the environmental impacts or potential impacts as presented in this course. Lab access fee of \$45 for computers applies.

### GIS 3650

#### Thematic Mapping Culture and Societies

3

\* Prerequisite(s): GIS 2640 and University Advanced Standing

Focuses on thematic maps of human activity covering the major cultural regions of the world considering cultural, political, and economic environments. Presents various ways to cartographically depict sociological data such as; population, religion, language, migration, and industries, etc.. Involves producing a thematic global and regional mapping project(s) as presented in this course. Lab access fee of \$45 for computers applies.

## Greek (GRK)

### GRK 1010 LH Beginning Ancient Greek I

4

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Studies Ancient Greek language at the introductory level, focusing primarily on Attic Greek. Centers on grammar and textbook exercises with some analysis of literary and/or philosophical selections in Ancient Greek. Relates particularly to students interested in studying Ancient Greek culture and thought.

### GRK 1020 LH Beginning Ancient Greek II

4

\* Prerequisite(s): GRK 1010

Continues study of the Ancient Greek language at the introductory level, focussing primarily on Attic Greek. Centers on grammar and textbook exercises with some analysis of literary and/or philosophical selections in Ancient Greek. Relates particularly to students interested in studying Ancient Greek culture and thought.

### GRK 2010 LH Intermediate Ancient Greek I

4

\* Prerequisite(s): GRK 1020

Studies the Ancient Greek language at the intermediate level, focusing primarily on Attic Greek. Centers on grammar and textbook exercises with some analysis of literary and/or philosophical selections in Ancient Greek. Relates particularly to students interested in studying Ancient Greek culture and thought.

### GRK 2020 HH Intermediate Ancient Greek II

4

\* Prerequisite(s): GRK 2010

Studies Ancient Greek language at the intermediate level, focussing primarily on Attic Greek. Centers on grammar and textbook exercises with some analysis of literary and/or philosophical selections in Ancient Greek. Relates particularly to students interested in studying Ancient Greek culture and thought.

### GRK 3010 LH Readings in Ancient Greek

3

\* Prerequisite(s): GRK 2020 and University Advanced Standing

Instructs students in the translation of selected Ancient Greek poetry and prose.

## History (HIST)

### HIST 1500 SS World History to 1500

3

Serves as an introduction to pre-modern world civilization. Surveys cultural, economic, intellectual, and social history up to the year 1500, with special attention to the rise of world religions.

### HIST 151G SS World History from 1500 to the Present

3

Serves as an introduction to modern world civilization. Surveys cultural, economic, intellectual and social developments from 1500 to the present. Emphasizes global, comparative, and intercultural issues.

### HIST 1700 AS American Civilization

3

Stresses movements and developing institutions that are important for an appreciation of American History from the Pre-Colombian period to the present. Discussions include analysis of developing political, economic, and social institutions and their interrelationships with, and impact upon, the geographical features of the land. Includes book reports, oral response, research papers, media presentations and applications to current events.

### HIST 170H AS American Civilization

3

Stresses movements and developing institutions that are important for an appreciation of American History from the Pre-Colombian period to the present. Discussions include analysis of developing political, economic and social institutions and their interrelationships with and impact upon the geographical features of the land. The honors section extends the course's historical inquiry with additional written and reading requirements which will allow the student a fuller participation in historical debate and the process of "doing" history.

### HIST 1740 AS US Economic History

3

Studies economic development in America, with emphasis on resources, commerce, agriculture, capital, manufacturing, government, and labor organizations. Canvas Course Mat \$48/Cengage applies.

### HIST 204G AS Colonial Latin America

3

Introduces the history of Latin America from the earliest New World inhabitants through the nineteenth-century Latin American Wars for Independence. Analyzes the social, political, economic, and cultural developments of Latin America. Explores the complex dynamics that shaped pre-Columbian and colonial societies which culminated in early nineteenth-century independence movements.

### HIST 205G AS Modern Latin America

3

Introduces the history of Latin America from 1820 to the present. Focuses on the key issues and themes of the last 190 years including social revolution, dependency and foreign intervention, gender and race. Includes case studies from specific countries.

### HIST 2700 AS US History to 1877

3

Surveys the origins of the United States from the Pre-Columbian era and early colonization through Reconstruction. Focuses on encounters among indigenous, African and European peoples; gender, race, and Atlantic slavery; the causes and consequences of the American Revolution; the westward expansion of the United States; and the sectional crisis that lead to the American Civil War.

### HIST 270H AS US History to 1877

3

Examines the first half of the American experience, beginning with the Paleo-Indian cultures through Post-Civil War Reconstruction. Surveys social, political, cultural, and diplomatic developments throughout this period.

### HIST 2710 AS US History since 1877

3

Surveys the making of a modern United States, beginning with the promises and failures of Reconstruction and concluding with contemporary American issues. Emphasizes diverse American experiences at the intersections of race, gender, and class while tracing social, cultural, political and diplomatic developments during this period.

# Course Descriptions

**HIST 271H** **AS**  
**US History since 1877**  
**3**

Examines the second half of the American experience, beginning with the collapse of Post-Civil War Reconstruction and concluding with contemporary American issues. Surveys social, political, cultural, and diplomatic developments during this period. The honors section extends the course's historical inquiry with in-depth discussions and additional written and reading requirements, all of which allow the student a fuller participation in historical debates and the process of "doing" history.

**HIST 290H**  
**Independent Study**  
**1**

\* Prerequisite(s): Honors Director Approval

Provides independent study for Honors students unable to secure a desired class within regular semester curriculum offering. Involves designing and completing readings and other projects at the lower-division level in cooperation with the Honors director. Maximum of 3 credits may be applied toward Honors graduation.

**HIST 290R**  
**Independent Study**  
**1 to 4**

\* Prerequisite(s): Dean and/or Department Chair approval

Provides independent study for students unable to secure a desired class within regular semester curriculum offering. With approval of dean and/or department chair, student and instructor design and complete readings and other projects at the lower-division level. Maximum of 6 credits may be applied toward graduation.

**HIST 3010**  
**The Historians Craft WE**  
**3**

\* Prerequisite(s): HIST 1500, HIST 151G, HIST 2700, and HIST 2710 and University Advanced Standing

Develops methodological skills to prepare students for Junior/Senior-level coursework. Teaches historical research skills, including information and library literacy skills. Refines analytical writing skills using primary and secondary sources. Introduces debates in the field of history.

**HIST 3020**  
**Public and Digital History**  
**3**

\* Prerequisite(s): University Advanced Standing

Introduces the disciplines of public history and digital history, including methodology and literature. Exposes students to the major fields in public history, and identifies career opportunities. Covers the tools of public history, such as archives, special collections, oral histories, photographs, documents, journals, museum exhibitions. Emphasizes new digital techniques for collection, preservation, and presentation of primary sources. Teaches skills such as analyzing, interpreting, and communicating historical data for the public and by digital means. Discusses the professional and ethical dimensions of public history.

**HIST 3030**  
**Introduction to African History**  
**3**

\* Prerequisite(s): University Advanced Standing

Surveys African history since the sixteenth century: traditional societies, the slave trade, European colonialism, struggles for independence, underdevelopment, and challenges of globalization.

**HIST 3110**  
**Greek History**  
**3**

\* Prerequisite(s): University Advanced Standing

Explores historical and geographical context of Greece from 1600 B.C.E. to the Roman conquest in 30 B.C.E. spanning Minoan, Mycenaean, Hellenic, and Hellenistic ages. Examines the development of social/cultural, political, and economic institutions emphasizing their influence on Western civilization and our own cultural context.

**HIST 3130**  
**Roman History**  
**3**

\* Prerequisite(s): University Advanced Standing

Examines the growth of Rome from a small city-state to a continental empire and its collapse covering from 1000 BCE to 700 CE. Discusses political and cultural change in the city of Rome and the way Rome and its neighbors interacted and affected each other. Analyzes the legacy of Rome in the modern day including art, political theory, and religion.

**HIST 3140**  
**Roman Empire**  
**3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing.

Covers Roman history from the first century B.C. to the fourth century A.D. Surveys social, cultural, political, economic and military aspects of the Roman Empire. Examines the influence of Imperial Rome on Western Civilization. Part of a two semester sequence on Roman history. Each semester may be taken independently.

**HIST 3150**  
**Medieval Europe**  
**3**

\* Prerequisite(s): University Advanced Standing

Introduces the history of Europe from the collapse of Greco-Roman civilization to the fifteenth century. Covers the rise of Western Christendom, the challenge of Islam, the twelfth-century renaissance, the flowering of medieval art, education and literature, feudalism and rural economies, the commercial revolution, human and ecological calamities. Considers the medieval foundations of modern European culture, politics, and society.

**HIST 3160**  
**Renaissance and Reformation Europe 1350 to 1600**  
**3**

\* Prerequisite(s): University Advanced Standing

Explores European history from the Italian Renaissance to the Reformation era, including the Age of Exploration. Focuses on cultural, religious, and social interactions and changes that established the modern worldview.

**HIST 3170**  
**Absolutism Enlightenment and Revolution Europe from 1600 to 1815**  
**3**

\* Prerequisite(s): University Advanced Standing

Explores the major political, social, and intellectual developments in European history from the Age of Absolutism to the French Revolution.

**HIST 3180**  
**Nineteenth Century Europe**  
**3**

\* Prerequisite(s): University Advanced Standing

Analyzes political, economic, and social transformations in Europe in the nineteenth century. Traces the development of nationalism and the rise of various political and social movements. Introduces cultural and intellectual currents that shaped the history of Europe. Identifies the significance of European colonialism in the era. Discusses legacies of nineteenth-century European ideologies.

**HIST 3190****Twentieth Century Europe****3**

\* Prerequisite(s): University Advanced Standing

Surveys major forces, events and experiences that have shaped Europe and defined its place in the contemporary world. Examines industrialization, nationalism, colonial empires, world wars, Cold War polarization, the European Union, and migration. Explores social movements and major cultural and intellectual trends.

**HIST 320G****Women in American History to 1870 GI WE****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Surveys women's experiences in America from the pre-Columbian era to 1870. Explores how race, ethnicity, sexuality, and class shaped women's lives. Emphasizes discipline-specific writing.

**HIST 320R****Issues and Topics in Global History****3**

\* Prerequisite(s): University Advanced Standing

Surveys specific global issues as decided by the instructor. Analyzes the context and legacy of the topic using primary sources through lectures and class activities. Introduces a variety of viewpoints and methods in the historical study of the topic. May be repeated for a maximum of 6 credits toward graduation.

**HIST 321G****Women in American History since 1870****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Surveys women's experiences in American culture from 1870 to the present. Emphasizes ways in which race, ethnicity, and class shaped women's experiences.

**HIST 322G****History of the American West to 1850 GI WE****3**

\* Prerequisite(s): University Advanced Standing

Surveys the development of the American West from the pre-Columbian era to 1850 and places the West in both a national and North American context. Explores topics such as pre-contact cultures, Indian-European relations, exploration, colonization, conquest, territorial expansion, resource exploitation, as well as an examination of economic, political, social, and cultural developments that created a distinct regional identity. Emphasizes discipline-specific writing.

**HIST 323G****History of the American West since 1850 GI WE****3**

\* Prerequisite(s): University Advanced Standing

Surveys the development of the American West from 1850 to the present. Explores key issues such as cultural encounters in the West, economic development, urban growth, rural life, the politics of race, ethnicity, class and gender, environmental change, the role of the federal government, and the cultural symbolism of the American West. Emphasizes discipline-specific writing.

**HIST 3260****History of Utah****3**

\* Prerequisite(s): University Advanced Standing

Surveys the history of Utah and its peoples from prehistoric times to the present, covering cultural, social, economic, political, and religious topics. Places Utah history within regional and national contexts. Can be used for teacher education and re-certification requirements.

**HIST 330G****Mediterranean World 1500-1800****3**

\* Prerequisite(s): University Advanced Standing

Examines religious, political, and social life of the Mediterranean Basin from 1500 to 1800. Focuses on the shared traditions, rituals, and cultural practices of Christians, Jews, and Muslims of the Mediterranean Basin. Analyzes the legacy and influence of this period of Mediterranean History on today's world.

**HIST 3320****Modern Britain****3**

\* Prerequisite(s): University Advanced Standing

Surveys major themes in British history from the Glorious Revolution to the end of the 20th century.

**HIST 3340****The French Revolution and Napoleon****3**

\* Prerequisite(s): University Advanced Standing

Examines important individuals, events, and ideas of the French Revolution and Napoleonic era. Explores the causes of the French Revolution; the political, social, and cultural changes it brought about; Napoleon's rise to power and rule; and legacies of the era. Analyzes the development of nationalism and notions of rights. Investigates revolutionary debates over slavery and citizenship. Focuses on global dimensions of the French Revolution and Napoleonic era.

**HIST 3440****The History of World War I****3**

\* Prerequisite(s): University Advanced Standing

Explores the numerous factors leading to, sustaining, and concluding World War I, including military developments, diplomacy, and political and economic rivalries. Discusses various battles and campaigns of the conflict, the experiences of soldiers and civilians, the crumbling of old governments, colonial aspects of the conflict, the cultural significance of the war, and the beginnings of modern genocide.

**HIST 345G****The History of World War II****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Deals with background and cases, course, conduct, and consequences of World War II in Europe and Asia, with special attention to strategy, tactics, diplomacy, and politics.

**HIST 3540****History of South Africa****3**

\* Prerequisite(s): University Advanced Standing

Explores the history of South Africa from first peoples to the present, with special attention to twentieth-century developments. Surveys Khoisan and Bantu societies, Dutch settlement at the Cape of Good Hope, British colonization, the Zulu kingdom, the Great Trek, British-Boer conflict, the mining economy, Union, segregation and Apartheid, and the struggle for non-racial democracy.

**HIST 3650****Imperial Russia--Autocracy to Opposition****1696-1917****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Presents the evolution of Russian economics, politics, and society between c. 1696 and 1917. Focuses on such movements and events as the Enlightenment in Russia, constitutionalism, bureaucratization, industrialization, and revolutions.

**HIST 366G****The History of Modern Russia--1864 to Present****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Surveys the history of Imperial Russia, the Soviet Union, and Russia from 1864 to the present, with special attention to Russia's politics, economics, and society.

# Course Descriptions

## **HIST 371R**

### **Issues and Topics in American History**

**3**

\* Prerequisite(s): University Advanced Standing.

Surveys specific US history issues as decided by the instructor. Analyzes the context and legacy of the topic using primary sources through lectures and class activities. Introduces a variety of viewpoints and methods in the historical study of the topic. May be repeated for a maximum of 6 credits toward graduation.

## **HIST 3730**

### **American Origins to 1790**

**3**

\* Prerequisite(s): University Advanced Standing

Surveys the origins of the United States from the Pre-Columbian era and early colonization through the Early Republic. Focuses on adaptation and transformations of Native, African and European peoples; the causes and consequences of the American Revolution; the US Constitution, and the search for a national identity.

## **HIST 3731**

### **US History-Early Republic through the Progressive Era**

**3**

\* Prerequisite(s): University Advanced Standing

Surveys United States history thematically and focuses upon social, cultural, economic, and political movements. Includes topics such as the New Republic, slavery, westward expansion, sectionalism, the Civil War and its aftermath, immigration, reform, and the development of modern culture.

## **HIST 3732**

### **U.S. History-Progressive Era to the 21st Century**

**3**

\* Prerequisite(s): University Advanced Standing

Surveys social, cultural, political, and economic movements and turning points in the U.S. from Progressivism through the 21st century. Builds an inclusive, multicultural narrative for various topics including reform and radical movements, wartime crucibles, the U.S. and the world, inclusion and exclusion in U.S. history, and the construction of a present-day U.S.

## **HIST 3740**

### **American Revolution**

**3**

\* Prerequisite(s): University Advanced Standing

Examines origins, progress, and consequences of the American Revolution. Focuses on social effects of the War for Independence, creation of republican governments, and the U.S. Constitution. Addresses the search for stability at home and security abroad, and the development of a national identity.

## **HIST 3745**

### **Civil War and Reconstruction**

**3**

\* Prerequisite(s): University Advanced Standing

Describes forces at work in the antebellum period that led to sectionalism and eventually to civil war. Examines military, political, social, economic, and racial issues before, during, and after the war. Analyzes the Reconstruction Era and its historiography.

## **HIST 3800 (Cross-listed with: GEOG 3800)**

### **Environmental History of the United States**

**3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Examines human modification of the American landscape. Surveys the physical geography of the United States, landscape change during Native American to European transition, and causes of agricultural and industrial pollution. Topics include land ethics, processes of environmental degradation, technological remedies, history of federal laws and protection agencies. May include field experiences.

## **HIST 382G**

### **American Indian History to 1890**

**3**

\* Prerequisite(s): University Advanced Standing

Examines major themes, events, processes, and people including migration, social, cultural, and political change, military conflict, trade, geography, and other pertinent historic variables and events which characterized life for many of the indigenous communities in North America, specifically the region now recognized as the United States through 1890. Introduces students to ethnohistory, primary and secondary sources, and analysis of historical events and sources.

## **HIST 384G**

### **American Indian History since 1890**

**3**

\* Prerequisite(s): University Advanced Standing

Examines major themes, processes, events, and people from the Wounded Knee Massacre of 1890 to the present. Provides an examination of how American Indians shifted the emphasis of resistance to social, political, and cultural assimilation from armed conflict to the employment of legal and political strategies for achieving self-determination.

## **HIST 4130**

### **Anti-Semitism and the Holocaust**

**3**

\* Prerequisite(s): University Advanced Standing

Analyzes the rise of modern anti-semitism in the late 19th and early 20th century and the factors that contributed to the mass destruction of Jews. Explores how the same racial ideas that furthered anti-semitism were used against Gypsies, Slavs, and other minority groups.

## **HIST 4140**

### **Genocide in the Twentieth Century**

**3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Explores and analyzes the major genocides of the twentieth century: the Armenian Massacre, the Holocaust, the Killing Fields of Cambodia, the Balkan genocides, and the Rwandan genocide. Promotes a greater understanding of why and how genocides occurred in the twentieth century. Teaches and improves critical thinking, writing, and comprehension skills and develops additional skills in using comparative history, historiography, and primary and secondary sources.

## **HIST 4180**

### **The Italian Renaissance WE**

**3**

\* Prerequisite(s): University Advanced Standing

Examines the origins, development, and impact of Renaissance culture in Italy from 1300 to 1600. Focuses on the social and urban background that gave rise to such Renaissance achievements as humanism, modern individualism, secularism, and artistic innovation. Analyzes the legacy and influence of Italian Renaissance culture on the modern world.

## **HIST 420R**

### **Issues and Topics in Global History**

**3**

\* Prerequisite(s): Instructor approval; and University Advanced Standing

Analyzes a specific topic in global history as decided by the instructor. Debates the context and legacy of the topic using primary sources in a seminar setting. Evaluates varying interpretations and methods of different historians on the topic. Culminates in a major project requiring historical research. May be repeated for a maximum of 6 credits toward graduation.

## **HIST 421G**

### **The Global Cold War**

**3**

\* Prerequisite(s): University Advanced Standing

Examines the Cold War using global and interdisciplinary lenses. Explores key topics and questions about the global Cold War from multiple perspectives using sources from Latin America, Africa, Europe, and Asia alongside the U.S.S.R. and U.S. Discusses geopolitics as ideologies, interventions, decolonization, and revolution alongside themes such as resistance, gender, peace, militarism and imperialism, diplomacy, and soft power. Concludes by looking at how historical legacies of the Cold War shape today's world.

**HIST 4250****Teaching History in the Secondary Curriculum****3**

\* Prerequisite(s): Admission to Professional Education Program, (EDSC 455G or instructor approval), and University Advanced Standing

For students majoring in secondary education. Examines teaching methodology as related to teaching history and learning teaching strategies to prepare students for secondary education certification. Utilizes various group projects, classroom exercises, and an actual teaching project at the end of the semester. Evaluated by participation, teacher evaluation, written evaluation, exams, personal journal, and a final teaching project.

**HIST 430G****Violence and Social Conflict in Latin America****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Examines impact of violence and social conflict in Latin American society. Covers from Ancient Native American cultures to the present.

**HIST 4310****Violence and War in the Ancient World WE****3**

\* Prerequisite(s): University Advanced Standing

Investigates violence in the Ancient Mediterranean from 2000 BCE to 700 CE. Discusses violence in many forms from domestic disputes to protracted war. Evaluates the way ancient people thought about violence and the arguments of modern historians of violence and war.

**HIST 4320****History of Scientific Thought****3**

\* Prerequisite(s): University Advanced Standing

Explores development of Western scientific context from 6th century B.C. Greece to modern times. Emphasizes how our understanding of nature is influenced by a scientific approach. Examines technological impact of science on our lives.

**HIST 461G****Peoples of the Atlantic World 1450-1800****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Offers an introduction to the main themes and issues of the early Atlantic world and the field of Atlantic History, from the angle of intercultural relations and social/political productions. Examines in depth the encounters, exchanges, and clashes between Africans, Europeans, and Native Americans through the life experiences of the peoples who lived "between cultures," such as interpreters, mariners, missionaries, creoles, etc. Encourages reflection about the modern legacies of the colonial period and issues of multiculturalism and post-colonialism.

**HIST 463G****Missions and Conversion in Early North America****3**

\* Prerequisite(s): (HIST 2700 or HIST 3730) and (ENGL 2010 with a grade of C+ or higher, or instructor approval) and University Advanced Standing

Examines in a comparative perspective various European religious missionary enterprises in North America and their reception among Indians from the seventeenth century through the antebellum period. Surveys the origins, doctrines, methods, and changes over time of the Jesuit, Franciscan, Moravian, Puritan, and other Protestant missions, emphasizing the international and multicultural aspects of the missionary landscape in early America. Addresses the ways in which various Native American groups and individuals responded to these European missionary efforts.

**HIST 466G****Legacies and Reckonings in the American West GI WE****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

Surveys key theories and issues in the American West, the diverse experiences of peoples and cultures in the West, the often contested interactions of these cultures, the cultural symbolism of the American West, human impact upon the western environment, and the role of myth in the formulation of regional identity. Emphasizes discipline-specific writing.

**HIST 471R****Special Issues and Topics in American History****3**

\* Prerequisite(s): University Advanced Standing

Analyzes a specific topic in US history as decided by the instructor. Debates the context and legacy of the topic using primary sources in a seminar setting. Evaluates varying interpretations and methods of different historians on the topic. Culminates in a major project requiring historical research. May be repeated for a maximum of 6 credits toward graduation.

**HIST 482R****Public History Internship****2 to 9**

\* Prerequisite(s): University Advanced Standing

Provides opportunities for internship experience in public history organizations, including, but not limited to, museums, archives, manuscript collections, federal, state, local, and private historical sites, and governmental and non-governmental history organizations. May be repeated for a maximum of 9 credits toward graduation. May be graded credit/no credit.

**HIST 491R****Directed Readings****2 to 4**

\* Prerequisite(s): Instructor approval; University Advanced Standing

Presents readings and research on a historical topic not normally offered in the two-year cycle of the history program in close collaboration with an instructor. Evaluates varying interpretations and methods of different historians on the topic. Culminates in the production of a historiographical project. May be repeated for a maximum of 4 credits toward graduation.

**HIST 4980****Senior Research Thesis Research Component WE****3**

\* Prerequisite(s): HIST 3010 or instructor approval; University Advanced Standing

First half of the capstone experience for Majors. Requires students to work with a faculty member in a directed and extensive research and writing project. Topics vary according to thesis director. Honors students should consult Honors Program for thesis options.

# Course Descriptions

## **HIST 4990**

### **Senior Research Thesis Writing**

#### **Component**

**3**

\* Prerequisite(s): HIST 4980 and Senior Standing in History and University Advanced Standing

Second half of the required capstone experience for History Majors. Student continues to work on and complete the extensive research, analysis, and writing project developed in Hist 4980 under faculty direction. Honors students should consult Honors Program for thesis options.

## **Community Health (HLTH)**

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### **HLTH 1055**

#### **Pilates I CoreMax Training**

**1**

Provides a total body workout that challenges and optimizes strength, flexibility and endurance. Incorporates FlexBands, BOSU, stability balls, weighted balls, fitness circle and mat work to assist individuals in achieving optimal health and well-being. Focuses on lengthening the body, strengthening the mid-section (core & spine), and improving posture and flexibility.

### **HLTH 1057**

#### **Power Yoga**

**1**

Provides a vigorous and powerful approach to many styles of Yoga, including Vinyasa, Ashtanga, Hatha among others. Incorporates flowing progressive postures, meditative awareness, and breath control.

### **HLTH 1100**

#### **Personal Health and Wellness**

**2**

Examines the challenges to individual and community health, and encourages students to become actively engaged in preserving, protecting, and promoting health at all levels. Develops a greater appreciation for bodies and understanding of requirements to maintain or achieve good physical, mental, emotional, social, and spiritual health. Includes lecture, discussion groups, guest lecturers, media, and role-playing. Canvas Course Mats \$38/Pearson applies.

### **HLTH 1200**

#### **First Aid**

**3**

Provides first aid and emergency care training as well as instruction with Automated External Defibrillators. Structured to meet National Safety Council First Aid requirements with successful completers being certified in First Aid and CPR. Includes lectures, hands-on experience with mannequins, audiovisuals, discussions, and field trips. Course lab fee of \$15 applies.

## **HLTH 1300**

### **Medical Terminology I**

**2**

Helps students read and understand the language of medical terminology. Stresses terminology usage and accuracy. Studies elements, abbreviations, spelling, pronunciation, and logic of medical terminology. Includes lectures and audiovisual presentations. Canvas Course Mats \$86/Pearson applies.

## **HLTH 1405**

### **Safety Awareness and Self Defense**

**1**

Investigates self-awareness, self-empowerment, and self-defense. Emphasizes environmental awareness and strategies in avoiding dangerous situations. Teaches self-defense techniques that can be used in a crisis situation.

## **HLTH 1500**

### **Mindfulness/Meditation/Breathwork**

**1**

Examines mindfulness, meditation and breathwork using evidence-based materials and programs. Meets students' needs by teaching mindfulness, meditation, and breathwork to help students meet lifestyle changes. Teaches skills that help calm and focus the mind, including breathing exercises, guided imagery, and body scanning.

## **HLTH 2000**

### **Body Image and Weight Management**

**3**

Provides an overview of body image and weight management issues from historical and societal perspectives. Combines psychology and public health concepts to enhance understanding of the unique relationship individuals have with their bodies throughout the life cycle. Addresses popular weight management strategies from a public health perspective. Focuses on weight management from an anti-diet, health-at-every-size approach.

## **HLTH 2050**

### **Public Mental Health**

**3**

Explores issues of mental health from a public health perspective. Examines the nature and history of mental illness in the United States, ethical and legal issues influencing the mental health system, and mental health across the lifespan. Examines societal factors such as poverty, discrimination, and homelessness and their effect on mental health. Applies public health theories to alleviate the mental health burden.

## **HLTH 2200**

### **Introduction to Health Professions**

**2**

For students planning to major in a health related field. Examines the historical and continuing evolution of health care. Explores work description, environment, employment opportunities, education, expectations, legal requirements, and expected earnings of each covered health profession. Focuses on, but not limited to medicine, dentistry, nursing, community health, optometry, respiratory care, dental hygiene, physical therapy, and social work.

## **HLTH 2400**

### **Concepts of Stress Management**

**3**

For those interested in developing skills and techniques necessary to work with clients in stress reduction programs. Includes identifying, managing, and eliminating stress in individuals, families, and communities. Examines effects of stress on the immune, endocrine, and nervous systems and the relationship to disease. Teaches stress reduction application and methods in wellness and health care settings. Canvas Course Mats \$43/Cengage applies.

## **HLTH 2450**

### **Health Coaching**

**3**

\* Prerequisite(s) or Corequisite(s): HLTH 1100

Provides an evidence-based introduction to the role of a health coach as an educator and motivator for change. Connects theory to behavior change and understanding the three main core coaching skills to help necessitate change in clients. Examines the communication skills necessary for health coaching and motivational interviewing.

## **HLTH 2510**

### **Media and Computer Applications in Health**

**3**

Introduces students to computer-based methods for accessing, analyzing, and communicating health-related information. Explores the relationship between mass media and health promotion and the key elements in the development of successful health communication campaigns.

## **HLTH 2550**

### **Health Coaching II**

**3**

\* Prerequisite(s): HLTH 2450

Applies evidence-based learning as a continuance of Health Coaching I. Explores different communication styles and how they are used in motivational coaching. Focuses on the utilization of appropriate assessment tools, SMART goals, readiness to change models, positive psychology, generative moments, and how to create a coaching session. Practices the use of health coaching as a guide to support and motivate clients to make lasting lifestyle changes.

**HLTH 2600** **SS**  
**Drugs Behavior and Society**

**3**  
For students interested in drug abuse prevention. Studies substance mis-use and abuse. Discusses addictive behaviors, dependence, and treatment modalities. Examines common substances of abuse and dependence and effects upon individuals and society. Investigates the use of psychotherapeutic drugs in the treatment of mental illness. Promotes awareness of personal and social decisions concerning drugs, behaviors, and habits.

**HLTH 2750**  
**Supervised Coaching**

**1**  
\* Prerequisite(s): HLTH 2550  
Provides health coaching sessions with clients in a monitored teaching environment. Critically evaluates experiences and facilitates change, in a low stakes environment. May be Graded Credit/No Credit.

**HLTH 2800 (Cross-listed with: PSY 2800)** **SS**  
**Human Sexuality**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005  
Interdisciplinary course in human sexuality, exploring topics in biology, health, psychology, and sociology. Introduces basic concepts of human sexuality, including anatomy, reproduction, and sexual response across the life-cycle. Studies gender roles, sexual orientation, dysfunction, and sexually transmitted disease. Examines sexual behavior from the perspective of ethics, religion, the law, and education. Students assess their sexual attitudes and should be able to make responsible sexuality decisions.

**HLTH 282R**  
**Coaching Internship**

**1 to 6**  
\* Prerequisite(s): HLTH 2750  
Provides practical application of the skills learned in the health coaching courses, by allowing students to meet one-on one with clients. Helps students coach others to create lifestyle change programs. May be repeated for a maximum of 6 credits toward graduation. May be graded credit/no credit.

**HLTH 2900**  
**Health Education for Elementary Teachers**

**2**  
For Elementary Education majors. Emphasizes the role of the teacher as a health educator and team member in providing a healthy school environment. Studies the basic Utah health core curriculum. Develops learning activities applicable to the health needs of the elementary school student. Canvas Course Mats of \$70/ McGraw applies.

**HLTH 3000** **SS**  
**Health Concepts of Death and Dying**

**3**  
\* Prerequisite(s): University Advanced Standing  
Examines information and data pertaining to death in the United States. Discusses historical and cultural perspectives of death, causes of death, definitions of death, stages of dying, bereavement, the will to live, legal and ethical issues, euthanasia, and suicide. Focuses on attitudes and values of Americans concerning death. Studies ways to work with and relate to dying individuals and their families. Will also be offered summer of odd years.

**HLTH 3160**  
**Healthcare Law**

**3**  
\* Prerequisite(s): University Advanced Standing  
Explores impact of laws, regulations, social policies on management and delivery of healthcare. Includes provider liability, managed healthcare contracts, HIV-related concerns, assisted suicide, and other issues.

**HLTH 3200**  
**Principles of Community Health**

**3**  
\* Prerequisite(s): University Advanced Standing  
For students in health and behavioral sciences who wish to work in community health settings. Presents the role and function of various community health services and agencies and how they interface. Examines health care models and agencies, health care reform, health objectives for the nation, and health planning and promotion. Explores life style risk reduction, environmental issues, ethical health issues, and other appropriate topics.

**HLTH 3220**  
**Foundations of Health Education**

**3**  
\* Prerequisite(s): University Advanced Standing and matriculation into BS Community Health or BS School Health Education  
For students interested in a community health career. Examines the history and role of health education in today's society. Covers the philosophical principles and models utilized in the delivery of health education. Analyzes types of health information available in health journals and on the internet. Introduces the major health associations and describes the competencies necessary for certification as a Health Education Specialist.

**HLTH 3230**  
**Professional Development**

**3**  
\* Prerequisite(s): Matriculation into BS Public Health or BS School Health Education or Healthcare Administration and University Advanced Standing  
Provides students with preparation for an internship, job, or graduate school in public health, healthcare administration, or school health.

**HLTH 3240**  
**Womens Health Issues**

**3**  
\* Prerequisite(s): HLTH 1100 or EXSC 1097 and University Advanced Standing  
For students in various health care professions. Reviews important dimensions of a woman's health and examines the contributing epidemiological, historical, psychosocial, cultural/ethnic, legal, political, and economic influences. Focuses on women throughout their lifespan and incorporates the many factors that affect health and well-being. Stresses prevention, health promotion, research, clinical intervention, and public policy that form the interlocking basis when considering the different diseases, disorders, and conditions that afflict women. Provides a practical approach to examining and understanding health issues that are unique to women--all ages, races, socioeconomic strata, and cultures. Will also be offered summers of even years.

**HLTH 3260**  
**Theory-Based Approaches to Modifying Health Behavior**

**3**  
\* Prerequisite(s): HLTH 3200, University Advanced Standing, and matriculation into BS Community Health, BS School Health Education, BS Nursing, or BS Dental Hygiene  
For students interested in community and school health programs. Investigates holistic health and behavioral changes that can positively influence total human well-being. Discusses factors that impact personal health behavior. Focuses on behavioral change models and theories including planning, implementation and evaluation. Examines health counseling approaches, group process, and strategies related to specific health problems.

**HLTH 3300**  
**Health Promotion for Older Adults**

**3**  
\* Prerequisite(s): University Advanced Standing  
For students in health and behavioral sciences and other related fields who wish to work in gerontological settings. Examines health issues and problems of older adults. Addresses topics affecting older adults including: the aging process, chronic and infectious diseases, health care resources, and health promotion. Covers medication issues, long-term care, death and dying, and other related topics.

# Course Descriptions

## **HLTH 3400** **Human Diseases**

**3**  
\* Prerequisite(s): ZOOL 1090 and University Advanced Standing

For students interested in a Community Health option within the Integrated Studies Degree. Also for students interested or working in health care fields such as nursing, dental hygiene, etc. Introduces the study of human disease including general principles of disease and major diseases of body systems and organs. Applies genetic, behavioral and environmental issues to the study of human diseases.

## **HLTH 3450** **Public Health and the Environment**

**3**  
\* Prerequisite(s): HLTH 3200, University Advanced Standing

Examines the relationship of people to their environment as well as public health environmental issues. Develops an understanding of the causes of those issues, and possible future approaches to control major environmental public health problems. Includes environmental epidemiology, public health policy and regulation, zoonotic and vector-borne diseases, toxic materials, radiation, water quality, air quality, food safety, solid and liquid wastes, occupational health, injuries, and emerging global environmental public health problems.

## **HLTH 350G** **International Health**

**3**  
\* Prerequisite(s): University Advanced Standing

Provides knowledge regarding the various health issues that affect people around the world. Focuses on the role of culture, ethnicity, country of origin, politics, and gender on health. Examines the importance of cultural sensitivity and competence when attempting to eradicate public health concerns. Will also be offered summer of even years.

## **HLTH 3600** **Social Marketing**

**3**  
\* Prerequisite(s): University Advanced Standing

Identifies how to promote social changes to the consumer. Teaches packaging, positioning and framing of programs to appeal to more salient, powerful, and influential core values: freedom, independence, autonomy, control, fairness, democracy, and free enterprise. Discusses marketing principles, planning, implementing, and evaluation of public health programs, strategic planning, social change theory, and case studies.

## **BB** **HLTH 3700** **Grant Writing for Public Health WE**

**3**  
\* Prerequisite(s): University Advanced Standing

Provides knowledge and skills for public health grant writing. Teaches the major elements of grant writing including the identification of grant sources, writing grant proposals, and preparation of budgets and timelines.

## **HLTH 3750** **Biostatistics for Public Health**

**3**  
\* Prerequisite(s): Matriculation into Community Health BS, School Health BS, or Nursing BS program; University Advanced Standing; and completion of MATH 1050 or 1055 or STAT 1040 or 1045

Introduces use of statistics for research purposes in the fields of public and community health. Teaches descriptive and inferential statistics. Includes central tendency, variability, correlation and regression, probability, and various inferential techniques such as t-test for independent and dependent samples, one-way and two-way analysis of variance, post-hoc tests, and non-parametric statistical tests.

## **HLTH 3800** **Epidemiology**

**3**  
\* Prerequisite(s): HLTH 3400, University Advanced Standing, and matriculation into BS Community Health or BS School Health Education

Introduces epidemiologic principles and methods. Examines the historical and theoretical bases of epidemiology; statistical methods; distribution of disease over person, place, and time; research methods utilized in epidemiology; and the application of epidemiology to the prevention of disease and the promotion of health.

## **HLTH 4100** **Health Education Curriculum for Secondary Teachers**

**3**  
\* Prerequisite(s): University Advanced Standing and matriculation into the BS School Health program

For secondary education majors. Emphasizes the role of the teacher as a health educator and team member in providing a healthy school environment. Examines comprehensive school health education and studies the basic Utah health core curriculum for secondary education. Develops learning activities applicable to the health needs of secondary education students. Course fee of \$10 for materials applies.

## **HLTH 4140** **Assessment and Program Development WE**

**3**  
\* Prerequisite(s): HLTH 3200, HLTH 3220, University Advanced Standing, and matriculation into the BS Public Health

Intended for Public Health majors. Covers building a rationale, gaining support of stakeholders, selecting an appropriate model or theory, conducting a needs assessment, developing goals and objectives, and determining appropriate public health education strategies. Helps students develop the skills to successfully begin the program planning process.

## **HLTH 4160** **Program Implementation and Evaluation WE**

**3**  
\* Prerequisite(s): HLTH 4140 and University Advanced Standing

Intended for Public Health majors. Builds upon HLTH 4140 and develops the knowledge, skills, and abilities to conduct health program implementation and evaluation. Includes a systematic approach to the implementation and evaluation of health education programs.

## **HLTH 4200** **Health Education Teaching Methods WE**

**3**  
\* Prerequisite(s): HLTH 4100, University Advanced Standing and matriculation into BS School Health

For secondary education school health majors. Examines teaching methods, materials and techniques. Studies secondary education health curriculum, program planning, development, implementation, and evaluation. Helps students develop lesson plans and present them in secondary education settings.

## **HLTH 4250** **Health Organization and Policy WE**

**3**  
\* Prerequisite(s): University Advanced Standing

Focuses on U.S. health policy and policy analysis. Describes the basic machinery of policymaking and legal processes that underpin the individual health care and public health systems. Analyzes the fundamental problems and contemporary issues in health policy and teaches students how to properly develop and analyze health policy.

**HLTH 4300**  
**Health Ethics**

**3**  
\* Prerequisite(s): Matriculation into BS Public Health, or Healthcare Administration, or Dental Hygiene, or Nursing and University Advanced Standing

For students majoring in Public Health. Also for students interested or working in healthcare fields such as healthcare administration, nursing, dental hygiene, etc. Explores and interprets ethical codes of conduct as set forth by health professions and/or organizations. Emphasis will be given to the Code of Ethics for the Health Care profession. Examines various healthcare issues such as: healthcare allocation, healthcare costs, death and dying issues, patient rights, informed consent, confidentiality etc. Investigates conflicts arising from existing and evolving codes of conduct using care studies as an arena for discussion.

**HLTH 440G**  
**Health and Diversity**

**3**  
\* Prerequisite(s): University Advanced Standing

Provides students with a specific set of skills and knowledge in cultural competence. Focuses on understanding the public health system, identifying one's own cultural biases, understanding biases regarding one's own cultural identity, and developing culturally competent approaches and tools. Enables students to be more effective public health professionals whether they work with diverse populations within the United States or in international settings.

**HLTH 4500**  
**Healthcare Administration**

**3**  
\* Prerequisite(s): University Advanced Standing

Gives individuals a working and practical look at numerous aspects of healthcare administration and leadership. Includes definitions of leadership, qualities of an effective leader, sources of power, time management, the planning and decision making process, three core functions of public health, social marketing strategies, as well as other timely topics related to healthcare practice and administration.

**HLTH 4560**  
**Introduction to Healthcare Systems**

**3**  
\* Prerequisite(s): University Advanced Standing

Examines the history, structure, operation, function, major components, and direction of healthcare systems. Highlights national systems and explores how systems across the U.S. are addressing healthcare issues. Assesses operational components such as physician issues, billing, and common terminology.

**HLTH 4600**  
**Research Methods for Public Health WE**

**3**  
\* Prerequisite(s): (Matriculation into BS Public Health or BS School Health Education or BS Healthcare Administration or BS Dental Hygiene) or instructor approval; University Advanced Standing

Introduces research techniques, methodology, and designs. Examines the planning, organizing, and conducting of research studies for solving problems unique to community health. Includes literature review and research article critiques.

**HLTH 4640**  
**Population Health and Strategic Management**

**3**  
\* Prerequisite(s): University Advanced Standing

Examines the determinants of population health, outcomes in a community, payment models, and strategies to improve management of healthcare resources. Highlights the importance of quality improvement, health insurance (commercial and government), concepts of risk in insurance, utilization management, patient engagement, accountable care organizations, and social determinants of health. Uses basic data analysis to apply course concepts.

**HLTH 4720**  
**CHES Preparation**

**3**  
\* Prerequisite(s): Department approval; University Advanced Standing; Senior standing

Provides an overview of the health education areas of responsibilities in preparation for the Certified Health Education Specialist national exam. For students in their last semester at UVU, planning to register and take the CHES exam in October or April.

**HLTH 4780**  
**Strategic Planning and Operations Management**

**3**  
\* Prerequisite(s): University Advanced Standing

Introduces strategic planning and operations management in relation to current and future topics and trends in healthcare. Examines historical and current quality improvement models and applies them to current industry topics. Discusses the relationship between industry and healthcare.

**HLTH 482R**  
**Health Internship**

**1 to 8**  
\* Prerequisite(s): HLTH 3230, and (matriculation into BS Public Health or BS Healthcare Administration) or (Admission into CP Healthcare Information Technology or CP Interdisciplinary Gerontology), and University Advanced Standing

Provides field experience and enhanced knowledge in health services and education, under the preceptorship of an individual qualified by education and/or experience. May be repeated for a maximum of 6 credits toward graduation. May be graded credit/no credit.

**HLTH 489R**  
**Undergraduate Research**

**1 to 3**  
\* Prerequisite(s): Instructor approval, departmental approval, and University Advanced Standing

Provides students the opportunity to conduct research under the mentorship of a faculty member. Provides an opportunity to put in practice the theoretical knowledge gained in prior major courses. Requires the creation of a significant intellectual or creative product that is characteristic of the community health discipline and worthy of communication to a broader audience. May be repeated for a maximum of 3 credits toward graduation.

**HLTH 490R**  
**Special Topics in Public Health**

**1 to 3**  
\* Prerequisite(s): Department Approval and University Advanced Standing

Explores and examines special topics related to public health issues and problems. Includes public health topics such as AIDS/HIV, West Nile Virus, special drug and sexuality issues, obesity, suicide, teenage pregnancy and terrorism. May be repeated for a maximum of 6 credits toward graduation.

**HLTH 4950**  
**Senior Capstone**

**1**  
\* Prerequisite(s): University Advanced Standing, Senior Standing, Matriculation in BS Public Health

Assesses both content knowledge and skills developed during the course of the Public Health program. Provides students an opportunity to reflect on their learning and demonstrate the program outcomes through the development and presentation of a professional electronic portfolio, and the completion of a cumulative post-test. For seniors in their last semester.

# Course Descriptions

## **HLTH 6200** **Issues in Public Health**

**3**  
\* Prerequisite(s): Acceptance into the Masters of Public Services Program

Examines public health principles and concepts by focusing on the five core public health knowledge areas and the ten essential public health services. Explores public health infrastructure, surveillance, social determinants of health, policy, and emerging issues. Provides a broad framework for understanding public health's role in community health, prevention, and medicine.

## **Hospitality Management (HM)**

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### **HM 1010** **Introduction to Hospitality Industry**

**3**  
Designed for hospitality management majors and as elective credit for other business majors. Provides a basic understanding of the lodging and food service industry by tracing the industry's growth and development. Analyzes management's functions and responsibilities in such areas as administration, organization, communications, accounting, marketing, and human relations. Examines industry opportunities and future trends. Includes lecture, field trips, guest speakers, film, and tapes. Completers should have a knowledge of career opportunities and basic hospitality management principles. Lab access fee of \$25 for computers applies.

### **HM 1130** **Hotel Operations I**

**3**  
Designed for hospitality management majors and as elective credit for other business majors. Presents a systematic approach to front office procedures by detailing the flow of business through a hotel beginning with the reservation process and ending with check-out settlement. Examines various elements of effective front office management, paying particular attention to planning and evaluating front office operation and to personnel management. Front office procedures and management are placed within the context of the overall operation of a hotel. Includes role play and computer simulations. Completers should be competent to be a beginning front desk clerk. Lab access fee of \$25 for computers applies.

### **HM 1180** **Food and Beverage Management**

**3**  
Designed for hospitality management majors and as elective credit for other business majors. Studies management principles of menu planning, purchasing, storage, food and beverage production, service, and sanitation. Includes lecture, case studies, guest speakers, field trip and project. Completers should understand the basic structure of a hospitality unit and how management principles relate to a restaurant. Lab access fee of \$25 for computers applies.

### **HM 2500** **Statistics for the Hospitality Industry**

**3**  
\* Prerequisite(s): MAT 1030, MAT 1035, STAT 1040, STAT 1045, MATH 1050, MATH 1055, or MATH 1090, or higher

Provides a step-by-step approach to gathering, analyzing, and using numeric market, operating, and financial data in the hospitality management industry. Hospitality/industry scenarios and hands-on exercises and labs are used to build student skills in data analysis as a platform to practice data-gathering and analysis for projects in business planning, market research, revenue management, or designing customer-employee satisfaction surveys. Canvas Course Mats \$78/Wiley applies

### **HM 281R** **Cooperative Work Experience**

**2 to 9**  
\* Prerequisite(s): Approval of School of Business Career and Corporate Manager

Provides opportunities to apply classroom theory on the job. Students work as paid employees in a job that relates to their careers while enrolled at the College. Credit is determined by the number of hours a student works during the semester. Completers meet individually set goals. A total of six credits may be applied toward graduation with a diploma or AAS degree and three credits toward Certificate programs. May be graded credit/no credit.

### **HM 2890** **Industrial Work Experience**

**1 to 8**  
Designed for hospitality management majors as elective credit. Provides practical work experience in an actual restaurant, applying management theory in carrying out duties assigned by the manager/owner.

### **HM 296R** **Hospitality Management Seminar**

**1 to 3**  
\* Prerequisite(s): Instructor/Department Chair Approval

Provides short courses, workshops, and special programs in hospitality management or culinary arts topics. Repeatable for up to three credits.

### **HM 297R** **Independent Study**

**1 to 3**  
\* Prerequisite(s): Department Chair Approval  
Offers independent study as directed in reading, in individual projects, etc., in the area of hospitality management or culinary arts at the discretion and approval of the department chair. May be repeated for up to 6 credits toward graduation.

### **HM 3000** **Hospitality Industry Foundations**

**3**  
\* Prerequisite(s): University Advanced Standing

Focuses on lodging, food, and event planning operations in the hospitality industry. Identifies career tracks offered in the hospitality industry and assists students to make academic and career decisions. Delivers content through lectures, guest speakers, site visits (both class and individual), and group projects to facilitate student learning.

### **HM 3020** **Hospitality Managerial Accounting I**

**3**  
\* Prerequisite(s): ACC 2110 and University Advanced Standing

Presents managerial accounting concepts and explains how these concepts apply to specific operations within the hospitality industry. Utilizes lectures, demonstrations, and case studies in class. Lab access fee of \$25 for computers applies.

### **HM 3030** **Hospitality Managerial Accounting II**

**3**  
\* Prerequisite(s): ACC 2110 and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): HM 3020

Integrates principles of operations and managerial accounting as they relate to the hospitality industry. Emphasizes developing competencies in analyzing real world hospitality industry scenarios using spreadsheet software. Includes cost volume profit analysis and applications, forecasting, production controls, budget creation and uses, flexible budgets, depreciation, taxation, time value of money basics, capital budgeting, evaluating and financing investments, and cost benefit analysis.

**HM 3050  
Country Club Management**

**3**  
\* Prerequisite(s): University Advanced Standing

Provides a basic understanding of country club management with golf operations. Analyzes management's functions and responsibilities in such areas as administration, organization, communications, accounting, marketing, and human relations. Examines industry opportunities and future trends. Includes lectures, field trips, guest speakers, films, and tapes. Completers should have knowledge of career opportunities and basic hospitality management principles.

**HM 3100  
Hospitality Law**

**3**  
\* Prerequisite(s): University Advanced Standing

Teaches rights and responsibilities that the law grants to or imposes upon a hotelkeeper, and illustrates the possible consequences of failure to satisfy legal obligations. Explains the issues surrounding the need for individualized security programs; examines a wide variety of security and safety equipment and procedures, and discusses guests safety. Presents a systematic approach to the legal issues affecting human resource management. Includes lecture, case studies, videos, and site visits. May be delivered online and/or hybrid. Lab access fee of \$25 for computers applies.

**HM 3150  
Hospitality Finance**

**3**  
\* Prerequisite(s): HM 3030 and University Advanced Standing

Presents the general conceptual framework for understanding and applying techniques of value creation for a hospitality firm. Includes risk and value, timing and value of cash flows, valuation and required rates of return, capital expenditure analysis, project valuation criteria, capital structure management, and financial markets. Introduces financial topics and practices application techniques. Includes lecture, demonstration, case studies, and guest speakers. May be delivered online. Lab access fee of \$25 for computers applies.

**HM 320G  
Global Tourism**

**3**  
\* Prerequisite(s): (MKTG 220G or ENGL 2010) and University Advanced Standing

Explores global tourism in a variety of sociocultural environments. Teaches world travel destinations and helps to develop a deeper understanding and cultural values and traditions that exist outside the student's own culture. Examines global tourism destinations in the context of environment, culture, economy, and society. Explores pull factors for prospective tourists to specific destinations. Focuses on the nature of the world's largest industry (i.e. tourism industry) and its multiplier-effect on society and national economies. Enhances engaged learning experiences through the Global Tourism Project and facilitates students' preparation to participate as active, informed, and respectful citizens.

**HM 3210  
Event Venue and Convention Management**

**3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Analyzes and explores the conventions and meetings market, event venue management, and the corresponding relationship with convention and visitors bureaus. Covers various procedures in site selection, site layout and logistics, operations, negotiations and contracts, food and beverage service, and convention sales.

**HM 3390  
Hotel Operations II**

**3**  
\* Prerequisite(s): HM 1130 and University Advanced Standing

Overviews fundamentals of housekeeping management. Describes the management functions, tools, and practices required in today's lodging and institutional housekeeping departments. Provides students with information they need to successfully manage a physical plant and work effectively with engineering and maintenance. Includes lecture, role play, site visits, film, and tapes. Completers should have a basic understanding of housekeeping and facility management. Lab access fee of \$25 for computers applies. Canvas Course Mats \$32/Wiley applies.

**HM 3400  
Hotel Industry Analytics**

**2**  
\* Prerequisite(s): University Advanced Standing

Familiarizes students with key hotel analytics, such as, foundational hotel industry dynamics, industry standard key performance indicators (KPIs) and their calculation, industry standard property level reporting, and various other industry standard performance reports. Prepares students to earn the Certification in Hotel Industry Analytics (CHIA).

**HM 3640  
Food and Beverage Controls**

**3**  
\* Prerequisite(s): ACC 2010 and University Advanced Standing

Designed for hospitality management majors and as elective credit for other business majors. Covers the principles and procedures involved in an effective food and beverage control system, including standards determination, the operating budget, income and cost control, menu pricing, and computer applications. Includes lecture and computer simulation. Completers should have a basic understanding of control functions within a hospitality unit and be familiar with computer control systems. Lab access fee of \$25 for computers applies. Canvas Course Mats \$54/Wiley applies.

**HM 3710  
Marketing of Hospitality Services**

**3**  
\* Prerequisite(s): MKTG 220G and University Advanced Standing

Provides basic knowledge and practical experience which will enable students to develop strategic marketing plans for hotel/motel properties. Focuses on practical sales techniques, proven approaches to selling to targeted markets, and advertising's role in sales. Includes lecture, role play, case studies, simulations and projects. Lab access fee of \$25 for computers applies. Canvas Course Mats \$26/Wiley applies.

**HM 3800  
Vacation Rental Management**

**3**  
\* Prerequisite(s): University Advanced Standing

Introduces management practices used in the short term rental market of the lodging industry. Provides an overview of the industry including regulations and accounting, marketing and reservations, guest and neighbor relations, maintenance and housekeeping, design and décor, security and guest safety, tech devices and innovations, and opportunities for entrepreneurial entry.

**HM 4150  
Hospitality Revenue Management**

**3**  
\* Prerequisite(s): HM 1130, and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): HM 3710

Designed for Hospitality Management majors. Addresses the emerging revenue management process and the keys to effective revenue management planning. Explores how to develop, implement, and evaluate strategic management processes. May be delivered hybrid and/or online.

## Course Descriptions

### **HM 4200 Event Planning**

**3**  
\* Prerequisite(s): HM 3210 and University  
Advanced Standing

Introduces the event industry, its scope and responsibilities, and the multidimensional nature of an event experience. Develops needs assessment, feasibility studies, and project management techniques to help students understand events in greater detail. Explores the interaction between attendee and the environment that enhances the event experience. Provides experience managing food and beverage services, technical services, ancillary activities, and marketing for events.

### **HM 4250 Advanced Event Production**

**3**  
\* Prerequisite(s): HM 4200 and Advanced  
University Standing

Explores advanced techniques and procedures to effectively execute an event production. Includes creating feasible site plans, lighting and sound designs, table-top and stage décor, menu and food set-up designs, and event marketing plans. Focuses on how to successfully manage an event from inception to implementation to evaluation. Provides hands-on experience in event production and the creation of a professional event portfolio.

### **HM 4300 Food and Beverage Consulting**

**3**  
\* Prerequisite(s): HM 1180, HM 3030, and  
University Advanced Standing

Provides a consulting experience with a local company. Promotes application of principles taught throughout the hospitality management program with a specific focus on effectively managing food and beverage functions. Tailors projects to students completing the food and beverage track. Recommends but does not require at least a year of experience working in the foodservice industry. Uses student-led consulting teams to complete real-world projects.

### **HM 4400 Advanced Hotel and Tourism Analytics**

**3**  
\* Prerequisite(s): HM 3400 and University  
Advanced Standing  
\* Prerequisite(s) or Corequisite(s): HM 3150

Familiarizes students with key hotel analytics, such as, foundational hotel industry dynamics, industry standard key performance indicators (KPIs) and their calculation, industry standard property level reporting, and various other industry standard performance reports. Includes project and group work. Develops augmented capacity for analyzing and interpreting current industry data, conducting market research, identifying and forecasting trends, and effectively communicating findings effectively through public speaking. Includes opportunities to interview industry consultants, developers, and professionals to gain additional insights into the markets they are studying.

### **HM 4550 Hospitality Strategic Management WE**

**3**  
\* Prerequisite(s): HM 3030 and University  
Advanced Standing

Examines delivery of the organization's product or service. Includes investigative and production planning, scheduling of operations, allocation of resources, manpower and equipment decisions, inventory control, production planning, and quality. Lab access fee of \$25 for computers applies.

### **HM 470G International Human Resource Management**

**3**  
\* Prerequisite(s): University Advanced  
Standing

Introduces the field of international human resource management (IHRM). Provides an understanding of global influences on and practices in human resource management in international organizations. Includes globalization, internationalization of HR, cultural influences on HR, global employment law, global talent management, global training, global compensation, international performance evaluations, global human relations, and global employee engagement.

### **HM 481R Internship**

**1 to 9**  
\* Prerequisite(s): Approval of WSB Internship  
Coordinator and University Advanced  
Standing

For upper-division students working toward a Bachelor of Science Degree in Hospitality Management or Event Management. Provides a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job experience. May be repeated for a maximum of 9 credits. May be graded credit/no-credit.

### **HM 496R Hospitality Management Seminar**

**1 to 3**  
\* Prerequisite(s): Instructor/Department Chair  
Approval and University Advanced Standing

Provides short courses, workshops, and special programs in hospitality management. Repeatable for up to 3 credits.

### **HM 497R Independent Study**

**1 to 3**  
\* Prerequisite(s): Department Chair Approval  
and University Advanced Standing

For bachelor's degree students and other interested persons. Offers independent study as directed in reading, in individual projects, etc., in the area of hospitality management at the discretion and approval of the department chair.

## **Honors (HONR)**

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### **HONR 100R Honors Colloquium**

**1**  
\* Prerequisite(s): Current enrollment in Honors  
program

Limited to students accepted to the Honors Program. Includes experiential education activities and cohort-building academic experiences, cultural events, and research/service projects. Develops reflective writing abilities. May include readings, guest lectures, community/campus service and leadership projects, research groups, outdoor excursions, and attendance at fine arts performances. May be repeated for a maximum 6 credits toward graduation. Course fee of \$15 for tickets, vehicle costs, and equipment rental applies

### **HONR 150R Honors Housing Colloquium**

**1**  
\* Prerequisite(s): Current enrollment in Honors  
program and receipt of Honors Housing  
Scholarship.

Limited to students currently receiving the Honors Housing Scholarship. Builds collegiate and adult life skills through cohort-based collaborative learning. Develops reflective and communication abilities. May include readings, guest lectures, community or campus service and leadership projects, outdoor excursions, and attendance at fine arts or sporting events. May be repeated for a maximum 4 credits toward graduation.

**HONR 2000  
Ancient Legacies**

HH

**3**  
\* Prerequisite(s): Current enrollment in Utah Valley University Honors program or permission of the instructor

Studies selected great works in the history of ideas from an interdisciplinary perspective. Examines Ancient, Medieval, and early Renaissance thought through primary texts composed before 1500 C.E. Emphasizes close study of primary texts drawn from disciplines including, but not limited to literature, history, philosophy, religion, music, and the sciences. Includes at least one text written during each of these periods, and at least one non-Western text. Develops strong critical thinking, collaboration, writing, and rhetorical skills.

**HONR 2100  
Modern Legacies**

**3**  
\* Prerequisite(s): Current enrollment in Honors program or permission of the instructor

Provides students with the opportunity to study selected great works in the history of ideas from an interdisciplinary perspective. Examines Modern and Contemporary thought through primary texts composed after 1500 C.E. Focus of the class determined by instructor, but must include at least one text that adds diversity (for instance, in ethnicity, class, or gender). Emphasizes close study of primary texts drawn from disciplines including, but not limited to, astronomy, physics, biology, literature, history, philosophy, and religion. Develops strong critical thinking, writing, and rhetorical skills.

**HONR 300R  
Honors Interdisciplinary Seminar**

**1 to 4**  
\* Prerequisite(s): Current enrollment in UVU Honors Program or instructor approval and University Advanced Standing

Topics may be drawn from any academic discipline including but not limited to business, technology and computing, education, fine and performing arts, physical and biological sciences, health science, humanities, and social sciences. Specific content determined by faculty. Consists of rigorous analysis and synthesis of innovative, current, or special topics. May include lab or performance requirement. May be repeated for a maximum of 12 credits toward graduation.

**HONR 400R  
Honors Capstone**

**1**  
\* Prerequisite(s): Senior status or permission of Honors Director and University Advanced Standing  
\* Corequisite(s): Enrollment in Honors Program and a GPA of at least 3.20

Prepares students to complete an Honors Thesis or Honors Project (HONR 498R or HONR 499R). Initiates the research or design for an Honors Thesis or Honors Project. Includes drafting and completing a proposal, performing background design or research, and assembling a committee of at least two faculty or community mentors. May include completion of an Institutional Review Board application for research involving human subjects. Consists of rigorous analysis and synthesis of current topics in the student's discipline. May be repeated for a maximum of 2 credits toward graduation.

**HONR 498R  
Honors Thesis**

**3**  
\* Prerequisite(s): HONR 400R (Senior status or permission of Honors Director) and University Advanced Standing  
\* Corequisite(s): Enrollment in Honors Program

For students completing a baccalaureate degree and the Honors Program. Provides an opportunity for seniors in the Program to research and write on a topic related to their major, supervised by a faculty mentor. Includes independent research as necessary. Culminates in the preparation of a written paper and oral presentation describing the results of the research project. Honors Project HONR 499R may be substituted. May be repeated for a maximum of 6 credits toward graduation. Course fee of \$10 for binding applies.

**HONR 499R  
Honors Project**

**3**  
\* Prerequisite(s): HONR 400R and (Senior status or permission of Honors Director) and University Advanced Standing  
\* Corequisite(s): Enrollment in Honors Program

For students completing a baccalaureate degree and the Honors Program. Provides an opportunity for seniors in the Program to research, design, carry out, and report results of a project related to their major, supervised by a faculty mentor. Includes independent research and creative endeavor as necessary. Culminates in the public presentation in a seminar, colloquium, recital, show, portfolio, or other appropriate method in the discipline, and the preparation of a written section evaluating or reflecting on the project's results. May be taken as an extension of research pursued in Honors Thesis 498R; may be taken as a substitute for Honors Thesis 498R. If a student's major department requires a comparable course (with, for instance, substantial written component), that course may be substituted, with permission of the Honors Director. May be repeated for a maximum of 6 credits towards graduation. Course fee of \$10 for binding applies.

**Human Resource  
Management (HR)**

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**HR 3430  
Introduction to Human Resource  
Management**

**3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Covers labor and management relations, legal issues, job analysis and design, recruiting and selecting, job placement and orientation, training, career planning, EEO, performance appraisal, and employee benefits. Presents tools for the implementation of a human resource management program. Includes class discussions, case studies, videos, oral presentations, written assignments, group projects, and guest speakers. May be delivered online and/or hybrid. Lab access fee of \$25 for computers applies.

**HR 3530  
Employment and Labor Law**

**3**  
\* Prerequisite(s): University Advanced Standing

Covers employment and labor law, cases, and policy. Includes employment discrimination along with labor relations statutes exploring the link between employment discrimination and traditional labor relations law. Presents tools necessary to formulate and write policy for profit and non-profit organizations. Includes lecture, class discussions, case studies, a service learning project, and guest speakers. Lab access fee of \$25 for computers applies.

# Course Descriptions

## **HR 3550**

### **Organization Development**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing; HR 3430 highly recommended

Studies the process of ensuring skills, knowledge, abilities, and performance of the workforce meet current and future individual, team, and organizational needs. Includes the development, implementation, evaluation activities, interventions, and programs that focus on customized organization development (change), performance management, training and development, career development, and other unique employee or employee group needs.

## **HR 3570**

### **Training and Development**

**3**

\* Prerequisite(s): University Advanced Standing; HR 3430 recommended

Studies current models, methods, and skills for training and development designed to improve individual, group, and organizational performance. Examines the organizational role of the training specialist, identifying training needs, maximizing the trainee's learning, evaluating training programs, on-site training methods, off-site training methods, developing and training leaders, management and executive development, and societal concerns. Includes teaching techniques such as lecture, class discussions, small group activities or projects, oral presentations, written assignments, guest speaker, and scholarly dialogue. Includes a semester-long training and development academic service-learning project.

## **HR 4000**

### **Total Rewards**

**3**

\* Prerequisite(s): HR 3430 and University Advanced Standing

Studies total reward systems in private and public organizations, which includes examining these systems' wage, salary, and benefits elements. Provides a comprehensive overview of total reward strategies in organizations, discuss relevant compensation models, and review various benefits influences, including laws and regulations. Explores the relationships between employee performance the different intrinsic and extrinsic rewards in total reward systems. Lab access fee of \$25 for computers applies.

## **HR 4010**

### **Total Compensation II--Benefits**

**3**

\* Prerequisite(s): HR 3430 and University Advanced Standing

Identifies a framework for implementing benefits systems to attract and retain a high performance workforce in a global environment; provides a comprehensive overview of benefits management strategies in organizations; discusses relevant models of compensation; and reviews various benefits influences, including laws and regulations.

## **HR 4050**

### **Human Resource Information Systems**

**3**

\* Prerequisite(s): HR 3430 and University Advanced Standing

Provide students with introductory knowledge of Human Resource Information Systems. Examines HR information system adoption, implementation, and the assessment and building of management support to achieve HR strategic objectives.

## **HR 4060**

### **HR Analytics**

**3**

\* Prerequisite(s): MGMT 2400, HR 3430, and University Advanced Standing

Explores key metrics, analysis, interpretation and communication tools necessary in developing comprehensive human capital strategies. Enables students to identify, analyze and interpret data to make human resource recommendations for individuals and organizations. Includes exploration of data analysis and presentation skills for human capital research and decision-making for planning, employee selection, compensation, employee survey data, organizational effectiveness and utilization analysis. Canvas Course Mats \$45/Cengage applies.

## **HR 4610**

### **Talent Acquisition and Performance Management**

**3**

\* Prerequisite(s): HR 3430 and University Advanced Standing

Addresses the key HR functions of planning, staffing, and maintaining a quality workforce. Includes identifying critical specifications for filling positions, recruiting a pool of talent, developing selection methods, and creating desirable person/job matches. Teaches how to evaluate and manage employee performance once individuals enter the organization. Lab access fee of \$25 for computers applies.

## **HR 470G**

### **International Human Resource Management**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces the field of international human resource management (IHRM). Provides an understanding of global influences on and practices in human resource management in international organizations. Includes globalization, internationalization of HR, cultural influences on HR, global employment law, global talent management, global training, global compensation, international performance evaluations, global human relations, and global employee engagement.

## **HR 4800**

### **Strategic Human Resource Management**

**3**

\* Prerequisite(s): HR 3430, HR 4050, HR 4060, Matriculation into the Woodbury School of Business, and University Advanced Standing

Facilitates students' understanding of the total alignment of human resource management (HRM) and business strategies. Provides an overview of the role of HRM as a capstone course. Considers the overall design of the HRM infrastructure to enable optimal employee performance relative to the strategic goals of the organization, to achieve competitive advantages. Examines the techniques, policies, processes, strategies, and practices used by companies and / or managers to effectively and efficiently utilize human resources. Teaches theories and practices in multiple HRM areas, including staffing, performance evaluation, work and job design, training, total compensation, the legal environment, labor relations, and megatrends in the external labor market. Provides extensive training to prepare for the aPHR (Associate Professional of Human Resources) exam as a professional certification from the Human Resource Certification Institute (HRCI).

## **HR 495R**

### **Advanced Topics in Strategic Human Resource Management**

**1 to 3**

\* Prerequisite(s): Department chair approval and University Advanced Standing.

Provides exposure to emerging current interests in strategic human resource management topics. Topics vary each semester. May be repeated for a maximum of 6 credits toward graduation.

## Humanities (HUM)

### HUM 1010 HH Humanities Through the Arts 3

Studies the media and compositional elements of the various art forms (literature, music, visual arts, theater, film, dance, and architecture), for greater understanding and enjoyment. Teaches how to interpret artistic meaning by analyzing artworks formally as well as in their historical contexts, such as the predominant subject matters and styles of their period. Encourages students to integrate the arts into their daily lives habitually, so that they become lifelong learners and educators.

### HUM 101G HH Humanities Through the Arts 3

Studies the media and compositional elements of the various art forms (literature, music, visual arts, theater, film, dance, and architecture), for greater understanding and enjoyment. Teaches how to interpret artistic meaning by analyzing artworks formally as well as in their historical contexts, such as the predominant subject matters and styles of their period. Encourages students to integrate the arts into their daily lives habitually, so that they become lifelong learners and educators. Places emphasis on the global, trans- and intercultural nature of human creativity and its impacts.

### HUM 101H HH Humanities Through the Arts 3

Studies the media and compositional elements of the various art forms (literature, music, visual arts, theater, film, dance, and architecture), for greater understanding and enjoyment. Teaches how to interpret artistic meaning by analyzing artworks formally as well as in their historical contexts, such as the predominant subject matters and styles of their period. Encourages students to integrate the arts into their daily lives habitually, so that they become lifelong learners and educators.

### HUM 120R HH Humanities Forum 3

Introduces students to a wide variety of aspects of the humanities. Provides enriched learning situations in which students are exposed to humanities events or noted guest scholars and other lecturers. Requires attendance of a choice of specified events on campus and off, as well as of workshop meetings with an instructor. May be repeated for a maximum of 6 credits toward graduation.

### HUM 2010 (Cross-listed with: HUM 201G) HH World History Through the Arts I 3

Studies early societies through the 1600s, as the first part of a two-part series which examines world civilizations through the arts. Explores formative creative events in history and their relationships to modern issues. Presents perspectives of traditional humanistic values of arts and ideas. Investigates how others have dealt with problems that humans faced in the past, and possible strategies for problem solving that might aid students today.

### HUM 201G (Cross-listed with: HUM 2010) HH World History Through the Arts I 3

Studies early societies through the 1600s, as the first part of a two-part series which examines world civilizations, including non-Western civilizations, through the arts. Explores formative creative events in history, and their relationships to modern issues. Presents perspectives of traditional humanistic values of arts and ideas. Investigates how others have dealt with problems that humans faced in the past, and possible strategies for problem solving that might aid students today. Promotes a trans- and intercultural, global understanding of human creativity and its impact through the ages.

### HUM 201H HH World History Through the Arts I 3

The first of a two-part series which examines world civilizations through the arts. Studies early societies through the 1600s. Explores formative creative events in history and their relationships to modern issues. Presents perspectives of traditional humanistic values of arts and ideas. Investigates how others have dealt with problems that humans faced in the past, and possible strategies for problem solving that might aid students today.

### HUM 2020 HH World History Through the Arts II 3

Studies societies from the 1600s, as the second part of a two-part series which examines world civilizations through the arts. Explores formative creative events in history and their relationships to modern issues. Presents perspectives of traditional humanistic values of arts and ideas. Investigates how others have dealt with problems that humans face in the past, and possible strategies for problem solving that might aid students today.

### HUM 202G HH World History Through the Arts II 3

Studies societies from the 1600s, including non-Western societies, as the second part of a two-part series which examines world civilizations through the arts. Explores formative creative events in history and their relationships to modern issues. Presents perspectives of traditional humanistic values of arts and ideas. Investigates how others have dealt with problems that humans face in the past, and possible strategies for problem solving that might aid students today. Promotes understanding of the global, trans- and intercultural nature of human creativity and its impacts.

### HUM 202H HH World History Through the Arts II 3

The second of a two-part series which examines world civilizations through the arts. Studies societies from the 1600's. Explores formative creative events in history and their relationships to modern issues. Presents perspectives of traditional humanistic values of arts and ideas. Investigates how others have dealt with problems that humans face in the past, and possible strategies for problem solving that might aid students today.

### HUM 203G HH Art Form Focus I 3

Surveys the nature, history, and possibilities of one specific art form, such as painting, sculpture, theater, architecture, dance, music, or literature, in the context of the influence that art forms exert on each other. Deals with characteristics of a chosen art form prior to 1500 in more depth than HUM 1010 or 2010 can, while highlighting how creative events in human history always are in dialogue both with the social discourses of their times and with each other.

### HUM 204G HH Art Form Focus II 3

Surveys the nature, history, and possibilities of one specific art form, such as painting, sculpture, theater, architecture, dance, music, or literature, in the context of the influence that art forms exert on each other. Deals with characteristics of a chosen art form after 1500 in more depth than HUM 1010 or 2020 can, while highlighting how creative events in human history always are in dialogue both with the social discourses of their times and with each other.

# Course Descriptions

**HUM 2100** **HH**  
**Adventures of Ideas Through 1500**  
**3**  
Studies great written or visual texts in the Western or Eastern history of ideas--artistic, literary, philosophical, religious, political, technological, or scientific--from Antiquity through 1500. Readings and thematic focus vary by instructor, but all courses interrelate texts from different disciplines and world regions under one broad topic relating to the human condition, such as love, death, war and peace, family, justice, the state etc.

**HUM 210H** **HH**  
**Adventures of Ideas Through 1500**  
**3**  
\* Prerequisite(s): Enrollment in the UVU Honors program or approval by the instructor.

Studies great written or visual texts in the history of ideas--artistic, literary, philosophical, religious, political, technological, or scientific--from Antiquity through 1500. Readings and thematic focus vary by instructor, but all courses interrelate texts from different disciplines and world regions under one broad topic relating to the human condition, such as love, death, war and peace, family, justice, the state etc. This Honors version of HUM 2100 requires more rigorous reading and writing assignments and is open to students in the Honors program or students with special approval from the instructor only.

**HUM 2200** **HH**  
**Adventures of Ideas After 1500**  
**3**

Studies great written or visual texts in the Eastern or Western history of ideas--artistic, literary, philosophical, religious, political, technological, or scientific--from the Renaissance through the present. Readings and thematic focus vary by instructor, but all courses interrelate readings from different disciplines and world regions under one broad topic relating to the human condition, such as individuality, power, health, freedom, violence, the natural environment, etc.

**HUM 220H** **HH**  
**Adventures of Ideas After 1500**  
**3**  
\* Prerequisite(s): Enrollment in the Honors Program or instructor's approval

Studies great written and visual texts in the Eastern or Western history of ideas--artistic, literary, philosophical, religious, political, technological, or scientific--from the Renaissance through the present. Readings and thematic focus vary by instructor, but all courses interrelate readings from different disciplines and world regions under one broad topic relating to the human condition, such as individuality, power, health, freedom, violence, the natural environment, etc. This Honors version of HUM 2200 requires more rigorous reading and writing assignments and is open to students in the Honors program or students with special approval from the instructor only.

**HUM 2500**  
**Introduction to Ancient Greek I**  
**6**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005

Allows students the opportunity to intensively study the Ancient Greek language at the introductory level. Focuses primarily on Attic Greek. Focuses primarily on grammar and textbook exercises with some analysis of literary and/or philosophical selections in Ancient Greek. Relates particularly to students interested in studying Ancient Greek philosophy or Ancient Greek literature, and offers an important grounding for students interested in studying the New Testament.

**HUM 2510**  
**Introduction to Ancient Greek II**  
**6**  
\* Prerequisite(s): HUM 2500

Allows students to continue intensive study of the Ancient Greek language at the introductory level. Focuses primarily on Attic Greek. Focuses primarily on grammar and textbook exercises with some analysis of literary and/or philosophical selections in Ancient Greek. Relates particularly to students interested in studying Ancient Greek philosophy or Ancient Greek literature and an important grounding for students interested in studying the New Testament.

**HUM 281R**  
**Internship**  
**1 to 6**  
\* Prerequisite(s): Approval of Cooperative Coordinator  
\* Prerequisite(s) or Corequisite(s): Completion of at least nine credits of class work in Humanities.

Allows pre-advanced Humanities students to receive credit for Humanities-related service as a paid or unpaid intern in a governmental, not-for-profit, or private agency. Provides practical and research development in the selected areas of service so as to further students' academic and professional interests and goals. Internship must be supervised by agency representative. Must be approved by Humanities internship advisor and department chair and written contracts must be completed and signed. Credit is determined by the number of hours a student works during the semester. May be repeated for a maximum of 9 credits toward graduation. May be graded credit/no credit.

**HUM 290R**  
**Independent Study**  
**1 to 3**  
Provides independent study as directed in reading and individual projects. Request must be submitted for approval by the department. Students may do independent study for one, two or three credits with a limit of three credits applying toward graduation with an AA/AS degree.

**HUM 295R**  
**Directed Readings**  
**1 to 3**  
Provides an opportunity for second year students to do in-depth research within the Humanities. Study is limited to advanced work beyond that which can be completed in existing, available classes. A proposal must be submitted and approved by the department prior to enrollment.

**HUM 3060 (Cross-listed with: ENGL 3060)**  
**Visual Rhetoric**  
**3**  
\* Prerequisite(s): ENGL 2010 with a grade of C- or higher and University Advanced Standing

Investigates the growing academic and cultural interest in the rhetorical nature of visual texts. Teaches critical thinking about the consumption and productions of images and multimodal texts. Explores visual grammars and other theories of visual rhetoric as articulated by contemporary image, language, and scholars of rhetoric. Encourages the development of theoretical and practical knowledge through reading, discussion, and analysis as well as through the production of visual texts and written work.

**HUM 320R**  
**Topics in Humanities**  
**1 to 3**  
\* Prerequisite(s): (ENGL 2010 or at least sophomore status) and University Advanced Standing

Studies varying topics such as a theme (e.g., death or story-telling), figure (e.g., John Cage or Michelangelo), or movement (e.g., DaDa or Pragmatism) in humanities. Involves study of more than one art form (e.g., film, literature, and music) or discipline (e.g., art, history, and biology). May be repeated for a maximum of 6 credits toward graduation with different topics.

**HUM 325R**  
**Area Studies in Humanities**  
**3**  
\* Prerequisite(s): (ENGL 2010 or at least sophomore status) and University Advanced Standing

Studies the literature, philosophy, and arts of a particular geographical area. Topics vary. May be repeated for a maximum of 6 credits toward graduation with different topics.

**HUM 330R**  
**Period Studies in Humanities**  
**3**  
\* Prerequisite(s): (ENGL 2010 or at least sophomore status) and University Advanced Standing

Studies a particular period within the humanities (such as the medieval world, Romanticism, or Modernism). Involves study of more than one art form (e.g., music, art, and literature) or discipline (such as literature and philosophy) from during the chosen period. Topics vary. Repeatable, with different topics, toward graduation.

**HUM 3500****Approaches to Humanities WE****3**

\* Prerequisite(s): University Advanced Standing

Surveys recent critical and aesthetic theory for each art form and teaches students how to apply theoretical approaches to the interpretation of individual texts, films, artworks, buildings, performances, etc. Includes readings of seminal works by philosophers, academic or professional critics, and practicing artists. Studies examples where the apparent divide between theory and practice is collapsed, where, for instance, an artistic product in itself may have provided a new approach for future artistic productivity and interpretation, or where a theoretical contribution has been made in such a way as immediately to demonstrate a certain creative practice.

**HUM 3800 (Cross-listed with: PHIL 3800)****Aesthetics****3**

\* Prerequisite(s): University Advanced Standing

Studies aesthetics as perceived by the disciplines of philosophy, psychology, sociology, anthropology, history, and others. Analyzes art forms, including the visual arts, literature, music, and theater from the perspectives of philosophers such as Plato, Aristotle, Kant, Hume, Dewey, Danto, Bell, Collingwood, Thoreau, and Dickie.

**HUM 3820 (Cross-listed with: PHIL 3820)****Philosophy Through Literature****3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Provides students with an interdisciplinary approach to the study of philosophy through literature. Gives students the opportunity to read some of the most engaging thinkers and how they offer differing perspectives through a variety of texts. Breaks down some of the strict divisions placed between philosophical and literary texts.

**HUM 400R****Humanism and Posthumanism****3**

\* Prerequisite(s): At least junior standing and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): ENG 2010

Explores Humanism or Posthumanism across the arts and their diverse cultural history. Defines humanism as varieties of the traditional view that Man is the measure of all things, and Posthumanism as an umbrella term for recent theoretical approaches within the humanities that challenge this view, for instance by placing humanity in the context of global or universal, intrinsically diverse and self-generating, scientific, technological, or ecological systems. May compare aspects of humanism throughout space and time, in its diverse cultural manifestations, or may focus on a twenty-first-century view of these long traditions. May also choose the example of the humanistic or posthumanistic aspects of a single time period, culture, or interdisciplinary oeuvre. Offers an opportunity to advanced students to synthesize, critique, and strengthen their own viewpoints, and to expand their interdisciplinary understanding of human expression, in response to the most fundamental or recent currents within intellectual history. May be repeated for a maximum of 6 credits toward graduation.

**HUM 401R****Forms and Genres Across the Arts****3**

\* Prerequisite(s): At least junior standing and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): ENGL 2010

Explores forms and genres of imagery, narrative, drama, composition, or performance, across all art forms. Fosters analytical and interpretative skills in reading all kinds of texts. Highlights the inextricable interrelations among all realms of sensual, intellectual, aesthetic, and cultural experience. Illuminates the polar dynamics of tradition and innovation, continuity and change, and departure and return throughout the history of human creativity. May be repeated for a maximum of 6 credits toward graduation.

**HUM 414R****Advanced Topics in Humanities****3**

\* Prerequisite(s): At least junior standing and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): ENGL 2010

Studies a topic relevant to cross-disciplinary humanities at an advanced level of critical engagement. Involves more than one art form or discipline of humanistic inquiry. Requires study of secondary literature and theoretical texts. May be repeated, with different topics, for a maximum of 6 credits toward graduation.

**HUM 4300 (Cross-listed with: PHIL 4300)****Environmental Aesthetics****3**

\* Prerequisite(s): (PHIL 000, PHIL 100H, PHIL 2050, PHIL 205H, PHIL 205G, ENST 3000, HUM 1010, HUM 101H, HUM 101G, or HUM 3500) and University Advanced Standing

Introduces students to emerging themes in environmental aesthetics. Evaluates concepts and attitudes toward nature including, but not limited to, the concept of beauty in natural and human-made environments from a cross-cultural perspective. Studies environmental formalism, cognitivism and non-cognitivism, as well as divergent spiritual, ecological, religious, and moral approaches to the appreciation of nature.

**HUM 481R****Internship****1 to 6**

\* Prerequisite(s): Departmental chair approval and University Advanced Standing

Allows advanced Humanities students to receive credit for Humanities-related service as a paid or unpaid intern in a governmental, not-for-profit, or private agency. Provides practical and research development in the selected areas of service so as to further students' academic or professional interests or goals. Internship must be supervised by agency representative. Must be approved by Humanities internship advisor and department chair and written contracts must be completed and signed. Credit is determined by the number of hours a student works during the semester. May be repeated for a maximum of 9 credits toward graduation. May be graded credit/no credit.

**HUM 490R****Directed Readings****1 to 3**

\* Prerequisite(s): Department Chair Approval, Instructor Approval, and University Advanced Standing

Designs reading and writing assignments in consultation with a faculty member to meet special needs or interests not available through regular course work. May be repeated for a maximum of 6 credits toward graduation.

**HUM 4910****Humanities Capstone WE****3**

\* Prerequisite(s): Senior Standing and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): HUM 3500

Instructs Humanities majors in their last year of the program on how to conduct research, develop a complex critical argument, and write and defend a senior thesis. Encourages students to explore their desired professional or graduate research interests.

### Health and Wellness Coaching (HWC)

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#### **HWC 2000** **Lifestyle Medicine for Health Coaching** **2**

Examines the use of lifestyle medicine practices in health coaching. Focuses on health biometrics, evidence-based health practices, wellness and well-being concepts, chronic disease, health behaviors, social, and behavioral risks factors such as healthy weight, optimal nutrition and hydration, physical activity and sedentary lifestyle, sleep, stress and emotional wellness, and substance use.

### Int College and Community Stds (ICCS)

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#### **ICCS 1010** **Self Determination I** **2**

Introduces self-management and self-determination skills contributing to personal effectiveness in the workplace, academic environments, and independent living. Addresses understanding of differences among people, disability disclosure, expressing preferences, making informed choices, goal setting, and self-advocacy.

#### **ICCS 1020** **Living and Working in the Community I** **2**

Provides instruction in the development of independent living skills including identifying and evaluating housing options, care and maintenance of a home, meal planning, and household budgets. Develops skills for navigating the community and accessing resources.

#### **ICCS 1030** **Social Skills, Sexuality, and Mature Relationships** **2**

Addresses the development of social skills to support adult friendships and intimate relationships. Includes an analysis of contextual variables affecting social skills, understanding of the boundaries of various adult relationships, and appropriate behavior in intimate relationships. Introduces the critical concepts of consent, and safety in relationships.

#### **ICCS 110R** **Career Development I** **1 to 3** \* Corequisite(s): ICCS 120R

Explores career options through the use of videos, printed material, and personal contact with professionals and vocational experts. Focuses on equipping students with skills and information used for job hunting, resume preparation, job applications, and interviewing. May be repeated for a maximum of 9 credits toward graduation.

#### **ICCS 120R** **Career Development Practicum I** **1 to 3**

Engages in a variety of internship/practicum experiences of varying lengths to identify personal strengths and abilities and the possible career paths that match these skills. Identifies areas for personal development to increase career options and promote employment success. May be repeated for a maximum of 9 credits toward graduation.

#### **ICCS 2010** **Self Determination II** **2**

Focuses on the application of self-determination to everyday challenges. Introduces the application of personal goal setting and self-advocacy to achieve career and independent living goals. Supports the development of self-awareness and self-reflection as tools to move toward individual goals.

#### **ICCS 2020** **Living and Working in the Community II** **2**

Explores the wide variety of community supports and services available for living and working independently. Identifies necessary supports such as banking, healthcare, government agencies, businesses, and recreational options in the local community and teaches appropriate communication and social skills to demonstrate the ability to access necessary services and supports.

#### **ICCS 2030** **Problem Solving for Adulthood** **2**

Introduces the social problem-solving framework. Explores application of the framework to problems common to living and working independently, including problems in relationships, issues that arise in the workplace, and problems associated with living independently in the community. Teaches problem-solving skills to help make appropriate choices in challenging situations such as interpersonal conflict, personal safety, and coercive interactions.

#### **ICCS 210R** **Career Development II** **1 to 3** \* Corequisite(s): ICCS 220R

Provides instruction in the skills necessary for maintaining employment such as communicating effectively with supervisors, interacting appropriately with others in the workplace, advocating for personal needs/ supports, performing necessary duties, and giving and receiving feedback. Teaches the application of problem-solving skills to maintain employment. May be repeated for a maximum of 9 credits toward graduation.

#### **ICCS 220R** **Career Development Practicum II** **1 to 3**

Provides internship/practicum experiences on campus and in the community. Teaches social, communication, and self-advocacy skills to promote success in the workplace. Supports interaction with supervisors and co-workers in a positive and productive manner to maintain relationships and enhance job performance. Teaches strategies to build relationships and contacts for the future while developing marketable skills. May be repeated for a maximum of 9 credits toward graduation.

### Interdisciplinary Studies Prog (IDST)

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#### **IDST 281R** **Interdisciplinary Studies Internship** **1 to 8**

\* Prerequisite(s): Department Approval

Provides supervised, practical, and professional experience for lower division students. May be repeated for a maximum of 8 credits toward graduation. May be graded Credit/No Credit.

#### **IDST 481R** **Interdisciplinary Studies Internship** **1 to 8**

\* Prerequisite(s): Junior standing, department approval, and University Advanced Standing

Provides supervised, practical, and professional experience for upper division students preparing for a variety of careers associated with interdisciplinary studies. May be repeated for a maximum of 8 credit hours. May be graded credit/no credit.

**IDST 4900**  
**Interdisciplinary Studies Capstone**

**3**  
\* Prerequisite(s): Senior status and University Advanced Standing

For students nearing completion of an Interdisciplinary Studies minor. Provides an opportunity for students to synthesize their interdisciplinary course work. Requires and facilitates a major research project. Addresses the theoretical and practical problems of interdisciplinary research and writing. Requires participation in peer review groups and in-class presentations.

**Information Management (IM)****IM 1010**  
**Basic Computer Applications**

**3**  
\* Prerequisite(s): Basic keyboarding skill

Prepares students for the IC3 certification exam. Teaches basic computer fundamentals, digital living concepts, and key applications. Includes PC computer system concepts, basics of the Windows operating system, software licensing and installation, electronic communication, Internet and research fluency, and ethical computer usage. Provides hands-on experience in the basic features of Microsoft Word, PowerPoint, Excel, and Access as common business problem solving and communication tools. May be delivered hybrid and/or online. Lab access fee of \$45 for computers applies. Canvas Course Mats \$78/Cengage applies.

**IM 101A**  
**Word Processing Applications**

**1**  
Introduces word processing software. Emphasizes commands needed to create, format, revise, save, and print documents. Includes inserting and formatting graphics, tables, and tabs into a text document. Lab access fee of \$45 for computers applies.

**IM 101B**  
**Presentations Applications**

**.5**  
Introduces presentation software. Emphasizes process of creating, formatting, revising, saving, print, and showing presentations. Includes planning a slide show, choosing appropriate designs, and using templates. Lab access fee of \$45 for computers applies.

**IM 183R**  
**IM Student Chapter**

**1**  
Develops insights regarding lifetime careers and advancement opportunities in business, education, and industry through participation in a student organization. Helps students develop professionally through opportunities to use and apply, human relations, management, social, communicative, and organizational skills. Provides opportunities for leadership positions, committee assignments, participation in school and community activities, and competition in state and national competitive events. Requires payment of local, state, and national dues. Students may choose membership in Phi Beta Lambda, the collegiate division of FBLA (Future Business Leaders of America), or IAAP (International Association of Administrative Professionals). Designed for information management and education-oriented students but open to all students interested in lifetime business skills. Graded credit/no credit. May be repeated for a maximum of 4 credits toward graduation. Lab access fee of \$45 for computers applies.

**IM 184R**  
**IM Student Leadership**

**1**  
\* Prerequisite(s): Instructor Approval  
For Phi Beta Lambda officers and International Association of Administrative Professionals. Includes development, organization, and direction of the Program of Work for student chapters. Graded on a credit/no credit basis. May be repeated for a maximum of 4 credits toward graduation.

**IM 2010**  
**Business Computer Proficiency**

**3**  
\* Prerequisite(s): (IM 1010 recommended) or (Basic Computer Applications Challenge Exam with a minimum score of 80% recommended)

Encompasses two software applications, Microsoft Excel and Microsoft Access, from a business perspective. Covers intermediate level problem solving and production skills. Uses business applications in case study settings to solve problems and accomplish tasks. In company with IM 1010, meets/exceeds the Board of Regent's Business Core Advisory Committee's requirement and the Business Computer Proficiency required by the Woodbury School of Business. May be delivered online. Lab access fee of \$45 for computers applies. Canvas Course Mats \$105/Pearson applies.

**IM 201A**  
**Spreadsheet Applications**

**2**  
\* Prerequisite(s): (IM 1010 with a grade of B- or higher) or (Basic Computer Applications Exam with a score of 80% or higher) or Instructor Approval

Introduces spreadsheet software. Emphasizes process of creating, formatting, enhancing, revising, saving, and printing spreadsheets. Stresses use of formulas and functions to solve problems. Includes creating charts using spreadsheet data. Lab access fee of \$45 for computers applies.

**IM 201B**  
**Database Applications**

**1**  
\* Prerequisite(s): (IM 1010 with a grade of B- or higher) or (Basic Computer Applications Exam with a score of 80% or higher) or Instructor Approval

Introduces database software. Emphasizes process of designing, modifying, and creating related tables. Includes creating forms, generating reports and labels and constructing queries. Lab access fee of \$45 for computers applies.

**IM 2100**  
**Document Processing Applications**

**3**  
\* Prerequisite(s): Basic keyboarding skills  
Teaches intermediate word processing features in a Windows environment for the production of business letters, envelopes, multiple-page documents, reports, newsletters, tables, and other specialized business documents. Emphasizes identification and troubleshooting problems associated with soft copy document production. Stresses proper formatting. Lab access fee of \$45 for computers applies. Canvas Course Mats \$78/Cengage applies.

**IM 2300**  
**Information Management Principles**

**3**  
\* Prerequisite(s): IM 1010 or IM 2010 or IM 2100  
Includes storage and retrieval systems, managing manual and electronic files, cross referencing, automated records systems, safety, security, and disaster recovery. Discusses the records cycle, equipment, supplies, retention schedules, and micrographics and image technology. Explores legal and ethical concerns. Lab access fee of \$45 for software applies. Canvas Course Mats \$78/Cengage applies.

# Course Descriptions

## **IM 2400 Presentation Applications**

**3**  
\* Prerequisite(s): IM 1010 or IM 2010 or IM 2100 or Instructor Approval

Uses a presentation software tool to create computer slide presentations, business charts and graphs, illustrations for desktop publishing, text charts, and other business-oriented publications. Incorporates presentation templates, clip art, charts and graphs, scanned images, sound, animations, video, and hyperlinks to create projects. Lab access fee of \$45 for computers applies.

## **IM 2500 Graphic Applications**

**3**  
\* Prerequisite(s): IM 1010 or IM 2100 or Instructor Approval

Explores digital image editing using Adobe Photoshop and Adobe Illustrator. Provides an overview of image optimization processes for the web. Lab access fee of \$45 for computers applies.

## **IM 2600 Spreadsheet Applications**

**3**  
\* Prerequisite(s): MAT 0990 or equivalent business math knowledge; basic keyboarding skill

Provides an extensive study and hands-on examination of practical business applications using electronic spreadsheets. Provides comprehensive coverage of features available in the current Windows version of spreadsheet software. Lab access fee of \$45 for computers applies. Canvas Course Mats \$77/McGraw applies.

## **IM 2800 Integrated Software Projects**

**3**  
\* Prerequisite(s) or Corequisite(s): IM 2100 and IM 2600 or Instructor Approval

Emphasizes organizing projects, prioritizing tasks, working under time pressures, and dealing with stressful situations. Requires completion of advanced document production in an automated environment using current versions of suite software packages. Course projects stress self-motivation, acceptance of responsibility, critical thinking, and effective decision making. Designed to prepare students majoring in administrative information management to enter the work force, and should be taken at the end of a program in order to grasp the concepts presented and, with little supervision, produce material acceptable on the job. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

## **IM 281R Internship**

**1 to 8**  
\* Prerequisite(s): Departmental Approval

For Information Management majors only. Provides a transition from school to-work where learned theory is applied to actual practice through a meaningful on-the-job experience. Includes student, employer and coordinator evaluations, on-site work visits, and written assignments. Completers should obtain experience in establishing and accomplishing individualized work objectives that improve work performance. Internship is intended for entry level IM students who are working at that level. Credit is determined by the number of hours a student works during the semester and completion of individually set goals. May be repeated for a maximum of 9 credits towards graduation. May be graded credit/no credit.

## **IM 290R Current Topics in Information Management**

**1 to 3**  
\* Prerequisite(s): Departmental Approval

Designed for students interested in specific information management tools and concepts. Includes relevant and changing topics and tools used by business and industry. Emphasizes hands-on experience along with lectures and demonstrations. May be taken for a total of 9 credits toward graduation. Lab access fee of \$45 for computers applies.

## **IM 3500 Desktop Publishing Applications**

**3**  
\* Prerequisite(s): (IM 2100 or Instructor approval) and University Advanced Standing

For administrative information management or administrative information support majors and others interested in learning desktop publishing features. Teaches the use of current desktop publishing software in a Windows environment. Emphasizes production of complex documents for the purpose of publication. Teaches formatting and design principles through the use of theory instruction, demonstration, and hands-on experience. Lab access fee of \$45 for computers applies.

## **IM 3600 Advanced Excel for Decision Making**

**3**  
\* Prerequisite(s): IM 2010 or IM 2600 and University Advanced Standing

Uses Microsoft Excel as a reporting tool and as a modeling tool for solving business problems. Focuses on reporting, analyzing data, and building analytic models to improve operations, increase profits, or reduce costs. Builds models to help make business decisions including advanced functions, dashboards, forecasting, optimization, and simulation. Lab access fee of \$45 applies.

## **IM 3700 Database Applications**

**3**  
\* Prerequisite(s): Basic keyboarding skill and University Advanced Standing

Explores creating and utilizing database files using database management software. Covers basic concepts of database management emphasizing commonly used applications. Teaches use of reports, letters, labels, custom screens, and queries in a business setting. Lab access fee of \$45 for computers applies.

## **IM 4300 Information Workflow Management**

**3**  
\* Prerequisite(s): (TECH 3400 or Instructor approval) and University Advanced Standing

Emphasizes leadership, organization, problem-solving, and critical thinking skills in directing the completion of documents and projects in an automated and integrated environment. Covers a variety of leadership activities including planning and organizing new projects; directing new and ongoing operations; and using available technology to process, analyze, manage, and communicate information. Stresses leadership, self-motivation, effective decision making, and critical- and creative-thinking skills. Teaches the role of a project manager or business manager. Lab access fee of \$45 for software applies.

## **IM 481R Internship**

**1 to 8**  
\* Prerequisite(s): Instructor approval and University Advanced Standing

For Information Management majors only. Provides a transition from school to-work where learned theory is applied to actual practice through a meaningful on-the-job experience. Includes student, employer and coordinator evaluations, on-site work visits, and written assignments. Provides experience in establishing and accomplishing individualized work objectives that improve work performance. Internship is intended for senior IM students who are working at that level. Credit is determined by the number of hours a student works during the semester and completion of individually set goals. May be repeated for a maximum of 9 credits towards graduation. May be graded credit/no credit.

## **IM 490R Advanced Topics in Information Management**

**1 to 3**  
\* Prerequisite(s): Departmental Approval and University Advanced Standing

Includes relevant and changing topics and tools used by business and industry. Emphasizes hands-on experience. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 for computers applies.

**IM 496R****Information Management Seminar****1 to 3**

\* Prerequisite(s): IM 2300 and University Advanced Standing

Provides short courses, workshops, and special programs in information management or current business topics. May be repeated for up to 6 credits toward graduation.

**IM 497R****Independent Study****1 to 3**

\* Prerequisite(s): Instructor Approval and University Advanced Standing

For bachelor's degree students and other interested persons. Offers independent study as directed in reading or in individual projects; offered at the discretion and approval of the department chairperson. May be repeated for a maximum of 9 credits toward graduation.

## **Info Systems and Technology (INFO)**

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**INFO 1000****E-Commerce Techniques for Small Business****3**

\* Prerequisite(s) or Corequisite(s): Basic Computer Proficiency or IM 1010 strongly recommended

Introduces strategies and best practices for analyzing a target market, designing an online business, and implementing an e-Commerce solution. Discusses online marketing, branding, usability, search engine optimization, personalization, rapid development, theming, and security. Requires implementation of an online small business individually or with a group. Lab access fee of \$45 for computers applies.

**INFO 1120****Information Systems and Technology Fundamentals****3**

\* Prerequisite(s): IM 1010 recommended

Explores the fundamental concepts of information technology and the role played by enterprise systems in business and organizational strategy. Introduces types of systems, computer organization and hardware, operating systems and networking, project planning, software development, computer ethics, and career paths for enterprise developers and IT professionals. Lab access fee of \$45 for computers applies.

**INFO 1200****Computer Programming I for IS IT****3**

\* Prerequisite(s): MAT 1010 or higher; INFO 1120 recommended

Presents concepts of modern computer programming. Emphasizes problem-solving, algorithm development, and programming design. Stresses constructs, data representation, fundamental types and data structures, decision structures, repetition structures, methods, arrays, classes, and objects. Includes testing, debugging, and documentation. Introduces object-oriented, event-driven programming models. Lab access fee of \$45 for computers applies.

**INFO 2100****Computer Proficiency for Technology Professionals****3**

\* Prerequisite(s): (ENGL 1010, ENGH 1005, or higher) and (MAT 1030 or higher)

For Technology Management and Construction Management students. Provides opportunities for students to gain proficiency in using Microsoft Office (Word, PowerPoint, Excel, and Access) to enhance their business productivity and problem-solving skills. Teaches students to apply information technologies to problem situations. Meets computer proficiency requirement for Technology Management degree. Lab access fee of \$45 for computers applies.

**INFO 2200****Computer Programming II for IS IT****3**

\* Prerequisite(s): (INFO 1200 or CS 1400 with a grade of C- or better within the past seven years) or Departmental Approval

\* Prerequisite(s) or Corequisite(s): MATH 1050 or higher

Focuses on object-oriented design and programming methodologies. Teaches inheritance, polymorphism, and encapsulation. Develops knowledge to abstract functionality by using interfaces. Covers collection classes, generics, exception handling, file handling, and more advanced topics such as accessing databases via LINQ, socket/network programming, and multi-threading. Lab access fee of \$45 for computers applies.

**INFO 2410****Database Fundamentals****3**

\* Prerequisite(s): (INFO 1120 recommended) or (IM 2010 recommended)

Introduces concepts and use of database management systems. Presents the relational model, Structured Query Language, database design including normalization theory, and application development tools using an enterprise-level relational database management system. Lab access fee of \$45 for computers applies.

**INFO 2420****Web Application Design****3**

\* Prerequisite(s): INFO 1120 recommended or IM 1010 recommended

Focuses on the design and construction of Web pages and maintenance of Web sites. Includes foundations in standards-based HTML and CSS. Covers code markup, design concepts and web graphics manipulation, page layout, form development, and usability and accessibility issues. Teaches use of Web authoring tools for code development and site management. Requires individual projects. May be delivered hybrid and/or online. Lab access fee of \$45 for computers applies.

**INFO 281R****Internship****1 to 8**

\* Prerequisite(s): Department Approval

Provides opportunities to apply classroom theory on the job. Requires work as paid employees in a job that relates to their careers while enrolled at the College. Students meet at least monthly with the Departmental Internship Coordinator. Completers meet individually set goals. Six credits may be applied toward graduation with an AAS degree and three credits toward certificate programs. May be graded credit/no credit.

**INFO 297R****Independent Study****1 to 3**

\* Prerequisite(s): Department Approval

Offers independent study as directed in reading in individual projects. Approval for this course is at the discretion of the department chairperson. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 for computers applies.

**INFO 3120****Management Information Systems****3**

\* Prerequisite(s): [(MKTG 220G or ENGL 2010) and (Computer Proficiency or INFO 1120 or IM 2010 or IM 2600 with a grade of C- or better within the past five years) or departmental approval] and University Advanced Standing

Introduces the field of information systems and technology. Discusses how to use and manage the most current information technologies (IT) from the perspective of a general business manager. Studies the Internet, Intranets, and Extranets for electronic commerce and enterprise collaboration. Examines business cases demonstrating IT contributions to competitive advantage, reengineering business processes, and decision making. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **INFO 3130**

### **Introduction to Applied Data Analytics**

**3**

\* Prerequisite(s): Basic statistics course (MGMT 2340 or STAT 1040 or STAT 1045 or STAT 2040 or STAT 2050 or PSY 3110), and basic knowledge of Microsoft Excel, or Departmental Approval and University Advanced Standing

Intended for people who will be working with data analysts and data scientists, managing analytics projects, or investing in analytics ventures, and aspiring data scientists. Provides opportunities for students to gain skills in data-analytic thinking required to succeed in today's analytical and data-driven economy. Introduces the basics of data management and data analytics. Covers core analytic techniques: data exploration and visualization, pattern discovery (segmentation and association), predictive modeling (decision tree, logistic regression, neural network), and forecasting. Lab access fee of \$45 for computers applies.

## **INFO 3300**

### **Web Systems Development**

**3**

\* Prerequisite(s): [(INFO 1200 or IT 1200 or CS 1400) and (INFO 2410 or CS 3520) both with a grade of C- or higher within the past seven years] and University Advanced Standing; INFO 2420 recommended

Emphasizes interpretation of business processes, process modeling, and implementation of the models as web applications. Instructs how to implement web solutions that use a relational database backend to manage site data using an industry-standard programming language to interact with the database to produce dynamic web content. Covers parameter passing, cookie storage, and session variables. Introduces application platforms that can be customized to new business requirements. Highlights how to use content management systems (CMS) and how to customize such systems to quickly produce web applications to meet business needs. Lab access fee of \$45 applies.

## **INFO 3330**

### **Client-Side Web Development**

**3**

\* Prerequisite(s): [(INFO 1200 or IT 1200 or CS 1400) and (INFO 2410 or CS 3520) both with a grade of C- or higher within the past seven years] and University Advanced Standing; INFO 2420 recommended

Teaches how to create high performance and scalable web sites using JavaScript across the client and server (full development stack). Instructs how to program directly in JavaScript as well as how to utilize JavaScript libraries and frameworks. Introduces popular JavaScript libraries to perform client-side form validation, make AJAX server calls, and deploy mobile apps based on web standards. Covers web application development using client-side frameworks that implement model view controller design patterns. Introduces server-side JavaScript tools and the NoSQL database to manage application data. Lab access fee of \$45 applies.

## **INFO 3360**

### **Server-Side Web Frameworks**

**3**

\* Prerequisite(s): [(INFO 1200 or IT 1200 or CS 1400) and (INFO 2410 or CS 3520) both with a grade of C- or higher within the past seven years] and University Advanced Standing; INFO 2200 recommended  
\* Prerequisite(s) or Corequisite(s): INFO 3300

Emphasizes web application development using modern server-side frameworks for web site architecture as well as data integration technologies. Covers server-side architectural design patterns in depth using Model View Controller (MVC) frameworks. Covers Object Relational Mapping (ORM) tools for database integration as well as techniques to secure a website from common attacks. Teaches how to implement web site authentication and authorization, form validation, web services, and introduces unit testing and test-driven development. Instructs how to package and deploy applications to a web server. Lab access fee of \$45 applies.

## **INFO 3410**

### **Database Systems and Warehousing**

**3**

\* Prerequisite(s): (INFO 2410 or CS 3520 with a grade of C- or higher within the past seven years) and University Advanced Standing

Covers advanced database development topics and introduces a data warehouse model designed especially to support analytics and reporting needs. Database development topics covered include transaction management, performance optimization, data loading, and the development of stored procedures, triggers, and functions. Presents the data warehouse model in contrast to existing operational transaction systems. Analyzes business reporting needs, creates models for data warehouses based on the reporting needs, and uses SQL to create and populate tables based on dimensional models. Lab access fee of \$45 for computers applies.

## **INFO 3430**

### **Systems Analysis and Design WE**

**3**

\* Prerequisite(s): [INFO 2410 and (INFO 2420 or IT 2700)] or [IM 2600 and IM 2800] each with a grade of C- or higher within the past seven years] and (MKTG 220G or ENGL 2100) and University Advanced Standing

Introduces the systems development life cycle with a focus on systematic planning; requirements, process, and data analysis; and an overview of the design phase. Covers fundamental principles, effective processes, and techniques of project management, including scheduling and project control. Covers appropriate methodologies, tools, diagrams, and techniques for systems analysis, design, and project management. Requires working in teams to complete and present the first planning and analysis phases of a project for a client. Should be taken in the end of the junior year or first semester of the senior year. Should be taken in sequence with INFO 4430 immediately following this course. Lab access fee of \$45 for computers applies.

## **INFO 3700**

### **Health Informatics Fundamentals**

**3**

\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): INFO 2410 or ZOOL 1090 or HLTH 3200

Introduces the concepts, practices and ethics of health informatics. Includes a survey of current health care information systems, such as electronic health records, practice management systems, patient portals, consumer health informatics, disease registries, e-prescribing, telemedicine, and public health informatics. Surveys health care information exchange and related standards and classification systems used to implement interoperable computer-based patient records. Examines privacy and security measures, such as HIPAA, HITECH Act, and Meaningful Use and how they are related to data security, privacy and public perception. Lab access fee of \$45 for computers applies.

**INFO 3750**  
**Healthcare Information Systems Applications**

**3**  
 \* Prerequisite(s): [(INFO 1200 or IT 1200 or CS 1400) and (INFO 2410 or CS 3520) both with a grade of C- or higher within the past seven years] and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): INFO 3700

Provides pragmatic coverage of the topics and resources relevant to health informatics. Exposes students to real-world examples and skills related to the acquisition, representation, management, analysis, and use of different types of HIS data. Emphasizes issues such as standardization, security, and handling unstructured data. Includes assignments, a course project, and hands-on experience in applying informatics solutions in health care settings. May be delivered hybrid. Lab access fee of \$45 for computers applies.

**INFO 405G**  
**Global Ethical and Professional Perspectives in IS and IT GI WE**

**3**  
 \* Prerequisite(s): INFO 3430 and University Advanced Standing

Examines professional and ethical issues within the information systems and information technology fields with a global perspective. Covers ethical and legal issues IT professionals face dealing with computer and cybercrimes, privacy issues, freedom of expression, intellectual property, software development including risk analysis, and social networking. Includes career professional development through resumes, cover letters, and job interviews specific to information systems and technology. Focuses on global networked readiness, digital highways, and challenges that information technology organizations face. Lab access fee of \$45 for computers applies. Canvas Course Mats \$78/Cengage applies.

**INFO 4120**  
**Data Visualization**

**3**  
 \* Prerequisite(s): INFO 2410 and University Advanced Standing; INFO 3130 recommended

Focuses on extracting business intelligence from data sets for various applications including reporting and visual analytics in multiple domains including web analytics and business analytics to aid decision-making processes. Provides hands-on experience with a variety of business intelligence software for reporting and building visualizations and dashboards. Emphasizes how to extract, present and apply business intelligence to improve business decision making. Lab access fee of \$45 for computers applies.

**INFO 4130**  
**Data Science and Big Data Analytics**

**3**  
 \* Prerequisite(s): (STAT 2050 or MGMT 2340), INFO 3130, and University Advanced Standing

Capstone course extends the concepts of analytics to the analysis of large data-sets, and preparation of analysis reports and presentations describing implications of findings. Uses modern tools such as SAS and R for advanced analytics and Hadoop for big data. Covers the theory and methods of advanced data analytics such as clustering, association, decision trees, time series, and text analysis. Hands-on application using a big data lifecycle lab. Lab access fee of \$45 for computers applies.

**INFO 4135**  
**Data Security Analytics**

**3**  
 \* Prerequisite(s): IT 2700 and INFO 2410 and University Advanced Standing; (INFO 3130 and INFO 3410 recommended)

Introduces students to the concept of data analytics as applied to cyber security. Includes collection, aggregation, data mining, and analysis of various data sources. Utilizes data analytics tools that correlate data in order to identify security events that may go undiscovered by traditional detection and log analysis methods. Lab access fee of \$45 for computers applies.

**INFO 4300**  
**Enterprise Web Development**

**3**  
 \* Prerequisite(s): INFO 3300 and University Advanced Standing

Addresses the challenges of developing software applications in a corporate environment. Covers methods to interact with code repositories and commit developed code. Teaches how to create web applications using test-driven development and how to write unit tests for applications. Teaches how to create and group unit tests together and how to trigger the tests automatically when code changes are made. Implements cloud deployments of web applications and teaches how to manage cloud resource usage. Lab access fee of \$45 for computers applies.

**INFO 4410**  
**Database Administration**

**3**  
 \* Prerequisite(s): (INFO 2410 or CS 3520 within the past five years) and University Advanced Standing

Introduces students to the database administration tasks and tools of a Relational Database Management System (DBMS). Includes the core areas of installation and configuration, maintaining instances and databases, optimizing and troubleshooting, managing data, implementing security, and implementing high availability. Also, introduces NoSQL database solutions and their administration and configuration. Hands-on assignments provide students with opportunities to apply the knowledge gained in the course to a popular commercial database management system. Lab access fee of \$45 for computers applies.

**INFO 4415**  
**Database Security and Auditing**

**3**  
 \* Prerequisite(s): (INFO 3410 or IT 3700) and University Advanced Standing

Utilizing theory, scenarios, and step-by-step examples, this course provides a strong foundation in database security and auditing. Covers the following topics in depth: the importance of database security in contemporary business environments; Security; Profiles; Password policies, privileges and roles; Virtual Private Databases; Auditing; SQL injection; Database management security issues. Lab access fee of \$45 for computers applies.

**INFO 4420**  
**Mobile Application Development**

**3**  
 \* Prerequisite(s): (INFO 1200 or CS 1400) and (INFO 2410 or CS 3520) and University Advanced Standing; (INFO 2200 recommended or CS 1410 recommended)

Focuses on the design and development of native mobile device applications. Covers mobile interface design and development using navigation controls specific to a popular mobile development platform. Introduces various user interface controls including those for displaying single data values and data collections along with their event models. Teaches methods for integrating apps with cloud-based data stores and cloud-based authentication. Composes apps with data from web services. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **INFO 4425**

### **Web and Application Security**

**3**

\* Prerequisite(s): (IT 2700 or CS 2550) and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): INFO 3300 or CS 3520

Covers the security of web and mobile applications from offensive and defensive standpoints. Explores common vulnerabilities of web and mobile applications and various tools and techniques for identifying and mapping the attack surface of such applications. Explores various techniques and attack vectors for exploiting security flaws in web and mobile applications. Implements secure coding best practices, defensive architecture, and Content Security Policy to mitigate security flaws and protect the applications, the web client, the communication channel, and the server. Lab access fee of \$45 for computers applies.

## **INFO 4430**

### **Systems Design and Implementation**

**3**

\* Prerequisite(s): INFO 3430 and University Advanced Standing

Continuation of INFO 3430. Focuses on the design and implementation of an information system using an agile, iterative development approach. Utilizes self-organizing teams that will deliver working software with ongoing customer collaboration. Introduces use of a source control system to manage code base, an agile project management tool, and encourages continuous integration practices. Requires that students work in teams to complete and present a working system of a project for a client. Lab access fee of \$45 for computers applies.

## **INFO 4440**

### **Enterprise Computing Environments**

**3**

\* Prerequisite(s): (ACC 2020 or INFO 3120 or TECH 4420) and University Advanced Standing

Introduces students to Enterprise Computing Environments. Focuses particularly on the configuration and information processing capabilities of ecommerce systems and Enterprise Resource Planning (ERP) systems. Requires students to install, configure, and customize the Magento ecommerce system, and to manage master data. Introduces both Microsoft Dynamics and the SAP ERP system. Uses SAP and Dynamics to demonstrate how enterprise software supports business processes such as order processing, materials requirements management, shipping, invoicing, and purchasing. Requires students to configure a fictional business using the SAP ERP system. May be delivered hybrid. Lab access fee of \$45 for computers applies.

## **INFO 4550**

### **Senior Project**

**3**

\* Prerequisite(s): INFO 3430 and University Advanced Standing

Involves the implementation of a significant information system or information technology project. Requires students to work in teams to design and develop a working information system or information technology solution for a community client. Culminates in a presentation of the completed project by project developers to project stakeholders, interested faculty, and administration. Lab access fee of \$45 for computers applies.

## **INFO 459R**

### **Current Topics in Information Systems**

**3**

\* Prerequisite(s): (Junior Standing or Department Approval) and University Advanced Standing

Provides exposure to emerging technologies and topics of current interest in information systems. Varies each semester depending upon the changes in the information systems discipline or to address a focused area within the information systems discipline. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 for computers applies.

## **INFO 4700**

### **Healthcare Information Systems Management**

**3**

\* Prerequisite(s): University Advanced Standing

Overviews business practices related to health care information systems. Augments the study of the science of health information with an exposure to the practices whereby health care organizations set goals and objectives, design and implement IT solutions, manage the IT function and organization, and develop technology capital and operating budgets. Presents current best practices of the business of health informatics, drawn from industry journals and business analysis consultants. Covers the management aspects of the legal and ethical issues related to HIS including applying laws related to confidentiality and data security. Lab access fee of \$45 for computers applies.

## **INFO 481R**

### **Internship**

**1 to 3**

\* Prerequisite(s): One 3000 or 4000 level course in INFO, IT, MKTG, or MGMT; Department Approval; and University Advanced Standing

For upper-division students in information systems. Provides an opportunity to apply classroom theory while students work as employees in a job that relates to their careers in information systems. May be repeated for a maximum of 3 credits toward graduation.

## **INFO 489R**

### **Undergraduate Research in Information Systems**

**1 to 4**

\* Prerequisite(s): Department approval and University Advanced Standing

Provides the opportunity to conduct research under the mentorship of a faculty member. Practices the theoretical knowledge gained in prior major courses. Creates a significant intellectual or creative product that is characteristic of the Information Systems discipline and worthy of communication to a broader audience. May be repeated for a maximum of 6 credits toward graduation.

## **INFO 497R**

### **Independent Study**

**1 to 3**

\* Prerequisite(s): Department chair approval and University Advanced Standing

For bachelor's degree students and other interested persons. Offers independent study as directed in reading, in individual projects, at the discretion and approval of the department chairperson. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 for computers applies.

## **INFO 6420**

### **Web and Mobile Application Security**

**3**

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval  
\* Prerequisite(s) or Corequisite(s): IT 6300

Examines Web application vulnerabilities and remediation techniques. Explores various tools and techniques used to perform Web application assessments. Includes cross-site scripting, SQL injection, session management, and Web server configuration. Emphasizes practical skills developed through extensive hands-on exercises.

## Intelligence Studies (INTS)

### INTS 1000 Introduction to Intelligence Operations Studies

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Introduces the basic elements of intelligence: collection, analysis, dissemination, counterintelligence, and covert action. Examines the difference between intelligence and information. Describes the structure, functions, capabilities, and contributions of the national intelligence community, including Congress, the military, joint and unified commands, and law enforcement agencies. Identifies the various steps of the intelligence cycle and their purposes. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1010 Counterintelligence Investigations

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Introduces the principles, objectives, procedures, and reports used to conduct counterintelligence investigations within various investigational contexts. Assesses the planning, communicating, operating, credentialing, and investigating processes associated with counterintelligence investigations. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1020 Security Programs

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Introduces the principles, objectives, and basic procedures used to develop, account for, control, protect, and arrange for the eventual destruction of sensitive information and material. Prepares students for the investigation of security crimes and the protection of classified information and material in the custody of counterintelligence agents. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1030 Intelligence Law and Administration of Justice

**1**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Introduces the legal principles of intelligence law as those principles apply to counterintelligence investigations and operations. Prepares students to use the principles of intelligence law and the administration of justice in the performance of their duties as counterintelligence agents. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1040 Analytical Process and Product

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Introduces the three analytical processes in the intelligence cycle: intelligence preparation of the battlefield, intelligence surveillance and reconnaissance, and targeting. Leverages analytical products associated with these processes such as PMESII, ASCOPE, Link-Pattern-Nodal analysis, threat characteristics, threat objectives, threat templates, the oil spot, and the situation template. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1050 Interrogation Operations

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Introduces the basic skills and knowledge to support the collection, dissemination, and protection of intelligence information during human intelligence operations. Applies conventional and unconventional sources with students performing as members of an interrogation team during simulated operations at both tactical and strategic levels. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1060 Map Reading and Analysis

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Applies map reading and analysis including marginal data, identification of terrain features, and calculation of azimuths. Teaches analytical skills essential to information gathering, collection capabilities, and interpretation of assets. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1080 Signal Theory

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Identifies the basic skills to intercept, analyze, and report non-communication signals. Includes the handling of classified material. Examines signal and wavelength theory, radar theory, electronic intelligence parameters, and basic collection operations. Assesses worldwide non-communications threats to include weapons systems operations, message information extraction, opposing forces operations, and situation analysis. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1090 Signal Analysis and Security

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Operates the applicable software. Displays automated situation map updates. Applies electronic messaging as part of an analysis control element team. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1100 Remote Sensing

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Analyzes hardcopy and softcopy imagery collected from the electronic magnetic spectrum. Utilizes intelligence databases as well as automated processing and dissemination systems to provide valid, accurate, and timely intelligence to appropriate agencies. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

### INTS 1110 Information Security for Intelligence Operations

**1**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Assesses information security as it applies to intelligence operations in the military (INFOSEC). Examines specific INFOSEC issues, to include safekeeping and storage of classified materials, application of classification markings to appropriate documents, and proper destruction of classified materials. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

# Course Descriptions

## **INTS 1120 Imagery Analysis Techniques**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Develops the basic skills to successfully employ and analyze imagery in an operational environment. Introduces basic analytical techniques, sensor capabilities and limitations, characteristics of observed operational activity, spectral and stereoscopic imagery, and full motion video. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1130 Terrorism and Counterterrorism**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Examines the history of terrorism and the tactics and technologies used by terrorist groups. Assesses the nature of the terrorist threat and countermeasures to combat terrorism. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1140 Reporting of Intelligence Data**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Identifies the essential elements of information, selection of reporting vehicle, and production of concise and timely technical summaries. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 115R Briefing Skills**

**1**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Produces the skills required to perform the duties and operations necessary to conduct briefings in the intelligence operations field. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah. May be repeated for a total of four credits toward graduation.

## **INTS 1160 Imagery Identification**

**6**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches how to use aerial images to identify threat and operational equipment, including: naval vessels; fixed, swing, and rotary wing aircraft; engineer and decontamination equipment; truck models and functions; armored personnel carriers (APCs); missiles, rockets, and launch sites; communication and radar sites; artillery and artillery related equipment; and tanks and armored recovery vehicles (ARVs). Teaches how to identify from aerial imagery organizations and activity in relation to the Ground Order of Battle (GOB). This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1170 Symbology**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches the skills necessary to translate incoming message traffic into military symbols. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1180 Intelligence Preparation of the Battlefield**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Identifies characteristics of the modern battlefield. Analyzes how the operational environment of the battlefield can affect friendly and threat operations. Defines the operational environment, considers the effects of weather and terrain, evaluates threat, and determines potential threat courses of action. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1190 Introduction to Communications for Intelligence Operations**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Tests basic oral communication in English for non-native speakers. Practices the fundamentals of oral communications in interpersonal, small-group, and large-group situations in the field of intelligence operations. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1200 Records Management**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Introduces the procedures, regulations, and forms used to accurately account for and manage an organization's records and funds. Provides an opportunity to practice skills as custodians in a simulated large agency operating environment. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1210 Counterintelligence Investigations II**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Analyzes the collection, evaluation, and use of information to produce justifiable conclusions in support of the counterintelligence mission. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1220 Intelligence Surveillance and Reconnaissance (ISR)**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches the Intelligence, Surveillance, and Reconnaissance (ISR) process across the scope of military operations from Joint Task Force level to Battalion level. Identifies the functions of the ISR process and its relationship to decision making. Requires development of an ISR plan, dissemination of information, and implementation of the plan. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 1230 Targeting**

**3**  
\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Examines the targeting process across the scope of intelligence operations. Introduces the Decide, Detect, Deliver, and Assess (D3A) methodology of targeting. Assesses the functions associated with the D3A methodology and how these functions interact with the decision-making process. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 1240**  
**Cellular Communication Fundamentals****3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches cellular technologies used around the world to deploy enhanced wireless capabilities. Covers the evolution of cellular capabilities to current protocols and standards. Provides a comprehensive overview of the options available in handling voice and data transmitted through wireless technologies. Explores variations among Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA), and Global System for Mobile communications (GSM). This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 1310**  
**Personal Identification methods in Battlefield Forensics****2**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Explores the methods used to identify individuals based on evidence collected at an incident scene in a battlefield environment. Emphasizes the identification, collection, and preservation of biological evidence for criminal investigations and legal procedures. Examines specific topics including: fingerprints, facial recognition, bloodstain analysis, and biometrics. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 1410**  
**Battlefield Forensic Investigations I****4**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Examines battlefield forensic investigation procedures and techniques. Emphasizes incident scene management and the identification, collection, and preservation of material evidence related to the manufacture and use of improvised explosive devices (IEDs). This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 1420**  
**Battlefield Forensic Investigations II****4**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Explores the technical aspects of the collection and preservation of physical evidence from a battlefield environment. Emphasizes the processes involved in identifying persons assembling improvised explosive devices (IEDs), and the tactics and techniques used in the employment of those devices. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 2000**  
**Collection Operations****4**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches source collection operations in the operational cycle, including: collection planning, identifying, assessing, recruiting, training, tasking, interviewing, and providing source operations support. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 2020**  
**Force Protection Operations and Support****3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches how to assimilate, analyze, and distribute multidiscipline counterintelligence products in support of tactical force protection. Explores specific areas of interest, to include counterintelligence operations in a deployed environment and current threat assessment technology. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 2030**  
**Combating Terrorism****3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches the history and development of terrorism. Includes recognizing the phases of a terrorist incident and how to understand a terrorist group's structure, degree of support, and scope of operations. Teaches use of basic analytical tools available to combat terrorism. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 2040**  
**Interrogation and Interview Techniques****3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Describes how to prepare for and question a source, collect all information of intelligence value, and report this information in the proper format. Identifies appropriate approach and questioning techniques, effective listening and note-taking methods, source screening procedures, and proper exploitation phases to collect intelligence information. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 2090**  
**Automated Intelligence Systems****3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Explores the use of automated intelligence systems in the field of intelligence operations. Assesses the basic system operations and conventions. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 2100**  
**Intermediate Remote Sensing****3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Applies knowledge of intelligence operations and how they use observed activity in the analysis of hardcopy and softcopy imagery. Utilizes imagery databases to provide organizations with accurate and timely reports, intelligence briefs, and assessments based on given scenarios and Priority Intelligence Requirements (PIRs). This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

**INTS 211R**  
**Military Decision Making Process****3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Assesses the mission analysis and the military decision-making process. Reviews situation analysis, problem analysis, and decision analysis. Examines the relationship between the decision maker and the decision environment. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah. May be repeated for a total of nine credits toward graduation.

# Course Descriptions

## **INTS 2120**

### **Intermediate Imagery Analysis Techniques**

**3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Develops ability to apply photogrammetry techniques, equipment identification techniques, and softcopy and hardcopy imagery manipulation techniques to produce accurate imagery analyses and activity assessments. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 2140**

### **Reporting of Intelligence Data II**

**3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches skills for the preparation of intelligence reports using pertinent information to satisfy the appropriate requirements. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 215R**

### **Briefing Skills II**

**3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Demonstrates advanced preparation and delivery of briefings in the intelligence operations field. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah. May be repeated for a total of nine credits toward graduation.

## **INTS 2200**

### **Reporting of Intelligence Data III**

**3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Examines tactical human intelligence (HUMINT) issues for the advanced intelligence operations practitioner maintaining a HUMINT-specific occupational specialty. Teaches how to plan and prepare timely and effective intelligence reports in both urban and rural environments. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 2210**

### **Counterintelligence Investigations III**

**3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Focuses on how to understand the objectives, apply the procedures, and produce the reports used in advanced counterintelligence investigations. Expands knowledge and abilities in the planning, communicating, operating, credentialing, and investigating processes related to advanced counterintelligence investigations. Designed for the tactical human intelligence (HUMINT) practitioner. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 2230**

### **Intelligence Law and Administration of Justice II**

**1**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Examines the legal principles and regulations of intelligence law as they apply to counterintelligence investigations and operations. Teaches the application of principles of intelligence law and of the administration of justice in the performance of duties as tactical human intelligence (HUMINT) practitioners. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 2240**

### **Force Protection Operations and Support II**

**3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Teaches the human intelligence (HUMINT) practitioner improved methods to assimilate, analyze, and distribute multidiscipline human products in support of tactical force protection operations. Focuses on human intelligence operations in a tactically deployed environment. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 2250**

### **Analytical Process and Product II**

**3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Explores the tactical human intelligence (HUMINT) field. Teaches the preparation of analytical tools to assess a combat environment. Analyzes conventional and unconventional threat forces, various types of organizations, and associated weapons and equipment, as well as the tactics, techniques, and procedures of groups or forces identified as posing a threat to U.S. interests. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 2260**

### **Interrogation and Interviewing Techniques II**

**3**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Provides advanced preparation for questioning a human intelligence source and to collect and report information that is of intelligence value. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 2410**

### **Management of Intelligence and Counterintelligence Operations I**

**4**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Studies the organizational management of intelligence and counterintelligence operations. Examines the theoretical and practical perspectives of managing increasing levels of responsibility, with emphasis on problem-solving and decision-making processes and on the role of the leader. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## **INTS 2420**

### **Management of Intelligence and Counterintelligence Operations II**

**4**

\* Prerequisite(s): Acceptance into the Intelligence Studies Program

Explores the managerial challenges related to the multidiscipline roles in intelligence and counterintelligence operations. Emphasizes the assessment of external and internal environments, strategic initiatives, and communication techniques, and the allocation and coordination of personnel and resources. This course is limited to students participating in the Utah National Guard's (UNG) Military Intelligence Education Program at Camp Williams in Bluffdale, Utah.

## Integrated Studies (IS)

### IS 2000 Knowledge Integrated 3

Introduces questions or problems whose answers or solutions require the integration of ideas and disciplines. Focuses on ideas from a variety of cultural perspectives. Covers how important thinkers through history have approached difficult questions in ways that integrated disciplines. Provides the opportunity to complete written assignments based on research.

### IS 300R Introductory Topics in Integrated Studies 3

\* Prerequisite(s): (PHIL 2050 or 205H or 205G) and (ENGL 2010 or 201H) and University Advanced Standing

Introduces a variety of topics crossing disciplines in science, religion, philosophy, history, literature, business, technology and the arts. Topics vary from semester to semester, but course remains modular in structure. Research and writing intensive. Requires final research paper. Involves writing across the curriculum. May be repeated for a maximum of 12 credits toward graduation.

### IS 350R Topics in Integrated Studies 3

\* Prerequisite(s): (PHIL 2050 or 205H or 205G) and (ENGL 2010 or 201H) and University Advanced Standing

Examines a particular interdisciplinary topic; topics vary from semester to semester. Presents topics that cross one or more fields of academic specialty from the arts and sciences. Includes lecture, reading, discussion and research. Research and writing intensive, requires final research paper. May be repeated for a maximum of 12 credits toward graduation.

### IS 481R Internship 1 to 9

Provides supervised, practical, and professional experience at the upper-division level in preparation for a variety of careers. Develops skills relevant to the professional workforce and presents interdisciplinary evaluative and reflective exercises of the experience. Content will vary from internship to internship. May be repeated for a maximum of 9 credits toward graduation.

### IS 495R Interdisciplinary Lecture Series 1

\* Prerequisite(s): University Advanced Standing

Explores connections between various academic disciplines. Provides a broadly based look at a range of disciplines. May be repeated for a maximum of 3 credits towards graduation.

### IS 4980 Integrated Studies Capstone I WE 3

\* Prerequisite(s): IS 300R or IS 350R; Junior or Senior Standing in the Integrated Studies bachelor degree; and University Advanced Standing

Focuses on a major research paper integrating the student's two emphases. Addresses theoretical and practical problems associated with research and writing that combine disciplines. Includes work with a committee throughout the semester. Taken first semester in the two-semester capstone sequence.

### IS 4990 Integrated Studies Capstone II WE 3

\* Prerequisite(s): IS 4980 and University Advanced Standing

Focuses on a major research paper (senior thesis) integrating the student's two or more emphases. Addresses theoretical and practical problems associated with research and writing that combine disciplines. Includes work with a committee throughout the semester, which must approve the written thesis. Requires the student to orally present the thesis in a formal defense. Taken second semester in a two-semester capstone sequence.

## Information Technology (IT)

### IT 1200 Scripting for Administrators 3

\* Prerequisite(s): MAT 1010 or higher; INFO 1120 recommended

Introduces the fundamentals of script design and implementation with an emphasis on the automation of administrative tasks. Covers modular script design and the use of file input and output. Emphasizes interaction of a script with other scripts, utilities, and the operating system to form more complex systems. Manipulates values of variables (both numbers and strings). Introduces simple GUI interfaces. Lab access fee of \$45 applies.

### IT 1510 Introduction to System Administration-- Linux/UNIX 3

\* Prerequisite(s): INFO 1120 recommended

Introduces administering Linux/UNIX Operating Systems including managing of software and services, configuration of kernel modules, network parameters, storage, cloud and virtualization technologies. Explores OS/software installation, managing daemons, user creation, file management, permissions, authentication, troubleshooting, system properties and processes, automation, scripting, orchestration, and security/server best practices. Lab access fee of \$45 for computers applies.

### IT 1600 Computer Architecture and Systems Software 3

\* Prerequisite(s): INFO 1120 recommended

Provides a thorough grounding in computer hardware, system software, and contemporary information system architecture. Examines hardware structure, operating systems theory, and systems software as part of a technical foundation for enterprise systems development and IT infrastructure procurement and management. Lab access fee of \$45 for computers applies. Canvas Course Mats \$153/ TstOut applies.

### IT 1700 Cybersecurity Essentials 3

For non-Information Technology and non-Information Systems majors. Introduces cybersecurity and its role in society in a nontechnical way. Explores cybersecurity topics, including protecting accounts, securing data, and avoiding phishing scams. Discusses current hacking and cybersecurity events. Identifies best practices for personal cybersecurity. Provides basic introduction to cybersecurity tools. Lab access fee of \$45 applies.

### IT 2400 Voice and Data Cabling Fundamentals 3

\* Prerequisite(s): INFO 1120 or INFO 1200 or CS 1030 or CS 1400

For students interested in the physical aspects of voice and data network cabling and installation. Focuses on cabling issues related to data and voice connections and provides an understanding of the industry and its worldwide standards. Covers types of media and cabling, physical and logical networks, as well as signal transmission. Focuses on best practices and safety using copper and fiber-optic cabling. Requires students to install a complete cable infrastructure for a simulated telecommunications room. Enforces industry and worldwide standards. Requires a community project and portfolio based on voice/data cabling skills. Lab access fee of \$45 for computers applies. Course lab fee of \$24 for equipment applies.

# Course Descriptions

## IT 2530

### Introduction to System Administration-- Windows Client

3

\* Prerequisite(s): IT 1600

Introduces operation management of operating systems using Microsoft Windows. Introduces installation methods and troubleshooting, hardware device installation and management, storage management, disaster recovery planning and management. Aids the student in the development, understanding, and working knowledge of the Windows networking framework including peer-to-peer, workgroups, user profiles, domains, NTFS, and share-level permissions. Lab access fee of \$45 for computers applies.

## IT 2600

### Data Communication Fundamentals

3

\* Prerequisite(s): INFO 1120 recommended or IT 1600 recommended or CS 1400 recommended

Provides an in-depth knowledge of data communications and enterprise networking including networking and telecommunications technologies, hardware, and software. Emphasizes underlying technologies and protocols. Design topics include wired and wireless architectures; topologies, models, standards and protocols; and operation of bridges, routers, switches, and gateways. Includes lab assignments covering TCP/IP implementations. May be delivered hybrid. Lab access fee of \$45 for computers applies.

## IT 2700

### Information Security Fundamentals

3

\* Prerequisite(s): IT 2600 or CS 2600; (IT 1600 recommended)

Explores introductory information and cybersecurity concepts: security technologies, methodologies, and tools. Topics include security models, risk assessment, threat analysis, attack types, encryption technologies, security implementation, access controls, business continuity, and security policies. Discusses current topics, trends, and career opportunities in information security. Includes lab assignments covering information security principles. Software fee of \$24 applies. Lab access fee of \$45 for computers applies. Canvas Course Mats \$35/Cengage applies.

## IT 2800

### Computer Forensic Fundamentals

3

\* Prerequisite(s): INFO 1120 or IT 1600 or CS 1400 or CJ 1010

Explores procedures for identification, preservation, and extraction of electronic evidence. Emphasizes auditing and investigation of network and host system intrusions, analysis and documentation of information gathered, and preparation of expert testimonial evidence. Examines forensic tools and resources for system administrators and information system security officers. Includes ethics, law, policy, and standards concerning digital evidence. Requires lab experience and a research paper or project. Lab access fee of \$45 for computers applies. Canvas Course Mats \$35/Cengage applies.

## IT 281R

### Internship

1 to 4

\* Prerequisite(s): Department Approval

Provides opportunities to apply classroom theory on the job. Requires work as paid employees in a job that relates to their careers while enrolled at the university. Requires students to meet at least monthly with the Departmental Internship Coordinator. Requires completers to meet individually set goals. May be repeated for a maximum of three credits toward graduation. May be graded credit/no credit.

## IT 290R

### Current Topics in Information Technology

1 to 3

\* Prerequisite(s): Departmental Approval

Provides exposure to current and emerging information technologies. May be used to provide content to prepare students to take industry-recognized IT certification exams, such as CompTIA Linux+, CompTIA A+, Apple Certified Professional, Certified Fiber Optic Technician, IC3, CompTIA Network+, CompTIA CTP+, Access Data Certified Examiner, MCSA, Cisco CompTIA Security+, Certified Ethical Hacker, etc. Varies each semester. May be repeated for a maximum of 6 credits toward graduation. Lab access fee of \$45 for computers applies.

## IT 3350

### Intellectual Property and Cyber Law

3

\* Prerequisite(s): ENGL 2010 and (INFO 1120 or CS 1030 or LEGL 3000) and University Advanced Standing

Explores the legal and policy issues associated with the Internet and cyberspace. Studies case law, statutes, regulations, and constitutional provisions that affect people and businesses interacting through computers and the Internet. Covers intellectual property (trademarks, copyrights, patents, trade secrets, and unfair competition) and examines legal requirements to create, register and protect intellectual property rights. Focuses on e-commerce, online contracts, cybercrimes, torts, and privacy issues pertaining to technology. Lab access fee of \$45 for computers applies.

## IT 3400

### Data Cabling Signal Characteristics

3

\* Prerequisite(s): INFO 1120 or INFO 1200 or CS 1030 or CS 1400 or MECH 1200

For EART/Mechatronics majors or students interested in the physical aspects of data network signal characteristics, cabling and installation for those signals. Focuses on cabling issues related to data and voice connections and provides an understanding of the industry and its worldwide standards. Covers types of media and cabling, physical and logical networks, as well as signal transmission. Focuses on best practices and safety using copper and fiber-optic cabling. Requires students to install a complete cable infrastructure for a simulated telecommunications room. Enforces industry and worldwide standards. Requires a community project and portfolio based on voice/data cabling skills. Requires a research paper.

## IT 3510

### Advanced System Administration--Linux/ UNIX

3

\* Prerequisite(s): [(INFO 1200 or CS 1400) and IT 1510 and (IT 2600 or CS 2600) all with a grade of C- or higher within the past five years] and University Advanced Standing

Explores enterprise systems administration using the UNIX/Linux operating system. Students learn advanced administrative tasks including server installation, network configuration and user management, file management, network services deployment, server security, back up and recovery, Shell scripting, source compilation, performance monitoring and tuning, troubleshooting, and managing hardware and component changes. Requires a community project and portfolio based on advanced server management skills. Lab access fee of \$45 for computers applies.

**IT 3530****Advanced System Administration--  
Windows Server****3**

\* Prerequisite(s): [INFO 1200 and IT 2530 and (IT 2600 or CS 2600) all with a grade of C- or higher within the past five years] and University Advanced Standing

Explores enterprise systems administration using the Microsoft Windows Server operating system. Students learn advanced administrative tasks including server installation; hardware change management; software application management; network configuration and user management; file management; printing; network services deployment; server security; back up and recovery; scripting; performance monitoring, tuning, and troubleshooting. Lab access fee of \$45 for computers applies.

**IT 3540****Mac OS and Server Support****3**

\* Prerequisite(s): [INFO 1200 and IT 1510 and (IT 2600 or CS 2600) all with a grade of C- or higher within the past five years] and University Advanced Standing

Provides an in-depth exploration of the Mac OS X, and provides the skills to troubleshoot and correct problems that may arise by users. Teaches installation and configuration of a Mac OS X Server. Involves implementing and maintaining a Mac server in a network, including file sharing, mail, web, and wikis. Lab access fee of \$45 for computers applies.

**IT 3600****Internetworking and Router Management****3**

\* Prerequisite(s): [(INFO 1200 or CS 1400) and (IT 2600 or CS 2600) all with a grade of C- or higher within the past five years] and University Advanced Standing

Teaches the theory and implementation skills and techniques needed to configure, troubleshoot and support reliable TCP/IP internetworks. Discusses security and management issues. Offers the opportunity to build an internetwork with cables, network cards, and routers. Emphasizes the analysis and design of networks in organizations. Includes lab assignments covering TCP/IP implementations and router configurations. Lab access fee of \$45 for computers applies.

**IT 3650****Information Storage and Management****3**

\* Prerequisite(s): IT 1600, IT 2600, and University Advanced Standing

Presents concepts, principles, and deployment considerations across all technologies that are used for storing and managing information. Describes challenges and solutions for data storage and data management, intelligent storage systems, and storage networking. Studies backup, recovery, and archive processes. Discusses business continuity, disaster recovery, storage security and virtualization, and managing and monitoring the storage infrastructure. Software fee of \$192 applies. Lab access fee of \$45 for computers applies.

**IT 3700****Information Security--Network Defense and Countermeasures****3**

\* Prerequisite(s): IT 1510, IT 2700, (IT 3510 or IT 3530), and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): IT 3600

Examines advanced information security concepts through an applied viewpoint. Extends the student's understanding of security issues through hands-on application of real-world techniques and use of current security software. Topics include legal/ethical issues, use of security tools, network reconnaissance, password/brute-force attacks, firewall configuration, Honeypot deployment, intrusion analysis/detection, server hardening, and penetration testing. Guest lecturers provide insight into current trends in advanced security issues. Lab access fee of \$45 for computers applies.

**IT 3750****Malware Reverse Engineering****3**

\* Prerequisite(s): [(CS 2370 and CS 3100) or (IT 2700 )] and University Standing.

Examines advanced techniques used in malware analysis. Focuses on static and dynamic analysis of unknown binaries utilizing reverse engineering tools and procedures. Explores advanced anti-malware analysis processes and anti-reverse engineering methods. Covers advanced obfuscation practices, such as employing packers, and anti-debugging processes.

**IT 459R****Current Topics in Information Technology****3**

\* Prerequisite(s): (Junior Standing or Department Approval) and University Advanced Standing

Provides exposure to emerging technologies and topics of current interest in information technology. Varies each semester depending upon the changes in the information technology discipline or to address a focused area within the information technology discipline. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of \$45 for computers applies.

**IT 4600****Enterprise Network Architectures and Administration****3**

\* Prerequisite(s): IT 3600 and University Advanced Standing

Examines management of resources used in enterprise computing environments from a practical, applied viewpoint. Extends the student's understanding of these concepts through hands-on application of real-world network, server, and software management techniques and addresses the problems associated with providing a secure, stable, reliable enterprise computing infrastructure. Includes principles of IT enterprise infrastructure management; configuration, analysis, and troubleshooting of virtual servers; redundancy and failover; directory service integration, access control and security; uptime monitoring and notification; backup and recovery; Storage Area Networking; Cloud computing platform choices, functionality, cost, deployment, flexibility, and adaptability. Lab access fee of \$45 for computers applies.

**IT 4700****Enterprise Cybersecurity Management****3**

\* Prerequisite(s): IT 2700 and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): INFO 3430

Provides perspective of key issues involved in IT activities across the organizational and technical security landscape. Examines management methodologies, staffing, and operational issues. Teaches use of financial analysis and decision-making methodologies to aid investment decisions at the operational, functional, and strategic levels. Illustrates use of risk assessment and contingency planning as applied to business continuity and disaster recovery strategies. Includes the use of Service Level Agreement for managing both internal and external relationships. Lab access fee of \$45 for computers applies.

## Course Descriptions

### IT 4750

#### Network Security and Operations Capstone 3

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): IT 4700

Senior-level, capstone experience course. Enhances student cyber security knowledge with operational and business applications. Focuses on integrating cyber security principles as an organic part of an organization's processes. Covers barriers to implementing security policy, building a business case for cyber security, and incorporating cyber security into project management and software life cycles. Requires student project presentations. Lab access fee of \$45 for computers applies.

### IT 4760

#### Case Studies in Cyber Security 3

\* Prerequisite(s): IT 2700 and University Advanced Standing

Discusses current trends and issues in cyber security. Updated regularly to reflect global events related to cyber security. Topics include data breaches, cyber warfare, emerging threats. Emphasis on the changing and transformative nature of cyber security threats, including geographical, institutional, and cultural evolution. Guest lecturers from industry will provide students with perspectives on the state of cyber security. Examines real-world examples of the application of cyber security principles and requires critical analysis of each case. Lab access fee of \$45 for computers applies.

### IT 4800

#### Advanced Mobile Devices Forensics 3

\* Prerequisite(s): IT 2800 and University Advanced Standing

Discusses devices that can store digital information such as cell phones, tablets, digital camera/camcorders, thumb drives and memory cards. Focuses on lab investigations of one or more digital media through image acquisition, data analysis, and assembly of a final written report of findings. Provides opportunities to use multiple software tools in device acquisition and analysis. Covers processes and procedures through mock investigations. Lab access fee of \$45 for computers applies.

### IT 481R

#### Internship 1 to 8

\* Prerequisite(s): (IT 3510 or IT 3530 or IT 3540 or IT 3600 or IT 3700 or department approval) and University Advanced Standing

For Information Technology bachelor's degree students. Provides opportunities to apply upper-division classroom theory while students work as employees in a job that relates to their careers. Meet periodically with a Departmental Internship Coordinator. Credit is determined by the number of hours a student works during the semester and completion of individually set goals that relate to the student's selected emphasis. Prior written department chair approval is required to apply more than three credits toward a Bachelor of Science Degree in Information Technology. May be graded credit/no credit.

### IT 4850

#### Digital Forensics Investigations 3

\* Prerequisite(s): IT 2800 and University Advanced Standing

Is a senior capstone course for students in the Computer Forensics emphasis. Covers one or more investigations from start to finish. Integrates knowledge and skills from previous CJ, FSCI, and IT courses in this culminating experience. Lab access fee of \$45 for computers applies.

### IT 489R

#### Undergraduate Research in Information Technology 1 to 4

\* Prerequisite(s): Department approval and University Advanced Standing

Provides the opportunity to conduct research under the mentorship of a faculty member. Practices the theoretical knowledge gained in prior major courses. Creates a significant intellectual or creative product that is characteristic of the Information Technology discipline and worthy of communication to a broader audience. May be repeated for a maximum of 6 credits toward graduation.

### IT 497R

#### Independent Study 1 to 3

\* Prerequisite(s): Department chair approval and University Advanced Standing

For bachelor degree students and other interested persons. Offers independent study as directed in reading, in individual projects, at the discretion and approval of the department chairperson. May be repeated for a maximum of 9 credits toward graduation.

### IT 6300

#### Principles of Cybersecurity 3

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval

Provides foundational knowledge of cybersecurity for graduate-level studies. Covers information security theories, terminology, and implementation. Includes networking and system fundamentals, cryptography, malware, authentication, authorization, access control, physical security, attacker profiles, appropriate threat responses, and the human elements of cybersecurity. Introduces multiple aspects of cybersecurity and various career paths within the field.

### IT 6330

#### Cybersecurity Operations 3

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval

Focuses on operational aspects of cybersecurity. Includes incident response, network monitoring, change management, configuration management, and resource protection. Emphasizes the role of cybersecurity in the enterprise. Integrates sound cybersecurity principles into various aspects of IT operations. Includes information on secure server administration and open source security software. Teaches cybersecurity standards for government and industry sources and the application of those standards.

### IT 6350

#### Law/Ethics/Privacy in Cybersecurity 3

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval

Explores legal, ethical, and privacy issues as they apply to cybersecurity. Includes the legalities and ethics of hacking, corporate information security and use policies, and the government's role in cybersecurity. Emphasizes the roles and responsibilities of individual cybersecurity practitioners as well as corporate entities, including vulnerability disclosure and correcting software defects. Teaches privacy policies and regulations as they relate to cybersecurity and information systems.

**IT 6370****Penetration Testing and Vulnerability Assessment****3**

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval

\* Prerequisite(s) or Corequisite(s): IT 6300

Explores advanced topics in ethical hacking, penetration testing, vulnerability assessment, and other offensive network and system techniques. Teaches network scanning, target identification, application exploitation, antivirus evasion, physical security, social engineering, phishing, and privilege escalation. Contains hands-on labs providing experience from the perspective of an attacker.

**IT 6660****Advanced Network Forensics****3**

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval

\* Prerequisite(s) or Corequisite(s): IT 6300

Provides a standard methodology for conducting digital forensic analysis in a network environment. Teaches the importance of network forensic principles and development of an understanding of the technologies, protocols, laws, regulations, ethics, and procedures for network forensics. Incorporates demonstrations and laboratory exercises covering the identification, acquisition, authentication, preservation, analysis, and reporting of evidence for prosecution purposes.

**IT 6740****Advanced Network Defense and Countermeasures****3**

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval

\* Prerequisite(s) or Corequisite(s): IT 6300

Explores advanced topics in network defense, server hardening, vulnerability assessment, and mitigation scanning. Teaches students about network scanning, asset identification, Linux and Windows server hardening, anti-malware tools, intrusion detection, physical security, perimeter security, and cybersecurity awareness training. Contains hands-on labs providing experience from the perspective of a defender.

**IT 6750****Reverse Engineering and Malware Analysis****3**

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval

\* Prerequisite(s) or Corequisite(s): IT 6300

Explores the analysis tools and techniques for identifying malicious programs and recovering compromised operating systems. Provides a standard methodology for reverse engineering and eradicating malware. Includes setting up isolated malware labs and utilizing a selected set of forensic tools, such as system and network monitoring utilities, disassemblers, and debuggers for analyzing malware characteristics and the impact that malware may have on compromised systems.

**IT 6760****Case Studies in Cybersecurity****3**

\* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval

\* Prerequisite(s) or Corequisite(s): IT 6300

Discusses current trends and issues in cybersecurity. Reflects current global events related to cybersecurity. Includes data breaches, cyber warfare, and emerging threats. Emphasizes the changing and transformative nature of cybersecurity threats, including geographical, institutional, and cultural evolution. Provides guest lecturers from industry with perspectives on the state of cybersecurity. Examines real-world examples of the application of cybersecurity principles and requires critical analysis of each case.

**IT 6770****Cybersecurity Management****3**

\* Prerequisite(s): IT 6300 or Departmental approval

Teaches management skills applicable to cybersecurity. Includes governance models, business continuity, disaster recovery, risk management, organizational security, cybersecurity life cycle management, and interactions between information technology and business units. Focuses on policies, procedures, and guidelines based on industry and government standards to fulfill legal, regulatory, and operational requirements.

**IT 6780****Secure Coding****3**

\* Prerequisite(s): IT 6300 or departmental approval

Focuses on fundamentals of secure coding and current topics in application security. Includes the implementation of secure development lifecycle principles, identifying and mitigating issues in existing applications, and common security issues. Covers the most frequently encountered application security risks and how to address each of them. Includes web applications, mobile applications, and traditional desktop applications.

**IT 6900****Cybersecurity Capstone****3**

\* Prerequisite(s): IT 6330, IT 6350, IT 6370, IT 6740, and IT 6770

Provides culmination of cybersecurity in a self-directed research or practical project that showcases student's mastery of cybersecurity topics. Provides an opportunity to conduct research and/or implement systems that incorporate topics from previous courses. Requires students to present their work at the end of the semester.

**Japanese (JPNS)****JPNS 1010****Beginning Japanese I****4**

Offers an introduction to basic Japanese. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Provides comprehensive explanations of basic Japanese grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**JPNS 1020****Beginning Japanese II****4**

\* Prerequisite(s): Students need equivalent knowledge of JPNS 1010

Offers a continuation of basic Japanese. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Provides comprehensive explanations of basic Japanese grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**JPNS 115R****Japanese Conversation I****1**

Offers novice Japanese speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen listening comprehension for natural conversational flow. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

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# Course Descriptions

## **JPNS 1500**

### **The Art of Japanese Calligraphy**

**2**

Introduces the origin of the art of calligraphy, the reasons why calligraphy developed and became so popular in Japan, works done by famous calligraphers, how to handle a brush and India ink, and how to write letters with a brush. Demonstrates the proper usage of the brush, correct stroke orders, and develops the skills of writing letters (start from level 1- easy to level 8- difficult) with a brush.

## **JPNS 2010**

### **Intermediate Japanese I**

**4**

\* Prerequisite(s): Students need equivalent knowledge of JPNS 1020

Offers a continuation of basic Japanese. Reviews and builds additional skills from 1000-level language courses. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Introduces authentic texts and provides discussions based on reading. Provides comprehensive explanations of basic Japanese grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**LH**

## **JPNS 202G**

### **Intermediate Japanese II**

**4**

\* Prerequisite(s): Students need equivalent knowledge of JPNS 2010

Reviews and builds further language skills upon the grammar, reading, writing (including Kanji knowledge), and conversation skills learned in the previous JPNS 1010, 1020, and 2010. Introduces reading of a variety of texts in Japanese. Lab access fee of \$10 applies.

**HH**

## **JPNS 2110**

### **Conversational Japanese**

**3**

\* Prerequisite(s): Students need equivalent knowledge of JPNS 1020

Emphasizes conversation in real-life situations that may be encountered in Japan. Focuses on vocabulary and structures. Introduces a variety of readings and multimedia materials and promotes oral proficiency.

## **JPNS 215R**

### **Japanese Conversation II**

**1**

\* Prerequisite(s): Students should have equivalent knowledge of JPNS 1020

Offers lower division / novice Japanese speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, sharpen listening comprehension, and develop conversational strategies such as circumlocution and managing a conversation with useful expressions for starting a conversation, gaining time to think, helping the other speaker, seeking agreement, etc. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

## **JPNS 251G**

### **Introduction to Japanese Culture and Society**

**3**

Introduces Japanese culture and society by exploring its history, religion, government, customs and traditions. Analyzes and evaluates the differences and similarities between Japanese and American cultures. Taught in English and little or no Japanese language skill required. Fulfills the requirements for a G/I course.

## **JPNS 3050**

### **Advanced Japanese**

**3**

\* Prerequisite(s): It is recommended that students have passed JPNS 202G, have had one year residency in Japan, or instructor approval

For non-native Japanese speakers who have attained basic mastery of Japanese and some Kanji reading skills. Focuses on the development of Japanese language skills with emphasis on grammar review, reading, and writing. Introduces Japanese culture and literature. Lab access fee of \$10 applies.

## **JPNS 315R**

### **Advanced Japanese Conversation**

**1**

\* Prerequisite(s): JPNS 202G or one year residency in a Japanese-speaking country, or instructor approval. University Advanced Standing.

Offers speaking opportunities to middle or upper division Japanese learners to enhance their speaking proficiency in high level language by focusing on oral and verbal production. Improves authentic pronunciation, reduces grammatical and structural errors, and aids student progression beyond translation to natural production. May be repeated for a maximum of 3 credits toward graduation.

## **JPNS 3200**

### **Business Japanese**

**3**

\* Prerequisite(s): JPNS 3050 and University Advanced Standing

For those who plan to pursue careers in international business or related fields, learn the business language for Japanese, and understand related cultural protocol in Japanese society. Prepares students to take the Business Japanese Proficiency Tests sponsored by the Japan External Trade Organization (JETRO). Explores how students can effectively and respectfully pursue business activities with Japanese companies within the framework of Japanese culture. Taught predominantly in Japanese.

## **JPNS 351G**

### **Japanese Culture and Civilization**

**3**

\* Prerequisite(s): JPNS 3050 and University Advanced Standing

Explores chronologically the cultural formation and development of Japan. Examines and discusses the ethnic development and linguistic history from ancient to modern Japanese society. Analyzes and evaluates the differences and similarities between the Japanese and American cultures. Class instruction and presentations in Japanese. Fulfills the requirements for a G/I course.

## **JPNS 3520**

### **Society and Business in Japan**

**3**

\* Prerequisite(s): JPNS 3050 and University Advanced Standing

Builds upon the knowledge acquired in JPNS 3200, explores a multitude of aspects that contribute to Japanese national identity, focuses on Japan's complex vertical society, considers the intricacies of Japanese expressions and meanings relative to business and social applications, and studies the Japanese values and priority system. Also references Japan's national and global economic involvement and ways students can interface with it.

## Languages (LANG)

### LANG 1000 English Literacy for Deaf Students

**5** **LH**  
\* Prerequisite(s): Deaf students fluent in American Sign Language

Individually tailored English course taught entirely in ASL. Covers a variety of topics to prepare Deaf students for entrance to courses satisfying college English requirements. Topics of study, which vary by semester and by student need, include grammar, usage, reading comprehension and analysis, sentence construction, paragraph composition, and thematic approaches to writing. Uses students' experience with American Sign Language and Deaf culture as the basis for instruction in English as a Second Language.

### LANG 281R Language Internship

**1 to 8**  
\* Prerequisite(s): Department approval

Provides supervised, practical, and professional experience for students preparing for careers related to languages. May be repeated for a maximum of eight credit hours. May be graded credit/no credit.

### LANG 291R Independent Study

**1 to 3**  
Designed primarily for students who will travel or live in a foreign country for a period of time and want to participate in an instructor-directed academic experience worthy of one to three hours of credit. May also be used similarly for directed studies, either on or off campus, dealing with a foreign language or culture.

### LANG 3000 (Cross-listed with: ANTH 3000) Language and Culture

**3** **LH**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005, (ANTH 101G or any foreign language 2010 course), Sophomore status, and University Advanced Standing

Introduces cultural linguistics. Analyzes features of human languages that make possible semantic universality. Examines distinction between phonetic and phonemic units. Explores relationship between language and culture. Studies how language shapes culture and how culture shapes language.

### LANG 3010 Introduction to Linguistics

**3**  
\* Prerequisite(s): University Advanced Standing

Focuses on achieving an understanding of language as a group of distinct yet complementary systems which interact to enable human communication, e.g., phonology, morphology, syntax, semantics, and pragmatics. Introduces implications of how languages reflect the cultures in which they are used, and discusses how language is learned, processed and interpreted and how languages change over time.

### LANG 312R (Cross-listed with: CINE 312R) National Cinema History

**3**  
\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Covers a single national cinema tradition from the early days of film to the present. Explores representative films from a nation's cinematic chronology, considering major themes, movements, controversies, and artists. Considers social and political contexts as related to the national film output. May be repeated for a maximum of 9 credits toward graduation.

### LANG 4200 Methods of Teaching a Foreign Language

**3**  
\* Prerequisite(s): (Matriculation into any secondary education bachelor degree program or departmental approval) and University Advanced Standing

For those who plan to certify to teach a foreign language. Addresses learning approaches, methods, evaluation procedures, text analysis, and other techniques for teaching and evaluating language learning. Includes discussion about professional organizations and other resources in the field. Taught entirely in English.

### LANG 450R Translation Technology

**3**  
\* Prerequisite(s): (CHIN 3050 or FREN 3050 or GER 3050 or JPNS 3050 or PORT 3050 or RUS 3050 or SPAN 3050) and University Advanced Standing

Provides the environment for students to acquire speed and proficiency in translation. Allows students to become proficient in the use of CAT (Computer Assisted Translation) tools. Prepares students and translators of any language to obtain an SDL Trados Certification. Includes class discussion, translation practice, analysis of translation practice and a student portfolio. May be repeated for a maximum of 9 credits toward graduation.

### LANG 481R Language Internship

**1 to 8**  
\* Prerequisite(s): Departmental Approval and University Advanced Standing

Provides students real-world, closely-supervised work experiences in positions directly related to their language studies. Includes a theoretical component such as, but not limited to, papers, projects, completion of reading assignments, tests, journaling, field studies, etc. Students desiring to do language internships must get department approval and must meet with a faculty sponsor to determine individual credit hours and requirements. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

### LANG 490R Special Topics in Languages

**1 to 3**  
\* Prerequisite(s): Department Approval and University Advanced Standing

Provides an opportunity to undertake a well-defined project or academically rigorous independent research in languages. May include formal instruction and collaboration with faculty and other students. May be repeated for a total of 6 credits toward graduation.

## Latin (LATN)

### LATN 1010 Beginning Latin I

**4** **LH**  
Allows students the opportunity to study Latin at the introductory level. Focuses primarily on Ancient Latin. Develops basic Latin reading skills with the help of grammar and translation exercises. Profoundly strengthens students' general understanding of grammar, syntax, and word formation in any language, particularly Romance and Germanic languages (including English).

### LATN 1020 Beginning Latin II

**4** **LH**  
\* Prerequisite(s): LATN 1010 or equivalent  
Allows students the opportunity to continue to study Latin at the introductory level. Focuses primarily on Ancient Latin. Develops more advanced Latin reading skills, with the help of grammar and translation exercises. Study of Latin profoundly strengthens students' general understanding of grammar, syntax, and word formation in any language, particularly Romance and Germanic languages (including English).

### LATN 2010 Intermediate Latin I

**4** **LH**  
\* Prerequisite(s): LATN 1020 or equivalent  
Studies Latin at the intermediate level. Develops more advanced reading skills through the translation of selected Classical Latin texts.

# Course Descriptions

**LATN 2020** **HH**  
**Intermediate Latin II**  
**4**  
\* Prerequisite(s): LATN 2010 or equivalent  
Continues study of Latin at the intermediate level. Develops more advanced reading skills through the translation of selected Classical Latin texts.

**LATN 3010**  
**Readings in Latin**  
**3**  
\* Prerequisite(s): (LATN 2020 or equivalent) and University Advanced Standing  
Studies Latin beyond the intermediate level through translation of original Classical or Medieval Latin texts.

## Legal Studies (LEGL)

**LEGL 3000**  
**Business Law**  
**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005 or appropriate test scores) and University Advanced Standing

For School of Business students and others desiring a more complete understanding of business law. Presents the American legal system, constitutional law, statutory law, common law, and administrative law and alternatives to courts. Discusses crimes, torts, negligence, contracts, negotiable instruments, and contractual relationships. May be delivered online. Lab access fee of \$25 for computers applies.

**LEGL 300H**  
**Business Law**  
**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005 or appropriate test scores) and University Advanced Standing

For School of Business students and others desiring a more complete understanding of business law at an honors level. Presents the American legal system, constitutional law, statutory law, common law, and administrative law and alternatives to courts. Discusses crimes, torts, negligence, contracts, negotiable instruments, and contractual relationships. Lab access fee of \$25 for computers applies.

**LEGL 3130**  
**Real Estate Principles and Finance**  
**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005 or equivalent.

Includes the nature of real property, estates in land, transfer of real property rights, encumbrances, public restrictions, and contracts. Discusses ownership in real estate, settlement, taxation, real estate finance, math in real estate applications, and real estate valuation and appraisal. Lab access fee of \$25 for computers applies.

**LEGL 3140**  
**Real Estate Law**  
**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005 or equivalent.  
Explores the legal implications of ownership of real property, including property management and new construction. Also covers federal and Utah-specific law, and Utah licensing testing and review. Lab access fee of \$25 for computers applies.

**LEGL 6000**  
**Legal Challenges in Modern Business**  
**1.5**  
\* Prerequisite(s): Acceptance into the Woodbury School of Business MBA program  
Examines contemporary issues in business law, with an emphasis in e-commerce and business in a digital environment. Studies secured transactions, business associations, investor protection, consumer protection and government regulation in an increasingly global and interconnected business environment. Recommended for business executives and managers.

## Mathematics (MATH)

**MATH 100R**  
**Math Leap**  
**1**  
Is part of UVU's math placement process; for students who desire to review math topics in order to improve placement level before beginning a math course. Addresses unique strengths and weaknesses of students, by providing group problem solving activities along with an individual assessment and study plan for mastering target material. Requires mandatory class attendance and a minimum number of hours per week logged into a preparation module, with progress monitored by a mentor. May be repeated for a maximum of 4 credits toward graduation. May be graded credit/no credit.

**MATH 1050** **QL**  
**College Algebra**  
**4**  
\* Prerequisite(s): Within the past two years one of the following: MAT 1010 or MAT 1015 with a grade of C or better or appropriate math placement score.

Includes inequalities, functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, systems of linear and nonlinear equations, matrices and determinants, arithmetic and geometric sequences, and the Binomial Theorem. May be delivered hybrid and/or online.

**MATH 1055** **QL**  
**College Algebra with Preliminaries**  
**5**  
\* Prerequisite(s): Within the past two years one of the following: MAT 1010 or MAT 1015 with a grade of C or better or appropriate math placement score.

Includes inequalities, functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, systems of linear and nonlinear equations, matrices and determinants, arithmetic and geometric sequences, and the Binomial Theorem. May be delivered hybrid and/or online.

**MATH 1060** **QL**  
**Trigonometry**  
**3**  
\* Prerequisite(s): Within the past two years: MATH 1050 or MATH 1055 with a grade of C or higher or appropriate math placement score.

Includes the unit circle and right triangle definitions of the trigonometric functions, graphing trigonometric functions, trigonometric identities, trigonometric equations, inverse trigonometric functions, the Law of Sines and the Law of Cosines, vectors, complex numbers, polar coordinates, and rotation of axes.

**MATH 1080** **QL**  
**Precalculus**  
**5**  
\* Prerequisite(s): Within the past two years, one of the following: MAT 1010 or MAT 1015 with a grade of B or better or an appropriate math placement score.

Is an accelerated version of MATH 1050 and MATH 1060. Includes functions and their graphs including polynomial, rational, exponential, logarithmic, trigonometric, and inverse trigonometric functions. Covers inequalities, systems of linear and nonlinear equations, matrices, determinants, arithmetic and geometric sequences, the Binomial Theorem, the unit circle, right triangle trigonometry, trigonometric equations, trigonometric identities, the Law of Sines, the Law of Cosines, vectors, complex numbers, polar coordinates, and conic sections.

**MATH 1090** **QL**  
**College Algebra for Business**  
**3**  
\* Prerequisite(s): Within the past two years one of the following: MAT 1010 or MAT 1015 with a grade of C or better or appropriate math placement score.

Uses linear, quadratic, power, polynomial, rational, exponential, logarithmic, and logistic functions to analyze business applications such as market equilibrium, rates of change, cost-benefit analysis, and inflation. Includes systems of linear and non-linear equations and inequalities, matrices and matrix equations, sequences and series, and financial mathematics. Canvas Course Mats \$90/McGraw applies.

**MATH 1100**  
**Survey of Calculus**

**3**  
\* Prerequisite(s): Within the past two years: MATH 1050 or MATH 1055 or MATH 1080 with a grade of C or better or appropriate math placement score.

Provides a comprehensive survey of the basic concepts and techniques of differential and integral calculus. Covers topics from both single and multivariable calculus including limits, continuity, differentiation, partial differentiation, integration, single variable and multivariate optimization. Includes the derivatives and integrals of polynomial functions, rational functions, exponential functions, and logarithmic functions, and partial differentiation of multivariate versions of these same functions. Emphasizes applications to specific disciplines such as business, computer science, and the life sciences.

**MATH 1210**  
**Calculus I**

**4**  
\* Prerequisite(s): One of the following within the past two years: (MATH 1050 or MATH 1055) and MATH 1060, each with a grade of C or higher; OR MATH 1080 with a grade of C or higher; OR appropriate placement by math placement test.

Covers limits, continuity, differentiation, applications of differentiation, integration, and applications of integration, including derivatives and integrals of polynomial functions, rational functions, exponential functions, logarithmic functions, trigonometric functions, inverse trigonometric functions, and hyperbolic functions. Is a prerequisite for calculus-based sciences.

**MATH 121H**  
**Calculus I**

**4**  
\* Prerequisite(s): One of the following within the past two years: (MATH 1050 or MATH 1055) and MATH 1060, each with a grade of C or higher; OR MATH 1080 with a grade of C or higher; OR appropriate placement by math placement test.

Covers limits, continuity, differentiation, applications of differentiation, integration, and applications of integration, including derivatives and integrals of polynomial functions, rational functions, exponential functions, logarithmic functions, trigonometric functions, inverse trigonometric functions, and hyperbolic functions. Is a prerequisite for calculus-based sciences. Is an honors course with student projects.

**QL**  
**MATH 1220**  
**Calculus II**

**4**  
\* Prerequisite(s): MATH 1210 or MATH 121H with a grade of C or higher

Includes applications of integration, integration techniques, arc length, area of a surface of revolution, moments and centers of mass, sequences and series, and parametrization of curves and polar coordinates.

**MATH 122H**  
**Calculus II**

**4**  
\* Prerequisite(s): MATH 1210 or MATH 121H with a grade of C or higher

Includes integration techniques, arc length, area of a surface of revolution, moments and centers of mass, sequences and series, parametrization of curves and polar coordinates. Honors course which requires a student project.

**MATH 2000**  
**Algebraic Reasoning with Modeling**

**QL**  
**3**  
\* Prerequisite(s): Within the past two years, one of the following: MAT 1010 or MAT 1015 with a grade of C or better or an appropriate math placement score.

Presents the basic ideas of sets and functions in the context of and motivated by modeling bivariate data. Includes basic set theory such as unions, intersections, Venn diagrams, etc. Includes the basic ideas and the algebra of functions including polynomial, exponential, and logarithmic functions. Also includes some basic combinatorics and counting principles as well as arithmetic and geometric sequences. Culminates in a pictorial introduction to the basic ideas of calculus presented with minimal computation.

**MATH 2010**  
**Mathematics for Elementary Teachers I**

**3**  
\* Prerequisite(s): Within the past two years: MATH 1050 or MATH 1055 or MATH 2000 with a grade of C or better or appropriate math placement score.

Is for pre-elementary education majors. Includes problem solving, sets, numeration systems, arithmetic of whole numbers, integers, rational numbers, real numbers, elementary number theory, ratios, proportions, decimals, and percents.

**MATH 2020**  
**Mathematics for Elementary Teachers II**

**3**  
\* Prerequisite(s): MATH 2010 with a grade of C or higher

Is for pre-elementary education majors. Includes topics on probability, statistics, geometry and measurement.

**MATH 2210**  
**Calculus III**

**4**  
\* Prerequisite(s): MATH 1220 or MATH 122H with a grade of C or higher

Includes vectors in 3-space, quadric surfaces, partial derivatives, gradient, Lagrange multipliers, multiple integrals, line integrals, Green's Theorem, surface integrals, the Divergence Theorem, and Stokes' Theorem.

**MATH 221H**  
**Calculus III**

**4**  
\* Prerequisite(s): MATH 1220 or MATH 122H with a grade of C or higher

Includes vectors in 3-space, quadric surfaces, partial derivatives, gradient vectors, Lagrange multipliers, multiple integrals, line integrals, Green's Theorem, surface integrals, the Divergence Theorem, and Stokes' Theorem. Is an honors course which includes a student project.

**MATH 2250**  
**Differential Equations and Linear Algebra**

**4**  
\* Prerequisite(s): MATH 1220 or MATH 122H with a grade of C or higher

Is for engineering students. Includes separable equations, linear differential equations, differential operators and annihilators, variation of parameters, Laplace transforms, and systems of linear differential equations. Introduces basic concepts of linear algebra including matrices, Gaussian elimination, determinants, linear independence, and eigenvalues and eigenvectors.

**MATH 2270**  
**Linear Algebra**

**3**  
\* Prerequisite(s): MATH 1210 or MATH 121H with a grade of C or higher

Includes matrices and systems of equations, determinants, vector spaces, linear transformations, orthogonality, and eigenvalues and eigenvectors.

**MATH 2280**  
**Ordinary Differential Equations**

**3**  
\* Prerequisite(s): MATH 2210 or MATH 221H with a grade of C or higher

Includes separable equations, linear differential equations, differential operators and annihilators, variation of parameters, power series solutions of differential equations, Laplace transforms, systems of linear differential equations, and numerical methods.

## Course Descriptions

### **MATH 281R**

#### **Cooperative Work Experience 2 to 9**

\* Prerequisite(s): Approval of Cooperative Coordinator

Designed for mathematics majors. Provides paid work experiences in the student's major. Course content is individualized, with the student setting the objectives by consulting with a faculty coordinator and the on-the-job supervisor. Credit is determined by the number of hours the student works during the semester. Repeatable for a maximum of 16 credits toward graduation. May be graded credit/no credit.

### **MATH 290R**

#### **Topics in Mathematics 3 to 5**

\* Prerequisite(s): Departmental approval

Studies a chosen topic in mathematics; topic will vary depending upon student demand and course development needs. May be taken more than once for different topics and for a maximum of 6 credit hours counted toward graduation.

### **MATH 3000**

#### **History of Mathematics WE 3**

\* Prerequisite(s): MATH 2210 or MATH 221H with a grade of C or higher and University Advanced Standing

Provides a survey of the history of mathematics with a focus on the development of mathematical ideas in their historical context. Includes numeration systems, the mathematics of the ancient world, the development of algebra, geometry, and calculus, and the work of pivotal mathematicians.

### **MATH 3010**

#### **Methods of Secondary School Mathematics Teaching 3**

\* Prerequisite(s): MATH 2210 or MATH 221H with a grade of C or higher and EDSC 455G with a grade of B- or higher and University Advanced Standing

Is for Mathematics Education majors. Presents different methods of teaching mathematical ideas at the secondary school level. Includes classroom instruction, student presentations, and field experiences. Studies various techniques of assessment and classroom management.

### **MATH 3020**

#### **Computer Based Mathematics for Secondary School Mathematics Teachers 3**

\* Prerequisite(s): (MATH 2210 and MATH 2270 each with a grade of C or higher) and University Advanced Standing; MATH 2280 with a grade of C or higher is recommended

For Mathematics Education majors. Presents one or more popular mathematical computer software packages. Includes mathematical problem solving and presentations of mathematical concepts using a computer as an aid. Introduces appropriate programming language.

### **MATH 3030**

#### **Algebra for Secondary Mathematics Teaching 3**

\* Prerequisite(s): Math 1210 with a grade B- or higher and University Advanced Standing and Mathematics Department Adviser Approval

For Mathematics Education Majors: Includes the exploration of important conceptual underpinnings, common misconceptions and students' ways of thinking, appropriate use of technology, and instructional practices to support and assess the learning of algebra. Teaches algebra as an extension of number, operation, and quantity; various ideas of equivalence as it pertains to algebraic structures; patterns of change as covariation between quantities; connections between representations (tables, graphs, equations, geometric models, context); and the historical development of content and perspectives from diverse cultures. Focuses on deeper understanding of rational numbers, ratios and proportions, meaning and use of variables, functions (e.g., exponential, logarithmic, polynomials, rational, quadratic), and inverses.

### **MATH 3100**

#### **Foundations of Geometry 3**

\* Prerequisite(s): MATH 2270 with a grade of C or higher and MATH 2210 with a grade of C or higher and University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): MATH 2280

Introduces logic and mathematical proof. Offers an axiomatic development of Euclidean and non-Euclidean geometries.

### **MATH 3200**

#### **Foundations of Analysis 3**

\* Prerequisite(s): MATH 3100 with a grade of C or higher and MATH 2280 with a grade of C or higher and University Advanced Standing

Covers material from beginning analysis including the axioms of the real numbers, sequences, mathematical induction, limits, topology of the real line, continuity, differentiation, and integration.

### **MATH 3210**

#### **Complex Variables 3**

\* Prerequisite(s): MATH 2210 or MATH 221H with a grade of C or higher and University Advanced Standing

Introduces complex analysis. Includes algebra of complex numbers, analytic functions, mapping properties of elementary functions, the Cauchy integral formula, complex series, residues, and conformal mapping.

### **MATH 3250**

#### **Introduction to Advanced Calculus WE 3**

\* Prerequisite(s): (MATH 2210 or MATH 221H) with a grade of C or higher and MATH 2270 with a grade of C or higher and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MATH 2280

Introduces mathematical logic and proof. Covers the first topics of advanced calculus including the axioms of the real numbers, sequences, mathematical induction, limits, topology of the real numbers, continuity, differentiation, and integration.

### **MATH 3300**

#### **Foundations of Abstract Algebra 3**

\* Prerequisite(s): MATH 3100 or MATH 3250 with a grade of C or higher and University Advanced Standing

Provides an introduction to algebraic structures. Covers the theory of groups including modular arithmetic, normal subgroups, factor groups, and cyclic groups. Introduces rings, integral domains, and fields.

### **MATH 3310**

#### **Discrete Mathematics 3**

\* Prerequisite(s): MATH 1220 with a grade of C or higher and University Advanced Standing

Includes logic, sets, functions, elementary number theory, mathematical induction, equivalence relations, and cardinality. Emphasizes the writing of proofs.

### **MATH 3320**

#### **Graph Theory and its Applications 3**

\* Prerequisite(s): MATH 2270 with a grade of C or higher and University Advanced Standing

Introduces the most important topics of graph theory including graphs and modeling, trees, paths, circuits, and connectivity, matching, planar graphs and coloring, and applications.

### **MATH 3400**

#### **Partial Differential Equations 3**

\* Prerequisite(s): MATH 2280 with a grade of C or higher and University Advanced Standing

Introduction to partial differential equations. Topics include Bessel functions, Legendre polynomials, Fourier analysis, partial differential equations, and boundary value problems.

### **MATH 3640**

#### **Introduction to Optimization 3**

\* Prerequisite(s): (MATH 2210 or MATH 221H) and MATH 2270 with a grade of C or higher and University Advanced Standing; CS 1400 with a grade of C or higher is recommended.

Includes linear, quadratic, and nonlinear programming, network problems, convexity, necessary and sufficient optimality conditions, numerical algorithms, and special topics.

**MATH 3750****Financial Mathematics****3**

\* Prerequisite(s): (MATH 1220 or FIN 3100 each with a grade of C or higher) and University Advanced Standing

Prepares students to take Exam FM/Exam 2 given by the Society of Actuaries/Casualty Actuarial Society. Trains students to answer complex questions under significant time pressure. Teaches the principles and mathematics of interest, annuities, amortization, investments, financial economics, derivative investment contracts and financial risk management.

**MATH 4015****Actuarial Problems Laboratory****1**

\* Prerequisite(s): STAT 4710 and University Advanced Standing

Provides preparation for the probability actuarial examination (Exam P) by linking concepts of probability and mathematical statistics to actuarial applications.

**MATH 4025****Actuarial Problems Finance Laboratory****1**

\* Prerequisite(s): (MATH 3750 or Departmental Approval) and University Advanced Standing

Provides preparation for the financial mathematics actuarial examination (Exam FM) by linking concepts of finance to actuarial applications.

**MATH 4030****Geometry for Secondary Mathematics Teaching****3**

\* Prerequisite(s): Math 3100 with a grade C or higher and University Advanced Standing

For Mathematics Education Majors. Includes the exploration of important conceptual underpinnings, common misconceptions and students' ways of thinking, appropriate use of technology, and instructional practices to support and assess the learning of geometry. Teaches constructions and transformations, congruence and similarity, analytic geometry, solid geometry, conics, trigonometry, and the historical development of content and perspectives from diverse cultures. Makes explicit connections to various mathematical content strands (modeling, complex numbers, function, and algebra).

**MATH 4040****Statistics and Probability for Secondary Mathematics Teaching****3**

\* Prerequisite(s): Math 1210 with a grade B- or higher and STAT 2040 with a grade C or higher and University Advanced Standing

For Mathematics Education Majors. Includes the exploration of important conceptual underpinnings, common misconceptions and students' ways of thinking, appropriate use of technology, and instructional practices to support and assess the learning of statistics and probability. Focuses on summarizing and representing data, study design and sampling, probability, testing claims and drawing conclusions, and the historical development of content and perspectives from diverse cultures.

**MATH 4100****Differential Geometry of Curves and Surfaces****3**

\* Prerequisite(s): MATH 3250 with a grade of C or higher and University Advanced Standing

Presents the differential geometry of curves and surfaces. Includes parametrized curves, arc length, surfaces, tangent planes, area, curvature, the Gauss map, vector fields, isometries, geodesics, the Gauss-Bonnet theorem, and other curves and surfaces topics selected by the instructor.

**MATH 4210****Advanced Calculus I****3**

\* Prerequisite(s): MATH 3250 with a grade of C or higher and MATH 2280 with a grade of C or higher and University Advanced Standing

Covers limit and differentiation theorems, L'Hopital's rule, integration, the Fundamental Theorem of Calculus, series convergence, Taylor series, compactness, and an introduction to the geometry and topology of Euclidean spaces.

**MATH 4220****Advanced Calculus II****3**

\* Prerequisite(s): MATH 4210 with a grade of C or higher, and University Advanced Standing

Covers the topology of Euclidean spaces, vectors and linear transformations, multivariable limits and continuity, multivariable differentiation, Jordan regions, multivariable Riemann integration, and Taylor series in multiple variables.

**MATH 4250****Introduction to Dynamical Systems****3**

\* Prerequisite(s): MATH 3250 with a grade of C or better, and University Advanced Standing.

Provides a foundation in dynamical systems. Discusses fundamental topics of dynamics, including graphical analysis, orbits, periodic and fixed points, convergence, bifurcations, symbolic dynamics, chaos, and Sarkovskii's Theorem. May include fractals, complex functions, and fractal dimension.

**MATH 4310****Introduction to Modern Algebra I****3**

\* Prerequisite(s): MATH 3300 with a grade of C or higher and University Advanced Standing

Provides a deeper treatment of topics in modern algebra. Covers direct products of groups and the classification of finite Abelian groups. Covers the theory of rings including ideals, factor rings, various kinds of integral domains, fields, and polynomial rings.

**MATH 4320****Introduction to Modern Algebra II****3**

\* Prerequisite(s): MATH 4310 with a grade of C or higher and University Advanced Standing

Provides a deeper treatment of topics in the theory of groups, rings, and fields. Covers field extensions, algebraic extensions, finite fields, and Kronecker's Theorem. Includes applications to straightedge and compass geometric constructions. Covers other topics at the instructor's discretion which may include the Sylow Theorems, symmetry groups, and Galois Theory.

**MATH 4330****Theory of Linear Algebra****3**

\* Prerequisite(s): MATH 3250 with a grade of C or higher and University Advanced Standing

Covers vector spaces, linear transformations and matrices, dual spaces, inner product spaces, orthogonality, bilinear forms, eigenvalues, eigenvectors and generalized eigenvectors, diagonalization, and Jordan and other canonical forms.

**MATH 4340****Introduction to Number Theory****3**

\* Prerequisite(s): MATH 3250 with a grade of C or higher and University Advanced Standing

Covers divisibility, irreducibility and primality, linear Diophantine equations, Pell's equation, continued fractions, congruences, Euler's theorem, arithmetic functions, primitive roots, quadratic reciprocity.

**MATH 4510****Foundations of Topology****3**

\* Prerequisite(s): MATH 3250 with a grade of C or higher and University Advanced Standing

Introduces the ideas of topologies, compactness, connectedness, countability, separability, separation axioms, homeomorphisms, and the Baire Category Theorem.

# Course Descriptions

## **MATH 4610**

### **Introduction to Numerical Analysis I**

**3**

\* Prerequisite(s): MATH 2270, MATH 2280, and CS 1400, each with a grade of C or higher, and University Advanced Standing

Includes numerical solutions of equations in one variable, numerical solutions of linear and nonlinear system of equations, interpolations and polynomial approximation, and approximating eigenvalues and eigenvectors.

## **MATH 4620**

### **Introduction to Numerical Analysis II**

**3**

\* Prerequisite(s): MATH 4610 with a grade of C or higher and University Advanced Standing

Introduction to numerical analysis II. Topics will include numerical differentiation and integration, numerical solutions of initial-value problems and boundary-value problems for ordinary differential equations, numerical.

## **MATH 4750**

### **Life Contingencies**

**3**

\* Prerequisite(s): STAT 4710 with a grade of C or higher and University Advanced Standing

Includes survival models, Markov Chains, life insurance and annuities, and Poisson processes. Prepares students for the life contingencies portion of Exam M of the Society of Actuaries.

## **MATH 481R**

### **Internship in Mathematics**

**1 to 4**

\* Prerequisite(s): Instructor Approval and University Advanced Standing

For mathematics majors. Provides mathematics-related work experience in an industrial, commercial, or research environment. Internship credit may not be used in fulfilling the mathematics major course requirements. May be taken two times for a maximum of 6 credits toward graduation. May be graded credit/no credit.

## **MATH 489R**

### **Undergraduate Research in Mathematics**

**1 to 3**

\* Prerequisite(s): MATH 3250 with a grade of C or better, Departmental Approval, and University Advanced Standing

Allows research on a project determined by a faculty member and approved by the department chair. Emphasizes proof, modeling, or other activities associated with mathematical research. May be used as part of a senior project. May be Graded Credit/No Credit. May be repeated for a maximum of 3 credits toward graduation.

## **MATH 490R**

### **Topics in Mathematics**

**2 to 3**

\* Prerequisite(s): Departmental approval and University Advanced Standing

Studies a chosen topic in mathematics. The topic will vary depending upon student demand. Course may be taken more than once for different topics and for a maximum of 6 credit hours counted toward graduation.

## **MATH 4999**

### **Mathematics Capstone WE**

**2**

\* Prerequisite(s): Instructor approval, departmental approval, and University Advanced Standing

Is for mathematics majors and is to be taken during the last semester before graduation. Reviews topics learned in the core undergraduate mathematics courses. Assesses student understanding through the Major Field Test. Provides an opportunity for senior mathematics majors to participate in mathematical research under the supervision of a faculty member. Offers a setting in which students prepare a research paper and give oral presentations that describe their research.

## **MATH 5510**

### **General Topology**

**3**

\* Prerequisite(s): MATH 4510 or MATH 4210 with a grade of C or higher

Introduces the fundamentals of general topology, including topological spaces, separation axioms, continuity, compactness, connectedness, metric spaces, product spaces, metrization and ordinals.

## **MATH 6000**

### **Mathematics Core Review**

**3**

\* Prerequisite(s): Department Approval

Reviews essential undergraduate mathematics for students seeking admission to the MS-Mathematics Education program. Reviews Calculus, Linear Algebra, Differential Equations, Geometry, Advanced Calculus, and Modern Algebra. May be graded credit/no credit.

## **MATH 6100**

### **Topics in Geometry and Topology**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director.

Includes manifolds, fundamental group, classification of surfaces, covering spaces, homotopy types, differential geometry, Riemannian geometry, algebraic geometry, projective geometry, and algebraic topology.

## **MATH 6210**

### **Real Analysis**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director.

Introduces students to fundamental analytic tools used across all of mathematics. Presents a proof based approach to analysis in Euclidean space and analysis in the general setting of metric spaces. Includes sequences, series, limits in  $\mathbb{R}^n$ , metric spaces, topology, differentiation, and integration.

## **MATH 6310**

### **Modern Algebra**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director.

Covers advanced topics from group, ring, and field theory.

## **MATH 6330**

### **Advanced Linear Algebra**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director.

Presents a proof and computation based approach to the theory of vector spaces, including bases, dimension, linear transformations, rank-nullity theorem, dual spaces, inner products, and canonical forms.

## **MATH 6350**

### **Introduction to Combinatorics**

**3**

\* Prerequisite(s): Mathematics Endorsement 4, or instructor approval

Enumerates permutations and combinations of sets and multi-sets, inclusion-exclusion, recurrence relations, generating functions, Polya theory, and combinatorial structures.

## **MATH 6410**

### **Topics in Ordinary Differential Equations**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director.

Includes the theory of linear and nonlinear ordinary differential equations and dynamical systems; the initial-value problems and behavior of solutions; the existence, uniqueness, perturbations, continuous dependence of solution on initial conditions, and introduction of nonlinear dynamical systems with applications.

**MATH 6610**  
**Numerical Methods and Modeling**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director.

Investigates modelling and numerical topics. Investigates topics from college algebra, calculus, linear algebra, and differential equations from a theoretical as well as numerical perspective. Expounds on algorithms and modelling through software packages in a hands-on approach.

**MATH 6620**  
**Topics in Numerical Analysis**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director.

Develops a deeper practical and theoretical understanding of methods used to find approximate solutions to a variety of mathematical problems and of the relationships between these algorithms. Compares accuracy, efficiency, and stability of methods used to solve nonlinear equations and large systems of linear and nonlinear algebraic equations; ordinary and partial differential equations; and to perform numerical differentiation, integration, interpolation and more general approximation of functions. Provides experience programming and applying many of the central algorithms that have powered modern advances in math and the sciences.

**MATH 6700**  
**Applications of Mathematics**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director.

Introduces various areas of mathematics that can be applied to other fields such as the sciences, arts, industry, etc. Includes topics such as game theory, graph theory, knot theory, number theory, etc.

**Mathematics**  
**Developmental (MAT)**

**MAT 0920**  
**Math Fundamentals**

**3**

\* Prerequisite(s): Appropriate placement by a placement exam (within two years).

Designed for students requiring basic math review. Reviews basic operations with whole numbers and fractions. Includes basic operations involving decimals, percents, ratios, rates, and basic operations involving physical measurements. Lab access fee of \$3 applies.

**MAT 0950**  
**Foundations for Algebra**

**4**

\* Prerequisite(s): One of the following (within two years): MAT 0920 with a grade of C- or higher; or appropriate placement by a placement exam.

Designed for students requiring basic math and pre algebra instruction. Covers basic operations for number systems up to and including real numbers. Includes fractions, ratios, proportions, decimals, exponents, roots, linear equations, and polynomial expressions. May be delivered online. Lab access fee of \$3 applies.

**MAT 0980**  
**Beginning Algebra**

**5**

\* Prerequisite(s): Appropriate placement (within two years) by a placement exam or a grade of C- or better in MAT 0920

Focuses on building a conceptual understanding of the definitions and operations of algebraic expressions and equations. Introduces students to numerical and algebraic topics, including real numbers and sets; radicals; variables, expressions, and equations; linear equations and inequalities in one variable; tables, charts and graphs; linear equations and systems of linear equations in two variables; polynomials; and quadratic equations in two variables. Prepares students for function and graphing based mathematical reasoning of MAT 1010 (Intermediate Algebra) or MAT 1015 (Intermediate Algebra with Integrated Review). Lab access fee of \$3 applies.

**MAT 0990**  
**Introductory Algebra**

**4**

\* Prerequisite(s): One of the following (within two years): MAT 0950 or MAT 0980 with a C- or higher; or appropriate placement by a placement exam

For students who have completed a minimum of one year of high school algebra or who lack a thorough understanding of basic algebra principles. Teaches integers, solving equations, polynomial operations, factoring polynomials, systems of equations and graphs, rational expressions, roots, radicals, complex numbers, quadratic equations and the quadratic formula. Prepares students for MAT 1010, Intermediate Algebra. Lab access fee of \$3 applies.

**MAT 1010**  
**Intermediate Algebra**

**4**

\* Prerequisite(s): One of the following (within two years): MAT 0980 or MAT 0990 with a grade of C- or higher; or appropriate placement by a placement exam.

Uses an in-depth function and graphing based approach to teach Intermediate Algebra and focuses on conceptual understanding as well as algebraic skill. Covers linear, polynomial, quadratic, exponential, logarithmic and rational, functions from algebraic and graphical perspectives. Extends students' mathematical reasoning practice to a collegiate and academic approach in mathematical thinking. Prepares students for MAT 1030, STAT 1040, MATH 1050 and MATH 1090.

**MAT 1015**  
**Intermediate Algebra with Integrated Review**

**5**

\* Prerequisite(s): (within department time limits): MAT 0980 with a C- or higher or appropriate placement by a placement exam.

Reviews core concepts and skills in arithmetic and basic algebra. Uses an in-depth function and graphing based approach to teach Intermediate Algebra and focuses on conceptual understanding as well as algebraic skill. Covers linear, polynomial, quadratic, exponential, logarithmic and rational, functions from algebraic and graphical perspectives. Extends students' mathematical reasoning practice to a collegiate and academic approach in mathematical thinking. Prepares students for MAT 1030, STAT 1040, MATH 1050 and MATH 1090.

## Course Descriptions

### **MAT 101R** **Individualized Mathematics Review**

**1**  
\* Prerequisite(s): Any MAT or MATH course  
Designed as a follow-up to MATH 100R for students who desire to make further progress in their math placement through individualized instruction. Includes a diagnostic test of mathematical knowledge base which is used to develop an individualized learning plan. Provides targeted intervention to increase foundational mathematics knowledge. May be Graded Credit/No Credit. May be repeated for a maximum of 3 credits.

### **MAT 1020** **Numeracy**

**4**  
Uses real-life, scenario-based instruction where each mathematical concept is taught using small, useful, real-life mathematical scenarios. Uses a modelling approach to help students determine in which real-life scenario they would use which mathematical concept or skill for solving problems. Covers models of integers, fractions, decimals, percentages and percentage change, ratio and rate, basic descriptive statistics, charts, and graphs, linear growth, and exponential growth. Demonstrates mathematics as a tool for modeling specific real-life situations. Uses calculators, computer software, and the Internet, and that they are used as tools for understanding. Prepares students for MAT1030, Quantitative Reasoning.

### **MAT 1030** **Quantitative Reasoning**

**3**  
\* Prerequisite(s): One of the following (within department time limits): MAT 1020 (preferred), or MAT 1015 or MAT 1010 with a grade of C- or higher; or appropriate placement by a placement exam.  
Teaches how to communicate, interpret, and analyze quantitative information found in the media and in everyday life to make sound personal, professional, and civic decisions.

### **MAT 1035** **Quantitative Reasoning with Integrated Algebra**

**6**  
\* Prerequisite(s): One of the following (within department time limits): MAT 0950 with a grade of C- or higher, or MAT 0980 with a grade of C- or higher, or appropriate placement by a placement exam.  
Teaches students to communicate, interpret, and analyze quantitative information found in the media and in everyday life to make sound personal, professional, and civic decisions. Provides the necessary algebraic content taught in context.

### **MAT 103H** **Quantitative Reasoning**

**3**  
\* Prerequisite(s): One of the following (within department time limits): MAT 1010 or MAT 1015 with a grade of C- or higher; or appropriate placement by a placement exam.  
Teaches how to communicate, interpret, and analyze quantitative information found in the media and in everyday life to make sound personal, professional, and civic decisions. Covers the material at an honors level.

### **MAT 1110 (Cross-listed with: PHIL 1110)** **Introduction to Mathematical Reasoning**

**3**  
\* Prerequisite(s): One of the following (within department time limits): MAT 1010, MAT 1015, MAT 1030 or higher, or STAT 1040 or higher, with a grade of C- or higher.  
Focuses on the ability to reason soundly and formulate arguments in mathematics, logic and philosophy. Covers how sound arguments and good reasoning methods allow us to effectively search for the truth regarding any mathematical or philosophical question. Covers the reasoning methods used in mathematics and the way the methods are applied outside of mathematics in areas such as language and the sciences. Describes how these methods are effective in producing mathematical knowledge and understanding as well as their epistemic shortcomings. Includes reasoning with propositional logic, sound argumentation, mathematical proof, visualization and diagrammatic reasoning, the role of rigor and intuition, and the scientific application of mathematics.

### **MAT 240R** **Math Mentor Leadership Practicum**

**2**  
\* Prerequisite(s): One of the following (within department time limits): MAT 1010, MAT 1015, MAT 1030, or MAT 1035 with a B+ or higher.  
Provides the theoretical base and hands-on training in leadership and math mentoring techniques as well as an understanding of and ability to apply listening, teaching, and leadership competencies. Assists student leaders in further developing their own self-awareness, learning skills and strategies, and explores methods for facilitating these in others. Provides an avenue for goal development, fulfillment and performance among student leaders and the individuals they serve. Emphasizes building relationships with students, teaching life skills and learning strategies, and guiding students through the college experience. May be repeated for a maximum of 8 credits towards graduation.

## **QL** **Mechatronics** **Engineering Tech** **(MECH)**

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### **MECH 1010** **Fundamentals of Mechatronics**

**3**  
Covers the fundamental skills and theory of the Mechatronics discipline. Covers integrated system design which includes electrical, mechanical, and microprocessor programming theory. Discusses the fundamentals of materials science, manufacturing processes, and the application of automation systems in a production environment. Course fee of \$20 for materials applies. Lab access fee of \$45 applies.

### **MECH 1200** **Electronics in Automation Design**

**3**  
\* Corequisite(s): MECH 1205  
\* Prerequisite(s) or Corequisite(s): MAT 1010  
Teaches basic DC and AC electronics theory including voltage, current, resistance, reactance, and complex impedance as well as basic electronic components such as resistors, capacitors, and inductors. Includes the analysis of series, parallel, and complex circuits as well as troubleshooting and measurement techniques. Teaches principles of algebra and trigonometry which will be utilized for circuit analysis. Emphasizes the application of electronic theory and analysis in the design of automation systems. Course Lab fee of \$40 for materials, lab applies.

### **MECH 1205** **Electronics in Automation Design Laboratory**

**2**  
\* Corequisite(s): MECH 1200  
Applies basic DC and AC electronics theory including voltage, current, resistance, reactance, and impedance as well as basic electronic components such as resistors, capacitors, and inductors. Includes the analysis of series, parallel, and complex circuits as well as troubleshooting and measurement techniques. Presents the fundamentals of digital logic using combinational and sequential logic. Teaches number systems, binary arithmetic, logic gates, Boolean algebra, truth tables and logic simplification. Introduces computer architecture. Emphasizes the application of electronic theory and analysis in the design of automation systems. Lab access fee of \$45 applies. Course Lab fee of \$44 for materials applies.

**MECH 1300  
Industrial Wiring for Mechatronic Systems****1**

\* Corequisite(s): MECH 1305

\* Prerequisite(s) or Corequisite(s): MECH 1010

Covers National Electrical Code and International Electrical Code using electrical prints, installation methods, and system requirements in mechatronic systems. Covers the creation and use of electrical diagrams for design and troubleshooting. Lab access fee of \$45 applies.

**MECH 1305  
Industrial Wiring for Mechatronic Systems Laboratory****2**

\* Corequisite(s): MECH 1300

\* Prerequisite(s) or Corequisite(s): MECH 1010

Applies the use of National Electrical Code and International Electrical Code using electrical prints, installation methods, and system requirements in mechatronic systems. Explains how to create and use electrical diagrams for design and troubleshooting.

**MECH 2200  
Semiconductors in Mechatronic Systems****3**

\* Prerequisite(s): MECH 1200

\* Corequisite(s): MECH 2205

Teaches the theory of semiconductor PN junctions and discrete semiconductors such as diodes, bipolar junction transistors, and MOSFET's applied to automation control. Also introduces the utilization of opto-isolators, triacs, and SCR's in controlling automation power devices. Course Lab fee of \$25 for materials, lab applies.

**MECH 2205  
Semiconductors in Mechatronic Systems Lab****1**

\* Prerequisite(s): MECH 1200, MECH 1205

\* Corequisite(s): MECH 2200

Applies the theory of semiconductor PN junctions and discrete semiconductors such as diodes, bipolar junction transistors, and MOSFET's applied to automation control. Introduces the utilization of opto-isolators, triacs, and SCR's in controlling automation power devices. Lab access fee of \$45 applies.

**MECH 2300  
Microcontroller Architecture and Programming****3**

\* Corequisite(s): MECH 2305

\* Prerequisite(s) or Corequisite(s): MECH 2200 and MECH 2205 or AET 2110 and AET 2115

Teaches computer architecture and the fundamentals of computer programming in C language. Uses an IDE to develop, compile and debug C code. Introduces structured top down design and program documentation. Teaches the organization of I/O ports including alternate functions. Utilizes microcontroller communications, functions and I/O methods to interface to sensors and actuators. Course Lab fee of \$50 for materials, lab applies.

**MECH 2305  
Microcontroller Architecture and Programming Lab****2**

\* Prerequisite(s): MECH 1205

\* Corequisite(s): MECH 2300

\* Prerequisite(s) or Corequisite(s): MECH 2200 and MECH 2205 or AET 2110 and AET 2115

Applies computer architecture and the fundamentals of computer programming in C language. Uses an IDE to develop, compile and debug C code. Introduces structured top down design and program documentation. Teaches the organization of I/O ports including alternate functions. Utilizes microcontroller communications, functions and I/O methods to interface to sensors and actuators. Course Lab fee of \$387 for materials applies. Lab access fee of \$45 applies.

**MECH 2400  
Mechanical Components****4**

\* Prerequisite(s): MECH 1010

Teaches students how to select, design, and analyze mechanical components that are used in manufacturing automation systems. Reviews and reinforces the concepts of the structure of metals, metals selection, and mechanical properties. Focuses on the selection of belt and chain drives, gear and gearbox selection, design of shafts, specification of rolling element bearings, and the use of threaded fasteners. Integrates the selection and design of mechanical components into a design project. Lab access fee of \$45 applies

**MECH 2500  
Introduction to PLCs in Mechatronic Design****2**

\* Prerequisite(s): MECH 1200, MECH 2300

\* Corequisite(s): MECH 2505

Covers the theory and programming of industrial control systems and programmable logic controllers (PLC). Introduces PLC programming stressing Ladder Logic and PLC programming, troubleshooting, and maintenance. Covers connection of PLCs to external components. Presents the fundamentals of digital logic using ladder logic. Covers number systems and Boolean algebra. Course Lab fee of \$15 for materials, lab applies. Software fee of \$29 applies.

**MECH 2505  
Introduction to PLCs in Mechatronic Design Laboratory****2**

\* Prerequisite(s): MECH 1200, MECH 2300

\* Corequisite(s): MECH 2500

Applies the theory and programming of industrial control systems and programmable logic controllers (PLC). Applies PLC programming stressing Ladder Logic and PLC programming, troubleshooting, and maintenance. Applies connection of PLCs to external components. Lab access fee of \$45 applies.

**MECH 2510  
Fundamentals of Automation Controls****2**

\* Corequisite(s): MECH 2515

\* Prerequisite(s) or Corequisite(s): MECH 2500

Covers how to select, install, and troubleshoot sensors in a manufacturing environment. Emphasizes the application of proximity sensors in automation equipment as well as the use of encoders to measure speed and position, pressure transducers, and the use of thermocouples and thermistors to measure temperature. Covers signal conditioning methods to interface sensors to microprocessors and PLC's. Course Lab fee of \$20 for lab notebook, lab applies.

**MECH 2515  
Fundamentals of Automation Controls Laboratory****1**

\* Corequisite(s): MECH 2510

\* Prerequisite(s) or Corequisite(s): MECH 2500

Applies methods for proper selection, installation, and troubleshooting of sensors in a manufacturing environment. Emphasizes the application of proximity sensors in automation equipment as well as the use of encoders to measure speed and position, pressure transducers, and the use of thermocouples and thermistors to measure temperature. Utilizes signal conditioning methods to interface sensors to microprocessors and PLC's. Lab access fee of \$45 applies. Course Lab fee of \$16 applies.

# Course Descriptions

## **MECH 2550**

### **Advanced PLC Programming and Applications**

**2**

- \* Prerequisite(s): MECH 2500
- \* Corequisite(s): MECH 2555

Covers the principles of program structure, subroutines, interrupts, debugging, and simplifying. Illustrates the measurement and scaling of analog signals. Covers networking principles such as Ethernet and serial. Course Lab fee of \$15 for materials, lab applies. Software fee of \$29 applies.

## **MECH 2555**

### **Advanced PLC Programming and Applications Laboratory**

**2**

- \* Prerequisite(s): MECH 2500
- \* Corequisite(s): MECH 2550

Applies the principles of program structure, subroutines, interrupts, debugging, and simplifying using a PLC. Applies the use of PLCs in the measurement and scaling of analog signals. Applies networking principles such as Ethernet and serial to communicate with a PLC. Lab access fee of \$45 applies.

## **MECH 2600**

### **Introduction to Fluid Power Systems**

**2**

- \* Prerequisite(s): MECH 2400
- \* Corequisite(s): MECH 2605

Develops the concepts used to design, build, and control a fluid power system that is used in an industrial automation process. Covers the the fundamental principles of fluid power. Course Lab fee of \$15 for materials, lab applies. Lab access fee of \$45 applies. Software fee of \$50 applies.

## **MECH 2605**

### **Introduction to Fluid Power Systems Laboratory**

**1**

- \* Prerequisite(s): MECH 2400
- \* Corequisite(s): MECH 2600

Applies the concepts used to design, build, and control a fluid power system that is used in an industrial automation process. Employs laboratory exercises to illustrate the selection and use of actuators, valves, and controls to sequentially control a process.

## **MECH 2700**

### **Industrial Motor Control Mechatronic Systems**

**2**

- \* Prerequisite(s): MECH 1300, MECH 1305
- \* Corequisite(s): MECH 2705

Covers installation, troubleshooting, preventive maintenance, and theory on DC/AC motors, generators, and associated industrial control circuitry. Discusses ladder logic, controls, sensors, motor starters, overloads, and electronic devices used to control and protect DC/AC Machines. Describes three phase systems, transformers, and delta-wye connections. Introduces AC variable speed drives.

## **MECH 2705**

### **Industrial Motor Control Mechatronic Systems Laboratory**

**2**

- \* Prerequisite(s): MECH 1300, MECH 1305
- \* Corequisite(s): MECH 2700

Applies the principles of Installation, troubleshooting, preventive maintenance, and theory on DC/AC motors, generators, and associated industrial control circuitry. Uses ladder logic, controls, sensors, motor starters, overloads, and electronic devices used to control and protect DC/AC Machines. Lab activities include the wiring of transformers, and three phase systems in both delta and wye configurations.

## **MECH 3060**

### **Mechatronics Management**

**3**

- \* Prerequisite(s): MECH 2550 and University Advanced Standing

Provides management principles, processes, and standards commonly used in manufacturing and other industries. Covers basic concepts in project management, operations management, quality management, and safety management. Familiarizes students with applicable software tools. Lab access fee of \$45 applies.

## **MECH 3220**

### **Motion Control for Mechatronic Systems**

**3**

- \* Prerequisite(s): (MECH 2550 or AET 2270 or Department Approval) and University Advanced Standing
- \* Corequisite(s): MECH 3225

Presents the selection and application of AC and DC servo motors and how to control the speed and position in automation systems. Covers variable frequency drives and servo drives in automation system design. Applies algebra, trigonometry, integrals, and derivatives. Course Lab fee of \$15 for materials, lab applies.

## **MECH 3225**

### **Motion Control for Mechatronic Systems Laboratory**

**1**

- \* Prerequisite(s): (MECH 2550 or AET 2270 or Department Approval) and University Advanced Standing
- \* Corequisite(s): MECH 3220

Applies the standards for the selection of AC and DC servo motors and the use of programming to control speed and position in automation systems. Implements variable frequency drives and servo drives in automation system design. Lab access fee of \$45 applies.

## **MECH 3300**

### **Industrial Networks**

**2**

- \* Prerequisite(s): AET 2270 OR AET 2160 OR MECH 2550 and University Advanced Standing
- \* Corequisite(s): ENGT 3305

Covers the principles of designing, configuring, integrating, and maintaining an industrial network. Discusses the use of software to integrate PLC's, computers, managed switches, and smart devices into an industrial data network. Covers a broad spectrum from legacy networks to modern Ethernet based networks. Course Lab fee of \$25 for materials, lab applies. Software fee of \$29 applies.

## **MECH 3305**

### **Industrial Networks Laboratory**

**1**

- \* Prerequisite(s): (AET 2270, AET 2275) OR (AET 2160, AET 2165) OR (MECH 2550, MECH 2555) and University Advanced Standing
- \* Corequisite(s): MECH 3300

Applies the principles of designing, configuring, and integrating and maintaining an industrial network. Applies the use of software to integrate PLC's, computers, managed switches, and smart devices into an industrial data network. Lab access fee of \$45 applies.

## **MECH 3400**

### **Statics and Material Properties for Mechatronics**

**4**

- \* Prerequisite(s): University Advanced Standing
- \* Corequisite(s): MECH 3405

Teaches the concept of forces as vectors, the equations of equilibrium, calculation of internal forces, and the calculation of centroids and area moments of inertia. Teaches how to calculate tensile and shear stress in machine components and compare the resultant forces to standard theories of failure using the principles of statics. Teaches algebra, trigonometry, and elementary calculus in terms of the application of statics.

## **MECH 3405**

### **Statics and Material Properties for Mechatronics Laboratory**

**1**

- \* Prerequisite(s): University Advanced Standing
- \* Corequisite(s): MECH 3400

Applies the concept of forces as vectors, the equations of equilibrium, calculation of internal forces, and the calculation of centroids and area moments of inertia. Covers how to calculate tensile and shear stress in machine components and compare the resultant forces to standard theories of failure by using the principles of statics. Lab access fee of \$45 applies.

**MECH 3500**

**Industrial Robots**

**2**

\* Prerequisite(s): AET 2250 and AET 2255, or MECH 2550 and MECH 2555, University Advanced Standing. It is also recommended that students in the AET program take AET 2270 and AET 2275

\* Corequisite(s): MECH 3505

Covers the principles of industrial robotics, programming, and the application of vision systems using industry created curriculum. Course Lab fee of \$11 for flat ribbon cable, lab applies. Lab access fee of \$45 applies Software fee of \$50 applies.

**MECH 3505**

**Industrial Robots Laboratory**

**1**

\* Prerequisite(s): AET 2250 and AET 2255, or MECH 2550 and MECH 2555, University Advanced Standing. It is also recommended that students in the AET program take AET 2270 and AET 2275

\* Corequisite(s): MECH 3500

Applies the principles of industrial robotics, programming, and the application of vision systems using industrial robots. Lab access fee of \$45 applies.

**MECH 3570**

**Design Analysis and Rapid Prototyping WE**

**3**

\* Prerequisite(s): MECH 3220 and University Advanced Standing

Covers the fundamentals of geometric dimensioning and tolerancing based on the ASME Y14.5 standard. Explores how a design is affected by manufacturing tolerances and how to specify the fit of parts on a detail print. Emphasizes assembly analysis using SolidWorks Motion and rapid prototyping to verify the form, fit, and function of a design. Lab access fee of \$45 applies.

**MECH 3700**

**CNC Machines in Mechatronic Design**

**2**

\* Prerequisite(s): MECH 3220, University Advanced Standing

\* Corequisite(s): MECH 3705

Covers the application, programming, and maintenance of CNC machines. Emphasizes the integration of CNC machines into automation systems. Covers specifications, performance, interfacing with industrial robots, tooling, programming, and integrating the CNC machine into factory system. Course lab fee of \$35 for materials applies. Software fee of \$29 applies

**MECH 3705**

**CNC Machines in Mechatronic Design Laboratory**

**1**

\* Prerequisite(s): MECH 3220, University Advanced Standing

\* Corequisite(s): MECH 3700

Applies the application, programming, and maintenance of CNC machines. Emphasizes the integration of CNC machines into automation systems. Applies specifications, performance, interfacing with industrial robots, tooling, programming, and integrating the CNC machine into a factory system. Lab access fee of \$45 applies.

**MECH 4300**

**Capstone I**

**2**

\* Prerequisite(s): MECH 3220 and University Advanced Standing

\* Corequisite(s): MECH 4305

Integrates the concepts of the Mechatronics Engineering Technology curriculum into a semester-long capstone proposal. Requires students to conceive, define, design, and document a capstone proposal. Course lab fee of \$15 for equipment applies.

**MECH 4305**

**Capstone I Laboratory**

**1**

\* Prerequisite(s): MECH 3220 and MECH 3225, University Advanced Standing

\* Corequisite(s): MECH 4300

Integrates the concepts of the Mechatronics Engineering Technology curriculum into a semester-long capstone proposal. Requires students to prototype and test key components of their capstone proposal. Lab access fee of \$45 applies.

**MECH 4400**

**Polymers/Composites and Processes**

**3**

\* Prerequisite(s): MECH 3400, University Advanced Standing.

Teaches students the selection of polymers, design of polymer products and manufacturing processes associated with polymer based products. Also teaches types of composites and design of composite products. Course lab fee of \$18 for supplies applies. Lab access fee of \$45 applies.

**MECH 4500**

**Advanced Automation Controls**

**3**

\* Prerequisite(s): MECH 4300, University Advanced Standing

\* Corequisite(s): MECH 4505

Introduces methods of advanced control of high speed components, analog controls, temperature, pressure, and time delay processes using digital and analog methods of control. Covers algebra, trigonometry, and basic applied calculus in the context of complex control systems. Course lab fee of \$45 for equipment applies. Lab access fee of \$45 applies.

**MECH 4505**

**Advanced Automation Controls Laboratory**

**1**

\* Prerequisite(s): MECH 4300, University Advanced Standing

\* Corequisite(s): MECH 4500

Integrates methods of advanced control of high speed components, analog controls, temperature, pressure, and time delay processes using digital and analog methods of control. Implements practical applications of the concepts discussed in the lecture portion of the class. Lab access fee of \$45 applies.

**MECH 4800**

**Capstone II WE**

**3**

\* Prerequisite(s): MECH 3570, MECH 4300 with a C- or better, University Advanced Standing

Builds on Capstone I and integrates project management into a semester-long capstone project. Requires students to construct, validate, document, and present their capstone project. Lab access fee of \$45 applies. Software fee of \$29 applies.

**MECH 481R**

**Mechatronics Internship**

**1 to 3**

\* Prerequisite(s): Matriculation into Mechatronics Engineering Technology, Instructor Approval, and University Advanced Standing

Provides opportunity to use work experience to add to educational background and academic experience. A maximum of 6 credit hours may be counted towards graduation. May be graded credit/no credit.

**MECH 490R**

**Topics in Mechatronics**

**3**

\* Prerequisite(s): University Advanced Standing

Covers a chosen topic in the mechatronics discipline. May be taken more than once for different topics and for a maximum of 6 credit hours toward graduation. Lab access fee of \$45 applies.

**Mechanical Engineering (ME)**

**ME 3010**

**Linear Systems**

**3**

\* Prerequisite(s): ENGR 2030, MATH 2250, University Advanced Standing, and (Formal Acceptance into the Mechanical Engineering Program or Departmental Approval)

Covers analysis of linear systems in the time and frequency domains. Focuses on modeling and analysis of physical systems. Introduces Fourier and Laplace transforms. Includes a design component. Lab access fee of \$45 for computers applies.

# Course Descriptions

## **ME 3130 Kinematics**

**3**  
\* Prerequisite(s): ENGR 2030, University Advanced Standing, and (Formal Acceptance into the Mechanical Engineering Program or Departmental Approval)

Covers the analysis of dynamic mechanisms including: relative motion of links in mechanisms; velocities and accelerations of machine parts; rolling contact; cams; and synthesis of mechanisms. Introduces computer-aided engineering techniques for mechanism analysis. Includes a design component. Lab access fee of \$45 for computers applies.

## **ME 3140 Machine Design**

**3**  
\* Prerequisite(s): ENGR 2140, ENGR 2160, University Advanced Standing, and (Formal Acceptance into the Mechanical Engineering Program or Departmental Approval)

Presents methods for static and dynamic stress and failure analysis for mechanical systems. Teaches how to create machine design models and free-body diagrams, calculate stress, estimate deflection, select an appropriate failure theory, and design to prevent failure. Gives experience using commercial FEA software to create models of simple structures and machine components. Includes a design component. Lab access fee of \$45 for computers applies. Canvas Course Mats \$85/McGraw applies.

## **ME 3160 Intermediate Materials**

**3**  
\* Prerequisite(s): ENGR 2140, ENGR 2160, University Advanced Standing, and (Formal Acceptance into the Mechanical Engineering Program or Departmental Approval)

Teaches in further depth the mechanical behavior of engineering materials including metals, woods, plastics, ceramics and composites. Looks at characteristics, failure mechanisms, and designing with various engineering materials. Lab access fee of \$45 for computers applies.

## **ME 3170 Introduction to Plastics and Composites**

**3**  
\* Prerequisite(s): ENGR 2140, ENGR 2160, CHEM 1210, MATH 2250, University Advanced Standing, and (Formal Acceptance into the Mechanical Engineering Program or Departmental Approval)

Introduces the structure, processing, properties and uses of plastic and composite materials. Surveys manufacturing methods. Teaches the use of plastic and composite materials in various products. Lab access fee of \$45 for computers applies.

## **ME 3210 Manufacturing Processes for Engineers**

**3**  
\* Prerequisite(s): ENGR 2140, ENGR 2160, University Advanced Standing, and (Formal Acceptance into the Mechanical Engineering Program or Departmental Approval)

Introduces manufacturing processes, including machining, injection molding, casting, 3D printing, and forming. Introduces Computer Numeric Control (CNC) machining and Computer Aided Manufacturing (CAM). Lab access fee of \$45 for computers applies.

## **ME 3300 Applied Thermodynamics**

**3**  
\* Prerequisite(s): ENGR 2300, University Advanced Standing, and (Formal Acceptance into the Mechanical Engineering Program or Departmental Approval)

Introduces thermodynamic analysis and design of vapor, gas, refrigeration and heat pump systems, along with exergy analysis. Covers thermodynamic relations, ideal gas mixture and psychometric applications, reacting mixtures, and combustion. Includes a design component. Lab access fee of \$45 for computers applies.

## **ME 3310 Fluid Mechanics**

**3**  
\* Prerequisite(s): ENGR 2030, University Advanced Standing, and (Formal Acceptance into the Mechanical Engineering Program or Departmental Approval)

Covers the fundamentals of fluid mechanics including fluid properties, fluid statics, the Bernoulli equation, fluid kinematics, the integral and differential analyses of fluid flow. Introduces dimensional analysis, similitude, and modeling. Covers viscous internal and external flows, and turbomachines. Includes a design component. Lab access fee of \$45 for computers applies.

## **ME 3320 Heat Transfer**

**3**  
\* Prerequisite(s): (ENGR 2300, ME 3310, or Departmental Approval) and University Advanced Standing

Focuses on the three modes of heat transfer: conduction, convection, and radiation. Introduces steady and unsteady heat conduction, convection heat transfer principles, forced and free internal and external convection flows. Covers radiation heat transfer, combined modes of heat transfer, and analysis and design of heat exchangers. Includes a design component. Lab access fee of \$45 for computers applies.

## **ME 3335 Thermal/Fluid Experimentation WE**

**2**  
\* Prerequisite(s): (ENGR 2300 or Departmental Approval) and University Advanced Standing  
\* Corequisite(s): ME 3320

Covers temperature, pressure, and flow measurement, along with calibration of thermal/fluid sensors in a lab setting. Focuses on experiments to investigate various phenomena in fluid flow, thermodynamics, and heat transfer. Investigates the performance of pumps, fans, and heat exchangers. Includes substantial amount of writing and satisfies WE requirements. Course Lab access fee of \$45 applies.

## **ME 4010 Automatic Controls**

**3**  
\* Prerequisite(s): ME 3010 and University Advanced Standing

Covers analysis of control systems using Evans, Nyquist and Bodes methods. Introduces digital control and feedback compensation concepts for system performance improvement. Includes a design component. Lab access fee of \$45 for computers applies.

## **ME 4015 Control and Vibration Experimentation**

**2**  
\* Prerequisite(s): ME 4010 and University Advanced Standing

Introduces system modelling and characterization in the time and frequency domains, feedback and compensation, Proportional Integral Derivative (PID) control, control of velocity and position in a lab setting. Covers motion measurement, force measurement, free vibration, frequency response, impact response, noise, and signal processing. Includes a writing component. Lab access fee of \$45 for computers applies.

## **ME 4180 Compliant Mechanisms**

**3**  
\* Prerequisite(s): ME 3140 and University Advanced Standing

Covers the design and analysis of compliant mechanisms and compliant structures. Includes large-deflection analysis/force displacement relationships, prediction of failure of compliant members, and synthesis of compliant mechanisms. Includes a design component. Lab access fee of \$45 for computers applies.

## **ME 4380 Design of Thermal/Fluid Systems**

**3**  
\* Prerequisite(s): ENGR 2300, ME 3320, and University Advanced Standing

Applies the principles of thermodynamics, fluid mechanics, and heat transfer to the design of conventional and emerging thermal/fluid systems. Includes lectures and design projects. Lab access fee of \$45 for computers applies.

**ME 4390**  
**Heating Ventilating and Air Conditioning Design**

**3**  
 \* Prerequisite(s): ENGR 2300, ME 3320, and University Advanced Standing

Covers air conditioning components and systems, moist air properties and conditioning processes. Covers indoor environmental quality indicators, space heating and cooling load calculations, and building energy consumption estimation. Focuses on water- and air-system design, refrigerants and refrigeration systems. Includes lectures and design projects. Lab access fee of \$45 for computers applies.

**ME 4410**  
**Computer Aided Engineering**

**3**  
 \* Prerequisite(s): ME 3140, ME 3320 and University Advanced Standing

Covers the application of computer-aided engineering tools in design; 3-D geometry and solid modeling; finite element analysis, kinematic analysis, and other software in engineering analysis. Includes a design component. Lab access fee of \$45 for computers applies.

**ME 4420**  
**Finite Element Methods**

**3**  
 \* Prerequisite(s): ENGR 2140, ME 3320 and University Advanced Standing

Covers discrete approximation of engineering problems, energy and weighted residual methods, and coordinate systems and mapping. Focuses on one-, two-, and three-dimensional formulation of problems in solid and fluid mechanics and heat transfer, time-dependent problems, and optimization techniques. Lab access fee of \$45 for computers applies.

**ME 4510**  
**Mechanical Engineering Seminar**

**1**  
 \* Prerequisite(s): University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): ME 4810

Introduces various mechanical engineering careers and related industries. Emphasizes importance of life-long learning and active participation in professional societies and communities through lectures given by practicing engineers using their own experiences. Introduces various engineering codes of ethics. Intended as a culminating seminar for graduating seniors to prepare for their engineering careers. Lab access fee of \$45 for computers applies.

**ME 4550**  
**Global Engineering**

**3**  
 \* Prerequisite(s): University Advanced Standing and Formal Acceptance into the Mechanical Engineering Program or Department Approval

Focuses on importance of issues associated with global product development including product development needs in unfamiliar cultures, managing distributed design teams and manufacturing at remote and/or distributed sites. Introduces first-hand how global companies approach these issues. Lab access fee of \$45 for computers applies.

**ME 4810**  
**Mechanical Engineering Capstone I**

**3**  
 \* Prerequisite(s): University Advanced Standing, Formal Acceptance into the Mechanical Engineering Program, and Departmental Approval

Serves as a comprehensive two-semester design experience from conception to modeling or prototype. Uses, where possible, multidisciplinary team application of the engineering design process along with project management, manufacturing methods and economic analysis. Culminates in a design review based on formal presentations of fully documented, detailed proposed designs. Capstone I and II must be taken in consecutive semesters. Lab access fee of \$45 for computers applies.

**ME 481R**  
**Mechanical Engineering Internship**

**1 to 3**  
 \* Prerequisite(s): University advanced standing. Admission into the Mechanical Engineering program and instructor approval.

Provides opportunities to apply classroom theory while students work as employees in a job that relates to their careers. Includes regular communication between students and the course coordinator. Credit is determined by the number of hours a student works during the semester and completion of individually set goals. May apply for up to 3 credits; may be graded as credit/no credit.

**ME 4820**  
**Mechanical Engineering Capstone II**

**3**  
 \* Prerequisite(s): ME 4810 and University Advanced Standing

Serves as a second semester of the two-semester design experience from conception to modeling or prototype. Uses, where possible, multidisciplinary team application of the engineering design process along with project management, manufacturing methods and economic analysis. Culminates in a demonstration of a final product (model or working prototype) with verification and documentation of how final product meets customer needs. Capstone I and II must be taken in consecutive semesters. Lab access fee of \$45 for computers applies.

**ME 490R**  
**Advanced Current Topics in Mechanical Engineering**

**1 to 3**  
 \* Prerequisite(s): University Advanced Standing and Formal Acceptance into the Mechanical Engineering Program or Department Approval

Provides exposure to emerging topics and technologies of current interest in mechanical engineering. Varies each semester depending upon the state of technology. May be repeated for a maximum of 6 credits toward graduation without prior written department approval. Lab access fee of \$45 for computers applies.

## Meteorology (METO)

**METO 1010** **PP**  
**Introduction to Meteorology**

**3**  
 Introduces the study of our atmosphere. Studies the Earth's dynamic weather systems. Covers structure and compositions of the atmosphere; weather patterns; air masses; and types of weather fronts, weather forecasting, and climates.

**METO 1020**  
**Introduction to Meteorology Laboratory**

**1**  
 Provides hands-on experience for students investigating various meteorologic phenomena discussed in METO 1010. Students desiring credit for a science major should take METO 1010 and METO 1020. Course lab fee of \$10 applies.

**METO 1060** **PP**  
**Fundamentals of Weather Forecasting**

**3**  
 Introduces the fundamental principles of meteorological processes and mid-latitude weather forecasting. Focuses on the analysis of surface and upper-air weather maps, of soundings, of satellite and radar imagery to analyze current meteorological conditions. Explores the application of techniques to perform forecasts for basic weather variables such as temperature and precipitation. Course lab fee of \$10 applies.

## Course Descriptions

### **METO 3100**

#### **Climate and the Earth System**

**3**

\* Prerequisite(s): (CHEM 1110 or CHEM 1210), (MATH 1050 or MATH 1055), (PHYS 2010 or PHYS 2210), METO 1010, GEO 1010, and University Advanced Standing

Studies the six major components of the Earth system (i.e., the atmosphere, the hydrosphere, the cryosphere, the geosphere, the exosphere, and the biosphere) and investigates the interdependency and connections of these components, with particular emphasis on the effects on the climate system. Discusses the Earth's energy balance, the greenhouse effect, and the biogeochemical cycles of some elements and provides an overview of the most important climatic events that occurred during the history of the Earth. Course lab fee of \$10 applies.

## **Marriage and Family Therapy (MFT)**

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### **MFT 379R**

#### **Special Topics in MFT**

**1 to 3**

\* Prerequisite(s): MFT Program Director Approval

Examines topics of current interest and demand in Marriage and Family Therapy. Provides in-depth education and training in specialized topics within the field of marriage and family therapy practice. Selected topics may vary by semester. May be repeated with different topics for a maximum of 6 credits toward graduation requirements.

### **MFT 6000**

#### **Systemic Foundations of Marriage and Family Therapy**

**3**

\* Prerequisite(s): Admission to the Master of Marriage and Family Therapy, M.A. program

Introduces students to the historical development of the relational/systemic perspective. Emphasizes a systemic paradigm for clinical intervention. Includes conceptual foundations of MFT.

### **MFT 6010**

#### **Contemporary Approaches to MFT**

**3**

\* Prerequisite(s): Admission to the Master of Marriage and Family Therapy, M.A. program

Introduces students to contemporary models of MFT. Compares post-modern models of MFT. Includes evidence-based practice and the biopsychosocial perspective.

### **MFT 6100**

#### **Ethical Issues in Marriage and Family Therapy**

**3**

\* Prerequisite(s): Admission to the Master of Marriage and Family Therapy, M.A. program

Promotes MFT identity. Develops student competence in ethical decision making. Includes application of the American Association for Marriage and Family Therapy Code of Ethics and relevant Utah law to clinical scenarios.

### **MFT 6200**

#### **Systemic Assessment and Diagnosis**

**3**

\* Prerequisite(s): Admission to the Master of Marriage and Family Therapy, M.A. program

Develops student competence in treatment approaches specifically designed for use with families. Introduces students to crisis intervention with families. Includes evidence-based practice for clinical work with young children, adolescents, families in mid-life, and elderly families.

### **MFT 6210**

#### **Couples Therapy**

**3**

\* Prerequisite(s): MFT 6200 and admission to the Marriage and Family Therapy, M.A. program

Develops student competence in treatment approaches specifically designed for use with a range of diverse couples, including sex therapy, same-sex couples, elderly, and interfaith couples. Includes evidence-based practice and crisis intervention with couples.

### **MFT 6220**

#### **Group Therapy**

**2**

\* Prerequisite(s): MFT 6200 and admission to the Marriage and Family Therapy, M.A. program

Develops student competence in treatment approaches specifically designed for use with groups. Evaluates group work with addiction, abuse and trauma. Includes evidence-based practice and crisis intervention with groups.

### **MFT 6230**

#### **Family Therapy**

**3**

\* Prerequisite(s): MFT 6000 and admission to the Marriage and Family Therapy, M.A. program

Develops student competence in treatment approaches specifically designed for use with families. Introduces students to crisis intervention with families, including assessment and treatment of addiction and family violence. Includes evidence-based practice for clinical work with adult children, families in mid-life, and elderly families.

### **MFT 6240**

#### **Individual Therapy**

**2**

\* Prerequisite(s): MFT 6200 and admission to the Marriage and Family Therapy, M.A. program

Introduces students to a variety of common presenting problems including addiction, suicide, trauma, abuse, intra-familial violence, and acute chronic medical conditions. Utilizes a relational/systemic philosophy. Includes evidence-based practice and crisis intervention with individuals.

### **MFT 6300**

#### **Working with Diversity in MFT**

**3**

\* Prerequisite(s): Admission to the Master of Marriage and Family Therapy, M.A. program

Builds student awareness of diversity, power, privilege, and oppression as these relate to race, age, gender, ethnicity, sexual orientation, gender identity, socioeconomic status, disability, health status, religious affiliation, nation of origin, spiritual orientation, or other relevant social categories.

### **MFT 6310**

#### **Child and Adolescent Development**

**3**

\* Prerequisite(s): MFT 6000 and admission to the Marriage and Family Therapy, M.A. program

Introduces students to individual and family development during stages of childhood and adolescence, including developmentally appropriate individual and family therapy models. Addresses human sexuality. Discusses biopsychosocial health during childhood and adolescence.

### **MFT 6320**

#### **Adult Issues in Human Development**

**3**

\* Prerequisite(s): MFT 6300 and admission to the Marriage and Family Therapy, M.A. program

Introduces students to individual and family development across stages of adulthood. Addresses human sexuality. Discusses biopsychosocial health during adulthood.

### **MFT 6400**

#### **Research in Marriage and Family Therapy**

**3**

\* Prerequisite(s): MFT 6000 and admission to the Marriage and Family Therapy, M.A. program

Introduces students to basic research methodology. Examines evidence-based practice in MFT. Evaluates usefulness of couple, marriage, and family therapy research.

**MFT 6500**  
**Community Intervention**

**1**  
\* Prerequisite(s): Admission to the Master of Marriage and Family Therapy, M.A. program

Introduces students to practice within defined contexts (e.g., healthcare settings, schools, military settings, private practice). Addresses nontraditional MFT professional practice using therapeutic competencies (e.g., community advocacy, psycho-educational groups). Considers multidisciplinary collaboration.

**MFT 6510**  
**Contemporary Issues in MFT**

**1**  
\* Prerequisite(s): MFT 6000 and admission to the Marriage and Family Therapy, M.A. program

Develops student competence in emerging and evolving contemporary challenges. Examines problems and/or recent developments at the interface of MFT knowledge and practice and the broader local, regional, and global context. Includes discussion of contemporary issues such as immigration, technology, same-sex marriage, and violence in schools.

**MFT 6520**  
**Clinical Business Development and Practice**

**2**  
\* Prerequisite(s): Admission to the Master of Marriage and Family Therapy, M.A. program  
\* Prerequisite(s) or Corequisite(s): MFT 693R

Introduces students to the development of private clinical practices. Emphasizes business practice in the mental health field. Includes discussion of HIPAA and telehealth.

**MFT 6600**  
**Capstone in MFT**

**1**  
\* Prerequisite(s): Admission to the Marriage and Family Therapy, M.A. program  
\* Prerequisite(s) or Corequisite(s): MFT 693R

Emphasizes achievement of the program-level outcomes. Integrates knowledge across the program to promote student awareness of their own potential contributions to and positioning in the MFT field.

**MFT 679R**  
**Special Topics in MFT**

**1 to 3**  
\* Prerequisite(s): MFT Program Director Approval

Examines topics of current interest and demand in Marriage and Family Therapy. Provides in-depth education and training in specialized topics within the field of marriage and family therapy practice. Selected topics may vary by semester. May be repeated with different topics for a maximum of 6 credits toward graduation requirements.

**MFT 690R**  
**Pre-Practicum**

**3**  
\* Prerequisite(s): Admission to the Master of Marriage and Family Therapy, M.A. program

Introduces basic skills and competencies needed for effective and ethical clinical practice. Guides self-awareness and self-reflection. Presents expectations of competency in basic MFT interventions, sensitivity to client contextual variables, completion of case documentation, and use of supervision and feedback. May be repeated for a maximum of 6 credits toward graduation.

**MFT 691R**  
**Practicum I**

**3**  
\* Prerequisite(s): Approval of MFT faculty and admission to the Marriage and Family Therapy, M.A. program  
\* Prerequisite(s) or Corequisite(s): MFT 690R

Develops student competence in MFT assessment and intervention. Includes practice with diverse, international, multicultural, marginalized, and/or underserved communities. Guides competence in working with sexual and gender minorities and their families as well as anti-racist practices. Guides self-awareness and self-reflection. Requires completion of case documentation, and effective use of supervision and feedback. May be repeated for a maximum of 6 credits toward graduation.

**MFT 692R**  
**Practicum II**

**3**  
\* Prerequisite(s): MFT faculty approval and admission to the Marriage and Family Therapy, M.A. program  
\* Prerequisite(s) or Corequisite(s): MFT 691R

Continues development of student competence in MFT assessment and intervention. Includes practice with diverse, international, multicultural, marginalized, and/or underserved communities. Guides competence in working with sexual and gender minorities and their families as well as anti-racist practices. Guides self-awareness and self-reflection. Requires completion of case documentation, and effective use of supervision and feedback. May be repeated for a maximum of 6 credits toward graduation.

**MFT 693R**  
**Practicum III**

**3**  
\* Prerequisite(s): Approval of MFT faculty and admission to the Marriage and Family Therapy, M.A. program  
\* Prerequisite(s) or Corequisite(s): MFT 692R

Develops student competence in MFT assessment and intervention. Includes practice with diverse, international, multicultural, marginalized, and/or underserved communities. Guides competence in working with sexual and gender minorities and their families as well as anti-racist practices. Guides self-awareness and self-reflection. Requires completion of case documentation, and effective use of supervision and feedback. May be repeated for a maximum of 6 credits toward graduation.

**MFT 694R**  
**Practicum IV**

**3**  
\* Prerequisite(s): Approval of MFT Faculty and admission to the Marriage and Family Therapy, M.A. program  
\* Prerequisite(s) or Corequisite(s): MFT 693R

Final development of student competence in MFT assessment and intervention. Includes practice with diverse, international, multicultural, marginalized, and/or underserved communities. Guides competence in working with sexual and gender minorities and their families as well as anti-racist practices. Guides self-awareness and self-reflection. Requires completion of case documentation, and effective use of supervision and feedback. May be repeated for a maximum of 6 credits toward graduation.

**Business Management (MGMT)**

**MGMT 1010** **SS**  
**Introduction to Business**

**3**  
Overviews the business world, its structure, procedures, and vocabulary. Provides information to assist in making occupational choices. Methods include lectures, class discussions, group activities, videos, and guest speakers. Completers should have a general knowledge of business and career opportunities. May be delivered online. Canvas Course Mats \$42/Lumen applies.

**MGMT 1200**  
**Business English**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005 or appropriate test scores

For all those desiring to improve business English skills. Studies current usage of English grammar, including parts of speech, syntax, and punctuation. Emphasizes business usage. Lab access fee of \$25 for computers applies.

# Course Descriptions

## **MGMT 1250** **Principles of Leadership**

**3**  
Provides an introduction to principles of leadership. Examines personal beliefs about leadership and explores leadership philosophies, styles, and skills. Includes opportunities to identify individual strengths and develop leadership potential. Lab access fee of \$25 for computers applies.

## **MGMT 1400** **Introduction to Data Analytics**

**3**  
Introduces data analytics to a general audience. Presents the role of the analyst and different career paths available within data analytics. Employs a broad range of use cases to introduce methods for extracting, cleaning, organizing, and analyzing data and sharing insights. Covers data visualization and report generating tools. Discusses the legal, ethical, and privacy issues involved with big data projects.

## **MGMT 2030** **SS** **Inclusive Leadership**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005  
Explores the experiences of individuals at work, with an emphasis on diversity and inclusion in leadership. Examines opportunities for and obstacles to leadership development and success, differences in communication and behavior, leader prototypes and perceptions of leader behaviors, the effects of the 24/7 work culture on leaders, and managerial and organizational strategies to support the advancement of all leaders. Draws from various social science disciplines, including organizational behavior, psychology, sociology, and economics.

## **MGMT 2240** **Business Calculus**

**3**  
\* Prerequisite(s): MATH 1050, MATH 1055 or MATH 1090 taken within the last two years with grade of C- or better or appropriate placement assessment score.  
Analyzes profit, revenue, cost and average cost functions through rates of change, both average and instantaneous. Applies graphical, numerical, and algebraic techniques to optimization in business-related problems. Covers compound interest including present value and future value of ordinary annuities. Focuses on solving a variety of problems in economics and finance using derivatives and integrals. May be delivered hybrid and/or online. Canvas Course Mats \$78/Cengage applies. Lab access fee of \$25 for computers applies.

## **MGMT 2340** **Business Statistics I**

**3**  
\* Prerequisite(s): MATH 1050, MATH 1055, or MATH 1090 or higher, or appropriate test scores  
Presents an application of statistics in business and economics covering methods of collecting, analyzing, and presenting data. Includes frequency distributions, averages, index numbers, probability, sampling, estimation, analysis of variance, time series, regression and correlation, and chi-square. Canvas Course Mats \$85/McGraw applies. Lab access fee of \$25 for computers applies. Software fee of \$40 applies.

## **MGMT 2400** **Data Analytics for Business**

**3**  
Introduces the field of data analytics in business. Introduces the software, languages, and hardware used in data analytics. Uses common analytical tasks such as clustering, classifying, and predicting outcomes, along with common algorithms used in data analytics, such as regression, decision trees, and neural networks. Discusses the legal, ethical, and privacy issues inherent with big data projects. Includes hands-on experience with data extraction, data analysis and interpretation. Software fee of \$40 applies.

## **MGMT 2450** **The Principles of Personal Excellence**

**3**  
Introduce students to a holistic framework for the development of personal effectiveness and peak performance. Reviews principles, processes, and practices used by peak performers in many life disciplines. Offers students a chance to apply many practices and techniques, which they can apply within the many performances arenas of their life. Course fee of \$15 applies

## **MGMT 258R** **Current Topics in International Business**

**1 to 3**  
\* Prerequisite(s): Department Chair Approval  
Provides exposure to emerging topics of current interest in international business. Topics vary each semester. May apply a maximum of three hours toward graduation.

## **MGMT 281R** **Cooperative Work Experience**

**2 to 8**  
\* Prerequisite(s): Approval from School of Business Career and Corporate Manager  
Provides opportunities to apply classroom theory on the job. Students work as paid employees in a job that relates to their careers while enrolled at the institution. Credit is determined by the number of hours a student works during the semester. Completers meet individually set goals. Six credits may be applied toward graduation. May be graded credit/no credit.

## **MGMT 290R** **Independent Study**

**1 to 3**  
Provides independent study as directed in reading and individual projects. Requests must be submitted for approval by the department. Approval for this program will be coordinated with the instructor. May be repeated for up to three credits.

## **MGMT 292R** **Seminar**

**1 to 3**  
Designed to give the student added insight into management principles essential for successful management of a business. Includes guest experts from the field of business. May be repeated for a total of three credits.

## **MGMT 297H** **Honors Seminar in Leadership Development**

**3**  
Emphasizes factors that impact leadership effectiveness and skill development in organizations. Features lectures on topics such as leadership, participative management, negotiations, team building, and women's issues by local experts in a seminar setting. Includes group interaction and discussions, written summaries and instructor critique of student performance.

## **MGMT 3000** **Organizational Behavior WE**

**3**  
\* Prerequisite(s): MKTG 220G or ENGL 2010 and University Advanced Standing  
Studies behavioral theories and concepts for creating effective organizations. Emphasizes knowledge of individual, group, and organizational processes and variables regarding people's attitudes and behaviors in organizational settings. Presents topics on communication, leadership, motivation, conflict management, socialization, team building, decision making, diversity, ethics, and culture. Includes lectures, case studies, oral presentations, written assignments, and group projects. Lab access fee of \$32 for computers applies.

**MGMT 3020**  
**Individual Action and Corporate Social Responsibility**  
**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Focuses on moral issues in organizations and the role and importance these have in today's complex business environment. Explores the challenges that arise across the spectrum of business activity and studies human conduct in a business context and what constitutes right and wrong. Examines issues of ethics as they apply to business entities, managers, shareholders, customers, society, and other consultants. Focuses on identifying and solving real world ethical dilemmas in business, and evaluates various individual and corporate decision-making models.

**MGMT 3070**  
**Total Quality Management**  
**3**

\* Prerequisite(s): MGMT 3450, Matriculation into Woodbury School of Business, and University Advanced Standing

Covers universal principles of quality assurance management, mechanics of a quality information system, and quality management practices. Emphasizes system elements, controls, and fitness for use. Includes process charting, quality costing concepts, statistical process control (SPC), sampling, variability, attribute charting, and continuing improvement strategies. May be delivered online. Lab access fee of \$25 for computers applies. Software fee of \$40 applies.

**MGMT 330G**  
**Survey of International Business**  
**3**

\* Prerequisite(s): (ENGL 2010 or MKTG 220G), ECON 2010, and University Advanced Standing

Teaches international business, trade and foreign investment, and theories of international trade. Studies economic development, international investment and international agencies (government and private) that affect international business by informing, regulating or financing. Develops an appreciation of the unpredictable forces of foreign environments. Explores how international businessmen respond to these influences. Canvas Course Mats \$85/McGraw applies

**MGMT 332G (Cross-listed with: COMM 332G)**  
**Cross Cultural Communications for International Business**  
**3**

\* Prerequisite(s): (ENGL 2010 or COMM 1050) and University Advanced Standing

Discusses today's business environment which requires work in a multi-ethnic setting. Overviews critical elements that arise from the various cultural backgrounds which can impact both domestic and international organizations. Proceeds from a management point of view with lessons easily derived for the mid-level manager as well as for line personnel. Concentrates on managerial communications, negotiations, cultural changes, and management functions.

**MGMT 3345**  
**Business Statistics II**  
**3**

\* Prerequisite(s): MGMT 2340 or STAT 2040 or appropriate test scores and University Advanced Standing

Studies advanced managerial concepts. Includes multiple regression, ANOVA, test of hypotheses, and time series techniques. Emphasizes statistical modeling, statistical decision-making, and is computation intensive. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies.

**MGMT 3440**  
**Managing Organizations**  
**3**

\* Prerequisite(s): MGMT 3000 and University Advanced Standing

Studies management theory and emphasizes the managerial view of the elements and variables that influence the organization. Examines organizational design and change emphasizing the management tools used in planning, organizing, directing, controlling, and leading, and the coordinating of these factors within organizations. Uses current events as they relate to managing and developing the organization. Includes case analyses, team building exercises, videos, class discussions, group presentations, written assignments, and guest speakers. Lab access fee of \$25 for computers applies.

**MGMT 3450**  
**Operations Management**  
**3**

\* Prerequisite(s): Matriculation into WSB and University Advanced Standing

Focuses on the management of resources for products, production, or services within an organization. Covers project management, supply chain, facility location and layout, forecasting, scheduling, planning, and operational processes. Emphasizes product/service development, supply chain, forecasting, inventory control, quality assurance, and research techniques. May be delivered hybrid and/or online. Canvas Course Mats \$85/McGraw applies. Lab access fee of \$25 for computers applies.

**MGMT 3460**  
**Scheduling Forecasting and Inventory Management**  
**3**

\* Prerequisite(s): Matriculation into Woodbury School and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): MGMT 3450

Applies critical scheduling, forecasting and inventory management skills in business operations. Analyzes a wide array of quantitative and qualitative methods that are in current industry use. Analyzes scheduling and forecasting in business situations, and how to manage inventory systems. Evaluates both short-run and long-run forecasting and inventory considerations.

**MGMT 3470**  
**Lean Management Systems**  
**3**

\* Prerequisite(s): MGMT 3450, matriculation into Woodbury School of Business, and University Advanced Standing

Teaches advanced operations management processes beyond introductory course. Studies process and value stream management. Teaches importance of continuous improvement and other techniques critical to operations management in modern organizations. Integrates hands-on experience in lean thinking processes. Software fee of \$40 applies.

**MGMT 3480**  
**Operations Simulation**  
**3**

\* Prerequisite(s): MGMT 3450 and University Advanced Standing

Applies critical operations management skill sets in a simulation. Creates simulations to analyze and solve operational problems. Applies data visualization software to make strategic decisions.

**MGMT 3500**  
**Leadership Theory and Application WE**  
**3**

\* Prerequisite(s): University Advanced Standing

Examines leadership theory and how it applies to real-world situations. Facilitates thinking and dialogue about leaders and the leadership process. Covers leadership development strategies and approaches for individuals, teams, and organizations. Includes readings, discussions, reflections, experiential activities, guest speakers, written papers, and innovative assignments. Lab access fee of \$25 for computers applies.

## Course Descriptions

### **MGMT 3700** **Supply Chain and Logistics Management**

**3**  
\* Prerequisite(s): MGMT 3450 and University Advanced Standing

Teaches planning and controlling of supply chains and distribution networks. Covers concepts of network design, forecasting, aggregate planning, transportation, sourcing decisions, performance metrics, and the role of information technology in supply chain.

### **MGMT 3730** **Opportunities in Direct Sales**

**3**  
\* Prerequisite(s): University Advanced Standing

Discusses direct sales and the impact on our society. Covers basic terminology of the direct sales industry. Introduces distinctions between legal and illegal activity in the industry. Teaches the history of direct sales, compensation plans, and industry ethics. Analyzes communication skills in the direct sales industry. Explores the unique nature of the relationship between the company and the independent representative. Uses discussion, lecture, presentations and group activities to increase understanding and ability to analyze business under the umbrella of direct sales.

### **MGMT 3740** **Relationship Marketing**

**3**  
\* Prerequisite(s): MGMT 3730 and University Advanced Standing

For students interested in understanding relationship marketing as it applies to the direct selling industry. Focuses on the relationship between companies and their independent sales forces. Covers business ethics, compensation, structures, company conventions, distributor services, and online community building. Uses lectures, discussions, guest speakers, analyses in the field, and presentation of analysis in both oral and written format.

### **MGMT 4260** **Business Analysis and Project Management**

**3**  
\* Prerequisite(s): University Advanced Standing

Prepares students for entry-level certification in Business Analysis. Covers elicitation and collaboration, life cycle management, planning and monitoring, and analysis and design models.

### **MGMT 4350** **Business Intelligence and Data Visualization**

**3**  
\* Prerequisite(s): MGMT 2240 or MATH 1100, MGMT 2340, Matriculation into Woodbury School and University Advanced Standing.

Utilizes data and data visualization tools to support business intelligence and inform business decisions. Identifies key variables and methods of presenting data. Prepares for industry certifications, software credentials, and internships. Software fee of \$40 applies.

### **MGMT 4470** **Strategic Operational Planning**

**3**  
\* Prerequisite(s): MGMT 3450 and University Advanced Standing

Integrates planning concepts in the planning hierarchy within a manufacturing framework. Explores in depth the concepts of capacity planning, advanced sales and operational planning, demand management and forecasting, advanced MRP/ERP, inventory control, scheduling and lot sizing. Focuses on linkages between production planning and execution.

### **MGMT 4480** **Management Science and Optimization**

**3**  
\* Prerequisite(s): MATH 1100 (or higher) or MGMT 2240, MGMT 2340, and University Advanced Standing

Explores management science and optimization models in depth, focusing on business applications and computer modeling. Introduces linear programming, integer programming, nonlinear programming, goal programming and network flow models. Studies transportation, assignment and transshipment problems. Also studies stochastic models, queueing, simulation and decision analysis.

### **MGMT 450R** **Leadership Practicum**

**3**  
\* Prerequisite(s): MGMT 1250 or MGMT 2030 or MGMT 3000 or MGMT 3500; University Advanced Standing

Provides the opportunity to apply leadership theories and knowledge to professional contexts through a carefully designed project. Facilitates the acquisition and practice of leadership skills. Requires students to act as members of a consulting team to advise classmates on their projects. May be repeated for a maximum of 6 credits toward graduation.

### **MGMT 458R** **Advanced Topics in International Business**

**1 to 3**  
\* Prerequisite(s): Department Chair Approval and University Advanced Standing

Provides exposure to emerging topics of current interest in international business. Topics vary each semester. May apply a maximum of 6 hours toward graduation.

### **MGMT 4620** **Developing Business in China**

**3**  
\* Prerequisite(s): ENGL 2010, Junior Standing, and University Advanced Standing

Introduces the key factors driving the economy and companies doing business in and with China. Compares the institutions and characteristics of the Chinese economy and business system. Identifies issues facing managers of western corporations producing and selling in the Chinese market, sourcing from Chinese industry and competing with Chinese rivals.

### **MGMT 481R** **Internship**

**1 to 6**  
\* Prerequisite(s): Matriculation into Woodbury School of Business, approval from School of Business Career and Corporate Manager, and University Advanced Standing

For upper-division students working toward a Bachelor of Science Degree in Business Management. Provides a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job experience. No more than three credit hours of internship work experience will apply toward graduation in any Business Management Specialization; may be repeated for a maximum of 6 credits. May be graded credit/no credit.

### **MGMT 4835** **Management Consulting Strategy Implementation**

**1**  
\* Prerequisite(s): Department Approval  
\* Corequisite(s): MGMT 4840

Builds on strategic management concepts and consulting course material using a hands-on, competitive business simulation.

### **MGMT 4840** **Management Consulting**

**3**  
\* Prerequisite(s): FIN 3100 with a minimum grade of B-, Instructor approval, and University Advanced Standing  
\* Corequisite(s): MGMT 4835

Builds knowledge and capability in the consulting process, competitive- and corporate-level strategic management elements, and client management strategies. Develops a business project with teams of students working together with a specific, recruited, local company. Applies knowledge and skills from the business curriculum, student teams will gather needed data, analyze it, problem-solve, and craft recommendations in order to improve competitive implementation and meet firm objectives using strategic management and project management tools.

**MGMT 4860**  
**Business Strategy Formulation and Implementation**  
**3**

\* Prerequisite(s): FIN 3100, MKTG 3600, MGMT 3000, MGMT 3450 and Matriculation into the Woodbury School of Business and University Advanced Standing.

Integrates all major management area skills into a capstone experience for students in several WSB programs. Integrates strategic management concepts and thinking processes through case analysis. Includes topics from accounting, finance, marketing, economics, operations, and organizational behavior. Provides experiential learning with industry partners both local and regional. Canvas Course Mats \$65/Wiley applies.

**MGMT 4870**  
**International Management**  
**3**

\* Prerequisite(s): MGMT 3000, MKTG 3600, Matriculation into the Woodbury School of Business, and University Advanced Standing

Examines in depth the leading forces and trends shaping the opportunities and challenges confronted by multinational corporations (MNCs) as they assemble, grow, mature, coordinate and control their international network of subsidiaries, joint-ventures, alliances, and supplier firms. Examines the strategies pursued by MNCs in response to opportunities and challenges in this process, consistent with their distinctive strengths and weaknesses; and theories. Contrasts the models and strategic frameworks relating these strategies and forces/trends. Includes group project (written and oral presentations) on a multinational corporation developing or maturing its network in a selected market.

**MGMT 490R**  
**Independent Study**  
**1 to 3**

\* Prerequisite(s): Department Chair Approval and University Advanced Standing

For bachelor's degree students and other interested persons. Offers independent study as directed in reading, in individual projects, etc., in the area of marketing and/or international business at the discretion and approval of the department chairperson. May apply a maximum of 6 hours toward graduation.

**MGMT 492R**  
**Human Resource Seminar**  
**1**

\* Prerequisite(s): Department Chair Approval and University Advanced Standing

Presents guest speakers on emerging human resource (HR) research and issues: strategy, international, culture, legal issues, planning and job analysis, recruitment and selection, performance management, compensation and benefits, and career development. May be repeated for 2 credits toward graduation.

**MGMT 494R**  
**Seminar**  
**.5 to 3**

\* Prerequisite(s): University Advanced Standing

Provides short courses, workshops, and special programs in business management, leadership, or current business topics. Repeatable for up to 3 credits toward graduation.

**MGMT 495R**  
**Executive Lecture Series**  
**1**

\* Prerequisite(s): University Advanced Standing

Consists of lectures presented by guest speakers on current business topics concerning the student, community, nation, business world, etc. May be required in business programs; see specific program listings for details. May apply a maximum of 3 credits toward graduation.

**MGMT 497H**  
**Business Honors Seminar**  
**1 to 3**

\* Prerequisite(s): Permission required, 3.4 GPA or higher, senior status, and University Advanced Standing

Provides in-depth exposure to an issue of current interest in business by a local expert in a seminar setting. Includes group interaction and discussion, critical analysis of readings, and critique of student writings. Topics vary each semester.

**MGMT 4980**  
**Business Research Seminar**  
**3**

\* Prerequisite(s): Instructor Approval and University Advanced Standing

Studies the process of researching and writing for scholarly publication. Includes understanding the concepts of scholarly conversation, managing scholarship, choosing a topic, identifying appropriate journals, using exemplars, creating a title and abstract, making an outline, developing an introduction and conclusion, writing the body of the paper, and then revising, submitting, and finally publishing in a scholarly journal.

**MGMT 6000**  
**Career Development and Advancement**  
**1.5**

\* Prerequisite(s): Acceptance into the UVU MBA program

Develops ability to implement the career management process by exploring the structure of career research and networking. Enhances interviewing and salary negotiation skills and abilities. Also addresses the transitional soft skills needed in a career management position. Provides interaction between students and successful leaders of business and nonprofit organizations throughout the semester.

**MGMT 6215**  
**Managing and Facilitating Professional Teams**  
**3**

\* Prerequisite(s): Admission to Master of Accountancy or the Master of Business Administration Program

Enhances the ability to analyze and function in team-based, professional environments. Teaches what actions are needed to increase the effectiveness of a team, solve interpersonal problems, and remove common roadblocks.

**MGMT 6300**  
**Healthcare Systems**  
**3**

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Surveys the major components and organizational interrelationships of the United States healthcare system. Examines the various healthcare organizations (HCOs), personnel issues, delivery systems, and policy and payment mechanisms. Explores public policy and business practice issues associated with access, cost and quality of Healthcare.

**MGMT 6310**  
**Healthcare Policy**  
**3**

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Examines political issues affecting contemporary Healthcare services by analyzing policy goals, public policy formulation processes, and external environments. Examines the blended use of managerial epidemiology, biostatistics, political and economic analysis, with an understanding of public health initiatives. Fosters an appreciation among future Healthcare leaders for how political structures determine interactions with local and national governments.

**MGMT 6320**  
**Population Health Management**  
**3**

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Studies healthcare trends and consumerism among different populations. Focuses on improving care for populations by examining patient preferences and needs, including access, and affordability. Examines ways of improving clinical health outcomes through improved care coordination and patient engagement. Discusses appropriate financial and care models

# Course Descriptions

## **MGMT 6440**

### **Advanced Project Management**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Focuses on advanced tools and techniques to develop strategic project management skills with an emphasis on managing technical projects. Explores best practices aligned for Program Management, Project Portfolio Management, and Strategic Project Leadership and Management. Analyzes basic cost justification techniques for making economic decisions in technical organizations.

## **MGMT 6450**

### **Operations Management**

**3**

\* Prerequisite(s): Acceptance in the MBA program

Analyzes operations and production activities. Reviews basic processes. Analyzes managing a production or service organization, evaluation of concepts such as inventory control, production control, procurement, quality management, planning, and forecasting.

## **MGMT 6470**

### **Organization Information Technologies**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Examines in depth how information and information management affect the strategy, structure and operations of organizations. Covers technical and organizational foundations of information systems along with contemporary approaches to building, managing and protecting information systems. Includes hands-on work with a modern Enterprise Resource Planning (ERP) system. Compares Enterprise Architecture to cloud-based Software as a Service offerings. Emphasizes how information technology affects decision-making. Uses Excel as a decision support tool. Examines the ethical and legal issues raised by the capabilities of information technology.

## **MGMT 6500**

### **Managing Individuals and Groups**

**3**

\* Prerequisite(s): Acceptance in the MBA program

Exposes students to the concepts, theories, and practices related to the behavior and attitudes of people in organizations. Examines issues at the individual, group, and organizational levels, including topics such as individual differences, motivation, leadership, human resource management, teamwork, and organizational design, and structure.

## **MGMT 6510**

### **Information Systems and Project Management**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Examines information systems at the general management level. Employs a strategic look at needs of any organization and how the function of information systems assists in the effectiveness of organizations.

## **MGMT 6740**

### **Operations and Supply Chain Management**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Examines advanced topics in operations research which develop decision making processes for complex organizations and systems. Identifies creative methods to analyze problems, develop alternative processes for decision making, and optimize processes for business and organizations. Canvas Course Mats \$85/McGraw applies.

## **MGMT 6760**

### **Applied Business Research**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Provides students with the opportunity to design and conduct applied business research projects in the varied disciplines as well as across disciplines. Examines the philosophy of science, research design, measurement and scaling, reliability and validity, communication of research results, and related issues.

## **MGMT 6800**

### **Global Business Strategy**

**3**

\* Prerequisite(s): Acceptance in the MBA program

Integrates case analysis considered from the CEO's perspective. Evaluates global competitiveness, strategic assessment, policy development, and strategy implementation. Canvas Course Mats \$85/McGraw applies. Software fee of \$40 applies.

## **MGMT 6910**

### **Designing Business**

**1.5**

\* Prerequisite(s): Acceptance into the Woodbury School of Business MBA program

Provides an opportunity to integrate the functional areas of business using a simulation, a comprehensive business case, or a consulting project with a community-based organization.

## **MGMT 6930**

### **International Engagement**

**3**

\* Prerequisite(s): Acceptance into the Woodbury School of Business MBA program

Provides an integrated, engaged, learning opportunity for students to experience differences in culture and business operations of another country through the completion and reflection of an international consulting project or case studies, and a possible international experience. Projects or case studies will require the integration of functional areas of business in an international setting, and will highlight how these functions are interrelated.

## **MGMT 6940**

### **MBA Consulting Project**

**3**

\* Prerequisite(s): Acceptance into the Woodbury School of Business MBA program  
\* Prerequisite(s) or Corequisite(s): MGMT 6800

Utilizes community consulting to focus on business development through identifying, evaluating, and executing business opportunities within new and existing businesses. Implements consulting processes and strategies, and allows students to practice tools and techniques for developing business models.

## **MGMT 694R**

### **Special Topics**

**1 to 3**

\* Prerequisite(s): Admission to the MBA Program

Provides short courses, workshops, and special programs in business management, leadership, or current business topics. May be repeated for a maximum of 3 credits toward graduation.

## **Microbiology (MICR)**

### **MICR 2060**

**BB**

#### **Microbiology for Health Professions**

**3**

\* Prerequisite(s): BIOL 1610 and (ENGL 1010 or ENGH 1005) with a C- or higher in each.  
CHEM 1110 or higher is highly recommended  
\* Corequisite(s): MICR 2065

Studies the history of microbiology. Explores bacterial, fungal, parasitic, and viral diseases and their causes. Discusses the classification, physiology, genetics, and physical and chemical control of microbes. Emphasizes clinical applications. Is designed for those planning a career in the health professions such as nursing, dental hygiene, medicine, pharmacy, and dentistry. Includes weekly laboratory as a corequisite.

**MICR 2065**  
**Microbiology for Health Professions**  
**Laboratory**

**1**  
 \* Prerequisite(s): (BIOL 1010 or BIOL 1610) and (ENGL 1010 or ENGH 1005). CHEM 1110 highly recommended  
 \* Corequisite(s): MICR 2060

Studies the history of microbiology. Explores bacterial, fungal, parasitic, and viral diseases and their causes. Discusses the classification, physiology, genetics, and physical and chemical control of microbes. Emphasis is on clinical applications. Designed for those planning a career in the health professions such as nursing, dental hygiene, medicine, pharmacy, and dentistry. Includes weekly laboratory. Course Lab fee of \$44 for materials, lab applies.

**MICR 3150**  
**Microbial Ecology WE**

**4**  
 \* Prerequisite(s): BIOL 1620 and University Advanced Standing

Covers fundamentals of microbial ecology including interactions, major habitats, and factors that dictate microbial community structure consisting of bacteria, archaea, eukaryotes, and viruses. Includes in-depth examination of classic examples as well as additional systems to be selected based on class preferences. Course fee of \$25 for materials applies.

**MICR 3200**  
**Emerging and Re Emerging Diseases and Zoonoses**

**3**  
 \* Prerequisite(s): MICR 2060 or MICR 3450 with a C- or higher in each and University Advanced Standing

Utilizes the most current infectious disease entities as examples for new (emerging) or old (re-emerging) diseases currently affecting mankind. Discusses zoonotic diseases (those transmissible from animals to humans and vice-versa) in detail. Emphasizes the underlying mechanisms of disease, and includes fundamental aspects of virology, bacteriology, and parasitology. Covers fundamental concepts in epidemiology, how the public health system deals with these diseases once they have been identified and instances where the public health system has failed in controlling these diseases along with the reasons for these failures. Investigates historical aspects of infectious diseases.

**MICR 3450**  
**General Microbiology**

**3**  
 \* Prerequisite(s): BIOL 3400 with a C- or higher and University Advanced Standing; BIOL 3600 recommended  
 \* Corequisite(s): MICR 3455

Covers taxonomy, physiology and genetics of bacteria, archaea, viruses and eukaryotic microbes. Introduces industrial microbiology, biotechnology, and immunology and the biochemical basis of infectious diseases. Is designed for biology majors who desire an in-depth coverage of microbiology.

**MICR 3455**  
**General Microbiology Laboratory**

**1**  
 \* Prerequisite(s): BIOL 3400 and University Advanced Standing; BIOL 3600 recommended  
 \* Corequisite(s): MICR 3450

Hands-on laboratory procedures that studies the methods of taxonomy and distinguishes physiology and genetics of prokaryotes (bacteria, Archaea), viruses and eukaryotic pathogens. Introduces methods used in industrial microbiology, biotechnology, and immunology and the biochemical basis of infectious diseases. Designed for biology majors who desire an in-depth coverage of microbiology. Course Lab fee of \$60 for materials, lab applies.

**MICR 3550**  
**Microbial Physiology**

**4**  
 \* Prerequisite(s): MICR 3450 and University Advanced Standing

Covers the structure, metabolism, and growth of microorganisms, with an emphasis on bacteria. Examines the diversity of strategies that microbes use for energy metabolism and biosynthesis of macromolecules. Highlights the integration of metabolic processes, regulatory mechanisms, and environmental changes. Explores current research topics in microbial physiology. Course fee of \$50 for materials applies.

**MICR 3650**  
**Microbial Genetics**

**4**  
 \* Prerequisite(s): MICR 3450 and University Advanced Standing

Covers the structure, function, expression, and evolution of microbial genes and genomes, with an emphasis on bacteria. Examines microbial genome replication, the flow of information from DNA to functional RNAs and proteins, mechanisms for regulation of genome expression, and microbial gene organization including bacterial genomes, operons, plasmids, and mechanisms of horizontal gene transfer. Discusses experimental methods to construct, map, and examine mutations, measure gene expression, and genetically modify microbes. Examines DNA sequencing, analysis and annotation of microbial genomes. Course fee of \$62 for materials applies.

**MICR 4100 (Cross-listed with: ZOOL 4100)**  
**Parasitology**

**4**  
 \* Prerequisite(s): (BIOL 1620 or MICR 2060) with a C- or higher and University Advanced Standing

Introduces the study of parasites. Emphasizes the biology of principal groups of parasites affecting humans, livestock, and other animals, including their medical economic, and ecological significance. Emphasizes parasites causing zoonotic diseases. Includes weekly laboratory experience involving identification of parasites. Course Lab fee of \$25 applies.

**MICR 4200**  
**Microbiomes**

**3**  
 \* Prerequisite(s): BIOL 1620, BIOL 3500, and University Advanced Standing

Explores the historical background, current knowledge and ongoing research on microbiomes and their role in evolution of biodiversity, ecology of diverse species and communities, behavior of individuals, and impact on host development and physiology.

**MICR 4300 (Cross-listed with: BIOL 4300)**  
**Pathogenic Microbiology**

**4**  
 \* Prerequisite(s): MICR 3450 or MICR 2060 and University Advanced Standing

Discusses fundamentals of microbial pathogenesis, replication, infection, and immune mechanisms. Explores the biology of bacterial, viral, fungal, protozoan, and helminth pathogens. Discusses identification, control, and treatments of various microbial pathogens. Includes weekly laboratory. Course Lab fee of \$25 applies.

**MICR 4450 (Cross-listed with: BIOL 4450)**  
**Immunology**

**3**  
 \* Prerequisite(s): (MICR 2060 or MICR 3450 or ZOOL 2420) and University Advanced Standing

Explores the macromolecules, cells and organs involved in innate and adaptive immunity. Examines the development of lymphocyte repertoire, positive and negative selection of lymphocytes and the production of effector lymphocytes. Studies properties of antigens, vaccines, antigen presenting cells and the mechanisms of antigen presentation. Reviews major immunological methods for medical diagnostics and other applications. Examines causes and consequences of autoimmune and lymphoproliferative diseases and immunodeficiencies. Probes how immune response could be manipulated for cancer therapy and transplantation medicine.

## Course Descriptions

### **MICR 4500**

#### **Virology**

**3**

\* Prerequisite(s): BIOL 3400, or BIOL 3550 or MICR 3450 or MICR 2060 and University Advanced Standing.

Examines the fundamentals of virology. Covers viral structure, biochemistry, genomics, viral multiplication cycles in prokaryotic and eukaryotic cells, and techniques used in viral studies. Discusses viral diseases, transmission, therapy, evolution, and epidemiology.

### **MICR 4505**

#### **Applied Virological Methods**

**3**

\* Prerequisite(s): MICR 2065 or MICR 3455; University Advanced Standing

Covers techniques commonly used in virology to identify viruses in samples that the students will collect including nucleic acid extraction, RT-PCR, cloning, virus inoculation, plaque assays, sequencing and bioinformatics. Includes a structured research experience for students. Requires students to learn and employ lab notebook etiquette and prepare a scientific report describing their findings.

### **MICR 4600**

#### **Arthropod-Borne Pathogens**

**3**

\* Prerequisite(s): BIOL 3400 and (MICR 2060 or MICR 3450); University Advanced Standing

Covers the cellular and organismal interactions of arthropod-borne pathogens with their vectors that lead to transmission. Examines the cell biology related to the interactions that allow arthropods to transmit pathogens of animals, humans, insects and plants. Discusses methods for control of these pathogens in the context of Integrated Pest Management.

### **MICR 489R**

#### **Student Research**

**1 to 4**

\* Prerequisite(s): BIOL 1620, CHEM 1210, instructor permission, and University Advanced Standing

Provides guided research studies in microbiology under the direction of a Biology Department faculty mentor. Includes any combination of literature reviews, original research, and/or participation in ongoing departmental projects. Involves students in the methodology of original microbiology research. Requires preparation and presentation of oral and/or written reports. May culminate in results that will form the basis of the senior thesis in the major, if thesis option is chosen. May be repeated for 9 credits toward graduation.

### **MICR 490R**

#### **Special Topics in Microbiology**

**1 to 4**

\* Prerequisite(s): BIOL 1620 and University Advanced Standing

Explores and examines special topics relating to the field of microbiology. Emphasizes areas of rapid growth in microbiology or current importance to society. May be repeated for a total of 9 credits toward graduation.

### **MICR 494R**

#### **Student Seminar WE**

**2**

\* Prerequisite(s): BIOL 1620 with a C- or higher, junior or senior standing, and University Advanced Standing

Requires students to research scientific literature, give oral presentations, write a research paper, and lead discussions on assigned microbiology topics in specific areas of current research in microbiology. May be repeated for up to 4 credits toward graduation.

## **Military Science (MILS)**

### **MILS 1200**

#### **Introduction to Leadership Excellence I**

**2**

\* Corequisite(s): MILS 145R

Presents historical overview and development of military value systems and philosophies. Studies individual leadership styles, organization and time management, and writing skills. Includes ethics and code of an officer, role of an officer in the military, drill and ceremonies, fire team tactics, map reading, and basic rifle marksmanship. Lab required.

### **MILS 1210**

#### **Introduction to Leadership Excellence II**

**2**

\* Prerequisite(s): MILS 1200 or Department Approval

\* Corequisite(s): MILS 145R

Compares and analyzes leadership styles found in the U.S. Army, as well as business, academic, and government organizations. Studies Army organization, active and reserve forces; winter survival, advanced fire-team and aggressor tactics. Lab required.

### **MILS 143R**

#### **Military Fitness**

**1**

For Army ROTC students and all other interested students. Uses the Army Physical Fitness Test to evaluate the student's performance and improvement in the areas of flexibility, strength, and endurance. Includes instruction in foot care and road marching techniques. Repeats are required. See advisor for details.

### **MILS 145R**

#### **Introduction to Leadership Dynamics and Techniques**

**1**

\* Prerequisite(s): Department Approval

Leadership lab for UVU Army ROTC students and other students interested in the study of leadership. Studies the dynamics of leadership of groups and individuals in various environments. Provides opportunities for students to apply leadership principles and techniques in challenging situations and conditions. Required lab for students enrolled in UVU Military Science 1000- and 2000-level classes. Students not enrolled in Army ROTC may take this class up to six credits with department approval.

### **MILS 2050**

#### **Small Unit Combat Tactics**

**2**

Introduces cadets to the personal challenges and competencies that are critical for effective leadership by introducing cadets to the personal development of life skills, critical thinking, goal setting, time management, and physical/mental fitness.

### **MILS 2200**

#### **Advanced Organizational Leadership I**

**2**

\* Prerequisite(s): MILS 1210 or Dept. Approval

\* Corequisite(s): MILS 245R

Builds on skills and fundamentals learned in MILS 1200 and 2210. Studies the dynamics of leadership of groups and individuals in a field environment. Provides opportunities for students to apply leadership principles and techniques in challenging situations to further prepare them for leadership positions in the military or any career field they choose.

### **MILS 2210**

#### **Advanced Organizational Leadership II**

**2**

\* Prerequisite(s): MILS 2200 or Dept. Approval

\* Corequisite(s): MILS 245R

Builds on skills and fundamentals learned in MILS 2200 and 1210. Studies the dynamics of leadership of groups and individuals in a field environment. Provides opportunities for students to apply leadership principles and techniques in challenging situations to further prepare them for leadership positions in the military or in any career field they choose.

### **MILS 245R**

#### **Leadership Studies**

**1**

\* Prerequisite(s): MILS 145R or instructor approval

Studies the dynamics of leadership of groups and individuals in a field environment. Provides opportunities for students to apply leadership principles and techniques in challenging situations to further prepare them for leadership positions in the military or in any career field they choose. May be repeated for up to four credits with departmental approval.

**MILS 259R**  
**Current Topics in Military Science**

**3**  
 Provides exposure to emerging issues of current interest in military science. Topics vary each semester. May be repeated for a maximum of 9 credits toward graduation.

**MILS 3200**  
**Small Unit Leadership I**

**3**  
 \* Prerequisite(s): MILS 2210  
 \* Corequisite(s): MILS 345R

Prerequisite to attendance at National Advanced Leadership Camp. Prepares for successful completion of camp. Studies land navigation, squad and platoon tactics, combat operations, physical fitness, and physical leadership. Lab required.

**MILS 3210**  
**Small Unit Leadership II**

**3**  
 \* Prerequisite(s): MILS 3200  
 \* Corequisite(s): MILS 345R

Prerequisite to attendance at National Advanced Leadership Camp. Prepares for successful completion of camp. Studies land navigation, squad and platoon tactics, combat operations, physical fitness, and physical leadership. Lab required.

**MILS 345R**  
**Advanced Leadership Dynamics and Techniques**

**1**  
 \* Prerequisite(s): Departmental Approval

Leadership lab for UVU Army ROTC students and other students interested in the study of leadership. Studies the dynamics of leadership of groups and individuals in various environments. Provides opportunities for students to apply leadership principles and techniques in challenging situations and conditions. Required lab for students enrolled in UVU Military Science 3000- and 4000-level classes. Students not enrolled in Army ROTC may take this class four times for credit with department approval.

**MILS 4200**  
**The Profession of Arms I**

**3**  
 \* Prerequisite(s): Departmental Approval  
 \* Corequisite(s): MILS 445R

Prepares the prospective officer for initial training and subsequent assignment into the U.S. Army. Includes overview of U.S. Army training management, military writing, administration, logistics, professionalism, and ethics. Lab required.

**MILS 4210**  
**The Profession of Arms II**

**3**  
 \* Prerequisite(s): MILS 4200 or Departmental Approval  
 \* Corequisite(s): MILS 445R

Prepares the prospective officer for successful completion of Army assignments. Includes advanced U.S. Army leadership training, training management, military justice and law, pre-commissioning orientation, military briefing skills, and junior officer leadership.

**MILS 445R**  
**Transition to Officership**

**1**  
 \* Prerequisite(s): Departmental Approval

Leadership Lab for UVU Senior Army ROTC students. Studies the dynamics of leadership of groups and individuals in various environments. Provides opportunities for students to refine leadership skills in preparation for service with the United State Army. Required lab for students enrolled in UVU Military Science 4000-level classes. ROTC students may take this course up to 4 credits with departmental approval.

**MILS 4500**  
**Advanced Leadership and Operations**

**3**  
 \* Prerequisite(s): MILS 3200, MILS 3210, MILS 4200 and MILS 4210

Prepares the prospective officer for successful completion of Army assignments. Includes advanced understanding of U.S. Army operations and training, Officer, Non-Commission Officer and enlisted personnel management, and the use of the Military Decision Making Process.

**Marketing (MKTG)**

**MKTG 1890**  
**Introduction to Careers in Business**

**1**  
 Explores a wide variety of professional opportunities available in business including required skills, emerging trends, economic conditions, and workforce demands. Identifies and examines professional strengths, skills, and interests that add value in the workplace. Assists emerging candidates to align their abilities with industry needs. Initiates professional networking and internship opportunities. Requires professional outreach. Includes demonstrations, role playing and application exercises.

**MKTG 220G**  
**Written Business Communication GI WE**

**3**  
 Teaches written business correspondence and business reports using direct and indirect approaches. Emphasizes analysis of audience and purpose in drafting documents with accurate and clear content, organization, and style. Includes application of punctuation, grammar, and usage principles to business writing situations. Emphasizes teamwork and collaboration. Teaches how to interrelate respectfully with individuals representing cultures and perspectives other than one's own. Lab access fee of \$25 for computers applies. Canvas Course Mats \$\$27/Peerceptiv applies.

**MKTG 2390**  
**Professional Business Presentations**

**3**  
 Teaches business presentation skills. Emphasizes planning, developing, delivering, and evaluating business presentations. Includes informative and persuasive formats in diverse settings using a variety of media. Lab access fee of \$25 for computers applies.

**MKTG 259R**  
**Current Topics in Marketing**

**1 to 3**  
 \* Prerequisite(s): Department Chair Approval  
 Provides exposure to emerging topics of current interest in marketing. Topics vary each semester. May apply a maximum of three hours toward graduation.

**MKTG 281R**  
**Marketing Cooperative Work Experience**

**1 to 3**  
 \* Prerequisite(s): Internship Orientation and Departmental Approval  
 Provides opportunities to apply classroom theory on the job. Students work as paid employees in a job that relates to their careers while enrolled at the college. Credit is determined by the number of hours a student works during the semester. Completers meet individually set goals. May be repeated for a maximum of 6 credits toward graduation. Graded Credit/No Credit.

**MKTG 290R**  
**Independent Study**

**.5 to 3**  
 \* Prerequisite(s): Department Chair Approval  
 Provides independent study as directed in reading and individual projects specifically related to the Marketing field at the discretion and approval of the Dean and/or Department Chair. May be repeated for a maximum of 6 credits toward graduation.

# Course Descriptions

## **MKTG 3170** **Digital Advertising**

**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3660 Recommended

Teaches advanced digital advertising concepts and skills, including social, display, search, and video advertising as well as campaign management and decision making based on key metrics. Includes a digital advertising project and preparation for industry certifications in advertising.

## **MKTG 3220** **Retail Management**

**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Combines theoretical concepts with practical applications from a strategic management perspective. Includes lectures and discussions of current events within the retail industry to provide the primary basis for the integration of course materials with actual retail enterprise operations. Includes participation in a number of experiential learning exercises such as group and individual case analyses, outside research on the retail industry and specific retail firms, class presentations, guest speakers, and quizzes on selected retailing issues and practices. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies

## **MKTG 3300** **Marketing Analytics**

**3**

\* Prerequisite(s): University Advanced Standing

Provides a rigorous introduction to the exciting world of marketing analytics. Teaches the concepts, principles, and frameworks of marketing analytics from the perspective of a marketing strategist applying current marketing theory. Develops key skills required to understand current trends and make predictions based on available data.

## **MKTG 335G** **International Marketing**

**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Presents the problems of marketing in the international marketplace and how marketers approach and solve them. Focuses on concepts and principles by teaching the theory and practice of international marketing through the use of practical examples and actual case studies of international (both US and foreign) marketing organizations. Includes international marketing position of the US, market entry strategies, analysis of foreign markets, culture and marketing, product design, pricing, distribution, promotion and sales. May be delivered online. Lab access fee of \$25 for computers applies.

## **MKTG 3460** **Internal Marketing and Corporate Imaging**

**3**

\* Prerequisite(s): MKTG 3600 and University Advanced Standing

Introduces students to the fundamentals of Internal Marketing and Corporate Imaging. Focuses on internal marketing strategy, critical incident management, organizational change, employer brand, cause marketing, corporate citizenship, internal business communication and event management. Includes other topics, such as contingency planning, organizational culture, employee programs and training, motivation and internal reward programs. Includes case analysis, lectures, class discussions, group work and evaluation, videos, oral presentations, written assignments and guest speakers.

## **MKTG 3600** **Principles of Marketing**

**3**

\* Prerequisite(s): University Advanced Standing

Studies consumers, markets, and environments from the perspective of the marketing manager. Covers the fundamentals of customer behavior, market research, marketing strategy, product management, pricing, professional selling, distribution, and promotion. Includes case analysis, lectures, class discussions, videos, oral presentations, written assignments, guest speakers, and a marketing plan project. Lab access fee of \$25 applies.

## **MKTG 3620** **Consumer Behavior**

**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Includes an analysis of consumer spending and saving habits, product preferences, shopping behavior, leisure time patterns, and social change. Explores the influence of advertising, selling and fashion trends. Includes lectures, class discussions, videos, projects, case analyses, oral presentations, written assignments, and guest speakers. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies.

## **MKTG 3630** **Services Marketing**

**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Presents skills and attitudes necessary to market services and to provide good customer service. Emphasizes the marketing skills involved in marketing services and basic marketing concepts, including positive customer relations, effectively handling customer complaints, and sound customer service procedures. Focuses on developing successful service marketing strategies that can be applied in a business organizational setting. Includes lectures, guest speakers, video tapes, role plays, case analysis, oral presentations, and written assignments. Lab access fee of \$25 for computers applies.

## **MKTG 3640** **Sales Management**

**3**

\* Prerequisite(s): University Advanced Standing

Analyzes the factors that go into managing a sales force. Teaches sales management strategies and tactics which help organizations achieve their revenue goals. Examines key behavioral, technological, and managerial trends in sales. Identifies current analytical, communication, relationship, and leadership skills needed by sales managers. Demonstrates the importance of sales and sales management in terms of people employed, dollars spent, and sales generated. Canvas Course Mats \$68/Chicago applies.

## **MKTG 3650** **Professional Selling**

**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Emphasizes theoretical skills in the personal selling process and the management of a sales force. Studies the recruiting, training and supervising of salespersons, organization of territories, compensation schemes, and forecasting. Includes lectures, guest speakers, video tapes, role playing, case analysis, oral presentations, and written assignments. Lab access fee of \$25 for computers applies. Canvas Course Mats \$49/Cengage applies. Canvas Course Mats \$37/GoReact applies.

**MKTG 3660**  
**Digital Marketing**  
**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Provides an introduction to the many business uses of the Internet to create competitive advantage. Features discussions of e-business strategic components and practice with Web page exercises. Uses guided exercises to explore the Net, both in and out of class. Includes projects, research, and Net use in a particular industry. Emphasizes the sharing of concepts discussed in lectures, class activities, the assigned readings, and group projects. Lab access fee of \$25 for computers applies.

**MKTG 3670**  
**Advertising and Promotion**  
**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Provides an understanding of advertising, its purposes, and production. Includes sequence of activities in preparing productive, persuasive marketing and advertising campaign plans. Covers the social, legal, and economic considerations involved in the campaign planning process. Includes lectures, class discussions, guest speakers, videos, and student presentations. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies.

**MKTG 3680**  
**Marketing with Social Media**  
**3**

\* Prerequisite(s): MKTG 3600 and MKTG 3660 are recommended; University Advanced Standing

Teach students how to use social media platforms to market products and services. Includes the creation and marketing of a blog using WordPress and engaging with a local small business to write and execute a social media marketing campaign. Teaches the fundamentals of social media marketing and the most popular platforms like WordPress, Facebook, Twitter, Pinterest, and LinkedIn.

**MKTG 3685**  
**Content Marketing**  
**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3660 Recommended

Covers strategic use of content to attract new customers and retain current customers. Provides experience identifying and analyzing an audience to create targeted content to achieve set business objectives. Introduces graphic design applications, video editing software, copy writing skills, email automation systems, analytics tools, and other resources. Provides training to successfully create and implement an effective content marketing strategy.

**MKTG 3690**  
**Digital Marketing Analytics**  
**3**

\* Prerequisite(s): University Advanced Standing

Teaches advanced digital marketing concepts and skills related to digital marketing analytics and dashboards for web, social, and other digital platforms. Includes preparation for industry certifications in these areas.

**MKTG 3700**  
**Fundamentals of Product Management**  
**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Provides a rigorous introduction to the development and management of new products from a marketing perspective. Emphasizes current best practices in assessing market opportunities, determining target customers, and defining and designing a product-based solution, and measuring and validating the solution through an iterative product development process. Includes a semester project and presentation, role-plays, and case studies.

**MKTG 3890**  
**Business Career Strategy**  
**2**

\* Prerequisite(s): University Advanced Standing; MKTG 1890 Recommended

Emphasizes the seamless transition to professional advancement in the workforce by developing a career narrative consistently presented on paper, online, and in person. Focuses on industry research, networking, interviews, and professional branding, including the customization of career tools, through a practicum design. Requires professional outreach. Includes demonstrations, role playing and application exercises. Lab access fee of \$25 for computers applies.

**MKTG 4150**  
**Digital Marketing Capstone**  
**3**

\* Prerequisite(s): MKTG 3170, MKTG 3600, MKTG 3660, MKTG 3680, MKTG 3690, and University Advanced Standing; Senior Standing is recommended.

Applies digital marketing theories, principles, and tactics to a live learning engagement project. Provides a framework for developing a complete digital marketing plan and gives students an opportunity to learn software, automation tools, and digital marketing creative strategy.

**MKTG 4300**  
**Marketing Data Science**  
**3**

\* Prerequisite(s): MKTG 3300 and University Advanced Standing

Provides advanced learning in marketing data science. Emphasizes data collection and cleaning on an advanced level. Teaches advanced concepts, principles, and frameworks of marketing data science from the perspective of a marketing strategist applying current marketing theory. Builds on introductory skills to deepen understanding of current trends.

**MKTG 4400**  
**Competitive Intelligence**  
**3**

\* Prerequisite(s): MKTG 3600 and University Advanced Standing

Teaches Competitive Intelligence (CI), the study of processes and techniques leading to business analysis applied to industry and company investigation. Overviews the Competitive Intelligence process including information collection, intelligence analysis, and intelligence process assessment.

**MKTG 459R**  
**Advanced Topics in Marketing**  
**1 to 3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Provides exposure to emerging topics of current interest in marketing. Topics vary each semester. May apply a maximum of 12 hours toward graduation.

**MKTG 4600**  
**Customer Experience**  
**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Covers managerial uses of marketing research in formulating marketing strategy. Includes determination of situations requiring research, appraisal of alternative research methods, and evaluation of studies. Presents theoretical concepts in research methodology. Includes lectures, class discussions, group projects, case analyses, oral presentations, written assignments, and speakers. Lab access fee of \$25 for computers applies. Canvas Course Mats \$85/McGraw applies.

**MKTG 4610**  
**Sales Operations**  
**3**

\* Prerequisite(s): University Advanced Standing; MKTG 3600 Recommended

Provides students with an understanding of Sales Operations and the key performance indicators driving professional sales organizations. Instills a data-driven perspective necessary for responding to organizational sales and revenue challenges. Develops important skills in forecasting, report and dashboard development, and territory analysis and design, as well as proficiency in Sales Force Automation and CRM software.

## Course Descriptions

### **MKTG 4620**

#### **Advanced Professional Selling**

**3**

\* Prerequisite(s): MKTG 3650 and University Advanced Standing

Covers advanced business-to-business selling skills and practices. Emphasizes current best-practices in prospecting, needs identification, relationship-building, negotiating, and closing. Includes competitive role-play and case studies. Canvas Course Mats of \$37/GoReact applies.

### **MKTG 4650**

#### **Marketing Management Capstone**

**3**

\* Prerequisite(s): MKTG 3600, MKTG 3650, MKTG 3660, MKTG 3700, and MKTG 335G. University Advanced Standing; Senior Standing is recommended.

Presents detailed marketing analysis skills, planning and control of various marketing mix variables, target markets, and the marketing environment using both oral and written case studies. Includes lectures, class discussions, videos, projects, case analyses, oral presentations, written assignments, and guest speakers.

### **MKTG 481R**

#### **Marketing Internship**

**1 to 3**

\* Prerequisite(s): Departmental Approval and University Advanced Standing

For upper-division students working toward a Bachelor of Science Degree in Marketing. Provides a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job experience. May be repeated for a maximum of 6 credits toward graduation. May be graded credit/no credit.

### **MKTG 482R**

#### **Sales Internship**

**1 to 8**

\* Prerequisite(s): Departmental Approval and University Advanced Standing

For upper-division students working toward a Bachelor of Science Degree in Marketing. Provides a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job experience. May be repeated for a maximum of 6 credits toward graduation. May be graded credit/no credit.

### **MKTG 483R**

#### **Digital Marketing Internship**

**1 to 8**

\* Prerequisite(s): Departmental Approval and University Advanced Standing

For upper-division students working toward a Bachelor of Science Degree in Marketing. Provides a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job experience. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

### **MKTG 490R**

#### **Independent Study**

**1 to 3**

\* Prerequisite(s): Department Chair Approval

Provides independent study as directed in reading and individual projects specifically related to the Marketing field at the discretion and approval of the Dean and/or Department Chair. May be repeated for a maximum of 6 credits toward graduation.

### **MKTG 494R**

#### **Seminar**

**.5 to 3**

\* Prerequisite(s): Department Chair Approval and University Advanced Standing

Provides short courses, workshops, and special programs in business management, leadership, or current business topics. Repeatable for up to six credits toward graduation.

### **MKTG 4980**

#### **Research Seminar in Marketing**

**3**

\* Prerequisite(s): Department Chair Approval and University Advanced Standing

Studies the process of researching and writing for scholarly publication. Includes understanding the concepts of scholarly conversation; managing scholarship; choosing a marketing topic; identifying appropriate journals; using exemplars; creating a title and abstract; making an outline; developing an introduction and conclusion; writing the body of the paper; and then revising, submitting, and finally publishing in a scholarly journal.

### **MKTG 6400**

#### **Technology Marketing and Customer Experience**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Teaches conceptual frameworks and analytical tools for marketing decision making in technology businesses from a cross-functional and strategic orientation. Focuses on understanding user needs, technology standards and network externalities, forecasting and planning, solution design and architecture, platform strategy, and managing adoption. Uses cases, assignments, and projects. Examines the use of marketing analytics for intelligence gathering, analysis, and decision making. Teaches how to develop high-value solutions for users based on a deep understanding of their needs, and how to communicate the value of and provide access to those solutions through marketing technology.

### **MKTG 6600**

#### **Marketing Strategy**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business

Analyzes current marketing management problems. Emphasizes marketing concepts, research techniques, decision making, and marketing strategy development.

### **MKTG 6620**

#### **Marketing Research and Analytics**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business and MKTG 6600

Explores tools and analysis techniques related to customer relationship management. Focuses on "thick" data research, including: ethnography, social listening, interviewing, and laddering. Uses research tools, such as survey design, web analytics, and eye-tracking technology, to collect and analyze data through factor analysis, cluster analysis, classification trees, and multidimensional scaling.

### **MKTG 6640**

#### **Brand/Product/Services Management**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business and MKTG 6600

Focuses on the practice of advanced marketing management topics including: brand management, product management, product development, services marketing, pricing and conjoint analysis. Integrates forecasting including diffusion models and other tactics, resource allocation, and managing profit and loss statements.

### **MKTG 6660**

#### **Marketing Channels and Communications**

**3**

\* Prerequisite(s): Admission into any graduate program in the Woodbury School of Business and MKTG 6600

Explores key advanced marketing practices related to delivering and communicating value. Examines retailing, e-commerce, websites, personal selling, lead generation, digital marketing, as well as promotion and campaign management.

### **MKTG 6720**

#### **Creativity and Innovative Problem Solving**

**1.5**

\* Prerequisite(s): Acceptance into the Woodbury School of Business MBA program

Applies an understanding of the nature of creativity and expansive problem solving within the business environment through projects, simulations and/or case study. Provides awareness about individual and organizational characteristics which impact creative thinking and limit imaginative solutions.

## **Music (MUSC)**

### **MUSC 1010**

#### **Introduction to Music**

**3**

A survey course designed to make music more meaningful. Studies melody, harmony, form, and rhythm together with historical and biographical information. Canvas Course Mats \$57/Norton applies.

**FF**

**MUSC 101H** FF  
**Introduction to Music**  
**3**

Develops an appreciation and understanding of music. Studies melody, harmony, form, and rhythm. Focuses on the historical development of Western art music, including the contributions of major composers. Examines musical genres such as the chant, motet, madrigal, concerto grosso, opera, cantata, oratorio, symphony, music drama and tone poem. Practices the aural identification of specific compositions.

**MUSC 102G** FF  
**Introduction to World Music**  
**3**

Explores diverse music from around the world. Includes a study of melody, harmony, form, and rhythm in international historical and cultural contexts. Involves a significant number of listening assignments and discussions over the various ways music functions within societies. Pays particular attention to the ways in which musical traditions adapt to changes within communities on a local and global scale.

**MUSC 1030** FF  
**American Popular Music**  
**3**

Studies the emergence, development, and characteristics of American music including Jazz, Blues, Country, Rock, Motown, Hip-Hop, and other popular styles. Examines the contributions of European, African, Latin and other cultural traditions on American popular music. Studies the influences of mass media and technology. Examines the marketing and dissemination of popular music by the music industry. Studies the role of popular music as a symbol of race, class, gender, and generation. Fulfills the Fine Arts general education distribution requirement and addresses the Intellectual and Practical Skills Foundation essential learning outcomes of qualitative reasoning.

**MUSC 1050**  
**Beginning Piano I**  
**2**

Provides group instruction for students with little or no piano and note-reading experience. Covers melodic and rhythmic notation, key recognition, and major and minor finger patterns. Teaches basic harmonization, transposition and improvisation. Course Lab fee of \$27 for equipment applies.

**MUSC 1060**  
**Beginning Piano II**  
**2**

Builds on the skills learned in Beginning Piano I. Studies notation, scales, chord progressions, sight-reading, basic harmonization, transposition, and improvisation. Course lab fee of \$27 applies.

**MUSC 1100** FF  
**Fundamentals of Music**  
**3**

Examines the fundamentals of music theory such as pitch notation, meter, rhythm, time signatures, intervals, major and minor scales, key signatures, and triads. Fulfills the Fine Arts general education distribution requirement and addresses essential learning outcomes of quantitative reasoning. Lab access fee of \$17 for computers applies.

**MUSC 1105**  
**Fundamentals for Music Majors/Minors**  
**3**

\* Prerequisite(s): Music major or minor or department approval. Completed music theory placement exam.

This course is designed to prepare music majors and minors for Theory I. The course covers basic concepts of musical construction including pitch, rhythm, basic harmony, scales, keys, and intervals.

**MUSC 1110**  
**Music Theory I**  
**3**

\* Prerequisite(s): Music majors only or department approval. Complete music theory diagnostic exam. Students who do not earn at least 80% on the music department theory diagnostic exam must complete MUSC 1105 before MUSC 1110.

\* Corequisite(s): MUSC 1130

Studies the fundamentals of music theory including elementary harmony, primary and secondary triads with inversions, non-harmonic tones and modulation.

**MUSC 1115**  
**Music Notation and Score Preparation**  
**1**

\* Prerequisite(s): Music major or minor only.

Introduces notation software for creating music scores. Includes symphonic layouts, lead sheets, vocal/choral notation, and drum/guitar notation. Explores complex techniques designed to speed notation process and control the nuances of the music's look to produce clear, professional-quality music.

**MUSC 1120**  
**Music Theory II**  
**3**

\* Prerequisite(s): MUSC 1110  
 \* Corequisite(s): MUSC 1140

Provides further study of the fundamentals of music theory. Covers the analysis and composition of music using leading tone triads, seventh chords, secondary dominants, sequences, voice leading and modulation.

**MUSC 1130**  
**Aural Skills I**  
**1**

\* Corequisite(s): MUSC 1110

Provides training in the aural identification of intervals and triads. Practices rhythmic dictation in simple meters, and melodic dictation of simple melodies. Studies the solfege movable "Do" system.

**MUSC 1140**  
**Aural Skills II**  
**1**

\* Prerequisite(s): MUSC 1130  
 \* Corequisite(s): MUSC 1120

Provides further training in the aural identification of intervals and triads. Practices rhythmic dictation in simple and compound meters, and melodic dictation in major and minor keys. Studies the solfege movable "Do" system.

**MUSC 1150**  
**Group Piano I**  
**1**

\* Corequisite(s): MUSC 1110 recommended

Develops fundamental piano skills including five-finger major and minor scales, arpeggios, chord progressions, sight-reading, and performance. Prepares students for music major keyboard examinations. Course Lab fee of \$27 for equipment applies.

**MUSC 1160**  
**Group Piano II**  
**1**

\* Prerequisite(s): MUSC 1150 or equivalent proficiency examination  
 \* Corequisite(s): MUSC 1120 recommended

Builds on the skills learned in Group Piano I. Develops facility in two-octave major scales, arpeggios, chord progressions, sight-reading, harmonization, transposition, and performance. Prepares students for music major keyboard examinations. Course Lab fee of \$27 for equipment applies.

**MUSC 1170**  
**Group Guitar I**  
**2**

Teaches fundamental skills used in playing popular guitar styles. Covers essential left and right hand techniques as well as basic musical rudiments.

**MUSC 1180**  
**Group Guitar II**  
**2**

\* Prerequisite(s): MUSC 1170

Develops a variety of right and left hand techniques. Teaches both standard and tablature-style notation. Provides solo and ensemble performance opportunities.

# Course Descriptions

## **MUSC 1236** **Survey of Jazz History**

**3**

Introduces the content, history, and cultural contexts of jazz music. Examines the spread, evolution, and exportation of jazz in relation to the growth of radio and the recording industry. Includes lecture, demonstration, listening, and group discussion of musical examples and cultural backgrounds.

## **MUSC 124R** **UVU Concert Choir**

**1**

Provides group training in the various styles of choral literature. Basic skills in note reading, matching pitch and blending with the ensemble expected. Requires participation at scheduled performances. May be repeated as desired.

## **MUSC 125R** **University Band**

**1**

Provides group training in the various styles of band literature. Requires participation at scheduled performances. May be repeated as desired.

## **MUSC 1350** **Studio Conducting**

**1**

\* Prerequisite(s): BM Commercial Music students only

Provides an introduction to the technique of conducting for a commercial musician. Focuses on baton technique and score reading. Introduces instrumental transposition.

## **MUSC 1390** **Survey of Recording Techniques**

**1**

\* Prerequisite(s): Music majors or minors only. Not applicable for BM Commercial Music students.

Examines fundamental techniques of recording solo, small ensemble, and large ensemble music. Teaches basic use of microphones, digital interface, and signal path. Introduces editing and mixing skills for post production. Surveys applications of contemporary technology for remote performance.

## **MUSC 1400** **Music Technology I**

**2**

Examines the fundamental concepts and usage of technologies in music. Studies basic analog and digital signal paths and audio basics. Explores the basics of subtractive synthesis. Introduces the use of the MIDI protocol (Musical Instrument Digital Interface) and the basics of a Digital Audio Workstation (DAW). Software fee of \$13 applies. Lab access fee of \$17 for computers applies.

## **MUSC 1402** **Music Technology II**

**2**

\* Prerequisite(s): MUSC 1400

Builds on the concepts covered in Music Technology I. Examines the uses of Musical Instrument Digital Interface (MIDI) and virtual instruments in the modern Digital Audio Workstation (DAW) including the creation of templates in ProTools, use of continuous controllers for realism, creation of stems, and the use of sample libraries and various virtual instruments. Studies in greater depth the processes of contemporary music notation including midi importation into notation software and creation of professional-looking scores and parts complete with all the necessary dynamics, phrasing, articulations, and performance instructions. Software fee of \$13 applies. Lab access fee of \$17 for computers applies.

## **MUSC 1410** **Survey of Commercial Music Careers**

**1**

Introduces optimal career paths in contemporary music. Covers careers including but not limited to film composition, arranging, production, film music editing, studio engineering, performance, and education. Emphasizes practical skills in entrepreneurship, marketing, and networking.

## **MUSC 145R** **Private Lessons I**

**1**

## **MUSC 1630** **Group Voice I**

**1**

Provides group instruction in the development of vocal skills and techniques. Covers classical vocal production, breath management, diction, and performance skills. Provides student performance of vocal literature from several genres and style periods.

## **MUSC 1640** **Group Voice II**

**1**

\* Prerequisite(s): MUSC 1630 or instructor permission

Provides more advanced group instruction in the development of vocal skills and techniques. Covers classical vocal production, breath management, English and Italian diction, performance anxiety and performance skills. Provides student performance of vocal literature from several genres and style periods.

## **MUSC 1800** **Introduction to Music Education**

**3**

Introduces the music education profession including history, philosophy, professional communities, career opportunities, and music teaching standards. Emphasizes the place of music and the arts in education, the role of government in schools, meeting the challenges of 21st century education. Covers personal, professional, and musical skills necessary for successful music teaching and learning. Requires observation of music classrooms in public and private school settings outside of scheduled class time. Includes micro teaching and a final portfolio and interview which culminates in matriculation to the music education degree.

## **MUSC 1810** **Contemporary Theory and Improvisation I**

**3**

Studies the fundamental building blocks of jazz and contemporary music theory and how each concept can be applied in performance, improvisation, analysis, arranging, and composition. Introduces standard practices of contemporary theory and aural skills including chord symbology, chord-scale theory, basic chord function, target tone strategies, voice-leading, and various applications of tension and release.

## **MUSC 2001** **Diction for Singers I**

**1**

Teaches the International Phonetic Alphabet (IPA) as it pertains to the English, Italian and Latin languages. Applies IPA directly to song literature for each language. Provides basic reading, comprehension, and grammar skills in the Italian and Latin languages. Course lab fee of \$15 for support applies.

## **MUSC 2002** **Diction for Singers II**

**1**

Teaches proficiency in the International Phonetic Alphabet (IPA) as it pertains to the German and French languages. Applies IPA directly to song literature for each language. Provides basic reading, comprehension, and grammar skills in each language. Course lab fee of \$15 for support applies.

## **MUSC 2100** **Teaching Music for Children FF**

**3**

For Elementary Education students and other interested students and community members. Introduces concepts and techniques of music education applicable to the elementary school classroom. Teaches concepts and skills through a combination of readings and lectures. Applies vocal and instrumental basics and class projects. Addresses the Utah State Core Curriculum for music for the elementary school.

**MUSC 2110****Music Theory III****3**

\* Prerequisite(s): MUSC 1120

Studies the diatonic and chromatic materials of common practice music theory. Covers the analysis and composition of music using chromatic chords such as secondary dominants, diminished seventh chords, Neapolitan chords, and Italian, French and German sixth chords. Practices multiple methods of modulation.

**MUSC 2125****Music Theory IV****3**

\* Prerequisite(s): MUSC 2110

Surveys compositional techniques used by post-tonal composers. Builds on the knowledge and skills learned in the tonal music theory classes.

**MUSC 2130****Aural Skills III****1**

\* Prerequisite(s): MUSC 1140

\* Corequisite(s): MUSC 2110

Provides training in the aural identification of intervals, triad inversions and chord progressions. Practices rhythmic dictation of syncopated rhythms and asymmetric and mixed meters, and melodic dictation of disjunct melodies and two-part dictation. Studies the solfege movable "Do" system in major, minor keys and modes with coordinating Kodaly hand signs.

**MUSC 2140****Aural Skills IV****1**

\* Prerequisite(s): MUSC 2130

Provides further training in the aural identification of intervals, triad inversions and chord progressions. Practices rhythmic dictation of complex rhythm patterns and asymmetric and mixed meters. Teaches four-part harmonic dictation. Completes study of the solfege movable "Do" system.

**MUSC 2150****Group Piano III****1**

\* Prerequisite(s): MUSC 1160 or equivalent proficiency examination

\* Corequisite(s): MUSC 2110 recommended

Builds on the skills learned in Group Piano II. Develops further facility in one-octave harmonic minor scales, arpeggios, chord progressions, sight-reading, harmonization, transposition, improvisation, and accompanying. Prepares students for music major keyboard proficiency examinations. Course lab fee of \$27 for equipment applies.

**MUSC 2160****Group Piano IV****1**

\* Prerequisite(s): MUSC 2150 or equivalent proficiency examination

\* Corequisite(s): MUSC 2125 recommended

Builds on the skills learned in Group Piano III. Develops facility in two-octave major and harmonic minor scales, arpeggios, chord progressions, sight-reading, harmonization, transposition, improvisation in classical and contemporary styles, playing contemporary and jazz chord charts, and accompanying. Prepares students for music major keyboard proficiency examinations. Course lab fee of \$27 for equipment applies.

**MUSC 2170****Jazz and Contemporary Keyboard Skills I****1**

\* Prerequisite(s): MUSC 1160 or demonstration of equivalent keyboard proficiency

Introduces and develops chord construction, common jazz and contemporary keyboard voicings, basic rhythmic comping for jazz and popular styles with an emphasis on interpreting lead sheets and chord charts. Identify chord symbols, voice-leading through common chord progressions, building basic voicing structures, recognizing common song forms, and performing simple improvised accompaniment on the keyboard. Course lab fee of \$27 applies.

**MUSC 2180****Jazz and Contemporary Keyboard Skills II****1**

\* Prerequisite(s): MUSC 2170 or demonstration of equivalent keyboard proficiency

Builds on the jazz and contemporary keyboard skills developed in MUSC 2170. Teaches open and closed position chord voicings using upper extensions. Introduces basic quartal voicings. Further develops hand independence through the performance of composed and improvised melodies in the right hand while comping with the left hand. Demonstrates sight-reading skills as applied to chord charts and lead sheets. Surveys advanced melodic and harmonic techniques over the Blues, ii-V-I, dominant cycles, tritone substitutions, diminished passing chords, and turnarounds with secondary dominants.

**MUSC 2190****Rhythm Section Workshop****1**

\* Prerequisite(s): Music majors and minors only

Surveys common rhythm section practices for a contemporary ensemble. Explores historically important rhythm sections in American popular music, common arranging and orchestration choices, communication strategies, vocabulary, and notation for a rhythm section. Provides techniques for developing a stronger working relationship with rhythm section performers as a non-rhythm section performer, composer, producer, or songwriter.

**MUSC 2210****Contemporary Theory and Improvisation II****2**

\* Prerequisite(s): MUSC 1810

Builds on skills and knowledge developed in MUSC 1810. Further develops exercises and practice strategies based on the surveyed concepts in MUSC 1810 applied to real-world scenarios. Develops recognition and application of theoretical concepts through transcription and analysis in addition to performance. Introduces common academic systems of solo analysis including the methodologies of Jerry Coker and David Baker. Reinforces aural skills through call-and-response activities and masterclass-style lectures. Introduces strategies for learning repertoire, developing ear-training, applying advanced theoretical concepts, developing recall, and incorporating self-assessment into their practice.

**MUSC 2350****Fundamentals of Conducting****2**

\* Prerequisite(s): MUSC 1120

Provides an introduction to the basics of conducting. Focuses on baton technique, score reading, interpretation and rehearsal.

**MUSC 2400****Digital Audio Workstation****2**

\* Prerequisite(s): MUSC 1402 or Music Technology Certificate major

Explores the Digital Audio Workstation, including shortcuts and commands for maximizing effectiveness and understanding. Covers the basics of the software interface, audio and MIDI recording and editing, effects, and creating a final product. Software fee of \$13 applies. Lab access fee of \$17 for computers applies.

# Course Descriptions

## **MUSC 2420** **Music Production Basics**

**2**  
\* Prerequisite(s): MUSC 2400

Introduces the basics of music production. Analyzes various aspects of contemporary music including sound and part selection for each instrument in the rhythm section. Discusses various recording and production techniques used in current music productions. Introduces students to technical production tools and techniques including but not limited to phasers, chorus, flange, delay, echo, reverb, compression, eq, filters, and distortion. Introduces the students to mixing and steps required to produce a final product. Software fee of \$13 applies. Lab access fee of \$17 for computers applies.

## **MUSC 245R** **Private Lessons II**

**1**  
Offers twelve 60-minute private lessons. Designed to meet the individual needs of the student in developing skills and techniques. Does not fulfill music major degree requirements. May be repeated as desired. Course fee of \$443 for support applies.

## **MUSC 250R** **Private Lessons for Music Majors**

**1**  
\* Prerequisite(s): Music major entrance audition required.  
\* Corequisite(s): MUSC 251R

Offers twelve 60-minute private lessons for music majors. Focuses on the individual needs of the student in developing skills and techniques. Requires participation in weekly performance class. Includes juried evaluations. May be repeated as desired. Course fee of \$443 for support applies.

## **MUSC 251R** **Performance Class**

**1**  
\* Corequisite(s): MUSC 250R

Provides additional performance experience for music majors. Develops an ability to offer and receive constructive criticism. Explores performance-related topics such as practice strategies, performance anxiety, interpretive phrasing, technical mastery, memorization and jury preparation. May be repeated for a maximum of 12 credits toward graduation.

## **MUSC 281R** **Internship in Music I**

**1 to 8**  
\* Prerequisite(s): Departmental Approval

Provides an opportunity for students to receive college credit and explore career options in music by working in music-related fields. Applies academic concepts to actual work experiences. Requires approval of faculty sponsor and completion and acceptance of application. Requires completion of an orientation, completion of Master Agreement between UVU and employer, completion of goals and tasks as required by academic department, and completion of final evaluation. May be repeated for a total of 8 credits towards graduation. May be graded credit/no credit.

## **MUSC 290R** **Independent Study**

**1 to 3**  
\* Prerequisite(s): Instructor permission and advisor approval

Individual projects to be negotiated by student and instructor on a case-by-case basis to be approved by the departmental advisor. May be repeated for a maximum of 4 credits toward graduation.

## **MUSC 3005** **Vocal Literature I**

**1**  
\* Prerequisite(s): (MUSC 1120 or department audition) and University Advanced Standing

Presents an overview of the English and Italian art song literature from 1500 to present. Provides performance training of stylistic elements appropriate for each time period.

## **MUSC 3006** **Vocal Literature II**

**1**  
\* Prerequisite(s): MUSC 3005 and University Advanced Standing

Presents an overview of the French and German art song literature from 1500 to present. Provides performance training of stylistic elements appropriate for each time period.

## **MUSC 3025** **Songwriting I**

**2**  
\* Prerequisite(s): MUSC 1400 and University Advanced Standing

Studies the creative processes and techniques involved in commercial songwriting. Covers the essential elements of lyric writing, setting lyrics to melody, and utilizing functional harmony. Explores the process of developing a production plan for a song demo. Software fee of \$13 applies. Lab access fee of \$17 for computers applies.

## **MUSC 3026** **Songwriting II**

**2**  
\* Prerequisite(s): MUSC 3025 and University Advanced Standing

Expands on the skills learned in Songwriting I. Focuses on the demands of commercial music projects. Discusses the professional expectations of writing on demand in a specific musical style, genre, and time period. Addresses the importance of arranging, pre-production, and session planning as a songwriter. Software fee of \$13 applies. Lab access fee of \$17 for computers applies.

## **MUSC 3030** **Jazz and Contemporary Arranging I**

**2**  
\* Prerequisite(s): MUSC 1402, MUSC 2210 and University Advanced Standing

Develops skills in arranging for small jazz and contemporary instrumental ensembles. Introduces common publishing practice for engraving and notation. Develops concepts and techniques to write for 1-3 voices and rhythm section. Arrange a composition for a small instrumental ensemble and develop strategies for planning, executing, and editing a successful arrangement quickly. Create a custom engraving template for their preferred notation software. Focuses on the application of texture, harmonization, orchestration, voicing structures, form, and style. Lab access fee of \$17 applies. Software fee of \$13 applies.

## **MUSC 3031** **Jazz and Contemporary Arranging II**

**2**  
\* Prerequisite(s): MUSC 3030 and University Advanced Standing

Expands on the concepts discussed in MUSC 3030. Expand arranging abilities to include advanced techniques for large instrumental jazz ensembles. Introduces the use of voicing structures, orchestration, scoring, and arranging as it applies to each instrumental section. Analyze scores written by prolific composers in the idiom and compose in the style of each. Offers students the opportunity to create original arrangements for large jazz ensemble to be read by the UVU Jazz Orchestra.

## **MUSC 306R** **Advanced Keyboard Skills**

**1**  
\* Corequisite(s): MUSC 250R or MUSC 450R or MUSC 455R

Provides advanced study in piano technique, sight-reading, and ensemble skills. Develops pedagogical skills through masterclasses and teaching beginners. May be repeated for maximum of 12 credits toward graduation. Course lab fee of \$27 applies.

**MUSC 3120**  
**Form and Analysis**

**3**  
\* Prerequisite(s): MUSC 2110 and University Advanced Standing

Explores the structure, meaning and organization of music. Concentrates on the standard practices of European-sphere music since 1600. Teaches techniques for understanding and classifying musical structure. Places techniques and knowledge from the first three semesters of music theory into a comprehensive whole.

**MUSC 3150**  
**Advanced Instrumental Conducting**

**2**  
\* Prerequisite(s): MUSC 2350 and University Advanced Standing

Teaches advanced baton techniques, score preparation and basic rehearsal procedures for instrumental ensembles.

**MUSC 320R**  
**Masterworks Chorale**

**1**  
\* Prerequisite(s): Audition

Provides group training in the various styles of choral literature. Requires attendance at scheduled performances. May be repeated as desired. Course fee of \$20 for support applies.

**MUSC 322R**  
**Chamber Choir**

**1**  
\* Prerequisite(s): Audition

For the advanced singer desiring experience in choral performance. Provides the opportunity of performing in a small group of select singers. Studies music of various styles and periods. Requires participation in concerts, programs, and tours. May be repeated as desired. Course fee of \$20 for support applies.

**MUSC 327R**  
**Deep Green-Tenor/Bass Choir**

**1**  
\* Prerequisite(s): Audition

Provides male vocalists with advanced individual and ensemble training. Includes emphasis on auditioning, rehearsal and performance etiquette, and ensemble skills and dynamics. Requires participation in concerts, programs and tours. May be repeated as desired. Course Lab fee of \$15 for support applies.

**MUSC 328R**  
**Emerald Singers-Soprano/Alto Choir**

**1**  
\* Prerequisite(s): Audition

Provides female vocalists the opportunity to perform in a select group of treble singers. Studies music of various styles and periods. Requires participation in concerts, programs, and tours. May be repeated as desired. Course fee of \$20 for support applies.

**MUSC 330R**  
**Wind Symphony**

**1**  
\* Prerequisite(s): Audition

Improves musical skills by performing significant wind and percussion repertoire. Examines the standard band repertoire as well as more contemporary literature. Requires attendance at all concerts, performances, tours and acquisition of performance attire. May be repeated as desired.

**MUSC 331R**  
**Percussion Ensemble**

**1**  
\* Prerequisite(s): Audition

Provides percussion ensemble experience. Emphasis on sight reading and music performance skills. Attendance is expected at all concerts, rehearsals, and tours. May be repeated as desired.

**MUSC 332R**  
**Jazz Orchestra**

**1**  
\* Prerequisite(s): Audition

Provides the advanced instrumentalist the opportunity to perform traditional and contemporary repertoire for large jazz ensemble. Emphasizes improvisational and sight-reading skills. Requires attendance at all performances. May be repeated as desired.

**MUSC 333R**  
**Small Jazz and Commercial Ensembles**

**1**  
\* Prerequisite(s): Audition

Provides the advanced instrumentalist and vocalist the opportunity to perform in small ensembles specializing in jazz and other commercial styles including, pop, rock, country, funk, reggae, hip hop, etc. Emphasizes improvisation, rhythmic skills, and knowledge of harmony. Requires attendance at all performances. May be repeated as desired.

**MUSC 334R**  
**Pep Band**

**1**  
\* Prerequisite(s): Audition

Provides opportunities to perform band literature for athletic events, including home games, off-campus tournaments, and championships. Requires participation at all rehearsals and assigned games. May be repeated as desired.

**MUSC 340R**  
**Secondary General Music Methods**

**2**  
\* Prerequisite(s): University Advanced Standing

Introduces materials and techniques for general music classes; computer-assisted instruction and integrated technology; facility with accompanying folk instruments; philosophic foundations of music education; and program development and instructional design.

**MUSC 3410**  
**Elementary Music Methods I**

**2**  
\* Prerequisite(s): MUSC 2110 and University Advanced Standing

Teaches the sequence, tools, materials, and philosophy of teaching musical concepts to children in grades K-3. Develops skill on classroom instruments.

**MUSC 3411**  
**Elementary Music Methods II**

**2**  
\* Prerequisite(s): MUSC 2110, MUSC 3410, and University Advanced Standing

Teaches the sequence, tools, materials, and philosophy of teaching musical concepts to children in grades 4-6. Develops skill on classroom instruments.

**MUSC 3412**  
**Music Career Development**

**3**  
\* Prerequisite(s): MUSC 2110 and University Advanced Standing

Examines entrepreneurial skills required for success in the music industry. Covers the music businesses and the current trends within the industry. Develops assets for student success including EPK, Bio, website and resume's/CV's. Explores the development of funding sources for music projects and basic music accounting practices. Covers sync fees, performance rights organizations (PRO), and other royalties. Encourages students to explore and develop multiple streams of income. Lab access fee of \$17 for computers applies.

**MUSC 3415**  
**Instrumental Pedagogy and Literature I**

**2**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): MUSC 2110 or department audition

Provides students the opportunity to study the pedagogy and literature of their major instrument. Examines various pedagogical approaches and incorporates in-class teaching demonstrations. Includes the selection of appropriate solo and chamber literature for beginning and intermediate levels.

**MUSC 3416**  
**Instrumental Pedagogy and Literature II**

**2**  
\* Prerequisite(s): MUSC 3415 and University Advanced Standing

Provides students the opportunity to study the pedagogy and literature of their major instrument. Examines various pedagogical approaches and incorporates in-class teaching demonstrations. Includes the selection of appropriate solo and chamber literature for advanced levels.

## Course Descriptions

### **MUSC 3450**

#### **Music History and Literature I WE**

**3**

\* Prerequisite(s): MUSC 2125 and University Advanced Standing

Covers the history of European music from ancient times to the Classic era. Surveys periods, genres, composers, works, performance practice, and sources. Emphasizes musical meaning, style, and interpretation.

### **MUSC 3451**

#### **Music History and Literature II WE**

**3**

\* Prerequisite(s): MUSC 3450 and University Advanced Standing

Covers the history of European-sphere music from the Classic era to the present. Surveys periods, genres, composers, works, performance practice and sources. Emphasizes musical meaning, style and interpretation.

### **MUSC 349G**

#### **Global Musical Styles and Ideas**

**3**

\* Prerequisite(s): MUSC 1110 and University Advanced Standing

Investigates musical traditions of the world; equips students with requisite skills for understanding and analyzing music as an art in historical and cultural contexts using an integrative approach that includes selected styles and genres, critical reading and writing skills, and mastery of conceptual issues related to the universality and interconnectedness of music.

### **MUSC 360R**

#### **Commercial Music Private Lessons**

**1**

\* Prerequisite(s): Admittance into Music Technology Certificate of Proficiency or MUSC 250R and University Advanced Standing for bachelor's students

Offers twelve 30-minute private lessons. Focuses on the individual needs of the student, developing skills and techniques in the commercial industry including production, songwriting, arranging, and improvisation. May be repeated as desired. Course fee of \$270 for private instruction applies.

### **MUSC 3620**

#### **Percussion Techniques I**

**1**

\* Prerequisite(s) or Corequisite(s): MUSC 2110

Prepares music education majors in the pedagogy and methods of percussion instruments for beginning players.

### **MUSC 3621**

#### **Percussion Techniques II**

**1**

\* Prerequisite(s): MUSC 3620 and University Advanced Standing

Prepares music education majors in the pedagogy and methods of percussion instruments for intermediate players in secondary school programs.

### **MUSC 3630**

#### **Vocal Techniques**

**1**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MUSC 2110

Provides an introduction to vocal pedagogy and basic choral concepts for music education majors. Focuses on principles of healthy vocal production. Covers vocal anatomy, breath energy, phonation, resonance, articulation, registration, warm-ups, basic diction, ensemble singing, and working with adolescent voices. Involves solo and ensemble singing, rehearsal conducting, and private teacher observations.

### **MUSC 3649**

#### **String Techniques I**

**1**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MUSC 2110

Studies the pedagogical process of a beginning and intermediate string class. Covers strategies for the recruitment and organization of an orchestra program. Discusses the selection and maintenance of string instruments, accessories and supplies.

### **MUSC 3650**

#### **String Techniques II**

**1**

### **MUSC 3659**

#### **Woodwind Techniques I**

**1**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MUSC 2110

Teaches basic performing skills on the clarinet and saxophone including tone production, articulation, registers and fingerings. Studies pedagogical processes, methods and literature. Covers strategies for the recruitment and organization of a band program. Discusses instrument selection and maintenance, reeds and accessories.

### **MUSC 3660**

#### **Woodwind Techniques II**

**1**

\* Prerequisite(s): MUSC 3659 and University Advanced Standing

Provides performance instruction on the flute, oboe, and bassoon. Studies pedagogical processes and choices for method books and band literature. Covers the planning and execution of effective rehearsals. Discusses instrument selection and maintenance, reeds and accessories.

### **MUSC 3679**

#### **Brass Techniques I**

**1**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MUSC 2110

Teaches basic performing skills on the trumpet and French horn. Studies the assembly, mechanism, embouchure formation, tone, breath control, intonation and fingerings of each instrument. Discusses brand selection, accessories, equipment supplies and instrument care. Covers pedagogical processes, repertoire and method resources.

### **MUSC 3680**

#### **Brass Techniques II**

**1**

\* Prerequisite(s): MUSC 3679 and University Advanced Standing

Provides basic performance instruction on the trombone, euphonium and tuba. Studies the assembly, mechanism, embouchure formation, tone, breath control, intonation and fingerings of each instrument. Covers rehearsal strategies and literature selection. Discusses choices for instrument brands, accessories and supplies.

### **MUSC 3690**

#### **Jazz Techniques**

**1**

\* Prerequisite(s): Music major and University Advanced Standing

Provides a practical study of basic jazz performance, improvisation, transcription, styles, history and rehearsal techniques. Prepares students to teach jazz.

### **MUSC 370R**

#### **Symphony Orchestra**

**1**

\* Prerequisite(s): Audition

Provides opportunity to improve musical performance skills by participating in orchestra. Studies and performs serious concert literature from all periods of music history. Requires attendance at all concerts, rehearsals, tours and acquisition of performance attire. May be repeated as desired.

**MUSC 372R**  
**Chamber Orchestra**

**1**  
\* Prerequisite(s): Audition

Provides smaller orchestra experience. Improves individual and ensemble performance skills. Studies and performs serious concert literature from all periods of music history. Audition is required. May be repeated as desired.

**MUSC 373R**  
**Advanced Small Ensembles**

**1**  
\* Prerequisite(s): Instructor Approval

Provides opportunities for performing in small groups of select musicians. Studies music of various styles and periods. Some public performances will be required. May be repeated as desired.

**MUSC 379R**  
**Studio Recording Workshop**

**1**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): MUSC 1400

Provides hands-on opportunities in a recording studio. Examines the studio environment including: microphone types, polar patterns, stereo mic techniques, analog patchbay usage, microphone preamps and general studio procedures. Provides opportunities for students to record various student compositions and projects. Explores the Dante protocol and its usage in the studio. May be repeated for a maximum of 6 credits toward graduation. Lab access fee of \$73 for computers applies. Software fee of \$52 for computers applies.

**MUSC 3800**  
**Junior Recital**

**1**  
\* Prerequisite(s): University Advanced Standing  
\* Corequisite(s): MUSC 450R or MUSC 455R

Provides a solo recital experience for students during their junior year.

**MUSC 410R**  
**Music Composition**

**2**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): MUSC 2110

Builds on compositional techniques for music majors. Explores historical and contemporary techniques, repertoire, and concepts with an emphasis on creating and performing an original piece. Provides opportunities for students to explore their own creative process and demonstrate their knowledge through composition projects. May be repeated for a maximum of 8 credits toward graduation. Software fee of \$13 applies. Course Lab fee of \$17 for computers applies.

**MUSC 4130**  
**Scoring and Arranging**

**2**  
\* Prerequisite(s): MUSC 3120 and University Advanced Standing

Studies techniques of scoring and arranging music for orchestra, band, choir, and small ensembles. Software fee of \$13 applies. Course Lab fee of \$17 for computers applies.

**MUSC 4150**  
**Advanced Choral Conducting**

**2**  
\* Prerequisite(s): MUSC 2350 and University Advanced Standing

Develops advanced baton techniques, score preparation and basic rehearsal procedures for choral organizations. Explores advanced tools of coordination and musicianship, and covers communication and score analysis.

**MUSC 420R**  
**Film Scoring**

**2**  
\* Prerequisite(s): MUSC 410R and University Advanced Standing

Covers theoretical concepts, creative and collaborative methods, and practical experiences in the process of creating music for film and video. Includes elements of film score history, dramatic structure, collaboration, spotting, musical structure and form (including leitmotif and variation), timing, temp tracks, digital mockups and production demos, recording and mixing film music, copyright and contractual concerns, developing a portfolio of musical scoring work. Activities include lecture/discussion of theoretical principles, analysis of masterworks in the film music genre, and production of a student-scored film/video clip. May be repeated as desired. Software fee of \$52 applies. Course Lab fee of \$73 for computers applies.

**MUSC 4220**  
**Choral Literature and Methods**

**2**  
\* Prerequisite(s): MUSC 2350 and University Advanced Standing

Studies the process of developing a successful school choral program. Analyzes the quality of choral literature and its suitability for various skill levels. Studies effective rehearsal management strategies. Examines current resources and systems for choral program administration. Develops skills in singing, score analysis, conducting techniques, section leading, and microteaching.

**MUSC 4221**  
**Advanced Choral Literature and Methods**

**2**  
\* Prerequisite(s): MUSC 4220 and University Advanced Standing

Provides further examination of the processes involved in developing a successful school choral program. Studies the history and performance practices of stylistic periods of choral literature. Provides opportunities to plan and lead choral ensemble rehearsals. Includes preparations of materials for professional portfolios. Covers strategies for long-term professional development.

**MUSC 422R**  
**Commercial Music Performance Workshop**

**1**  
\* Prerequisite(s): University Advanced Standing  
\* Corequisite(s): MUSC 250R or MUSC 450R or MUSC 455R or MUSC 360R

Provides experience performing various styles of commercial music. Explores techniques required in the performance of contemporary styles. Addresses stage presence analysis and provides opportunities for students to explore various performance techniques. Discusses the control of performance anxiety. Practices the basic techniques of stage presentation, lighting, stage direction, and costuming. Develops advanced-level commercial performance proficiency. May be repeated for a maximum of 8 credits toward graduation.

**MUSC 423R**  
**Opera Workshop**

**1**  
\* Corequisite(s): MUSC 250R or MUSC 450R  
\* Prerequisite(s) or Corequisite(s): MUSC 455R

Provides experience performing scenes from opera. Explores the techniques of dramatic characterization and stage craft. Addresses the process of character analysis. Discusses the control of performance anxiety. Practices the basic techniques of stage makeup and costuming. Develops advanced-level singing proficiency. May be repeated for a maximum of 12 credits toward graduation. Course Lab fee of \$100 for support applies.

**MUSC 4240**  
**Vocal Pedagogy**

**2**  
\* Prerequisite(s): MUSC 2002 and University Advanced Standing

Provides instruction centered on the art and science of vocalization as it pertains to teaching in a studio scenario and in personal study. Presents varied teaching methods for vocal instruction in group and one-to-one situations. Provides students the opportunity to teach and receive immediate peer and instructor evaluations on the efficacy of their teaching style and lesson content.

# Course Descriptions

## **MUSC 4340**

### **Marching Band Techniques**

**1**

\* Prerequisite(s): University Advanced Standing

Teaches organization and training of marching bands in public schools. Emphasizes precision marching and traditional formation techniques. Covers elements of instrumentation, charting, drill techniques and parade marching. Software fee of \$13 applies Course Lab fee of \$17 for computers applies.

## **MUSC 4360**

### **Instrumental Literature and Methods**

**2**

\* Prerequisite(s): MUSC 2350 and University Advanced Standing

Studies literature, methodology, and administration of a junior high school instrumental music program.

## **MUSC 4370**

### **Advanced Instrumental Literature and Methods**

**2**

\* Prerequisite(s): MUSC 2350, MUSC 4360, and University Advanced Standing

Studies literature, methodology, and administration of a high school instrumental music program.

## **MUSC 450R**

### **Advanced Private Lessons for Music Majors**

**1**

\* Prerequisite(s): Sophomore Review required and University Advanced Standing

\* Corequisite(s): MUSC 451R

Offers twelve 60-minute private lessons for music majors. Focuses on the individual needs of the student in developing advanced skills and techniques. Requires participation in weekly performance class. Includes juried evaluations. May be repeated as desired. Course fee of \$443 for support applies.

## **MUSC 451R**

### **Performance Class**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): MUSC 450R or MUSC 455R

Provides advanced performance experience for music majors. Develops an ability to offer and receive constructive criticism. Explores performance-related topics such as practice strategies, performance anxiety, interpretive phrasing, technical mastery, memorization and jury preparation. May be repeated for a maximum of 12 credits toward graduation.

## **MUSC 455R**

### **Private Lessons for Music Performance**

**Majors**

**2**

\* Prerequisite(s): BM in Performance major, Sophomore Review, and University Advanced Standing

\* Corequisite(s): MUSC 451R

Offers twelve 60-minute private lessons for music performance majors. Focuses on the individual needs of the student in developing advanced skills and techniques. Requires participation in weekly performance class. Includes recital preparation and juried evaluations. May be repeated as desired. Course fee of \$443 for recital preparation applies.

## **MUSC 470R**

### **Studio Arranging and Producing**

**3**

\* Prerequisite(s): MUSC 2400, MUSC 3120, and University Advanced Standing

Covers theoretical concepts of composing, arranging, production, and rough mixing in the recording/production studio in various styles and applications. Incorporates practical experience in a working professional studio. Provides in-depth access and exposure to professional-level sample libraries and sequencing techniques. Applies principles of orchestration, both traditional and contemporary, in the classroom and studio environment. Emphasizes communication skills with recording artists, musicians and engineers. Covers logistical protocols for scheduling, booking of studios and musicians, studio demeanor and ethics, and working with clients. May be repeated for a maximum of 12 credits towards graduation. Software fee of \$52 applies. Lab access fee of \$73 for computers applies.

## **MUSC 4780**

### **Pre-Service Student Teaching**

**2**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MUSC 4221, MUSC 4360, or MUSC 4370

Provides placement in a secondary public school setting in one weekly class or ensemble in preparation for the final student teaching experience. Requires score preparation, assistance with sectionals, teaching music literacy concepts and mini lessons, and other work as assigned by the supervisor and cooperating teacher. Includes peer observations in various school settings. Provides formal observations by content faculty.

## **MUSC 4785**

### **Student Teaching Seminar**

**2**

\* Prerequisite(s): University Advanced Standing

Provides support for the student teaching experience. Includes classroom management, ongoing content mentorship, supervision of conducting and score preparation, faculty and peer feedback, and assistance with senior portfolio. Requires written assignments and off-campus peer observations.

## **MUSC 4800**

### **Senior Recital**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): MUSC 450R or MUSC 455R

Provides a solo recital experience for students during their senior year. Prepares students for a professional music career including preparation of a comprehensive portfolio.

## **MUSC 481R**

### **Internship in Music II**

**1 to 8**

\* Prerequisite(s): Departmental Approval and University Advanced Standing

Provides an opportunity for upper-division students to receive college credit and work in a music-related field. Offers students the opportunity to focus on a specific career path and prepare themselves to enter the profession. Applies academic concepts to actual work experiences. Requires approval of faculty sponsor and completion and acceptance of application. Also requires completion of an orientation, completion of Master Agreement between UVU and employer, completion of goals and tasks as required by academic department, and completion of final evaluation. May be repeated for a total of 8 credits towards graduation. May be graded credit/no credit.

## **MUSC 490R**

### **Advanced Independent Study**

**1 to 3**

\* Prerequisite(s): MUSC 3120 and University Advanced Standing

Individual projects to be negotiated by student and instructor on a case-by-case basis. May be repeated for a maximum of 12 credits toward graduation.

**MUSC 492R****Advanced Topics in Music****1 to 3**

\* Prerequisite(s): University Advanced Standing

Provides a senior-level assessment of student competency in preparation for entering the commercial music industry. Investigates topics that may include but are not limited to advanced mixing techniques, advanced midi orchestration and composition, advanced composition in unfamiliar styles, in depth study of various types of synthesis, advanced studio production/recording techniques, and advanced marketing and business creation practices. Software fee of \$52 applies. Lab access fee of \$73 for computers applies.

## National Security Studies (NSS)

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**NSS 2010****Introduction to National Security WE****3**

\* Prerequisite(s): ENGL 2010; HIST 1700 or HIST 2700 or POLS 1100 or CJ 1010

Categorizes elements of the national security field. Explores the national security system, focusing on contemporary issues. Analyzes formulation and execution of national security policy through diplomacy, intelligence operations, and military force.

**NSS 301R****National Security Area Studies****3**

\* Prerequisite(s): University Advanced Standing; POLS 1100, HIST 1700, or HIST 2700, or CJ 1010

Examines the national security issues associated with a particular geographic area in the global community. May be repeated for a maximum of 9 credits toward graduation.

**NSS 3050****US Intelligence Community****3**

\* Prerequisite(s): University Advanced Standing

Examines the US Intelligence Community (IC) and its core responsibilities and processes. Assesses the IC's two-fold role to support policy makers and operations, the customer-driven intelligence production cycle, how national foreign intelligence requirements are generated and prioritized, what activities are authorized and which activities are prohibited, intelligence oversight by Congress, and privacy concerns. Evaluates the missions, roles, responsibilities, and authorities of the (IC) constituent agencies and assess the IC's intelligence collection disciplines.

**NSS 3350****The Cold War--Culture and Politics****3**

\* Prerequisite(s): University Advanced Standing

Examines the confrontational environment of the Cold War that influenced geopolitics for nearly five decades. Explores the Cold War as a global process – its politics, history and cultural impact, facilitated by the confrontation between capitalism and communism. Investigates the origins of the conflict, the formation of opposing blocs, and the relationship between the center and the global periphery of the conflict.

**NSS 3750****Advanced Technologies in National Security****3**

\* Prerequisite(s): NSS 2010 and University Advanced Standing

Introduces students to a variety of emerging technologies which have the potential to cause major both geopolitical and socioeconomic disruptions. Covers a wide range of technologies, including artificial intelligence, hypersonic and space technologies, robotics/autonomous systems, artificial intelligence, biotechnologies, quantum information sciences, blockchain, and cybersecurity. Examines these technologies and analyzes their potential impacts on national security.

**NSS 3850****Ethics and Intelligence****3**

\* Prerequisite(s): NSS 2010 and University Advanced Standing

Focuses on the ethical challenges that face individuals and agencies within the United States Intelligence Community. Examines specific ethical issues associated with the collection, retention, and dissemination of intelligence. Analyzes the delicate balance between protecting national security and civil liberties. Uses case study analysis to identify and solve individual and organizational ethical dilemmas at both the national and international levels.

**NSS 4150****Cybersecurity Policy****3**

\* Prerequisite(s): NSS 2010 and University Advanced Standing

Examines the current cyber threat landscape. Educates students on the history and national security implications of cybersecurity and cyberwarfare. Analyzes cyberwarfare capabilities and current operations of several nation-state actors. Provides the knowledge and skills necessary to operate on the strategic policy level in the cyber world by challenging them to analyze and address real world scenarios. Develops the skillset to prepare, present, and defend strategic policy recommendations. Applies cyber knowledge and skillset across government, private sector, and academic settings.

**NSS 4210****Law of War WE****3**

\* Prerequisite(s): (POLS 1100, HIST 1700, HIST 2700, or CJ 1010) and University Advanced Standing

Examines the law that governs situations of armed conflict, including the history and development of the law. Assesses major contemporary issues in this area of the law, to include detention policy, drone warfare, terrorism as a tactic of war, and preemptive force.

**NSS 4250****National Security Career Strategies****3**

\* Prerequisite(s): NSS 2010; University Advanced Standing

Emphasizes the development of effective techniques for successfully locating, applying for and securing employment as well as advancing in a National Security-related career path. Includes industry and job research, demonstration, role play, development of writing materials, and application exercises. Provides preparation for internship and career entry experience.

**NSS 4300****Intelligence Cycle and Collections****3**

\* Prerequisite(s): NSS 2010, NSS 3050, and University Advanced Standing

Describes the intelligence collection and production cycle. Evaluates the nature, organization, activities, and key issues surrounding the methods of intelligence and counterintelligence collection. Examines historical development and utilizations of the dominant collection activities, including human intelligence, geospatial intelligence, signals intelligence, measurement and signature intelligence, and their role in American statecraft. Explores significant policy issues related to intelligence collection in the U.S. experience, including legal, moral, ethical, organizational, strategic, and performance issues, and measures of effectiveness. Applies specific skills in writing and open source intelligence collection.

**NSS 4400****Statecraft and Strategy****3**

\* Prerequisite(s): NSS 2010

Analyzes the theory, history, practice, and challenges of statecraft and strategy in U.S. national security. Examines the various methods of statecraft that are available to policymakers. Evaluates how these methods have been used successfully in the pursuit of national interests and purposes. Assesses instruments of national power, including military power; economic strategy; intelligence; the use of information, disinformation, and propaganda; various types of diplomacy, political, moral, and psychological influence; and other instruments of soft power.

## Course Descriptions

### **NSS 4600** **National Security Law**

**3**  
\* Prerequisite(s): University Advanced Standing; POLS 1100, HIST 1700, HIST 2700, or CJ 1010

Evaluates the distribution of national security powers amongst the three branches of government. Reviews the laws and policies that govern the legality of war, military operations in wartime, intelligence collection, protection of national security information, foreign intelligence surveillance, covert action, special military operations, offensive counterterrorism operations, detention and interrogation of terrorism suspects, and other current issues in the national security area.

### **NSS 475R** **Current Topics in National Security**

**3**  
\* Prerequisite(s): University Advanced Standing; POLS 1100, HIST 1700, HIST 2700, or CJ 1010

Presents selected topics in National Security and will vary each semester. Requires a special project related to the area of study. May be repeated with different topic areas for a maximum of 9 credits toward graduation.

### **NSS 4800** **Intelligence Analysis and Tradecraft**

**3**  
\* Prerequisite(s): University Advanced Standing

Appraises structured analytic techniques commonly embraced as sound tradecraft within the Intelligence Community (IC) and applies these techniques in the context of actual intelligence cases. Applies the structured analytic techniques of decomposition and visualization, idea generation, scenarios and indicators, hypothesis generation and testing, assessment of cause and effect, challenge analysis, and decision support. Evaluates IC analytic standards and discuss ethical considerations.

### **NSS 481R** **National Security Internship**

**1 to 9**  
\* Prerequisite(s): University Advanced Standing

Provides academic credit for work for students in a paying or non-paying (volunteer) job for a national security employer or other approved related situation. Emphasizes successful work experience with emphasis on identifying and solving problems. May be repeated for a maximum of 9 credits toward graduation. May be graded credit/no credit.

### **NSS 491R** **Directed Readings and Special Projects in National Security**

**1 to 3**  
\* Prerequisite(s): University Advanced Standing

Offers independent study as directed in reading, individual projects, etc., at the discretion and approval of the department chair. May be repeated for a maximum of 9 credits.

### **NSS 4990** **National Security Capstone Seminar**

**3**  
\* Prerequisite(s): NSS 2010, NSS 301R, NSS 4600, NSS 475R, and University Advanced Standing

Includes readings and discussions about a variety of complex national security problems and issues. Offers directed research project tailored to each student's special interests.

### **NSS 6500** **US National Security Policy and Strategy**

**3**  
\* Prerequisite(s): Acceptance into the Masters of Public Services Program or department approval

Examines how the United States formulates national security policy and strategy. Analyzes conceptual foundations, organizational structures and functions, decision-making processes, and priority issues in US national security. Assesses the role and authorities of the President and Executive Branch, congressional oversight, national security policy development and implementation, the implementation and limits of national power, the role of intelligence, the relevant legal frameworks, and specific national security challenges.

### **NSS 6600** **State Responses to Terrorism-Counterterrorism in a Collaborative Environment**

**3**  
\* Prerequisite(s): Acceptance into the Masters of Public Services Program

Outlines how federal, state, and local law enforcement have developed a standardized information sharing process in an effort to mitigate terror attacks. Analyzes state fusion centers, intelligence-led policing, community engagement, and multi-agency emergency response plans. Utilizes practical lecture, table top exercise, and case studies, to demonstrate how states act independently to prevent, thwart, and mitigate acts of terror stemming from domestic terrorists, transnational terrorist organizations, and inspired lone offenders.

### **NSS 6700** **Intelligence Analysis and Tradecraft**

**3**  
\* Prerequisite(s): Acceptance into the Masters of Public Services Program.

Appraises structured analytic techniques commonly embraced as sound tradecraft within the Intelligence Community (IC) and applies these techniques in the context of actual intelligence cases. Applies the structured analytic techniques of decomposition and visualization, idea generation, scenarios and indicators, hypothesis generation and testing, assessment of cause and effect, challenge analysis, and decision support. Evaluates IC analytic standards and discuss ethical considerations.

### **NSS 6800** **U.S. Military-Strategy and Structure**

**3**  
\* Prerequisite(s): Acceptance into the Masters of Public Services Program

Examines the U.S. Military services, commands, and agencies, and its core responsibilities and processes. Assesses the historical roles that the U.S. Military has played in American national security policy. Evaluates the United States' military strategy. Evaluates the relationship between strategy and structure in current U.S. military doctrine and policy.

## **Nursing (NURS)**

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### **NURS 2210** **Practical Nurse to Registered Nurse**

**1**  
\* Prerequisite(s): Licensure as a Practical Nurse; acceptance into ASN in Nursing program.

Introduces the role of the registered nurse in providing patient-centered, safe, and quality care for adults in health care settings. Emphasizes the use of assessment to plan patient care and evaluate patient outcomes. Includes the functions of the registered nurse in the interprofessional healthcare team.

### **NURS 2300** **Nursing Health Assessment**

**2**  
\* Prerequisite(s): Acceptance into ASN/BS Nursing program  
\* Corequisite(s): NURS 2305  
\* Prerequisite(s) or Corequisite(s): NURS 2320

Introduces the health history interview and physical assessment for patients across the lifespan. Uses a holistic approach in identifying health care needs of the patient within the context of standards of nursing practice.

**NURS 2305  
Nursing Health Assessment Laboratory**

- 1**  
 \* Prerequisite(s): Acceptance into ASN/BS Nursing program  
 \* Corequisite(s): NURS 2300  
 \* Prerequisite(s) or Corequisite(s): NURS 2320

Integrates knowledge, behaviors and skills from current and previous courses in lab and simulation settings. Provides opportunities to perform health assessments. Prepares students to enter the clinical setting. Course Lab fee of \$22 applies.

**NURS 2310  
Nursing Pharmacology**

- 3**  
 \* Prerequisite(s): CHEM 1110, ZOOL 2320 and Acceptance into ASN/BS Nursing program  
 \* Prerequisite(s) or Corequisite(s): ZOOL 2420

Examines general principles of drug therapies, including medication administration, pharmacotherapeutics, and dosage calculations. Focuses on major drug categories and prototypes in each category. Serves as a basis for understanding drug therapy as an important part of health care.

**NURS 2320  
Fundamentals of Nursing Care**

- 2**  
 \* Prerequisite(s): Acceptance into ASN/BS Nursing program  
 \* Corequisite(s): NURS 2325  
 \* Prerequisite(s) or Corequisite(s): NURS 2300

Promotes safe patient care for individuals across the lifespan. Emphasizes nursing interventions based on an individualized patient assessment to promote quality care and risk reduction. Course fee of \$75 for online assessment & review tools applies.

**NURS 2325  
Nursing Practice Simulation and Skills Lab**

- I**  
**2**  
 \* Prerequisite(s): Acceptance into ASN/BS Nursing program  
 \* Corequisite(s): NURS 2320  
 \* Prerequisite(s) or Corequisite(s): NURS 2300

Provides opportunity to practice safe patient care for patients across the lifespan. Integrates knowledge, behaviors and skills from current and previous courses in lab, simulation and clinical settings. Prepares students to engage in the clinical setting and provide basic nursing care. Course Lab fee of \$169 applies.

**NURS 2410  
Nursing Care of Adults with Common Health Needs**

- 3**  
 \* Prerequisite(s): NURS 2320  
 \* Corequisite(s): NURS 2415  
 \* Prerequisite(s) or Corequisite(s): NURS 2420

Incorporates theories of nursing care for adult patients with common health needs and builds upon concepts learned in current and previous courses. Emphasizes pharmacotherapeutics, clinical judgment, and health assessment, promotion, and teaching in caring for patients with common health needs. Integrates standards of nursing practice in caring for patients and their support systems. Course fee of \$75 for online assessment & review tools applies.

**NURS 2415  
Nursing Care of Adults with Common Health Needs Clinical**

- 2**  
 Provides clinical opportunities to care for adult patients with common physiological problems in healthcare settings. Incorporates pharmacotherapeutics, clinical judgment, and health assessment, promotion, and teaching in management of patients with common health needs. Integrates standards of nursing practice in delivery of care to patients and their support systems.

**NURS 2420  
Nursing Care of the Aging Population**

- 2**  
 \* Prerequisite(s): NURS 2300, NURS 2310  
 \* Corequisite(s): NURS 2410  
 Introduces the aging process and changes with aging. Identifies special needs of older adults and nursing interventions to meet those needs. Prepares students to meet the needs of the increasing elderly population including caring for patients with chronic illnesses and end-of-life concerns. Includes a service learning component requiring visits to a community setting with active seniors.

**NURS 2430  
Mental Health Nursing**

- 2**  
 \* Prerequisite(s): NURS 2300, NURS 2310  
 \* Corequisite(s): NURS 2435  
 Examines psychosocial and neurobiological aspects of disorders of cognition, mood and behavior. Explores trends in nursing and interprofessional care of persons with psychiatric disorders. Integrates standards of nursing practice in the care for patients with mental health needs and their support systems.

**NURS 2435  
Mental Health Nursing Clinical**

- 1**  
 \* Prerequisite(s): NURS 2300, NURS 2310, NURS 2320  
 \* Corequisite(s): NURS 2430

Provides clinical opportunities to care for patients with mental health needs. Integrates standards of nursing practice in delivery of care to patients and their support systems with an emphasis on mental health care.

**NURS 2445  
Nursing Practice Simulation and Skills Lab**

- II**  
**1**  
 \* Prerequisite(s): NURS 2305 and NURS 2325  
 \* Corequisite(s): NURS 2410

Integrates nursing knowledge, behaviors, and skills from current and previous courses in lab and simulation settings. Prepares students for care of patients with common health needs, mental health needs, and conditions related to aging. Course Lab fee of \$169 applies.

**NURS 3330  
Nursing Care of Individuals with Complex Health Needs**

- 2**  
 \* Prerequisite(s): NURS 2410 and University Advanced Standing  
 \* Corequisite(s): NURS 3335  
 \* Prerequisite(s) or Corequisite(s): ZOOL 4400 highly recommended

Incorporates concepts learned in current and previous courses into principles of nursing care for patients with complex health needs. Emphasizes pathophysiology, pharmacotherapeutics, monitoring, and interventions required in caring for patients in acute and unstable conditions. Integrates standards of nursing practice in caring for patients and their support systems. Course fee of \$75 for online assessment & review tools applies.

**NURS 3335  
Nursing Care of Individuals with Complex Health Needs Clinical**

- 2**  
 \* Prerequisite(s): NURS 2410 and University Advanced Standing  
 \* Corequisite(s): NURS 3330  
 \* Prerequisite(s) or Corequisite(s): ZOOL 4400 highly recommended

Provides clinical opportunities to care for patients with complex health needs. Incorporates pathophysiology, pharmacotherapeutics, monitoring, and interventions required in management of patients in acute and unstable conditions. Integrates standards of nursing practice in delivery of care to patients and their support systems.

## Course Descriptions

### **NURS 3340** **Nursing Care of Women Children and Developing Families**

**3**

\* Prerequisite(s): NURS 2410 and University Advanced Standing

\* Corequisite(s): NURS 3345

Explores application of the nursing process to address health issues of women, children and developing families. Emphasizes safety and quality of nursing care.

### **NURS 3345** **Nursing Care of Women Children and Developing Families Clinical**

**1**

\* Prerequisite(s): NURS 2415 and University Advanced Standing

\* Corequisite(s): NURS 3340

Provides clinical and/or laboratory opportunities to apply the nursing process to address health issues of women, children and developing families.

### **NURS 3355** **Nursing Practice Simulation and Skills Lab III**

**1**

\* Prerequisite(s): NURS 2445 and University Advanced Standing

\* Corequisite(s): NURS 3330

Integrates nursing knowledge, behaviors, and skills from current and previous courses in lab and simulation settings. Prepares students to care for women, children, developing families, and individuals with complex and critical conditions. Course lab fee of \$169 applies.

### **NURS 3365** **LPN Simulation/Skills Lab and Clinical Experience**

**5**

\* Prerequisite(s): Department approved PN graduate transfer students and University Advanced Standing

\* Corequisite(s): NURS 3330 and NURS 2210

Prepares students to care for individuals with common, complex, and critical health care needs across the lifespan. Integrates nursing knowledge, behaviors, and skills from previous PN education. Incorporates pharmacotherapeutics, clinical judgment, and health assessment, promotion, and teaching in management of patients. Applies standards of nursing practice in delivery of care to patients across the lifespan and their support systems.

### **NURS 3400** **Patient Care Coordination and Management**

**1**

\* Prerequisite(s): NURS 3330, NURS 3335, and University Advanced Standing

\* Corequisite(s): NURS 3405

Focuses on the core roles of the nurse as a provider of care, manager of care, and member of the profession. Incorporates aspects of evidence-based nursing practice. Explores the scope of nursing practice related to national and local healthcare regulations. Course fee of \$75 for online assessment & review tools applies.

### **NURS 3405** **Patient Care Coordination and Management Preceptorship**

**2**

\* Prerequisite(s): NURS 3330, NURS 3335, and University Advanced Standing

\* Corequisite(s): NURS 3400

Provides clinical experiences in coordinating and managing the care of a small group of patients. Focuses on the core roles of the nurse as a provider of care, manager of care, and member of the profession. Incorporates aspects of delegation, prioritization, time management, communication, and group dynamics.

### **NURS 3420** **Mentoring in Nursing**

**1**

\* Prerequisite(s): NURS 2320 and University Advanced Standing

Provides an opportunity for students to develop personal leadership and mentoring skills as they work with other nursing students and/or patients.

### **NURS 3440** **Pharmacology for the Practicing Nurse**

**2**

\* Prerequisite(s): NURS 3330 and University Advanced Standing

\* Corequisite(s): NURS 3400

Emphasizes clinical judgement, patient teaching, and evaluation of patient outcomes. Explores in depth the pharmacodynamics, pharmacokinetics, and pharmacotherapeutics of medications and complementary and integrative health therapies.

### **NURS 3445** **Nursing Practice Simulation and Skills Lab IV**

**1**

\* Prerequisite(s): NURS 3355 and University Advanced Standing

Integrates nursing knowledge, behavior, and skills from current and previous courses in lab and simulation settings. Prepares students for entry-level practice as a registered nurse. Course Lab fee of \$169 applies.

### **NURS 4120** **Rapid Response Concepts Across the Lifespan**

**1**

\* Prerequisite(s): (NURS 3330 and NURS 3340) or (RESP 2320 and RESP 2165) and University Advanced Standing

Prepares health care professionals to respond to, stabilize and transport adult and pediatric patients experiencing life threatening emergencies in hospital and prehospital settings. Enhances skills in the diagnosis and treatment of patients requiring care by a rapid response team, through active participation in simulated cases. Course Lab fee of \$95 applies.

### **NURS 4130** **Critical Care in Nursing**

**2**

\* Prerequisite(s): NURS 3330 and University Advanced Standing

Expands upon nursing care of individuals with complex disorders. Focuses on nursing in the critical care setting and includes specialized topics such as: nursing assessment, equipment, diagnostic tests, medication administration, ECG monitoring and standard nursing care of the client with an acute illness.

### **NURS 4210** **Concepts in Child Bearing**

**2**

\* Prerequisite(s): NURS 3340 and University Advanced Standing

Introduces the student to special concepts related to the child bearing family, including legal and ethical questions that relate to childbearing. Discusses local and global issues in childbearing.

### **NURS 4220** **Pediatric Acute Care Nursing**

**2**

\* Prerequisite(s): NURS 3340 and University Advanced Standing

Applies the nursing process to provide family centered nursing care to hospitalized children from birth through adolescence. Explores and examines sociocultural, economic, developmental, emotional and physiologic factors which influence ill newborns or children and their families.

### **NURS 4230** **Palliative Care in Nursing**

**3**

\* Prerequisite(s): NURS 2410 and University Advanced Standing

Describes the principles of palliative care nursing throughout the illness trajectory. Explores personal emotions, beliefs and values in understanding the nature of suffering. Examines basic principles of palliative care within a quality of life framework.

**NURS 4240**  
**Promoting Active Senior Lifestyles**

**2**  
\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): NURS 2410, NURS 2415, and NURS 2420

Explores the importance of an active lifestyle throughout the lifespan. Includes service learning experiences in health screening, health promotion teaching, and observation of active senior adults. May require overnight travel.

**NURS 4300**  
**Nursing Theory**

**2**  
\* Prerequisite(s): NURS 2410 and University Advanced Standing

Examines various nursing models and theories which influence current nursing practice. Explores essential and interdependent relationships among knowledge, theory, research, and nursing practice. Assists students to conduct a basic assessment of a theory and gain insight into the development of their individual philosophies of nursing practice.

**NURS 4320**  
**Nursing in the Community**

**2**  
\* Prerequisite(s): NURS 3405 and University Advanced Standing

\* Corequisite(s): NURS 4325

Explores professional nursing practice in community-based and community-focused settings to promote and preserve the health of populations. Emphasizes nursing's impact on behaviors that promote health and reduce risk. Includes principles of family and community assessments, epidemiology, and environmental health.

**NURS 4325**  
**Nursing in the Community Clinical**

**1**  
\* Prerequisite(s): NURS 3405 and University Advanced Standing

\* Corequisite(s): NURS 4320

Applies professional nursing practice in community-based and community-focused settings to promote and preserve the health of populations. Utilizes family and community assessments, epidemiological and environmental health principles to plan and implement health promotion and risk reduction programs within the community.

**NURS 4340**  
**Genomics in Nursing and Health**

**2**  
\* Prerequisite(s): NURS 3330 and University Advanced Standing

Explores the expanding science of genomics and related fields, with emphasis on implications for nursing practice. Examines current and developing genetic and genomic concepts and technologies as they relate to nursing practice and health.

**NURS 441G**  
**Nursing in Global Perspective**

**3**  
\* Prerequisite(s): NURS 2300 and University Advanced Standing

Explores nursing and health care issues in a global perspective to promote culturally competent health care in a diversifying population.

**NURS 4500**  
**Nursing Leadership**

**3**  
\* Prerequisite(s): NURS 3405 and University Advanced Standing

Explores leadership concepts and assists students to develop knowledge and skills necessary for leadership in nursing care delivery. Discusses leadership concepts related to nursing roles as providers of care, managers of care and members of the profession.

**NURS 4510**  
**Clinical Assessment and Reasoning**

**2**  
\* Prerequisite(s): NURS 3405 and University Advanced Standing

Develops skills of systematic history taking, clinical examination and clinical reasoning with a focus on people with complex health problems. Explores critical thinking skills and habits as well as nursing process and other clinical judgment models.

**NURS 4520**  
**Navigating Health Systems**

**3**  
\* Prerequisite(s): NURS 3405 and University Advanced Standing

Examines health systems, including the relationships between delivery, access, utilization and patient outcomes. Explores how organizational and economic structures, political, sociocultural, and legal factors influence the design and functions of health services.

**NURS 4540**  
**Research and Theory in Nursing Practice**

**WE**  
**4**  
\* Prerequisite(s): NURS 3405, completion of a university-level statistics course with a minimum C or higher and University Advanced Standing

Prepares nurses to find, evaluate and apply evidence as a foundation to propose creative, innovative, or evidence-based solutions to clinical practice problems. Explores selected nursing theories and conceptual models, fundamentals of the research process, and relationships between theory, practice and research.

**NURS 4550**  
**Quality and Safety in Nursing WE**

**3**  
\* Prerequisite(s): NURS 3405 and University Advanced Standing

Explores quality and safety initiatives in health care. Develops knowledge and skills to create and maintain a culture of quality and safety through monitoring and improving outcomes of care processes.

**NURS 481R**  
**Internship in Nursing**

**1 to 3**  
\* Prerequisite(s): Department Chair approval and University Advanced Standing

Provides supervised, practical, clinical experience for students preparing for careers in Nursing. May be repeated for a maximum of 3 credits toward graduation. May be graded credit/no credit.

**NURS 489R**  
**Undergraduate Research in Nursing**

**1 to 4**  
\* Prerequisite(s): NURS 2410, Department approval, and University Advanced Standing

Provides nursing students the opportunity to conduct research mentored by a faculty member. Requires the creation of a significant intellectual or creative product worthy of publication or presentation. May be repeated for a maximum of 4 credits toward graduation.

**NURS 490R**  
**Special Topics in Nursing**

**1 to 4**  
\* Prerequisite(s): NURS 2410 and University Advanced Standing

Explores special topics of current relevance to nursing in an in-depth manner. May be repeated for a maximum of 4 credits toward graduation.

**NURS 495R**  
**Independent Study in Nursing**

**1 to 3**  
\* Prerequisite(s): NURS 2410, Departmental approval, and University Advanced Standing

Provides students an opportunity to pursue independent study in nursing with a faculty mentor. Includes any combination of literature reviews, original research, participation in departmental and independent projects. Requires preparation and presentation of oral and/or written reports. May be repeated for up to 3 credits toward graduation.

# Course Descriptions

## **NURS 6000 Leadership Development**

**2**  
\* Prerequisite(s): Admission into the Master of Science in Nursing (MSN) program or Department approval

Provides opportunities for students to examine the role of the graduate nurse leader within the evolving healthcare system. Explores requisite skills necessary to lead in complex environments, facilitate improved patient outcomes, and institute quality improvement strategies as they gain an understanding of the interconnectedness of academia and practice settings and apply leadership concepts in an interprofessional context.

## **NURS 6050 Nursing Informatics**

**2**  
\* Prerequisite(s): Admission into the MSN program or Department approval.

Introduces nursing informatics theory, evolving practice applications, and skill development. Discusses human factors essential to effective application of nursing informatics in practice. Applies technical skills and processes for the integration of nursing informatics into nursing education and clinical practice settings.

## **NURS 6200 Advanced Nursing Theory**

**2**  
\* Prerequisite(s): Admission into the MSN program or Department approval

Provides students opportunities to critique and deconstruct extant and emerging theories as they relate to nursing. Explores the relationships among theory, knowledge, science, and evidence-based nursing practice. Facilitates the advancement of nursing practice based on theoretical principles.

## **NURS 6250 Advanced Nursing Research**

**3**  
\* Prerequisite(s): Admission into the MSN program or Department approval

Prepares students to explore, critique, synthesize, and utilize appropriate research findings to resolve nursing problems and improve outcomes. Incorporates various research designs in the development of nursing practice. Applies research methodology and ethical considerations in development of a research proposal for evidence-based practice.

## **NURS 6300 Advanced Nursing in Health Systems and Policy**

**2**  
\* Prerequisite(s): Admission into the MSN program or Department approval

Prepares students for their developing role as change agents within the workforce. Provides students opportunity to explore current health care policies, including the effects policies have on social determinants of health, current health care systems and nursing practice. Identifies ways to influence change and advance nursing and health care in the future.

## **NURS 6350 Patho/Pharmacology for the Nurse Educator**

**3**  
\* Prerequisite(s): Admission into the MSN program or Department approval

Focuses on pathophysiological and pharmacological processes across the lifespan and the development of clinical reasoning skills that distinguish the relationships between normal physiology and the specific system alterations produced by injury and disease. Gives particular attention to etiology, pathogenesis, developmental and environmental influences and the clinical manifestations of major health problems with pharmacologic interventions to students enrolled in the nursing education program.

## **NURS 6450 Health Assessment for the Nurse Educator**

**3**  
\* Prerequisite(s): Admission to the MSN program or departmental approval.

Applies concepts of health assessment for individuals, families, and communities. Develops strategies for teaching assessment skills. Uses diagnostic reasoning as the primary means of collecting and analyzing data. Incorporates ethical and cultural factors in comprehensive health assessments.

## **NURS 6500 Curriculum Design and Development**

**3**  
\* Prerequisite(s): Admission to the MSN Program or Department approval

Explores curriculum design and development in nursing and incorporates reviewing, restructuring, and developing curricula to meet identified learning needs. Enhances student skill and understanding of curricular processes designed to foster and advance nursing education.

## **NURS 6600 Teaching Nursing in the Classroom Setting**

**2**  
\* Corequisite(s): NURS 6605

Focuses on facilitating learning in classroom settings. Incorporates aspects of the philosophy of adult education and adult learning theory, the teaching process and self-evaluation.

## **NURS 6605 Teaching Nursing in the Classroom Setting Practicum**

**2**  
\* Corequisite(s): NURS 6600

Focuses on the application of teaching skills in classroom settings. Incorporates aspects of the philosophy of adult education and adult learning theory, the teaching process, and self-evaluation. Provides practicum experience in the teaching environment.

## **NURS 6650 Teaching Nursing in the Clinical Setting**

**2**  
\* Prerequisite(s): Admission to MSN program  
\* Corequisite(s): NURS 6655

Focuses on effective teaching skills for clinical settings. Includes ways to cultivate interprofessional relationships and promote positive clinical learning environments. Promotes the establishment of appropriate teacher-learner relationship in the clinical setting.

## **NURS 6655 Teaching Nursing in the Clinical Setting Practicum**

**2**  
\* Prerequisite(s): Admission to MSN program  
\* Corequisite(s): NURS 6650

Focuses on applying effective teaching skills for clinical settings. Includes evaluation of clinical learning environments' ability to facilitate student learning and promote patient safety.

## **NURS 6700 Evaluation of Learning Outcomes**

**3**  
\* Prerequisite(s): Admission to MSN program

Explores the application of various methods of evaluation, measurement and grading of learning outcomes. Applies assessment techniques to various aspects of nurse education.

## **NURS 6795 Synthesis of Teaching Practice Practicum**

**3**  
\* Prerequisite(s): Admission to MSN program

Provides students the opportunity to synthesize research findings through the development, implementation and evaluation of a teaching project related to nursing.

## Nutrition (NUTR)

### NUTR 1020 Foundations of Human Nutrition 3

For students interested in various health care professions. Considers basic principles of human nutrition. Studies factors that influence nutritive requirements and maintenance of nutritional balance. Examines relationships between proper nutrition and social, mental and physical well-being. Canvas Course Mats \$70/McGraw applies

### NUTR 2020 BB Nutrition Through the Life Cycle 3

Focuses on nutrition and the application of nutrition principles to the human life cycle. Includes nutrient functions, needs, sources, and alterations during pregnancy, lactation, growth & development (infancy through adulthood), maturation, and aging.

### NUTR 3000 Nutrition and Disease 3

\* Prerequisite(s): NUTR 1020 and University Advanced Standing

Examines the latest research on how nutrition may prevent and improve symptoms of many different diseases. Explores the relationships between the food we eat and risk, understanding the role of the nutrition care process and when it could be utilized. Builds students ability to critically analyze nutritional information and helps students to create nutritional interventions to achieve and maintain a healthy lifestyle.

### NUTR 3100 Public Health Nutrition 3

\* Prerequisite(s): NUTR 1020 and University Advanced Standing

Examines the effect of diet on human development and disease prevention. Studies several public health nutritional tools and how they apply to the population. Assesses current nutritional policies in public health, with an emphasis on how to manage community health nutrition needs.

### NUTR 3200 Cultural Aspects of Health and Nutrition 3

\* Prerequisite(s): NUTR 1020 and University Advanced Standing

Focuses on the influence of culture on illness, health, and rehabilitation. Explores the relationship that culture plays in the health and wellness of both individuals and the community in which they live.

## Public Administration (PADM)

### PADM 6000 Public Administration 3

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Explores senior-level administrative functions within a public services organization. Analyzes and assesses positive and negative practices within public service organizations, including managerial actions and bureaucracy.

### PADM 6010 Public Administration Finance and Budgeting 3

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Analyzes financial and budgeting operations occurring in the public sector. Assesses funding streams, budget development, financial management concerns, and fiduciary responsibilities of public service leaders.

### PADM 6020 Public Administration Policy and Evaluation 3

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Provides the investigative, ethical, and development tools needed to form public policy and evaluate program success. Develops analysis skills to examine new ideas, test their viability, determine program needs, and organize to meet these needs. Addresses how to make policy, how to assess if policy is working, and how to fix the flaws in existing policy.

### PADM 6030 Legal Issues for Public Administration 3

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Evaluates the law and its application within the public services. Examines constitutional principles in relation to public service functions.

### PADM 6040 Organizational Behavior in Public Administration 3

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Examines organizational behavior within the public services and compares and contrasts it to the private sector. Researches the public services to make comparisons and develop a theoretical basis, for use in administrative decision-making in dealing with organizations and their people. Applies conceptual frameworks, case discussions, and skill-oriented activities which include: motivation, learning and development, group dynamics, leadership, communication, power and influence, change, diversity, organizational design, and culture. Helps participants acquire skills and analytic concepts to improve organizational relationships and effectiveness.

### PADM 6050 Public Administration Leadership and Ethics 3

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Analyzes leadership approaches within the public services. Identifies the need for people-centric leadership that serves both the public servants and the community. Uses case study analysis to differentiate between leadership approaches to people and the management of processes. Explores ethical issues in public service delivery.

### PADM 6060 Research Methods for Public Administration 3

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Identifies qualitative and quantitative research methods within a public services framework. Introduces the impact social science discovery has on the formulation of public policy. Illustrates research designs utilized within qualitative and quantitative methodologies.

### PADM 6070 Human Resource Management 3

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Examines the services provided by a manager of a human resources department. Provides an overview of human resource management. Focuses on the role of managers and how they develop effective and efficient human resources practices that support the strategic goals of their organization.

## Course Descriptions

### **PADM 6400** **Public Administration Program** **Development and Evaluation** **3**

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Provides program planning and evaluation responsibilities in public service settings. Focuses on the critical components of most planning models which include: performing a needs assessment; priority setting; creating a problem statement; establishing goals and objectives; developing and implementing interventions; evaluation; and budgeting.

### **PADM 670R** **Public Administration Internship** **3**

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Provides students a transition from school to work where learned theory is applied to actual practice through meaningful on-the-job training commensurate with graduate-level work. May be repeated for a maximum of 6 credits toward graduation.

### **PADM 679R** **Special Topics in Public Administration** **1 to 6**

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

Provides students with an opportunity to study and/or research special public service topics. Requires students to identify relevant topics of public services, analyze their issues and impacts, and synthesize possible solutions/models for application in the public services arena. Calls for creation of a significant research paper worthy of communication to a broader peer audience. May be repeated for a maximum of 6 credits toward graduation.

### **PADM 6900** **Public Administration Capstone Project** **3**

\* Prerequisite(s): Admission into any graduate program at Utah Valley University

\* Prerequisite(s) or Corequisite(s): PADM 6060

Teaches synthesis of public service/emergency services coursework and primary/secondary research to formulate a public policy or empirical work relating to public services administration.

## **Physician Assistant** **Studies (PAS)**

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### **PAS 6701** **Human Anatomy for the Physician** **Assistant I** **1**

\* Prerequisite(s): Acceptance into Physician Assistant Program

Provides an in-depth, graduate-level understanding of human anatomy using a regional approach with instruction via lecture, simulation, and prosected cadavers. Helps students correlate the interactions between diverse structures and systems. Aligns content with the clinical medicine series. This is the first in a three-course series.

### **PAS 6702** **Human Anatomy for the Physician** **Assistant II** **1**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6701 with a C or higher

Provides an in-depth, graduate-level understanding of human anatomy using a regional approach with instruction via lecture, simulation, and prosected cadavers. Helps students correlate the interactions between diverse structures and systems. Aligns content with the clinical medicine series. This is the second in a three-course series.

### **PAS 6703** **Human Anatomy for the Physician** **Assistant III** **1**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6702 with a C or higher

Provides an in-depth, graduate-level understanding of human anatomy using a regional approach with instruction via lecture, simulation, and prosected cadavers. Helps students correlate the interactions between diverse structures and systems. Aligns content with the clinical medicine series. This is the third and final course in this series.

### **PAS 6711** **Physiology/Pathophysiology for the** **Physician Assistant I** **2**

\* Prerequisite(s): Acceptance into Physician Assistant Program

Examines how the human body functions from the cellular level to the interaction of organs and systems. Introduces functions related to anatomy and associations with common dysfunctions and diseases. Delivers content in an organ system-based approach with the goal of preparing physician assistant students for clinical practice. Aligns content with the clinical medicine series. This is the first of a three-course series.

### **PAS 6712** **Physiology/Pathophysiology for the** **Physician Assistant II** **2**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6711 with a C or higher

Examines how the human body functions from the cellular level to the interaction of organs and systems. Introduces functions related to anatomy and associations with common dysfunctions and diseases. Delivers content in an organ system-based approach with the goal of preparing physician assistant students for clinical practice. Aligns content with the clinical medicine series. This is the second of a three-course series.

### **PAS 6713** **Physiology/Pathophysiology for the** **Physician Assistant III** **2**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6712 with a C or higher

Examines how the human body functions from the cellular level to the interaction of organs and systems. Introduces functions related to anatomy and associations with common dysfunctions and diseases. Delivers content in an organ system-based approach with the goal of preparing physician assistant students for clinical practice. Aligns content with the clinical medicine series. This is the third and final course in this series.

### **PAS 6721** **Clinical Medicine I** **3**

\* Prerequisite(s): Acceptance into Physician Assistant Program

Teaches students to recognize, diagnose, and manage common medical conditions covering all organs and systems. Organizes the clinical medicine content into sets of modules. This is the first in a four-course series.

### **PAS 6722** **Clinical Medicine II** **3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6721 with a C or higher

Teaches students to recognize, diagnose, and manage common medical conditions covering all organs and systems. Organizes the clinical medicine content into a set of modules. This is the second in a four-course series.

### **PAS 6723** **Clinical Medicine III** **3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6722 with a C or higher

Teaches students to recognize, diagnose, and manage common medical conditions covering all organs and systems. Organizes the clinical medicine content into sets of modules. This is the third in a four-course series.

**PAS 6724**

**Clinical Medicine IV**

**1**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6723 with a C or higher

\* Corequisite(s): PAS 6781

Teaches students to recognize, diagnose, and manage common medical conditions covering all organs and systems. Organizes the clinical medicine content into sets of modules. This is the fourth and final course in this series.

**PAS 6731**

**Pharmacology/Pharmacotherapy for the Physician Assistant I**

**3**

\* Prerequisite(s): Acceptance into Physician Assistant Program

Applies clinical principles of pharmacology, pharmacokinetics, and pharmacodynamics. Focuses on the concepts of pharmacotherapy necessary for clinical prescribing decisions and includes discussion about side effects, complications, dosages, and contraindications. Aligns content with the clinical medicine series. This is the first in a four-course series.

**PAS 6732**

**Pharmacology/Pharmacotherapy for the Physician Assistant II**

**3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6731 with a C or higher

Applies clinical principles of pharmacology, pharmacokinetics, and pharmacodynamics. Focuses on the concepts of pharmacotherapy necessary for clinical prescribing decisions and includes discussion about side effects, complications, dosages, and contraindications. Aligns content with the clinical medicine series. This is the second in a four-course series.

**PAS 6733**

**Pharmacology/Pharmacotherapy for the Physician Assistant III**

**3**

\* Prerequisite(s): Acceptance in the Physician Assistant Program and PAS 6732 with a C or higher

Applies clinical principles of pharmacology, pharmacokinetics, and pharmacodynamics. Focuses on the concepts of pharmacotherapy necessary for clinical prescribing decisions and includes discussion about side effects, complications, dosages, and contraindications. Aligns content with the clinical medicine series. This is the third of a four-course series.

**PAS 6734**

**Pharmacology/Pharmacotherapy for the Physician Assistant IV**

**3**

\* Prerequisite(s): Acceptance into the Physician Assistant Program and PAS 6733 with a C or higher

Applies clinical principles of pharmacology, pharmacokinetics, and pharmacodynamics. Focuses on the concepts of pharmacotherapy necessary for clinical prescribing decisions and includes discussion about side effects, complications, dosages, and contraindications. Aligns content with the clinical medicine series. This is the fourth and final course in this series.

**PAS 6741**

**Clinical Skills I**

**4**

\* Prerequisite(s): Acceptance into Physician Assistant Program

Teaches the knowledge and skill set needed for history taking, focused and comprehensive physical examination, and use of diagnostic studies. Emphasizes patient dignity and autonomy as well as provider communication skills. Develops oral and written documentation skills appropriate for medical records. Aligns content with the clinical medicine series. This is the first in a three-course series.

**PAS 6742**

**Clinical Skills II**

**3**

\* Prerequisite(s): Acceptance into the Physician Assistance Program and PAS 6741 with a C or higher

Teaches the knowledge and skill set needed for history taking, focused and comprehensive physical examination, and use of diagnostic studies. Emphasizes patient dignity and autonomy as well as provider communication skills. Develops oral and written documentation skills appropriate for medical records. Aligns content with the clinical medicine series. This is the second in a three-course series.

**PAS 6743**

**Clinical Skills III**

**3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6742 with a C or higher

Teaches the knowledge and skill set needed for history taking, focused and comprehensive physical examination, and use of diagnostic studies. Emphasizes patient dignity and autonomy as well as provider communication skills. Develops oral and written documentation skills appropriate for medical records. Aligns content with the clinical medicine series. This is the third and final course in this series.

**PAS 6751**

**Clinical Decision Making I**

**1**

\* Prerequisite(s): Acceptance into Physician Assistant Program

Provides the opportunity to work through clinical scenarios coinciding with the clinical medicine series and content covered in other courses within a small group, case-based setting. This is the first in a three-course series.

**PAS 6752**

**Clinical Decision Making II**

**1**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6751 with a C or higher

Provides the opportunity to work through clinical scenarios coinciding with the clinical medicine series and content covered in other courses within a small group, case-based setting. This is the second in a three-course series.

**PAS 6753**

**Clinical Decision Making III**

**1**

\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6752 with a C or higher

Provides the opportunity to work through clinical scenarios coinciding with the clinical medicine series and content covered in other courses within a small group, case-based setting. This is the third and final course in this series.

**PAS 6761**

**Behavioral Medicine**

**3**

\* Prerequisite(s): Acceptance into Physician Assistant Program

Focuses on how to identify, diagnose, and manage patients with a variety of mental and behavioral disorders in diverse populations across the lifespan. Covers topics such as normal and abnormal development, domestic violence, end of life care, diversity in medicine, health literacy, mental and behavioral disorders, as well as substance abuse.

**PAS 6762**

**Personal and Clinical Leadership**

**3**

\* Prerequisite(s): Acceptance into Physician Assistant Program

Introduces the foundations of professional practice and leadership in the clinical setting. Includes the principles of managing conflict, self-reflection, mindful practice, and patient safety awareness in clinical practice.

# Course Descriptions

## **PAS 6771 Physician Assistant Profession**

**2**  
\* Prerequisite(s): Acceptance into Physician Assistant Program

Introduces the origin of the PA profession, PA professional organizations, and the culture of American medicine. Covers topics including credentialing, certification, team-based care, and the future trends of the PA profession.

## **PAS 6772 Special Populations**

**3**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the first didactic year.

Teaches the knowledge and skill set needed for history taking, focused and comprehensive physical examination, and use of diagnostic studies and assessment tools for patient populations with unique characteristics. Emphasizes shared decision-making, cultural awareness, and vulnerabilities of patient populations covered in this course.

## **PAS 6773 Health Promotion and Disease Prevention**

**3**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the first didactic year.

Teaches the basic principles of wellness, health promotion, and disease prevention in the clinical setting. Covers topics including epidemiology, screening for common preventable diseases, interventions (in some cases), as well as complementary and alternative medicine.

## **PAS 6774 Supplemental Topics in Medicine**

**1**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the first didactic year.

Examines specialized topics in patient care with emphasis on collaboration with other healthcare professionals. Includes topics in nutrition, genetics, dental health, and team-based care.

## **PAS 6775 Health Care Delivery Systems and Medical Ethics**

**2**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the first didactic year.

Provides an overview of the United States healthcare delivery system, healthcare policy, quality care, patient safety, and prevention of medical errors. Reviews the role of the physician assistant in the healthcare system.

## **PAS 6776 Physician Assistant Practice**

**1**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the first didactic year.

Prepares the physician assistant to enter clinical practice. Covers applications for registration for PANCE and national provider identification (NPI) numbers. Focuses on the importance of accurate and complete documentation related to patient care. Teaches students to create customized career development tools. Includes a PANCE review course.

## **PAS 6781 Capstone I**

**1**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the first didactic year.

Mentors students in creating the foundation for a robust professional portfolio based on competency domains and entrustable professional activities. Helps students develop the ability to critically review medical literature and determine what skills and training are most needed for a selected area of interest. This is the first in a three-course series.

## **PAS 6782 Capstone II**

**1**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6781

Mentors students in initiating a robust professional portfolio. Helps students create a single space where all documentation of competency will be organized and accessible. Prepares students to work independently and in teams to further skills and training relevant to selected areas of interest. This is the second in a three-course series.

## **PAS 6783 Capstone III**

**1**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6782

Mentors students in completing a robust professional portfolio. Helps students finalize a single space where all documentation of competency will be organized and accessible for potential employers and future growth. Prepares students to work independently and in teams to show skills and training relevant to selected areas of interest. This is the third and final course in this series.

## **PAS 6790 Family Medicine I-Supervised Clinical Practice Experience**

**3**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with clinical experience in practicing the principles of family medicine. Facilitates experience in outpatient evaluation of patients across the lifespan (infant, child, adolescent, adult, and elderly) including preventive medicine and acute and chronic illness. This is a five-week supervised clinical practical experience (SCPE) and the course syllabus reflects both the first and second courses in this series. May be graded credit/no credit.

## **PAS 6791 Family Medicine II-Supervised Clinical Practice Experience**

**3**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and PAS 6790

Provides the physician assistant student with clinical experience in practicing the principles of family medicine. Facilitates experience in outpatient evaluation of patients across the lifespan (infant, child, adolescent, adult, and elderly) including preventive medicine and acute and chronic illness. This is a five-week supervised clinical practical experience (SCPE) and the course syllabus reflects both the first and second courses in this series. May be graded credit/no credit.

## **PAS 6792 Behavioral and Mental Health Care-Supervised Clinical Practice Experience**

**3**  
\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with an opportunity to learn, understand and gain clinical experience in practicing the principles of behavioral and mental health care conditions. Facilitates experience in outpatient / inpatient evaluation of patients across the lifespan (adolescent, adult, and elderly) including acute and chronic illness. This is a five-week supervised clinical practical experience (SCPE). May be graded credit/no credit.

**PAS 6793****Womens Health-Supervised Clinical Practice Experience****3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with clinical experience in managing common gynecologic disorders. Includes obstetrical experience with routine prenatal and postpartum care, and may include labor and delivery. Comprises women's health care in an inpatient / outpatient setting across the lifespan (adolescent, adult, and elderly) including preventive medicine and acute and chronic illness. This is a five-week supervised clinical practical experience (SCPE). May be graded credit/no credit.

**PAS 6794****Pediatrics-Supervised Clinical Practice Experience****3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with clinical experience in practicing the principles of pediatric medicine. Facilitates experience in outpatient evaluation of patients across the lifespan (prenatal, neonatal, infant, child, adolescent) including preventive medicine and acute and chronic illness. This is a five-week supervised clinical practical experience (SCPE). May be graded credit/no credit.

**PAS 6795****Emergency Medicine-Supervised Clinical Practice Experience****3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with clinical experience in practicing the principles of emergency medicine. Facilitates experience in the evaluation of patients across the lifespan (infant, child, adolescent, adult, and elderly). Includes learning skills needed for the appropriate triage, stabilization, diagnosis, and management of patients with significant traumatic injuries, acute illnesses, acute complications of chronic illnesses, as well as the management of less life-threatening problems. This is a five-week supervised clinical practical experience (SCPE). May be graded credit/no credit.

**PAS 6796****Surgery-Supervised Clinical Practice Experience****3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with clinical experience in practicing the principles of surgery. Facilitates experience in pre-operative, intra-operative, and post-operative evaluation and management of patients across the lifespan (adolescent, adult, and elderly) including acute, chronic, and emergent conditions in the inpatient, outpatient, and operating room settings. This is a five-week supervised clinical practical experience (SCPE). May be graded credit/no credit.

**PAS 6797****Internal Medicine-Supervised Clinical Practice Experience****3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with clinical experience in practicing the principles of internal medicine. Facilitates experience in either an outpatient setting, inpatient setting, or a combination of both, caring for adult and elderly patients with acute, chronic, and/or preventive care needs. This is a five-week supervised clinical practical experience (SCPE). May be graded credit/no credit.

**PAS 6798****Elective Rotation I-Supervised Clinical Practice Experience****3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with clinical experience in a specific area of interest approved by the faculty from a variety of surgical, family medicine, or internal medicine specialties or subspecialties. Enables students to learn to recognize conditions treated by these specialties, so they can refer patients appropriately and/or work in a supportive role for such specialists. This is a five-week supervised clinical practical experience (SCPE). May be graded credit/no credit.

**PAS 6799****Elective Rotation II-Supervised Clinical Practice Experience****3**

\* Prerequisite(s): Acceptance into Physician Assistant Program and successful completion of the didactic phase.

Provides the physician assistant student with clinical experience in a specific area of interest approved by the faculty from a variety of surgical, family medicine, or internal medicine specialties or subspecialties. Enables students to learn to recognize conditions treated by these specialties, so they can refer patients appropriately and/or work in a supportive role for such specialists. This is a five-week supervised clinical practical experience (SCPE). May be graded credit/no credit.

## Physical Education Sports (PES)

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**PES 1085****Weight Training I****1**

An introductory weight training course which provides the student with the needed information to develop a personalized strength program. Teaches proper lifting techniques. Demonstrates methods to increase muscular strength and endurance. Includes lab. Course fee of \$25 for equipment applies.

**PES 1086****Weight Training II****1**

An individualized intermediate course for students who wish to continue their weight training program. Students will write their own program and set standards of goals that are attainable throughout the training period. Course fee of \$25 for equipment applies.

**PES 1130****Golf I****1**

A beginning course designed to teach students fundamental techniques, rules and etiquette of the game. Includes instruction on equipment and golf techniques such as grip, stance, and swing. Provides practice rounds leading to in-class tournaments. Uses demonstrations and labs, practice and inter-class participation. Taught on block only.

**PES 1200****Basketball I****1**

An introductory course designed to teach the basic skills of shooting, passing, ball handling, rebounding, etc. Introduces and practices new skills each class session. Provides regular scrimmage time. Designed for fun and good competition. Includes an exciting class tournament during the course.

## Course Descriptions

### **PES 1201** **Basketball II** **1**

Teaches advanced skills of shooting, passing, ball handling, rebounding, etc. Stresses fun and competition. Provides regular scrimmage time. Includes an exciting class tournament during the course.

### **PES 1210** **Volleyball I** **1**

Covers basic concepts of volleyball. Teaches fundamentals and rules of the sport. Introduces new skills such as sprawl and roll. Includes labs, lectures, audio-visual, practice and inter-class participation.

### **PES 1211** **Volleyball II** **1**

Teaches advanced volleyball skills and team concepts for intermediate volleyball players. Reviews fundamentals and rules. Covers 6-person, 3-person, and 2-person volleyball. Includes labs, lectures, audio-visual, practice and scrimmages.

### **PES 200R** **Intercollegiate Athletics** **1**

\* Prerequisite(s): Coach approval

Provides an opportunity to improve strategic and physical performance by working with instructor in chosen activity. May be repeated for 4 credits toward graduation.

### **PES 2400** **Sports Injuries** **2**

\* Prerequisite(s): ZOOL 1090 or Permission of instructor

Prevention and care of fitness, sport, and physical education performance injuries. Emphasizes the responsibilities of the coach/PE teacher related to sport injuries. Examines recognition, cause, prevention and care of sports related injuries to specific body parts. Explores protective equipment, environmental factors, and nutritional considerations. Reviews injuries which occur to specific populations such as adolescent and elderly athletes. Course fee of \$20 for materials applies.

### **PES 4900** **Exercise Science Senior Practicum** **3**

\* Prerequisite(s): EXSC 3700, EXSC 4000, EXSC 4100, and University Advanced Standing

Emphasizes application of physical activity promotion in a variety of settings. Options include service learning activities, assessing athletes, working in clinical settings that address assessment and exercise prescription in the elderly, cardiac and pulmonary rehabilitation, and outpatient physical therapy.

## **Physical Education Teacher Ed (PETE)**

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### **PETE 2110** **Fundamental Motor Skill Analysis and Performance** **1**

Covers acquisition of fundamental motor skills and movements concepts necessary before advanced motor skills can be effectively taught. Includes motor development concepts, water safety, educational gymnastics, jump rope, and other rhythmic and fundamental skills and concepts. Requires students to assess their own skill performances as well as others' performances. Students with special needs will be encouraged to use appropriate accommodations and/or modifications.

### **PETE 2120** **Fitness for Secondary Physical Educators** **1**

\* Prerequisite(s): EXSC 1097

Provides and enhances preservice teachers' abilities to teach Fitness for Life and other health-related fitness concepts and classes for students in grades 6-12. Focuses on evaluation and performance of a variety of developmentally appropriate fitness activities. Trains preservice teachers to develop appropriate lesson plans for secondary students, as well as how to help individual students develop personalized fitness programs.

### **PETE 2140** **Teaching Target Games** **2**

Addresses the teaching skills, content analysis, planning and experience to instruct target games such as archery, golf, bocce, bowling, and disc golf for grades 7-12. Focuses on implementing developmentally appropriate progressions for teaching key skills and strategies.

### **PETE 2150** **Elementary Physical Education SPARK Method** **2**

Prepares future classroom teachers, recreation leaders, and interested health and fitness professionals to instruct physical activity classes. Focuses on experiential learning.

### **PETE 2210** **Racket Sport Analysis and Teaching Progressions** **1**

Introduces skills, concepts, and rules to help teachers and coaches teach racket sports to youngsters in grades K-12. Focuses on positive transfer of learning between various racket sports, including pickleball, racquetball, badminton, speedminton, and tennis. Explores and implements developmentally appropriate progressions for key skills and strategies, especially those common to all racket sports.

### **PETE 2220** **Target Sport Analysis and Teaching Progressions** **1**

Introduces skills, concepts, and rules to help teachers and coaches teach target sports to youngsters in grades K-12. Focuses on helping teachers and coaches use positive transfer to enhance the teaching of skills, strategies, and concepts common to target games and sports. Developmentally appropriate progressions for key skills and strategies will be explored and implemented. Covers the main target sports: archery, bowling, golf, and disc golf.

### **PETE 2230** **Individual Sports Track and Field and Tumbling** **1**

\* Prerequisite(s): EXSC 1097

Introduces Track and Field events taught in K-12 schools in Utah. Includes fundamental tumbling skills appropriately taught to K-12 students. Focuses on developmentally appropriate progressions for all learners. Includes hints to enhance positive transfer from a previously learned skill to a new skill, specifically individual sport skills and concepts.

### **PETE 2240** **Teaching Invasion and Net Games** **2**

Addresses the teaching skills, content analysis, planning and experience to instruct invasion and net games such as team handball, lacrosse, ultimate frisbee, pickleball, speedminton, and tennis for grades 7-12. Focuses on implementing developmentally appropriate progressions for teaching key skills and strategies.

### **PETE 2310** **Invasion Sports Soccer and Team Handball** **1**

Introduces skills, concepts, and rules to help teachers and coaches teach soccer and team handball to youngsters in grades K-12. Focuses on helping teachers and coaches use transfer to enhance the teaching of skills and concepts common to all invasion games, as well as to soccer and team handball specifically. Explores and implements developmentally appropriate progressions for key skills and strategies in soccer and team handball.

### **PETE 2320** **Teaching and Analyzing Basketball and Volleyball** **1**

Introduces skills, concepts, and rules to help teachers and coaches teach basketball and volleyball to youngsters in grades K-12. Focuses on helping teachers and coaches use positive transfer to enhance student learning. Explores and implements appropriate progressions for key skills and strategies in volleyball and basketball.

**PETE 2330****Team Sports for the Physical Educator****1**

Introduces skills, concepts, and rules to team sports appropriate for secondary physical education classes. Sports covered may vary due to weather and current popularity in local schools. Possible sports include: touch rugby, lacrosse, floor hockey, field hockey, flag football, and softball.

**PETE 2340****Teaching Recreational and Outdoor Pursuits****2**

Addresses the teaching skills, content analysis, planning and experience to instruct outdoor and lifetime pursuits such as strength training, disc games, orienteering, yoga, cooperative games and rock climbing for grades 7-12. Focuses on implementing developmentally appropriate progressions for teaching key skills and strategies.

**PETE 2400****Skill Analysis Capstone****1**

\* Prerequisite(s): PETE 2110, PETE 2120, PETE 2210, PETE 2220, PETE 2230, PETE 2310, PETE 2320, PETE 2330

Review and perform skills needed for successful demonstration in physical education classes, with emphasis on any skills not performed successfully in prerequisite courses. Utilizes cues and critical elements for teaching motor skills, movement concepts and strategies covered in prerequisite courses. Analyze skill performances and game strategies. Demonstrate minimum water safety techniques.

**PETE 2500****Skill Analysis and Competency for PETE Majors****3**

Provides instruction in all fundamental motor skills, movement concepts, and various fundamental sport skills. Covers appropriate progressions, lead-up activities, and games. Includes tinkling, lummi sticks, jump rope, juggling, and other activities appropriate for K-12 physical education. Requires initial assessment for skillful performance in physical education content areas. Canvas Course Mats of \$70/McGraw applies.

**PETE 2700****Foundations of Physical Education K-12 Teacher Education****3**

Introduces the Physical Education K-12 Teacher Education Program. Includes introductions to National Initial Physical Education Teacher Standards, NASPE Standards, Appropriate Practices documents, Professional Associations, History and Philosophy of Physical Education, and Motor Development theories. Prepares students to succeed in the UVU PETE Program.

**PETE 289R****Early Undergraduate Research in Physical Education Pedagogy****1 to 4**

\* Prerequisite(s): EXSC 270G and departmental approval of research proposal.

Provides students an early opportunity to conduct research under the mentorship of a faculty member. Students will put in practice the theoretical knowledge gained in prior major courses. Students will create a significant intellectual or creative product that is appropriate for Physical Education Pedagogy and worthy of communication to a broader audience. May be repeated for a maximum of 6 credits toward graduation.

**PETE 3100****Introduction to Physical Education Pedagogy****3**

\* Prerequisite(s): PETE 2500 or permission of instructor, University Advanced Standing

Promotes the acquisition and application of effective teaching skills for K-12 physical education, including focus on the National Standards for Physical Education. Includes observations and experiences with K-12 students and faculty. Introduces and works toward meeting the National Initial Physical Education Teacher Education Standards. Introduces content necessary to succeed in all upper-division PETE courses.

**PETE 3400****Elementary Classroom Teachers as Movement Educators****2**

\* Prerequisite(s): (Admission to professional elementary education program or instructor approval) and University Advanced Standing

For elementary education majors. Presents characteristics of quality physical education programs. Encourages classroom teachers to incorporate physical activity throughout the day. Identifies appropriate practices and activities for teaching movement to all children.

**PETE 3450****Special Populations in Physical Education****3**

\* Prerequisite(s): PETE 3100, EDSP 340G, and University Advanced Standing

Involves planning and conducting physical education programs for children with special needs. Incorporates hands-on experiences working with individual with special needs. Analyzes a variety of possible adaptations for individuals with physical, sensory, emotional, and/or intellectual impairments.

**PETE 4200****Methods of Teaching Elementary Physical Education****3**

\* Prerequisite(s): PETE 2500, PETE 2700, PETE 3100 and University Advanced Standing  
\* Corequisite(s): PETE 4400

\* Prerequisite(s) or Corequisite(s): PETE 2120

Promotes the analysis and development of elementary physical education curricula. Promotes curricular concepts through reading, lecture/discussion, movement, self-appraisal, and teaching children. Requires application of educational principles and techniques necessary for effective teaching in the elementary school. Emphasizes appropriate selection of curriculum content and transition to teaching/learning models. Offers unit and lesson planning and evaluation. Includes a substantial field experience. Course lab fee of \$78 applies.

**PETE 4250****Methods of Teaching Secondary Physical Education****3**

\* Prerequisite(s): EXSC 3550, PETE 4200, PETE 4400, acceptance into UVU's Secondary Education program and University Advanced Standing

Provides opportunities for application of learning from all previous courses to the successful teaching of secondary physical education. Emphasizes the attainment of all current National Initial Physical Education Standards at the acceptable level or above.

**PETE 4400****Assessment in Physical Education****3**

\* Prerequisite(s): (MAT 1010 or higher mathematics course), PETE 3100, and University Advanced Standing

\* Corequisite(s): PETE 4200

Examines the need for valid assessment in K-12 physical education programs. Introduces a variety of assessment instruments. Analyzes the use of assessment to enhance learning and reliably determine student progress toward stated objectives. Promotes the development of a meaningful grading system that communicates student progress toward course objectives and SHAPE America standards.

**PETE 481R****Physical Education Teacher Education Internship****1 to 4**

\* Prerequisite(s): EXSC 1097, EXSC 3500, EXSC 3550, PETE 3100, and University Advanced Standing

Encourages students to apply learning in a professional setting. Allows students practical experience working at a physical education teaching or coaching related job. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

## Course Descriptions

### **PETE 489R**

#### **Undergraduate Research in Physical Education Teacher Education 1 to 4**

\* Prerequisite(s): PETE 3100, department approval of research proposal, and University Advanced Standing

Provides students the opportunity to conduct research under the mentorship of a faculty member. Students will put in practice the theoretical knowledge gained in prior major courses. Students will create a significant intellectual or creative product that is appropriate for Physical Education Pedagogy and worthy of communication to a broader audience. May be repeated for a maximum of 8 credits toward graduation.

### **PETE 4900**

#### **Student Teaching Seminar for Physical Education 1**

\* Prerequisite(s): Admission to Professional Education Program, successful completion of all professional education and content courses, and University Advanced Standing  
\* Corequisite(s): EDSC 4850

Supports student teachers during their student teaching experience. Examines each student's teaching experiences. Encourages students to integrate learning from all professional education and content courses. Discusses concerns related to current teaching experiences as well as future experiences. Investigates job seeking criteria and opportunities.

## **Philosophy (PHIL)**

### **PHIL 1000**

**HH**

#### **Introduction to Philosophy 3**

Designed to investigate major philosophical ideas from the Pre-Socratic era to the present. Students should develop philosophical skills through supervised analysis of readings in epistemology (knowledge), metaphysics (reality), ethics (values), and social philosophy. Emphasizes the articulation, assessment, and discussion of fundamental religious, social, political issues through class discussions, lectures, media, and writing projects.

### **PHIL 100H**

**HH**

#### **Introduction to Philosophy 3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Designed to investigate major philosophical ideas from the Pre-Socratic era to the present. Students should develop philosophical skills through supervised analysis of readings in epistemology (knowledge), metaphysics (reality), ethics (values), and social philosophy. Emphasizes the articulation, assessment, and discussion of fundamental religious, social, political issues through class discussions, lectures, media, and writing projects.

### **PHIL 1110 (Cross-listed with: MAT 1110)**

#### **Introduction to Mathematical Reasoning 3**

\* Prerequisite(s): One of the following (within department time limits): MAT 1010, MAT 1015, MAT1030 or higher, or STAT 1040 or higher, with a grade of C- or higher.

Focuses on the ability to reason soundly and formulate arguments in mathematics, logic and philosophy. Covers how sound arguments and good reasoning methods allow us to effectively search for the truth regarding any mathematical or philosophical question. Covers the reasoning methods used in mathematics and the way the methods are applied outside of mathematics in areas such as language and the sciences. Describes how these methods are effective in producing mathematical knowledge and understanding as well as their epistemic shortcomings. Includes reasoning with propositional logic, sound argumentation, mathematical proof, visualization and diagrammatic reasoning, the role of rigor and intuition, and the scientific application of mathematics.

### **PHIL 120R**

#### **Philosophy Forum 1**

Introduces students to the interchange of traditional and contemporary philosophical issues in various venues. Provides enriched learning situations in which students may interact with noted guest scholars. Includes lectures, symposia, field trips, outreach projects, and activities oriented to engage students in philosophical discourse. Meets in conjunction with the Philosophy Club. Grading is on a credit/no credit basis. May be repeated for a total of four credits toward the AA/AS, BA/BS degree.

### **PHIL 1250**

**HH**

#### **Introduction to Logic and Critical Thinking 3**

Introduces fundamental elements of informal logic and applies these to critical thinking. Covers subjects and concepts such as (but not limited to) definition, argument, fallacy, deduction versus induction, validity, soundness, induction, causal reasoning, abductive reasoning, analogical reasoning, and probability.

### **PHIL 130R**

#### **Ethics Forum 1**

Introduces students to a wide variety of public policy and ethical issues. Provides enriched learning situations in which students are exposed to noted guest scholars and other lecturers. Includes attendance and participation at specified events by engaging in discussion of relevant issues. May be repeated for a maximum of 3 credits toward graduation.

### **PHIL 1610**

**HH**

#### **Introduction to Western Religions 3**

For students majoring in humanities related disciplines and other students interested in the academic study of religion. Presents the comparative study of the history, ritual, "theology," and ethical beliefs of the major western religions including Judaism, Christianity, Islam, Zoroastrianism, Baha'i, and nontraditional religious belief in the western world. Explores similarities and differences between them by examining the primary sources and sacred texts along with the unique beliefs and practices of each tradition.

### **PHIL 1620**

**HH**

#### **Introduction to Eastern Religions 3**

For students majoring in humanities-related disciplines and other students interested in the academic study of religion. Presents the comparative study of the history, ritual, "theology," and ethical beliefs of the major eastern religious traditions including Hinduism, Jainism, Buddhism, Sikhism, Taoism, Confucianism, and Shintoism. Explores similarities and differences between them by examining the primary sources and sacred texts along with the unique beliefs and practices of each tradition.

### **PHIL 2000**

#### **Formal Logic I 3**

Introduces the basic elements of categorical logic as well as formalized propositional logic and formalized first-order quantificational logic. Includes Venn diagrams, proofs, truth tables, tableaux and translations from natural language.

### **PHIL 2050**

**IH**

#### **Ethics and Values 3**

\* Prerequisite(s): ACT scores of 29+ in English and Reading taken within the last five years or completion of ENGL 1010 or ENGL 101H with a grade of C- or higher.

Challenges students to explore and clarify their values; critically read works of philosophy, literature, religion, and history toward understanding the basis of their ethical views; and read, study, research, discuss, and write about difficult ethical issues. Focuses on issues of good vs. evil, justice vs. injustice, equality vs. inequality, and the necessity of defining and examining happiness and values. Engages students in serious reflection on issues of ethics and values as they relate to the students' own lives.

<p><b>PHIL 205G</b> <b>Ethics and Values</b> <b>3</b> * Prerequisite(s): ACT scores of 29+ in English and Reading taken within the last five years or completion of ENGL 1010 or ENGL 101H with a grade of C- or higher.</p> <p>Challenges students to explore and clarify their values; critically read works of philosophy, literature, religion, and history toward understanding the basis of their ethical views; and read, study, research, discuss, and write about difficult ethical issues. Focuses on issues of good vs. evil, justice vs. injustice, equality vs. inequality, and the necessity of defining and examining happiness and values. Engages students in serious reflection on issues of ethics and values as they relate to the students' own lives.</p>	<p><b>IH</b></p>	<p><b>PHIL 2150</b> <b>Early Modern Philosophy</b> <b>3</b> * Prerequisite(s): ENGL 1010 or ENGH 1005 or PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or permission of the instructor</p> <p>Provides an overview of the history and evolution of ideas in Western culture during the modern period of philosophy from Descartes through Kant. Focuses on the dialogue between rationalism and empiricism, and examines Kant's attempt to bridge the gap between these two approaches. Requires writing-intensive assignments.</p>	<p><b>HH</b></p>	<p><b>PHIL 295R</b> <b>Directed Readings</b> <b>1 to 3</b> Provides an opportunity for second year students to do in-depth research within the discipline of Philosophy. Study is limited to advanced work beyond that which can be completed in existing, available classes. A proposal must be submitted and approved by the department prior to enrollment.</p>
<p><b>PHIL 205H</b> <b>Ethics and Values</b> <b>3</b> * Prerequisite(s): ACT scores of 29+ in English and Reading taken within the last five years or completion of ENGL 1010 or ENGL 101H or ENGH 1005 with a grade of C- or higher.</p> <p>Systematically explores the core issues in the realm of ethics and values, especially as they relate to life in the contemporary world. Focuses on good versus evil, justice versus injustice, and the necessity of ideals and equality. Emphasizes reading and writing skills at a more challenging level.</p>	<p><b>IH</b></p>	<p><b>PHIL 281R</b> <b>Internship</b> <b>1 to 6</b> * Prerequisite(s): Permission from departmental chair</p> <p>Allows philosophy students to receive credit for service as an intern in a governmental, not for profit, or private agency apart from their regular employment. Provides practical and research development in selected areas of service related to students' academic and/or professional interests or goals. Internship must be supervised by agency representative. Must be approved by philosophy internship advisor and department chair and written contracts must be completed and signed. Repeatable for a maximum of six credit hours toward graduation. May be graded credit/no credit.</p>	<p><b>HH</b></p>	<p><b>PHIL 3000</b> <b>Formal Logic II</b> <b>3</b> * Prerequisite(s): PHIL 2000 and University Advanced Standing</p> <p>Continues the exploration of first-order quantificational logic. Includes discussion of multiple quantification, formal syntax and semantics, proofs, truth-tables, tableaux, algebra of classes, set theory, and the metalogical properties of formal systems.</p>
<p><b>PHIL 2110</b> <b>Ancient Greek Philosophy WE</b> <b>3</b> * Prerequisite(s): ENGL 1010 or ENGL 101H or ENGH 1005 or PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or permission of the instructor</p> <p>Provides students with an overview of the history and evolution of philosophical thought from its origins in pre-Socratic philosophers through Aristotle. Reviews the influence of pre-Socratic ideas upon the work of Plato and Aristotle and the impact of Greek philosophy on the evolution of Western philosophy, science, and culture. Requires writing-intensive assignments.</p>	<p><b>HH</b></p>	<p><b>PHIL 290G</b> <b>Marginalized Philosophies</b> <b>3</b> * Prerequisite(s): ENGL 1010 or ENGL 101H or ENGH 1005 or PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or permission of the instructor</p> <p>Explores philosophical traditions and approaches outside or at the margins of the philosophical mainstream as it appears in contemporary North America, such as Asian philosophy, African philosophy, Indigenous philosophy, comparative philosophy, queer theory, philosophies of gender and disability, Black philosophy, liberation philosophy, and feminist philosophy. Introduces students to the complexity and diversity of philosophical practice in an increasingly globalized world.</p>	<p><b>HH</b></p>	<p><b>PHIL 3040 (Cross-listed with: COMM 3040)</b> <b>Media Ethics</b> <b>3</b> * Prerequisite(s): University Advanced Standing</p> <p>Covers ethical issues in media communication. Includes discussions of ethnicity, gender, nationalism, and conflict. Analyzes development of moral agency. Examines tensions between individual freedoms and social responsibilities. Addresses ethical questions in the context of current struggles within and over corporate and public media.</p>
<p><b>PHIL 2130</b> <b>Medieval Philosophy</b> <b>3</b> * Prerequisite(s): PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or permission of the instructor</p> <p>Provides an overview of the development of philosophical thought from the Hellenistic period through Thomas Aquinas. Covers the influence of Ancient Greek philosophy and the impact of Christianity upon the evolution of Western philosophical thought. Carefully considers the conceptions of God, nature, the human being, and morality advanced during this period; along with the profound impact Medieval philosophy had on the European Enlightenment and modern philosophy.</p>	<p><b>HH</b></p>	<p><b>PHIL 290R</b> <b>Independent Study</b> <b>1 to 3</b> Provides independent study as directed in reading and individual projects. Request must be submitted for approval by the department. Students may do independent study for one, two or three credits with a limit of three credits applying toward graduation with an AA/AS degree.</p>	<p><b>HH</b></p>	<p><b>PHIL 3150</b> <b>Philosophical Issues in Feminism</b> <b>3</b> * Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing</p> <p>Introduces students to various themes in feminist philosophy. Focuses on the concepts of sex and gender, including such issues as the nature, explanatory import and normative implications of biological sex differences, the sex/gender distinction, the idea of gender as a social construct, the structure and impact of gender oppression and the nature and value of the norms of femininity and masculinity.</p>
				<p><b>PHIL 3160</b> <b>Gender Values Knowledge and Reality</b> <b>3</b> * Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing</p> <p>Examines the impact of gender on specific areas of philosophy including, but not limited to, aesthetics, ethics, social and political philosophy, epistemology, metaphysics, philosophy of religion, philosophy of science, philosophy of language and the history of philosophy. Examines the meaning of gender with an emphasis on the diversity of experience across varying gender roles.</p>

# Course Descriptions

## **PHIL 3200** **Metaphysics**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Acquaints the student with competing abstract philosophical problems concerning the general nature and structure of reality. Examines the history of and problems of metaphysics including, but not limited to: personal identity, causation, causal determinism, the nature of universals, anti-realism, realism, change, substance and essence, space and time, and philosophy of mind.

## **PHIL 320G** **Metaphysics**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Acquaints the student with competing abstract philosophical problems concerning the general nature and structure of reality, with a focus on topics that pertain to social justice. Examines the history of and problems of metaphysics including, but not limited to: gender, sexual orientation, race, addiction, disability, and mental illness.

## **PHIL 3300** **Epistemology**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Explores diverse theories of knowledge from within the Western tradition. Includes concepts of truth and falsity, skepticism, justification, identity, and intentionality. Discusses empiricism, rationalism and twentieth-century Philosophy of Mind.

## **PHIL 3400** **Philosophy of Science**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Explores fundamental issues in the philosophy of science. Includes the structure of the scientific method, scientific explanation, and the epistemological status of scientific laws and theories.

## **PHIL 3450** **Philosophy of Childhood**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Examines philosophical theories and models of childhood, their implication on contemporary conceptions, controversial social, philosophical, legal, educational, and political issues pertaining to childhood, and the capacity of children to engage in philosophical dialogue.

## **PHIL 3460** **The Ethics of Human/Animal Relationships**

**3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205G or PHIL 205H or PHIL 1000 or PHIL 100H) and University Advanced Standing

Introduces a comprehensive philosophical and academic investigation of the relationship between human and nonhuman animals. Develops and refines critical thinking and discursive strategies for evaluating traditional and contemporary philosophical, legal, religious, moral, and social considerations that inform human attitudes about nonhuman animals. Challenges students to analyze a range of pertinent topics, including, but not limited to: animal welfare, animal liberation, animal sentience and consciousness, animal rights, the animal ethics movement, the animal rights movement, religious attitudes, animals, animal law, and animal activism.

## **PHIL 3470** **Pragmatism and American Philosophy**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Introduces students to various philosophical themes and figures unique to classical American Philosophy and American Pragmatism. Focuses on assorted thematic topics characteristic of American Pragmatism, as well as the work of the American transcendental school and various philosophical writings from American women, such as Jane Addams, and African-American philosophers, such as Alain Locke.

## **PHIL 3510** **Business and Professional Ethics**

**3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G) and University Advanced Standing

Develops concepts and philosophies essential to understanding ethical concerns in today's business and professions. Presents current case studies and theories about business ethics and helps students determine their own attitudes about contemporary and historical business morality. Examines a variety of approaches, solutions, and methods of critically thinking about ethics in business and professions.

## **PHIL 3520** **Bioethics**

**3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G or instructor approval) and University Advanced Standing

Shows how ethical theories can help provide frameworks for moral judgment and decision-making in the wake of recent scientific, technological, and social developments which have resulted in rapid changes in the biological sciences and in health care. Topics include: codes of ethics, ethical theories, and practical applications, such as: professional-patient relationships, genetic engineering, euthanasia, managed health care, end-of-life issues, abortion, and reproductive technologies.

## **PHIL 3530** **Environmental Ethics**

**3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G) and University Advanced Standing

Presents a comprehensive, balanced introduction to the field of environmental ethics. Examines a variety of national and international environmental issues. Challenges students to think and write critically about classic and contemporary works on ethics and the environment. Analyzes ethical, scientific, aesthetic, political, economical and religious perspectives pertaining to the environment.

## **PHIL 3540 (Cross-listed with: RLST 3540)** **Christian Ethics**

**3**

\* Prerequisite(s): PHIL 1610 and University Advanced Standing

Examines key developments and conceptions in Christian ethics through historical and conceptual methodologies. Explores the relationship between religious and secular approaches to ethics in their approach to questions of war, economics, politics, and/or other relevant issues.

## **PHIL 355G** **Moral Philosophy**

**3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G or instructor approval) and University Advanced Standing

Surveys the global history of moral and ethical philosophy from ancient to contemporary figures. Focuses on the following issues and theories: the good, moral reasoning and judgment, objectivism vs. conventionalism and relativism, natural law theory, ethical egoism, hedonism, virtue ethics, deontology, consequentialism, utilitarianism, materialism, moral sentiment, roles of emotion and reason in ethical and moral deliberation and judgment, as well as race, gender, and sexuality in ethics.

**PHIL 357R**  
**Moral Reasoning Through Case Studies**  
**Ethics Bowl**

**3**  
 \* Prerequisite(s): (PHIL 2050 or PHIL 205G or PHIL 205H) and University Advanced Standing

Studies complex, contemporary ethical issues and develops an advanced understanding of principles and theories studied in other ethics and moral theory courses. Uses a case study approach to ethical inquiry and introduces students to the content, format, rules, and procedures of the National Collegiate Ethics Bowl competition. Required for those students who wish to participate in the regional and national competitions and provides a challenging opportunity for others who are interested in participating in exciting ethical deliberations and discussions. May be repeated for up to 9 credits for graduation with approval of instructor and department chair.

**PHIL 3600**  
**Philosophy of Religion**

**3**  
 \* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

For students majoring in humanities related disciplines and other students interested in the academic study of religion. Teaches critical thinking methods and strategies regarding traditional philosophical issues in religious belief and practice. Explores various topics including the traditional arguments for the existence of God, religious experience, the relation between faith and reason, religious pluralism, and the traditional problem of evil.

**PHIL 3610 (Cross-listed with: RLST 3610)**  
**Introduction to Christian Theology**

**3**  
 \* Prerequisite(s): PHIL 1610 and University Advanced Standing

Examines key developments and conceptions in Christian theology through historical and conceptual methodologies.

**PHIL 3620 (Cross-listed with: RLST 3620)**  
**Mormon Theology and the Christian Tradition**

**3**  
 \* Prerequisite(s): PHIL 1610 and University Advanced Standing

For students majoring in humanities-related disciplines and other students interested in the academic study of religion. Engages students in exploring the defining features of Mormon thought in relation to the broader Christian tradition. Examines traditional theological questions such as the problem of evil, the scriptural canon, the nature of God and humanity, and the role of ritual.

**PHIL 364G**  
**Foundations of Buddhist Philosophy**

**3**  
 \* Prerequisite(s): University Advanced Standing

Examines ancient and classical Indian Buddhist philosophy. Engages students in philosophical thinking about Buddhist philosophical topics such as personhood, knowledge, reality, and ethics. Introduces students to Buddhist meditation practices and the methodology of cross-cultural philosophy. Develops competence in cross-cultural philosophical thinking by placing ancient Buddhist philosophical views and methodologies into dialogue with the students' own world views.

**PHIL 3650 (Cross-listed with: RLST 3650)**  
**Approaches to Religious Studies**

**3**  
 \* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G or instructor approval) and University Advanced Standing

For students majoring in humanities-related disciplines and other students interested in the academic study of religion. Teaches methodological approaches and critical thinking strategies in the study of religion. Explores various disciplines in their approaches to religious belief and practice. Includes the study of such thinkers as David Hume, Immanuel Kant, Friedrich Schleiermacher, Rudolf Otto, William James, Ludwig Feuerbach, Soren Kierkegaard, Max Weber, Emile Durkheim, John Hick, and Rene Girard.

**PHIL 366R (Cross-listed with: RLST 366R)**  
**Issues in Religious Studies**

**3**  
 \* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G or instructor approval) and University Advanced Standing

For students majoring in humanities-related disciplines and other students interested in the academic study of religion. Addresses specific topics and theoretical approaches related to religious studies. Topics may include religion and violence, religion and public discourse, religious ritual, etc. Subject matter varies by semester and is repeatable for a total of 9 hours of credit.

**PHIL 367G (Cross-listed with: RLST 367G)**  
**Engaging Religious Diversity**

**1 to 3**  
 \* Prerequisite(s): University Advanced Standing

Explores how religious communities engage one another and examines the implications of these interactions for religious conflict, spiritual identity, and the role of religion in societal contexts. Employs the tools from diverse disciplines to study the phenomenon of religious encounter in both historical and contemporary contexts. Investigates theories of religious diversity, American religious history, interreligious leadership practices, and narrative encounters.

**PHIL 3680 (Cross-listed with: RLST 3680)**  
**Interreligious Studies Practicum**

**3**  
 \* Prerequisite(s): University Advanced Standing  
 \* Corequisite(s): PHIL 367G or RLST 367G

Engages religious, spiritual, and secular diversity through experiential learning opportunities. Explores how religious and worldview diversity affects the ethical, social, civil, and personal dimensions of the human experience. Provides opportunities for students to apply the theories and principles studied in the other Interreligious Studies Certificate courses.

**PHIL 3700**  
**Social and Political Philosophy**

**3**  
 \* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G) and University Advanced Standing

Addresses ethics on the social level by exploring a variety of answers to the question: What is the best social structure? Covers concepts of justice, equality, liberalism, communitarianism, capitalism, democracy, feminism, multi-culturalism, and other topics.

**PHIL 3710**  
**Philosophy of Law**

**3**  
 \* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Introduces topics in the philosophy of law, such as the role, nature, extent, and justification of law. Investigates challenging questions about the rule of law, civil disobedience, the relationship between law and morality, justice, equality, responsibility, and punishment.

**PHIL 3750**  
**Marxist Philosophy**

**3**  
 \* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Examines the political philosophy of Karl Marx and looks at Marx's legacy for 20th century and contemporary philosophy. Includes Marx's criticism of Hegel and Hegelian Idealism, Marx's philosophy as "ideology critique," Marx's "materialist" philosophy, Marx's critique of capital, and several of the following: early 20th-century Marxist political philosophy, critical theory, structuralist Marxism, phenomenological Marxism, materialist feminism, and post-Marxism.

# Course Descriptions

## **PHIL 3800 (Cross-listed with: HUM 3800)**

### **Aesthetics**

**3**

\* Prerequisite(s): University Advanced Standing

Studies aesthetics as perceived by the disciplines of philosophy, psychology, sociology, anthropology, history, and others. Analyzes art forms, including the visual arts, literature, music, and theater from the perspectives of philosophers such as Plato, Aristotle, Kant, Hume, Dewey, Danto, Bell, Collingwood, Thoreau, and Dickie.

## **PHIL 3810**

### **Existentialism and Phenomenology**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Explores two of the most important and influential traditions within modern and contemporary philosophy. Covers figures such as Kierkegaard, Nietzsche, Husserl, Heidegger, Sartre, Camus, Merleau-Ponty, de Beauvoir, Gadamer, Levinas, Ricoeur, and Derrida, and issues in epistemology, metaphysics, ethics and aesthetics. The course focuses in particular on the notions of subjectivity, agency, free-will, and truth.

## **PHIL 3820 (Cross-listed with: HUM 3820)**

### **Philosophy through Literature**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Provides students with an interdisciplinary approach to the study of philosophy through literature. Gives students the opportunity to read some of the most engaging thinkers and how they offer differing perspectives through a variety of texts. Breaks down some of the strict divisions placed between philosophical and literary texts.

## **PHIL 3830**

### **Deconstruction and Hermeneutics**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or Instructor Approval) and University Advanced Standing

Studies the interpretive methods of deconstruction and hermeneutics, two important traditions to emerge in late 20th century philosophy. Analyzes various works from the history of philosophy through the frameworks of deconstruction and hermeneutics. Tracks the difference between knowledge and understanding, particularly through the writings of Jacques Derrida and Hans-Georg Gadamer. Includes the study of other relevant traditions such as post-structuralism, French feminism, and literary criticism.

## **PHIL 384R**

### **Topics in Comparative Philosophy**

**3**

\* Prerequisite(s): PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 and University Advanced Standing.

Provides students the opportunity to intensively study topics, figures, and aspects of non-Western and comparative philosophy beyond the scope of introductory classes (e.g., PHIL 1620 and 290G). Examines either a non-Western tradition/topic/text (e.g., the 'Analects' of Confucius, the 'Bhagavad Gita', Japanese aesthetics, Mayan metaphysics) or a major issue in philosophy approached comparatively (e.g., Chinese and Greek philosophies of science). Emphasizes comparative methodology itself, such as how to avoid the twin dangers of over-generalized stereotype and cherry-picked factoids when dealing with other cultures. Focuses on the close study of primary texts, including considerations of translation and cultural sensitivity. Encourages strong critical thinking, writing, and rhetorical skills, as well as growth into more worldly and informed philosophy majors. May be repeated for a maximum of 9 credits toward graduation.

## **PHIL 386R**

### **Topics in Ancient Philosophy**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Provides students the opportunity to study aspects of ancient Greek philosophy intensively. Focuses on an aspect of the thought of a particular philosopher, such as Plato or Aristotle, or on a particular theme in Ancient philosophy, such as Ethics or Metaphysics. Emphasizes close study of primary texts. Develops strong critical thinking, writing and rhetorical skills. May be repeated up to 3 times for a total of 9 credits.

## **PHIL 388R**

### **Topics in Medieval and Early Modern Philosophy**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Provides students the opportunity to study aspects of medieval and early modern philosophy intensively. Focuses on the thought of a particular philosopher or set of philosophers or a particular theme in medieval and early modern philosophy. Emphasizes close study of primary texts. Develops critical thinking, writing, and comprehension skills. May be repeated up to 3 times for a total of 9 credits.

## **PHIL 400R**

### **Great Philosophers**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Provides an in-depth look at a great figure in Philosophy across the topics of metaphysics, epistemology, ethics, social and political philosophy, aesthetics, and other themes. Addresses the contribution of the thinker to the history of Philosophy. Repeatable up to 12 credit hours with different topics.

## **PHIL 4120**

### **Philosophy of Education**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGL 1005 or PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Examines history, issues, and philosophical theories of education with attention to associated metaphysical, epistemological, ethical, political, and ideological assumptions.

## **PHIL 4130**

### **Nineteenth Century European Philosophy**

**3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Introduces students to the changes in 19th century European philosophy regarding the nature of truth, knowledge, human freedom, and nature. Focuses on the attempts of German Idealism to formulate a systematic science of reality. Discusses the possibilities and problems with conceiving truth as both complete and absolutely knowable. Analyzes the philosophies of nature, art, human freedom, society, and ethics.

## **PHIL 4140**

### **History of Analytic Philosophy**

**3**

\* Prerequisite(s): (PHIL 2150 or instructor approval) and University Advanced Standing

Explores the history of Analytic Philosophy from the late 19th century to the present. Includes the study of such figures as Bertrand Russell, B. Bolzano, Gottlob Frege, Ludwig Wittgenstein, Rudolph Carnap, G.E. Moore, J.L. Austin, Gilbert Ryle, W.V.O. Quine, and Fredrich Waismann. Studies methods of movements such as Logical Empiricism, and Ordinary Language Philosophy. Explores views such as Logicism, Logical Atomism, Holism, Verificationism, Logical Behaviorism, Psychologism, Nominalism, and Realism.

**PHIL 4150****History of Continental Philosophy****3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Explores continental European philosophy. Reviews Kant's critical philosophy. Examines Hegel's attempt to go beyond the limitations of critical philosophy by creating a systematic, dialectical philosophy. Examines the following traditions as responses to Hegel: Western Marxism, Existentialism, Phenomenology, Structuralism, Post-Structuralism and Deconstruction, Post-Modernism, Psychoanalysis, and Feminism.

**PHIL 416G****History of Chinese Philosophy****3**

\* Prerequisite(s): PHIL 2050 and University Advanced Standing

Explores the philosophies of China. Interprets major Chinese philosophical texts and figures, tracing the development of Chinese philosophy's key themes and questions across the centuries. Examines the "classical era" of Chinese thought, the Warring States Period, in which the foundations of all subsequent tradition emerged: Confucianism, Daoism, Mohism, Legalism; the introduction of Buddhism to China throughout the medieval period, culminating in the Neo-Confucian movements of the late imperial era; and modern Chinese political theory.

**PHIL 4200****Symbolic Logic****3**

\* Prerequisite(s): PHIL 3000 and University Advanced Standing

Discusses the philosophical motivation for the formalization of logic. Introduces the metatheory for propositional and quantificational logic. Includes proofs of the soundness and completeness of quantificational logic. Discusses the philosophical issues surrounding the results proved. May also include some discussion of important results in computability.

**PHIL 4300 (Cross-listed with: HUM 4300)****Environmental Aesthetics****3**

\* Prerequisite(s): (PHIL 000, PHIL 100H, PHIL 2050, PHIL 205H, PHIL 205G, ENST 3000, HUM 1010, HUM 101H, HUM 101G, or HUM 3500) and University Advanced Standing

Introduces students to emerging themes in environmental aesthetics. Evaluates concepts and attitudes toward nature including, but not limited to, the concept of beauty in natural and human-made environments from a cross-cultural perspective. Studies environmental formalism, cognitivism and non-cognitivism, as well as divergent spiritual, ecological, religious, and moral approaches to the appreciation of nature.

**PHIL 430R****Topics in Epistemology****3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Provides an opportunity for students to conduct an in-depth study of specific topics in epistemology. Topics may include the foundations of knowledge; the nature of justification; the problem of skepticism, and the nature of scientific, religious, and/or moral knowledge. Emphasizes the rigorous analysis of arguments and offers the opportunity for students to develop their own original critical analysis and argument. May be repeated for a maximum of 9 credits toward graduation.

**PHIL 4460****Philosophy of Psychology****3**

\* Prerequisite(s): (PHIL 2050, PHIL 205G, PHIL 205H, PSY 1010, or PSY 101H) and University Advanced Standing

Offers an interdisciplinary exploration of questions that arise when psychologists explore cognition and behavior concerning philosophical issues and when philosophers explore questions that rely on empirical claims about cognition and behavior. Surveys topics such as situationism and virtue ethics, moral intuitions, well-being, emotions, moods, positive illusions and free will, automaticity, confabulation, mental illness and psychopathy.

**PHIL 4461 (Cross-listed with: PSY 4461)****Moral Psychology****3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205G or PHIL 205H or PSY 1010 or PSY 101H) and University Advanced Standing

Analyzes questions about how people engage in moral thinking and in moral behavior from the perspectives of the philosophy of mind, ethics and psychology. Explores topics such as virtue and character, reason and passion, altruism and egoism, agency and responsibility, and moral intuitions.

**PHIL 4470****Philosophy of Mind****3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Explores central questions concerning the nature of the mind. Includes such topics as personal identity, the mind-body problem, other minds, mental causation, and externalism.

**PHIL 4480****Philosophy of Language****3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Explores the central issues in the philosophy of language. Includes the study of such issues as truth, meaning, reference and descriptions, names and demonstratives, speech acts, metaphor and private language. Includes the study of such philosophers as W.V.O. Quine, A Tarski, D. Davidson, J. Searle, J. Derrida, C. Levi-Strauss, F. Saussure, L. Wittgenstein, K. Donnellan, S. Kripke, D. Kaplan, H.P. Grice, B. Russell, and P.F. Strawson.

**PHIL 450R****Interdisciplinary Senior Ethics Seminar****3**

\* Prerequisite(s): Instructor approval and University Advanced Standing

For integrated studies majors and other interested students. Addresses ethical issues dealing with discipline specific subject matter, i.e., nursing, behavioral, physical, social sciences, etc. Subject matter will vary each semester. Taught by Philosophy faculty in cooperation with faculty of appropriate departments. Repeatable three times for credit with different subjects. See Philosophy Department office for specific topics.

**PHIL 451R****Ethical Theory Seminar****3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G or instructor approval) and University Advanced Standing

Offers detailed investigation of selected ethical theories central to the Western philosophical tradition. Repeatable up to 12 credit hours with different topics.

**PHIL 452G****Topics in Value Theory****3**

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Provides an opportunity for students to conduct an in-depth study of specific topics in value theory. Considers theoretical questions about the nature of value, meaning, and purpose in human life. Focuses on theoretical inquiries into the value of particular human activities, especially as they pertain to civic engagement. Considers topics including, but not limited to, micro aggressions, implicit bias, accessibility, inclusivity, and intersectionality. Emphasizes the rigorous analysis of arguments and offers not only the opportunity for students to develop their own original critical analysis and argument but also the opportunity for students to apply their learning outside the classroom. May be repeated for a maximum of 9 credits toward graduation.

## Course Descriptions

### PHIL 452R

#### Topics in Value Theory

3

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Provides an opportunity for students to conduct an in-depth study of specific topics in value theory. Considers theoretical questions about the nature of value, meaning, and purpose in human life. Includes the objectivity or subjectivity of value; the sources of value in human life; the nature and importance of art; the value of relationships, community, humor, and/or play; and related theoretical inquiries into the value of particular human activities. Emphasizes the rigorous analysis of arguments and offers the opportunity for students to develop their own original critical analysis and argument. May be repeated for a maximum of 9 credits toward graduation.

### PHIL 480R

#### Philosophy Capstone Prep

1

\* Prerequisite(s): PHIL 1250 or PHIL 2110 or PHIL 2150, University Advanced Standing

Prepares students to successfully complete a Philosophy Research Capstone thesis. Provides resources for formulating a thesis, identifying faculty adviser(s), and completing a one-page thesis proposal and an annotated bibliography of works to be consulted for the thesis project. May be repeated for a maximum of 2 credits toward graduation.

### PHIL 481R

#### Internship

1 to 6

\* Prerequisite(s): Departmental chair approval and University Advanced Standing

Allows philosophy students to receive credit for service as an intern in a governmental, not for profit, or private agency apart from their regular employment. Provides practical and research development in selected areas of service related to students' academic and/or professional interests or goals. Internship must be supervised by agency representative. Must be approved by philosophy internship advisor and department chair and written contracts must be completed and signed. Repeatable for a maximum of 6 credit hours toward graduation. May be graded credit/no credit.

### PHIL 490R

#### Independent Study

1 to 3

\* Prerequisite(s): Departmental Approval and University Advanced Standing

Provides independent study as directed in reading and individual projects. May be repeated for up to 6 total credits toward graduation.

### PHIL 4910

#### Philosophy Research Capstone WE

3

\* Prerequisite(s): (PHIL 1250 or PHIL 2110 or PHIL 2150), PHIL 480R, Senior Standing, and University Advanced Standing

To be taken during the student's last semester in the baccalaureate program. Includes writing a senior thesis, which points to post-baccalaureate career path or graduate school goals. Covers advanced Philosophy research and writing instruction. Encourages students to explore the ethical dimensions of their desired professional or graduate research interests. Involves the creation of a professional portfolio helpful in applying to graduate school or seeking employment.

### PHIL 492R

#### Advanced Topics in Philosophy

1 to 3

\* Prerequisite(s): (PHIL 1000 or PHIL 100H or PHIL 2050 or PHIL 205H or PHIL 205G or PHIL 2110 or PHIL 2150 or instructor approval) and University Advanced Standing

Examines advanced topics philosophy. Examples include ancient theories of political constitution, continental rationalism, empiricism, personal identity, free will, theories of truth and modal logic. May be repeated for a maximum of 9 credits toward graduation.

## Physical Science (PHSC)

### PHSC 1000

#### Survey of Physical Science

3

Surveys the exciting world of science and explains the basic scientific laws and models by which the physical universe may be understood. Stresses historical aspects and the impact of physical science on modern society. Draws topics from the fields of physics, chemistry, geology, meteorology and astronomy. Uses lectures, dramatizations, audio-visual presentations, and demonstrations.

### PHSC 281R

#### Cooperative Work Experience

2 to 9

\* Prerequisite(s): Approval of Cooperative Coordinator

Designed for Physical Science majors. Provides paid work experiences in the student's major. Course content is individualized, with students setting objectives in consultation with their faculty coordinator and their on-the-job supervisor. Credit is determined by the number of hours a student works during the semester. May be graded credit/no credit.

## Physics (PHYS)

### PHYS 1010

#### Elementary Physics

3

For students interested in a one-semester survey physics course. Covers the fundamentals of classical and modern physics. Includes mechanics, fluids, heat, waves and sound, electricity and magnetism, light, optical, relativity, atomic and nuclear physics. Includes lectures, classroom interaction, demonstration, and problem solving. Canvas Course Mats \$99/ Pearson applies.

### PHYS 1090

#### Pathways to Physics

1

Examines physics as a field of study. Introduces students to the UVU physics program and faculty research. Develops learning strategies specific to physics coursework and an awareness of available career paths in the sciences.

### PHYS 1100

#### Introductory Math Techniques for Physics and Engineering

3

\* Prerequisite(s): Math 1050 or Math 1080

Is an application-oriented, hands-on introduction to physics and engineering mathematics. Teaches the tools needed to solve problems commonly encountered in the first two years of core physics and engineering courses. Presents topics within the context of a physics or engineering problem, and reinforces through extensive examples and computational tools taken from physics and engineering courses.

### PHYS 1600

#### Introduction to Nanotechnology and Cleanroom Processes

3

\* Prerequisite(s): MATH 1050

Surveys the principles and processes behind nanotechnology and nanomaterials, basic tools for fabrication and characterization of nano and microstructures, and applications of nanotechnology. Examines fundamental principles and laws of electronics, atomic physics, solid-state physics and chemistry that are essential to nanotechnology will be introduced. Includes conducting virtual reality training exercises for tools such as electron microscopy, atomic force microscopy, nanolithography, and sputter deposition, and they will then complete hands-on laboratory experiments with these instruments. Covers special topics such as graphene, carbon nanotubes, quantum dots and molecular electronics.

**PHYS 1700** **PP**  
**Descriptive Acoustics**

**3**  
 \* Prerequisite(s): MAT 1010 or higher  
 Introduces the science of sound, music and speech and the physical principles and technology used to manipulate, store and broadcast it.

**PHYS 1750** **PP**  
**The Acoustics of Music**

**3**  
 \* Prerequisite(s): MAT 1010 or higher  
 Discovers the principles of physics that form the basis of music and provide the foundation for the design of musical instruments. Investigates the physics of music production, transmission and reception, and perception. Examines the five fundamental elements of the musical instrument, namely power supply, oscillator, resonator, amplifier, and pitch modifiers. Satisfies one general education physical science elective.

**PHYS 1800** **PP**  
**Energy You and the Environment**

**3**  
 \* Prerequisite(s): MAT 1010 or higher  
 Answers the question, "Where does energy come from, and where does it go?". Examines the methods of energy production, distribution, and consumption in society and their environmental impacts. Examines the personal impact of energy use on the environment and explores alternatives, such as fuel cell cars, and a hydrogen economy. Examines prospects for alternative energy sources, such as solar, wind, nuclear and geothermal energy at length. Intended for non-science majors interested in energy use in society.

**PHYS 1850** **PP**  
**The Physics of Aviation**

**3**  
 \* Prerequisite(s): MAT 1010 or higher  
 Uses the medium and modes of flight and modern aviation to introduce elementary physics. Includes vectors, kinematics, forces, momentum, energy, torques, elementary fluid dynamics and thermodynamics. Uses Algebra extensively. Presents and develops concepts of physics as exercises in modeling constructed from examples used in aviation. Canvas Course Mats \$76/Pearson applies.

**PHYS 2010** **PP**  
**College Physics I**

**4**  
 \* Prerequisite(s): MATH 1050 or higher  
 \* Corequisite(s): PHYS 2015  
 For students desiring a two semester algebra based course in applied physics. Covers mechanics, fluids, waves, heat, and thermodynamics. Canvas Course Mats \$78/Pearson applies.

**PHYS 2015**  
**College Physics I Lab**

**1**  
 \* Corequisite(s): PHYS 2010  
 Designed to accompany PHYS 2010. Provides firsthand experience with the laws of mechanics, fluids, waves, heat, thermodynamics, and data analysis. Course Lab fee of \$15 applies.

**PHYS 2020** **PP**  
**College Physics II**

**4**  
 \* Prerequisite(s): PHYS 2010  
 \* Corequisite(s): PHYS 2025  
 A continuation of PHYS 2010. Covers electricity, magnetism, waves, sound, optics, and nuclear physics. Canvas Course Mats \$78/Pearson applies.

**PHYS 2025**  
**College Physics II Lab**

**1**  
 \* Corequisite(s): PHYS 2020  
 Designed to accompany PHYS 2020. Provides firsthand experience with the laws of electricity, waves, optics, nuclear physics, and data analysis. Course Lab fee of \$15 applies.

**PHYS 2210** **PP**  
**Physics for Scientists and Engineers I**

**4**  
 \* Prerequisite(s): MATH 1210 or PHYS 1100  
 \* Corequisite(s): PHYS 2215  
 Introduces mechanics, fluid dynamics, thermodynamics, vibrations, and waves to the budding scientist or engineer utilizing the quantitative tools of calculus. Includes 1 hour of recitation per week.

**PHYS 2215**  
**Physics for Scientists and Engineers I Lab**

**1**  
 \* Corequisite(s): PHYS 2210  
 Designed to accompany PHYS 2210. Provides firsthand experience with the laws of mechanics, thermal physics, vibrations, and waves. Introduces methods of scientific data analysis. Course Lab fee of \$15 applies.

**PHYS 2220** **PP**  
**Physics for Scientists and Engineers II**

**4**  
 \* Prerequisite(s): PHYS 2210  
 \* Corequisite(s): PHYS 2225  
 Continues from PHYS 2210. Covers electricity and magnetism, including Maxwell's equations. Develops the theory of electromagnetic waves and optics. Presents introductory electronics and modern physics topics. Includes one hour of recitation.

**PHYS 2225**  
**Physics for Scientists and Engineers II Lab**

**1**  
 \* Corequisite(s): PHYS 2220  
 Accompanies PHYS 2220. Provides students first hand experience with the laws of electricity and magnetism, electric circuits, and optics. Emphasizes principles of data collection and analysis.

**PHYS 2500**  
**Elementary Fluids and Thermal Physics**

**3**  
 \* Prerequisite(s): PHYS 2220  
 \* Corequisite(s): MATH 2210  
 Presents a mathematically rigorous introductory description of fluid mechanics, thermodynamics, and heat transfer beyond that presented in PHYS 2210. Presents applications in both physics and engineering.

**PHYS 2700**  
**Biophysics**

**3**  
 \* Prerequisite(s): PHYS 2220, PHYS 2225, and BIOL 1010 or BIOL 1610  
 Covers the thermodynamics and statistical mechanics of biological systems, the mechanics of biologically important molecules, and the laws of fluid mechanics as applied in biological systems. Uses calculus-based mathematical models to treat specific reactions, particularly those treating biological systems as molecular machines.

**PHYS 2800**  
**Introduction to Materials Physics**

**3**  
 \* Prerequisite(s): PHYS 2220  
 Covers the atomic structure of materials and their properties, including electronic, thermal, and optical properties. Addresses experimental methods for creating and studying materials, and current topics in materials science including thin films, surface physics, metamaterials, and nanostructured materials.

**PHYS 295R**  
**Introduction to Independent Research**

**1 to 3**  
 \* Prerequisite(s): PHYS 2210, Departmental Approval  
 Working under faculty supervision, allows research on a project determined jointly with a faculty member and approved by the department chair. Emphasizes experimental technique, data collection, modeling, and analysis techniques. May be repeated for no more than six hours of elective credit.

## Course Descriptions

### PHYS 3010

#### Physics Experiments for Secondary Education

1

\* Prerequisite(s): PHYS 2210, (MATH 1050 or MATH 1055), MATH 1210, PHYS 2220, MATH 1060, and University Advanced Standing

For secondary education students. Emphasizes physics or chemistry. Addresses pedagogical methods for student physics laboratory exercises and demonstrations. Studies currently available commercial laboratory equipment for teaching physics in a lab setting. Includes ideas and methods for building inexpensive demonstrations and lab exercises. Provides training in safe and effective use of lab equipment.

### PHYS 3040

#### Modern Physics for Secondary Education

3

\* Prerequisite(s): PHYS 2220, MATH 1220, and University Advanced Standing

Addresses topics of special relativity, development of quantum mechanics, physics of the atom, elementary solid state physics, and elementary particle physics.

### PHYS 3110

#### Modern Physics I

3

\* Prerequisite(s): PHYS 2220 and University Advanced Standing

\* Corequisite(s): PHYS 3115

Addresses topics of error analysis and statistics, wave mechanics, special relativity, development of quantum mechanics, and atomic physics.

### PHYS 3115

#### Introduction to Experimental Physics I WE

2

\* Prerequisite(s): PHYS 2220 and University Advanced Standing

\* Corequisite(s): PHYS 3110

Introduces selected experiments of classical and modern physics in a laboratory setting. Addresses topics of measurement, error analysis, data analysis, and report writing.

### PHYS 3120

#### Modern Physics II

3

\* Prerequisite(s): PHYS 3110 and University Advanced Standing

\* Corequisite(s): PHYS 3125

Covers topics in special and general relativity, and addresses applications of modern quantum mechanics including molecular physics, solid state physics, statistical mechanics, nuclear physics, particle physics, and cosmology.

### PHYS 3125

#### Introduction to Experimental Physics II WE

2

\* Prerequisite(s): PHYS 3110, PHYS 3115, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): PHYS 3120

Introduces selected experiments of classical and modern physics in a laboratory setting. Addresses topics of measurement, data analysis, report writing.

### PHYS 3230

#### Principles of Electronics for the Physical Sciences

3

\* Prerequisite(s): PHYS 2220, MATH 2210, and University Advanced Standing

Introduces electronic measurement instruments commonly used in experimental physics laboratories. Covers principles of electronic measurements using transducers, solid-state devices, circuit analysis, logic circuits, and computers. Includes lab experience.

### PHYS 3300

#### Mathematical Physics

3

\* Prerequisite(s): PHYS 2220, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MATH 2210 or instructor consent. MATH 2280 is strongly advised as a pre- or corequisite.

Covers the applications of mathematical tools to experimental and theoretical research in the physical sciences. Introduces problems and systems common to physical science that can be modeled by the application of vector and tensor algebra, curvilinear coordinates, linear algebra, complex variables, Fourier series and transforms, differential and integral equations.

### PHYS 3310

#### Advanced Mathematical Physics

3

\* Prerequisite(s): PHYS 3300 and University Advanced Standing

Explores mathematics as applied to physics. Covers many families of orthogonal polynomials and the special functions of physics, such as the Gamma, Beta, and Error functions. Presents topics in contour integration and applications of conformal mapping. Investigates probability, random processes, statistical analyses, and probability distribution functions.

### PHYS 3330

#### Computational Physics

3

\* Prerequisite(s): PHYS 3300 and University Advanced Standing

Covers computational algorithms with specific applications to the description of physical systems. Covers iterative approximation methods, computations using matrices and vectors, numerical integration, solutions of differential equations. Uses a computer programming approach to problem solving.

### PHYS 3350

#### Applications of LabVIEW in Physics

3

\* Prerequisite(s): PHYS 3230 and University Advanced Standing

Develops programming skills in LabVIEW. Utilizes LabVIEW as the primary interface for analog and digital I/O for applications in physics experiments. Includes a student-directed group project that demonstrates effective use of LabVIEW in hardware interfacing in a physics experiment.

### PHYS 3400

#### Classical Mechanics

3

\* Prerequisite(s): PHYS 2220 and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): PHYS 3300 recommended

Treats classical mechanics of particles and systems using advanced mathematical techniques. Covers conservation principles, Lagrangian dynamics, harmonic oscillators, motion of rigid bodies and non-inertial reference frames.

### PHYS 3500

#### Thermodynamics

3

\* Prerequisite(s): PHYS 2220, MATH 2210, and University Advanced Standing

Addresses topics of heat, temperature, ideal gases, laws of thermodynamics, entropy, reversibility, thermal properties of solids, phase transitions, thermodynamics of magnetism, and negative temperature.

### PHYS 3600

#### Optics

3

\* Prerequisite(s): PHYS 3300, PHYS 3110, and University Advanced Standing

Covers the phenomena of reflection, refraction, diffraction, interference, optical behavior in materials and lasers. Presents a mathematically rigorous description of optical phenomena. May include equipment-based class projects.

### PHYS 3700

#### Particle Physics

3

\* Prerequisite(s): PHYS 3110 and University Advanced Standing

Introduces the Standard Model of particle physics, which enumerates the elementary particles that make up the universe and describes their interactions. Addresses particle accelerators and detectors. Examines unresolved questions in particle physics and possible extensions to the Standard Model.

**PHYS 3800 (Cross-listed with: CHEM 3800, ENVT 3800)**

**Energy Use on Earth**

**3**

\* Prerequisite(s): (PHYS 1010 or PHSC 1000 or GEO 1010 or GEO 2040 or METO 1010) and (MATH 1050 or MATH 1055) and CHEM 1010 and University Advanced Standing

Covers the science of energy production and consumption. Quantitatively analyzes various methods of energy production, distribution, and end use in all sectors of our society, including transportation, residential living, and industry. Examines the impacts of our energy consumption on the environment and prospects for alternative energy sources. Is intended for science majors interested in energy use in society or in an energy related career, and for students in other majors who feel that a technical understanding of energy use will help them to understand and mitigate its impact in our society.

**PHYS 4150  
Medical Physics**

**3**

\* Prerequisite(s): PHYS 3110, PHYS 3115 and University Advanced Standing

Explores the theory and applications of physics to medicine. Covers signal analysis, ultrasound, X-rays, optical, nuclear, and X-ray imaging techniques, nuclear medicine, magnetic resonance imaging, and nanomedicine.

**PHYS 4210  
Advanced Experimental Techniques**

**3**

\* Prerequisite(s): (PHYS 3125, PHYS 3230, or instructor approval) and University Advanced Standing

Introduces students to the process of developing, designing, proposing, building, executing, analyzing, revising, and presenting a scientific experiment. Teaches a variety of advanced experimental technical skills and helps students learn to embark independently on scientific research.

**PHYS 4250  
Nuclear Physics**

**3**

\* Prerequisite(s): PHYS 3110

Covers radiation, radioactive decay, nuclear structure, interactions of radiation with matter, radiation detection, nuclear reactions, fission, fusion, and applications of nuclear physics.

**PHYS 425R  
Physics for Teachers**

**1 to 5**

\* Prerequisite(s): Department Approval and University Advanced Standing

For licensed teachers or teachers seeking to recertify, an update course in physics and/or basic physics core courses for teachers needing physics or physical science endorsements from the Utah State Office of Education. Teaches principles of physics and pedagogy of teaching physics for teachers in public or private schools. Emphasis will be placed on correlation with the Utah Core Curriculum, the National Science Education Standards, and the Benchmarks of Project 2061. Topics will vary.

**PHYS 4350  
Research Methods in Physics**

**3**

\* Prerequisite(s): Instructor and Department approval and University Advanced Standing

Presents directed topics in research methods. Emphasizes practical methodologies in measurement, instrumentation, error analysis, statistical analysis and computational modeling. Requires a class project that may require MATLAB, LABView or other programming languages. Includes producing oral presentations, posters and journal articles using contemporary software and LaTeX.

**PHYS 4410  
Electrostatics and Magnetism**

**3**

\* Prerequisite(s): PHYS 3110, PHYS 3115, PHYS 3300, and University Advanced Standing

Explores the theory of electrostatic phenomena in a mathematically rigorous manner. Covers Gauss' Law, the Laplace and Poisson equations, boundary-value problems, and dielectrics.

**PHYS 4420  
Electrodynamics**

**3**

\* Prerequisite(s): PHYS 4410 and University Advanced Standing

Explores the theory of electrodynamic phenomena in a mathematically rigorous manner. Covers Ohm's and Kirchhoff's Laws, magnetic induction, the Biot- Savart Law, Ampere's Law, Ferromagnetism, Plasmas, Maxwell's Equations, and Special Relativity.

**PHYS 4510  
Quantum Mechanics I**

**3**

\* Prerequisite(s): PHYS 3110, PHYS 3115, PHYS 3300, and University Advanced Standing

Covers postulates of quantum mechanics, state functions of quantum systems, Hermitian Operators, the Schrodinger Equation, eigenfunctions of harmonic oscillators, and particles in potential wells.

**PHYS 4520  
Quantum Mechanics II**

**3**

\* Prerequisite(s): PHYS 4510 and University Advanced Standing

Covers general principles and applications of quantum mechanics. Addresses topics of three-dimensional problems, angular momentum operators, spin wavefunctions, perturbation theory, applications to atomic, molecular, solid-state, and nuclear physics.

**PHYS 4700  
Acoustics**

**3**

\* Prerequisite(s): PHYS 3110, PHYS 3115, PHYS 3300, and University Advanced Standing

Covers phenomena of sound, resonance, acoustics, and human hearing. Treats associated topics of waves, frequency, vibration and interference using appropriate mathematical tools.

**PHYS 4800  
Solid State Physics**

**3**

\* Prerequisite(s): PHYS 3120, 3125, PHYS 4510, and University Advanced Standing

Explores topics relevant to the structure, behavior, and properties of crystalline materials. Includes a study of lattice vibrations, free electrons, semiconductors, superconductivity, dielectric and ferroelectric materials and magnetism.

**PHYS 481R  
Physics Internship**

**1 to 4**

\* Prerequisite(s): PHYS 2220, Departmental Approval, and University Advanced Standing

Provides supervised, practical, and research experience for students preparing for careers in physics. May be repeated for a maximum of 6 credit hours. May be graded credit/no credit.

**PHYS 489R  
Undergraduate Research in Physics**

**1 to 3**

\* Prerequisite(s): PHYS 2220, Departmental Approval, and University Advanced Standing

Allows research on a project determined jointly with a faculty member and approved by the department chair. Emphasizes experimental technique, data collection, modeling, and analysis techniques. May be used as part of a senior thesis. May be repeated for a maximum of 9 credits toward graduation.

## Course Descriptions

### PHYS 490R

#### Seminar

.5

\* Prerequisite(s): University Advanced Standing

Exposes students to current research topics in physics and related fields. Provides an opportunity for students to attend bi-weekly lectures presented by department faculty and invited speakers. Lectures are usually a summary of the speaker's recent research results presented at a level appropriate for junior and senior physics majors.

### PHYS 492R

#### Topics in Physics

3

\* Prerequisite(s): Departmental approval and University Advanced Standing

Studies a chosen topic in physics. Topics vary depending upon student demand. Possible topic may be the mathematics for quantum mechanics. May be taken for a maximum of 6 credits toward graduation, but is limited to 3 credits for the BS in Physics.

### PHYS 495R

#### Independent Readings

1 to 3

\* Prerequisite(s): PHYS 2220, Departmental Approval, and University Advanced Standing

Working under faculty supervision, allows research on a project determined jointly with a faculty member and approved by the department chair. Emphasizes experimental technique, data collection, modeling, and analysis techniques. May be used as part of a senior thesis. May be repeated for a maximum of 9 credits toward graduation.

### PHYS 499A

#### Senior Project

2

\* Prerequisite(s): Instructor approval, Departmental approval, and University Advanced Standing

Provides an opportunity for senior physics majors to participate in a current research project supervised by a department faculty member. Includes independent study and/or laboratory work as necessary. Culminates in the preparation of a written paper and oral presentation describing the results of the research project as required for PHYS 499B. May be taken concurrently with PHYS 499B.

### PHYS 499B

#### Senior Thesis

1

\* Prerequisite(s): Instructor approval, Departmental approval, and University Advanced Standing

Continues PHYS 499A. Provides an opportunity for senior physics majors to present the results of a current research project supervised by a department faculty member. Includes independent study as necessary. Culminates in the preparation of a written paper and oral presentation describing the results of the research project.

## Peace and Justice Studies (PJST)

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### PJST 3000

#### Introduction to Peace and Justice Studies

WE

3

\* Prerequisite(s): PHIL 2050 and University

Advanced Standing

Introduces the student to the important literature, questions, and research programs of peace and justice studies. Explores personal, domestic, national, and international issues. Considers alternative conceptions of violence, war, terrorism, justice/injustice, and peace. Enables the student to become aware of various intellectual and professional disciplines that bear relationships to peace and justice, e.g., history, political theory, international relations, political economy, international law, environmental law, military science, mediation and negotiation.

### PJST 3020

#### The Ethics of War and Peace

3

\* Prerequisite(s): PHIL 2050 and University

Advanced Standing

Introduces literature concerning the ethics of conflict, war, terrorism, and peace. Considers alternative conceptions of these phenomena, as will be alternative approaches and ethical theories in respect to how conflict of various kinds might most effectively and morally be preempted or diminished. Addresses various defense theories and religious traditions' teachings about conflict, violence, and peace.

### PJST 3030

#### The Scientific Study of War and Peace

3

\* Prerequisite(s): PJST 3000 and University

Advanced Standing

Takes a multidisciplinary approach to the study of conditions under which the use of violence, terrorism, and war occur. Studies the use of non-violent approaches to conflict and their effectiveness. Examines the ways in which strategies for violent and non-violent approaches to conflict are developed and evaluated.

### PJST 3040

#### Peace in Historical Context

3

\* Prerequisite(s): University Advanced

Standing

Explores peace from an historical perspective. Considers the history of peace movements and humanitarianism, warfare, slavery and abolition, colonization, and indigenous perspectives on peace. Introduces students to the field of peace history and the ways historians have defined and understood peace. Enables the student to historicize peace in relationship to violence.

### PJST 3100

#### Introduction to Human Security

3

\* Prerequisite(s): ENGL 2010 and (PHIL 2050 or PHIL 205G) and University Advanced Standing

Introduces the student, and brings him or her, to some depth in the field of human security. Engages the student in a wide range of interdisciplinary literature because this field of inquiry, discourse, and conception is contested, theoretically rich, and empirically rich. Analyzes matters that threaten human security, for example: hunger and malnutrition; disease; cultural, structural, and direct violence; ecological and environmental degradation; political and economic instability and hegemony. Analyzes the organizations, institutions, movements, and strategies assembled successfully against these threats.

### PJST 3200

#### Global Poverty Facts Causes and Solutions

3

\* Prerequisite(s): (ENGL 2010 or instructor approval) and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): PHIL 2050 or PHIL 205G or instructor approval

Analyzes global poverty as a serious and pressing worldwide problem that kills over 33,000 people each day. Interrogates questions of why poverty exists, as well as what is or can be done to diminish or eliminate it. Presents sophisticated and empirically-based information regarding global malnutrition, conflict, migration, lack of employment and healthcare, etc. Uses the most recent research and research methodologies to investigate both the causes of poverty and the most promising solutions. Examines literature about various moral perspectives and how they speak to the moral duty (or its absence) to address poverty.

### PJST 3300

#### Community Development

3

\* Prerequisite(s): PJST 3000 and University Advanced Standing

Surveys the nature of community and approaches to the building and strengthening of community. Analyzes needs in various communities and methods of implementing solutions to meet those needs. Explores policies and strategies that produce a high quality of life and maximum opportunity for all residents of local communities. Examines community development through case studies and direct student engagement.

**PJST 3400**  
**Conflict Transformation Resolution and Sustainable Peace**

**3**  
 \* Prerequisite(s): PJST 3000 and University Advanced Standing

Uses empirical data to interrogate and explicate organized death in the form of war, revolution, insurgency, or terrorism as a perennial, and one of the most complicated, problems. Uses empirical data and theory to investigate the means of conflict transformation that have been most successful. Presents a basic understanding of how conflict is transformed from (1) an active status to (2) resolution to (3) peaceful stalemate to (4) sustained peace. Explicates the process of moving from active violent conflict to sustainable peace. Explores the roles of peoples, state organizations, institutions, civil society, culture, religion, states, and multilateral organizations.

**PJST 4200**  
**Advanced Poverty Studies: Global Problems and Policies**

**3**  
 \* Prerequisite(s): (PHIL 2050 or PHIL 205G) and University Advanced Standing

Analyzes the nature of poverty in diverse societies, techniques for its measurement and inaccurate measurement, and the causes and reasons for poverty and its intractability. Examines the ways in which local, national, and global factors are part of the nature of poverty. Surveys policies and institutions designed to confront the problem. Interrogates and explicates the ethical issues surrounding poverty and its alleviation.

**PJST 4300**  
**Race Gender and Class in Peace and Justice**

**3**  
 \* Prerequisite(s): PJST 3000 and University Advanced Standing

Analyzes the bases of discrimination and domination in societies. Addresses the multidimensional forms of social inequality by examining concrete examples of each dimension such as the wealth gap, gendered work, and poverty. Examines the nature of social class, race, and gender as they relate to issues of war, peace, injustice, and justice. Surveys the contributions that the perspectives of the dominated and victims of discrimination offer to the resolution of inequalities and the establishment of equity.

**PJST 475R**  
**Issues in Peace and Justice Studies**

**3**  
 \* Prerequisite(s): PHIL 2050, Junior Standing, and University Advanced Standing

Presents a selected topic from current issues in the area of Peace and Justice Studies which will vary each semester. May approach topics from a cross-disciplinary perspective. Requires a project demonstrating competence in the specific topic or issue. May be repeated for a maximum of 6 credits toward graduation.

**PJST 481R**  
**Internship**

**1 to 8**  
 \* Prerequisite(s): Program Director Approval and University Advanced Standing

Provides opportunities for internship experience in the following types of agencies: political, governmental, corporate, private, news agencies or any non governmental organization (NGO) apart from regular employment. Encourages practical, research, and/or development experience in selected areas of service related to the student's academic or professional goals relevant to peace and justice studies concerns. Requires supervision by an agency representative and approval of the Peace and Justice Studies internship adviser and the program director. Requires that written contracts be completed and signed by all responsible parties. Credit is determined by the number of hours a student works during the semester. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

**PJST 4900**  
**Peace and Justice Studies Capstone**

**3**  
 \* Prerequisite(s): ENGL 2010, Senior Standing, and University Advanced Standing

To be taken during the student's last semester. Includes writing a senior thesis which points to career or graduate school goals. Requires a significant research project, which may coincide with field work and/or internship experience. Covers advanced Peace and Justice Studies research and writing instruction. Involves the creation of a portfolio helpful in applying to graduate schools or seeking employment.

**PJST 491R**  
**Independent Study**

**1 to 8**  
 \* Prerequisite(s): Program Director Approval and University Advanced Standing

For self-directed students who wish to engage in a well-defined study or project in an area of special interest within the domain of Peace and Justice Studies. Requires individual initiative and responsibility with limited formal instruction and faculty supervision. Projects may include writing a publishable paper, giving an oral presentation, passing a competency exam, or completing any other options approved by the instructor and the program director. May be repeated for up to 9 credits toward graduation.

**Political Science (POLS)**

**POLS 1000** **AS**  
**American Heritage**

**3**  
 Studies the founding of American constitutional government. Considers the cultural, economic, legal, political, and social ramifications of the Constitution of the United States.

**POLS 1010** **SS**  
**Introduction to Political Science**

**3**  
 Explores the nature of politics and power. Compares constitutional systems of government with closed totalitarian systems such as the Communist Bloc nations. Examines public opinion, political communications, interest groups, party politics, ideologies, governmental institutions, bureaucracies, and government legal systems. Studies the role of violence and revolution. Emphasizes the influence of these political elements on the average citizens.

**POLS 1020**  
**Political Ideologies**

**3**  
 Surveys the major historical and current political ideologies including liberalism, Marxism, fascism and Islamism.

**POLS 1100** **AS**  
**American National Government**

**3**  
 Studies history and structure of American National Government, rights and responsibilities of citizens, political institutions, political processes, and governmental policies.

**POLS 1440**  
**Introduction to Middle East Politics**

**3**  
 Studies social, historical, political and religious influences affecting the Middle East. Explores forces that motivate policy and decision-making. Examines current issues such as the Arab-Israeli conflict, political Islam, petroleum power and U.S. foreign policy. Presents profiles of selected modern Middle East states and the balance of power in the region.

**POLS 2100** **SS**  
**Introduction to International Relations**

**3**  
 Discusses logic of power in international relations. Studies idealistic and realistic theories of international relations. Examines reasons why nations go to war. Compares geopolitical thrust and response.

**POLS 2200** **SS**  
**Introduction to Comparative Politics**

**3**  
 Studies comparative politics and looks at attitudes and causes of political problems. Examines methods and means employed by selected countries to solve political problems, and studies successes and failures of different approaches. Examines the means which different nations employ to deal with political problems. Explores the politics, institutions, and governments of seven selected nations.

# Course Descriptions

## **POLS 2220**

### **Introduction to Chinese Commerce**

**3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Surveys the current situation of the Chinese economy, starting with Chinese economic geography and the historical background of economic development in the post-1978 era. Concentrates on economic transition, development strategies, and basic situations of various sectors in the post-reform era, discussed in a comparative framework with the economic transition and development experience of other countries. Discusses some current eye-catching issues associated with economic development and having international impacts, such as international trade and investment transactions, energy competition, and environmental degradation of China.

## **POLS 230G**

### **Introduction to Political Theory**

**3**

Surveys major Western political theories, from Athenian democracy to the 21st century welfare state. Analyzes such ideologies as republicanism, liberalism, socialism, and fascism, and considers how these ideas have shaped the ways in which people think and nations act. Explores how global cultures have used and abused these ideas, and how students' own political beliefs fit into the history of political ideologies.

## **POLS 2400**

### **Peace and Justice Studies Basics**

**3**

Examines the complexities and consequences of efforts to deal with conflicts between individuals, groups, and nations through a variety of techniques, including violence, war, and peace building. Introduces techniques used in the non-violent resolution of conflicts. Promotes techniques to avoid resorting to violence as a means of conflict resolution.

## **POLS 3000**

### **Political Analysis**

**3**

\* Prerequisite(s): University Advanced Standing

Covers the analytical and quantitative methodologies used in political science and public policy research. Includes statistical analysis, database research, and writing exercises.

## **POLS 3010**

### **Political Analysis II**

**3**

\* Prerequisite(s): POLS 3000 and University Advanced Standing

Covers advanced political data analysis techniques, including: advanced multiple regression analysis and diagnostics, measurement reliability and validity, the use of statistical-analysis software and presentation of analysis results.

## **POLS 3020**

### **Public Program Analysis**

**3**

\* Prerequisite(s): University Advanced Standing

Serves as an introduction to evaluation methodology and evaluation tools commonly used to assess publicly funded programs. Provides training and practice in the field of public program analysis. Familiarizes students with different types of program evaluation, including needs assessment, formative research, process evaluation, monitoring of outputs and outcomes, impact assessment, and cost analysis.

## **POLS 3030**

### **State and Local Government**

**3**

\* Prerequisite(s): University Advanced Standing

Examines the operation and structure of American State and Local Government with special attention to the Utah experience. Explores the local political process, administrative practices, and intergovernmental relations.

## **POLS 3040**

### **Survey Research and Design Methods**

**3**

\* Prerequisite(s): University Advanced Standing

Focuses on the role of polling in the political process. Introduces the theory and methods used in survey research. Includes how survey-research firms produce polls, analysis of polling for campaigns and public opinion, the psychology of survey response, survey construction, and sampling. Covers other data-collection techniques commonly used in politics and political science such as focus groups and experiments.

## **POLS 3050**

### **Experimental Methods in Political Science**

**3**

\* Prerequisite(s): POLS 3000 and University Advanced Standing

Provides an overview of experimental methodology currently being utilized in the field of Political Science. Dissects the multiple stages of experimental research design and data analysis. Teaches critical thinking in terms of the benefits and dangers of causal inference using experimental research.

## **POLS 3060**

### **Qualitative Analysis**

**3**

\* Prerequisite(s): POLS 3000 and University Advanced Standing

Offers a hands-on opportunity for students to experience the practice of qualitative research. Provides training and practice in a broad set of qualitative methods as applied to public sector organizations, such as state and federal agencies, municipalities, and nonprofit organizations.

## **POLS 3070**

### **Policy Analysis**

**3**

\* Prerequisite(s): POLS 3310 and University Advanced Standing

Provides an introduction to the objectives, functions, and techniques of policy analysis in democratic societies, with an emphasis on the United States. Emphasizes policy analysis in government organizations. Considers policy analysis in nongovernmental settings, such as nonprofit organizations and think tanks.

## **POLS 3100**

### **Survey of International Terrorism**

**3**

\* Prerequisite(s): University Advanced Standing

A survey course of political violence and terrorism in the modern world. Studies terrorism and other forms of political violence and how they relate to fundamentalism, such as the Shiite Islamic, and Christian identity movements in the United States and Western Europe. Examines the concept of religious and political terrorism, as well as the ideologies, tactics, and organizations common to most terrorist groups.

## **POLS 3120**

### **Political Parties**

**3**

\* Prerequisite(s): (POLS 1100 or instructor approval) and University Advanced Standing

Examines the American political party system with special attention given to the history, structure, functions, and role of American political parties.

## **POLS 3150**

### **US Presidency**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Studies the executive branch of American national government. Examines the basic functions, tenets, and institutions of the federal executive branch. Special attention given to the powers, roles, and structure of the presidency. Analyzes the various complexities of executive politics and policies.

## **POLS 3160**

### **Campaigns and Elections**

**3**

\* Prerequisite(s): University Advanced Standing

Examines the role of elections in the democratic process. Analyzes the effects of campaigns on voter behavior at the national, state, and local levels.

**POLS 3170  
Political Psychology WE**

**3**  
\* Prerequisite(s): POLS 1000 or POLS 1100 or HIST 1700 and University Advanced Standing

Examines the integration of political science and psychology to better understand the political world. Analyzes the theories and methods that have been developed to explain political behavior. Studies how dynamic conscious and unconscious processes collectively shape political outcomes.

**POLS 3180  
Public Opinion and Political Behavior**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores the formation and role of public opinion in politics and its impact on political behavior. Topics covered are: how, and to what extent, individuals form their attitudes about politics; how researchers go about attempting to measure public opinion; the distribution and determinants of public opinion regarding a broad range of political issues; and how political attitudes affect political participation.

**POLS 3200  
US Congress**

**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Examines the legislative branch of American national government. Explores concepts of legislative theory, examining basic structure, functions, powers and roles of Congress. Gives special attention to the legislative process, constitutional structure, and modern development of federal legislature.

**POLS 3210  
World Diplomacy**

**3**  
\* Prerequisite(s): POLS 2100 and University Advanced Standing

Examines diplomacy as the conduct of relations between sovereign states through the medium of officials based at home or abroad. Explores processes and procedures of the diplomatic art that focuses chiefly on the recent past but is rooted in history. Emphasizes negotiation (the most important function of diplomats), as well as unconventional diplomatic methods.

**POLS 3220  
Interest Groups**

**3**  
\* Prerequisite(s): University Advanced Standing

Provides an introduction to interest groups and their role in American politics. Examines the ways that citizens, firms, and institutions struggle to gain representation through organized interest groups in the United States. Includes the reasons why interest groups are formed, the reasons why people join organized interests groups, and the importance of leaders and leadership in attracting members and maintaining the stature of the group.

**POLS 3250  
Introduction to Law and Politics**

**3**  
\* Prerequisite(s): POLS 1100 and University Advanced Standing

Examines the relationship between law and politics. Addresses the impact politics have on the judiciary and the strengths and weaknesses of law as a means of social order. Focuses on general issues of legal and political theory and the social and political function of law.

**POLS 3260  
American Federalism**

**3**  
\* Prerequisite(s): University Advanced Standing

Examines the origin and development of the American federal system of government. Explores the historical phases and changing conceptions of federalism in the United States. Applies theoretical debates to the study of public policy, including education policy, marijuana regulation, civil rights and civil liberties, and economic development. Analyzes the ways in which decentralized government promote or inhibit other public goods like equality, diversity, and unity.

**POLS 3300  
Introduction to Public Administration**

**3**  
\* Prerequisite(s): University Advanced Standing

Introduces basic concepts and principles in the implementation of public policy, as opposed to the formation of public policy. Includes concepts such as chain of command, hierarchy, and span of control.

**POLS 3310  
Introduction to Public Policy WE**

**3**  
\* Prerequisite(s): ENGL 1010 or ENGH 1005 and University Advanced Standing

Provides an introduction to the process of public policy-making in the United States and to the substance of policy in areas like health policy, environmental policy, and education policy. Introduces students to the fundamental skills of policy analysis and to some of the difficult choices involved in identifying, addressing, and resolving public policy problems.

**POLS 3320  
Nonprofits and The Public Sector**

**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Explores the historical background, development, role, and purposes of nonprofit organizations. Expands awareness of the scope and breadth of the nonprofit sector in the United States, and examines the inner workings of nonprofit organizations as the foundation for further study.

**POLS 3330  
Environmental Politics and Policy**

**3**  
\* Prerequisite(s): University Advanced Standing

Examines current environmental problems' political character, attempts to comprehend their causes, and discusses how governments, organizations, movements, communities, and individuals are responding to environmental degradation and the rapidly escalating climate crisis. Identifies and analyzes the guiding principles that inform policy choices and the different tools available to policymakers to address these challenges, with a focused examination of state government, federalism, and the roles of the three branches of the national government.

**POLS 3340  
Public Innovation**

**3**  
\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Presents an overview of the background, methods, and, techniques associated with public sector innovation. Equips students who wish to be innovators with the knowledge and skills necessary to imagine and implement innovative solutions to public problems.

**POLS 3350  
Health Politics and Policy**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores the politics of public health and health care policy in the United States, with a focus on current issues and controversies. Compares health policy in the United States to other countries on a variety of issues, including access and cost. Examines various legal issues surrounding health policy.

**POLS 3360  
The Politics of Economic Inequality**

**3**  
\* Prerequisite(s): University Advanced Standing

Explores the relationship between economic inequality and the American political system. Examines how the public has responded to the growth of income inequality. Explores public policies that are closely connected to growing inequality and analyze previous policy debates concerning economic inequality in the contemporary United States.

# Course Descriptions

## **POLS 3370**

### **Leading Cities**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Provides an introduction to and overview of what leadership is within the public sector. Examines the skills required to successfully lead and manage cities for both elected and appointed leaders (mayors, city managers, city council members, etc.). Considers related topics, including the diverse functions of a city and common challenges faced by city leaders.

## **POLS 3380**

### **Local Economic Development**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Introduces the context, theory, process, and practice of local economic development policy. Examines facets of local economic development such as tax increment finance, job creation, economic analysis, business expansion and retention, and economic gardening.

## **POLS 3390**

### **Urban Planning**

**3**

\* Prerequisite(s): University Advanced Standing

Provides a broad introduction to the field of urban planning as a profession, a process of decision-making, and a government function. Explores the limitations and benefits of planning, primarily in areas such as climate adaptation, economic development, and natural disasters.

## **POLS 3400**

### **American Foreign Policy**

**3**

\* Prerequisite(s): POLS 1100, POLS 2100, and University Advanced Standing

Examines the development and theories of American foreign policy with special emphasis on the twentieth and twenty-first centuries. Surveys the process by which American foreign policy is formulated and examines major events and trends in policy since World War II.

## **POLS 3410**

### **Globalization and Sustainable Development**

**3**

\* Prerequisite(s): University Advanced Standing

Examines major measurements of sustainability indicators, approaches and institutions in disaster management, and the roles of environmental assessment, management and policy. Considers the impacts of infrastructure development, economics, and market failures, in addition to major approaches and linkages to poverty reduction. Examines the importance of governance, democratic institutions and civil society for sustainable development (SD). Considers the role of international financial and political institutions; international environmental agreements for SD.

## **POLS 3420**

### **Islam in World Affairs**

**3**

\* Prerequisite(s): University Advanced Standing

Examines the history, traditions, and pillars of Islam as the latest among monotheistic religions in the world. Studies the role of women in Islam and its roots of diversity, including the historic split to Shia and Sunnis. Examines the influence of Islam in the politics and economies of Muslim nations around the world and examines the challenges presented by radical Islam for the modern world.

## **POLS 3480**

### **Race in Politics**

**3**

\* Prerequisite(s): University Advanced Standing

Analyzes the role of race and ethnicity in global, national, and local politics. Focuses on the ways race has been socially constructed to promote the power of some and the domination of others.

## **POLS 3490**

### **Race and Politics in the U.S.**

**3**

\* Prerequisite(s): POLS 1000 or POLS 1100 or HIST 1700 and University Advanced Standing

Examines the major theories that have attempted to explain the roles of race and ethnicity in American politics. Studies how race, ethnicity, and gender are used as resources for organization in the political development of the United States. Analyzes the political attitudes and behaviors of racial and ethnic populations in order to measure their contemporary political influences.

## **POLS 3500**

### **International Relations of the Middle East**

**3**

\* Prerequisite(s): (POLS 2100 or instructor approval) and University Advanced Standing

Covers the impact of the West on the Middle East, the Arab-Israeli wars, the rise of Islamic fundamentalist terrorist groups and regimes, the Iran-Iraq war (1980-1988), the Iraq-Kuwait-US war (1990-1991), the Impact of 9/11, as well as the foreign policies of several major states in the Middle East.

## **POLS 3510**

### **Post Soviet Politics**

**3**

\* Prerequisite(s): University Advanced Standing

Examines relations of the Russian Federation to its neighbors and other strategic international actors. Focuses on the dynamics of key bilateral relationships by highlighting such key areas as oil and energy, defense policy, economic policy priorities, and the role of international institutions.

## **POLS 352G**

### **Chinese Politics**

**3**

\* Prerequisite(s): University Advanced Standing

Reviews the historical background in which Chinese Communist Party established its governance. Examines the politics of the People's Republic of China since 1949. Analyzes important aspects of Chinese political and economic institutions and governance, such as party-state, political economy, judicial system, military, dissent politics, and foreign policy. Explains Chinese geographic and demographic features and how those features affect Chinese politics and economy. Discusses significant effects and implications which China's political modernization and economic growth might have across its border.

## **POLS 353G**

### **Asian Politics**

**3**

\* Prerequisite(s): University Advanced Standing

Explains the demographic features in India, China, and Japan and how those features affect politics in the three countries. Reviews the historical background in which India, China, and Japan established their national identities. Surveys and compares the state-building efforts and development strategies in India, China, and Japan. Examines and compares domestic political system and government structure in these three countries. Discusses significant effects and implications which Asian politics might have across their borders.

## **POLS 356G**

### **Comparative Politics of Central Asia**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Introduces students to the region of Central Asia with its complex nature and origins of instability. Places regional conflicts to the context of global political developments. Analyzes the historical background of its problems and challenges in combination with studies of its dynamically developing politics.

## **POLS 3600**

### **International Relations of East Asia WE**

**3**

\* Prerequisite(s): University Advanced Standing

Examines the historical, structural, geopolitical, institutional, and normative dynamics that have shaped the international relations and orders in East Asia. Surveys the geopolitical dynamics for war and peace, and the impact of East Asian culture, civilization, and identity. Studies industrial development and the development of trans-border production networks. Focuses on the dynamics, characteristics and problems of economic regionalism and cooperative security, with special attention to domestic structures and their influence on international relations in the region.

**POLS 3610****International Organization WE****3**

\* Prerequisite(s): POLS 2100 and University Advanced Standing

Focuses on the the role of international institutions in the modern state system. Analyzes procedures of international cooperation in key issue areas including: the peaceful settlement of disputes and international security, human rights, economic development, and the environment.

**POLS 3620****Latin American Politics****3**

\* Prerequisite(s): University Advanced Standing

Studies the development of modern political institutions as an outcome of colonial practice in Latin America, such as slavery and economic dependency. Examines national politics in Latin America, focusing on issues such as political power, democratization, indigenous rights, border politics, neo-colonialism, and Latin American socialism. Explores the consequences for Latin America of neo-liberalism, Eurocentrism, narco-trafficking, and globalization on the international level.

**POLS 362G****Modern Chinese Political Economy****3**

\* Prerequisite(s): University Advanced Standing

Examines the Chinese experience in economic transition and economic development in general and in several domestic sectors, which cross the conventional boundaries between political and economic analysis and through a comparative lens vis-à-vis other transition economies and developing economies. Presents the basic historical and current developments of Chinese economy. Probes the interaction between economic development and political institutions in China, and considers the international effects and implications of Chinese economic development in a critical way.

**POLS 3630****Sustainable Mountain Development****3**

\* Prerequisite(s): University Advanced Standing

Considers the issues of sustainable mountain development (SMD) as a part of the globalization process and one of the important priorities of the multilateral agenda of the United Nations. Includes discussion of the problems of mountain ecosystems, such as sources of goods, food, and services for mountain populations. Examines special economic development issues in rural, isolated mountain communities in the contexts of recreation and tourism, biological and cultural diversity, and religious significance.

**POLS 3640****United Nations Sustainable Development****Goals****3**

\* Prerequisite(s): University Advanced Standing

Examines the United Nations Sustainable Development Goals and the role the UN Economic and Social Council plays in the implementation of Sustainable Development Goals. Considers the role of the sustainable mountain development agenda in the UN 2030 Development Agenda and in promotion of Utah as the model of economic development among mountain nations worldwide. Examines the practical aspects of the UN Sustainable Development Goals advocacy through an engaged learning activity by visiting the UN Economic and Social Council forums.

**POLS 3650****Model United Nations****3**

\* Prerequisite(s): University Advanced Standing

Focuses on the issues, goals and procedures of the United Nations. Incorporates research on political, economic, and social issues of assigned countries in preparation for a simulation of the United Nations. Includes debate on important international political issues accompanied by negotiation and drafting of resolutions to address global problems.

**POLS 3680****International Political Economy****3**

\* Prerequisite(s): POLS 2100 and University Advanced Standing

Focuses on the connection between politics and economics in international relations, including an overview of some of the major issues in the area of international political economy, the international trade and financial systems, the role of multinational corporations, economic development, and economic globalization.

**POLS 420R****Issues and Topics in Political Science****3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Surveys a specific topic in political science. Topic varies each semester. May be repeated for a maximum of 6 credits toward graduation.

**POLS 4500****International Conflict and Security****3**

\* Prerequisite(s): POLS 2100 and University Advanced Standing

Focuses on causes and theories of conflict in international relations. Includes traditional and emerging threats to international security, as well as policy responses to them.

**POLS 4610****International Law****3**

\* Prerequisite(s): POLS 2100 and University Advanced Standing

Focuses on theories, sources, and foundations of international law. Includes discussion of rights and duties of states, the relationship between international and domestic law, interstate settlement of disputes, and extraterritorial jurisdiction. Explores international law in the areas of human rights, the environment, and the use of force.

**POLS 480R****Internship WE****2 to 9**

\* Prerequisite(s): University Advanced Standing

Provides opportunities for internship experience in political organizations, government offices, and non-governmental organizations. Gives practical experience in oral and written communication in an applied professional setting. May be repeated for a maximum of 9 credits toward graduation.

**POLS 4850****State Legislative Internship Seminar****3**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ENGL 1010 or ENGH 1005

Prepares students who have been selected to serve as interns to the Utah State Legislature. Focuses on legislative behavior and organization; bill and law making; research and policy; comparative state government and politics and internship requirements.

**POLS 490R****Independent Study****1 to 4**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Provides independent study for students unable to secure a desired class within regular semester curriculum offerings. With the approval of dean and/or department chair, student and instructor design and complete readings and other projects at the upper division level. May be repeated for a maximum of 6 credits toward graduation.

**POLS 4990****Senior Seminar WE****3**

\* Prerequisite(s): POLS 3000, Senior standing in Political Science, and University Advanced Standing

Includes readings and discussions about fundamental political science problems and issues. Offers directed research project tailored to each student's special interests.

## Portuguese (PORT)

**PORT 1010** **LH**  
**Beginning Portuguese I**  
**4**

For those with no prior Portuguese. Emphasizes listening, speaking, and writing skills along with basic grammar, vocabulary and verb conjugations all within the cultural context of modern Brazil and Portugal. Use eclectic methodology requiring conversational exchanges. Lab access fee of \$10 applies.

**PORT 1020** **LH**  
**Beginning Portuguese II**  
**4**

\* Prerequisite(s): Students need equivalent knowledge of PORT 1010  
 Continuation of PORT 1010. Includes remaining first-year grammar and language concepts plus introduction to literature and cultural readings. Uses eclectic method of instruction, emphasizing conversational exchanges. Lab access fee of \$10 applies.

**PORT 1050** **LH**  
**Intensive Portuguese for Spanish Speaker**  
**5**

\* Prerequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050, native speaker, or permission of instructor  
 Intensive overview of basic Portuguese for Spanish speakers. Practices listening, speaking, reading, and writing skills as well as discusses cultural aspects of Portuguese-speaking societies. Uses an eclectic method of instruction, emphasizing conversational exchange.

**PORT 115R**  
**Portuguese Conversation I**  
**1**

Offers novice Portuguese speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen listening comprehension for natural conversational flow. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

**PORT 2010** **LH**  
**Intermediate Portuguese I**  
**4**

\* Prerequisite(s): Students need equivalent knowledge of PORT 1020  
 Reviews and builds grammar, reading, and conversation skills learned in the first year courses. Introduces readings and discussions on the history, culture, and literature of Brazil, maintaining a focus on oral proficiency. Lab access fee of \$10 applies.

**PORT 202G** **HH**  
**Intermediate Portuguese II**  
**4**

\* Prerequisite(s): PORT 2010  
 Continuation of PORT 2010. Includes remaining grammar and language concepts, literature and cultural readings. Emphasizes literary readings, conversational exchanges as well as creative writing. Lab access fee of \$10 applies.

**PORT 215R**  
**Portuguese Conversation II**  
**1**

\* Prerequisite(s): Students should have equivalent knowledge of PORT 1020  
 Offers lower division / novice speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, sharpen listening comprehension, and develop conversational strategies such as circumlocution and managing a conversation with useful expressions for starting a conversation, gaining time to think, helping the other speaker, seeking agreement, etc. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

**PORT 3050** **LH**  
**Advanced Portuguese**  
**3**

\* Prerequisite(s): It is recommended that students have either taken PORT 202G, at least a 18 months one year residency in a Portuguese-speaking country, or instructor approval  
 For non-native Portuguese speakers with a basic mastery of Portuguese. Overviews basic Portuguese grammar with special emphasis on major concepts. Overviews Luso-Brazilian literatures and cultures. May be delivered hybrid. Lab access fee of \$10 applies.

**PORT 3116**  
**Navigating Identities of the Portuguese-speaking World**  
**3**

\* Prerequisite(s): A score of 3 or higher on the Portuguese NEWL test, with test taken in grade 9, 10, or 11 and department approval.  
 This course is part of the State of Utah Portuguese Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Explores the themes of travel, navigation, and cross-cultural encounters throughout today's Portuguese-speaking world, and how they impact our identity and transform us and our understanding of others. Taught in Portuguese.

**PORT 3117**  
**Cultural Issues Through Literature and Film**  
**3**

\* Prerequisite(s): A score of 3 or higher on the Portuguese NEWL test, with test taken in grade 9, 10, or 11 and department approval.  
 This course is part of the State of Utah Portuguese Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Analyzes and interprets works of literature and film in the Portuguese-speaking world to explore cultural issues. Taught in Portuguese.

**PORT 3118**  
**Pop Culture**  
**3**

\* Prerequisite(s): A score of 3 or higher on the Portuguese NEWL test, with test taken in grade 9, 10, or 11 and department approval.  
 This course is part of the State of Utah Portuguese Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Explores the roles that current popular media and entertainment play in the Portuguese-speaking world. Explores the historical and cultural perspectives presented through popular media. Taught in Portuguese.

**PORT 3200**  
**Business Portuguese**  
**3**

\* Prerequisite(s): (PORT 3050 or equivalent knowledge) and University Advanced Standing  
 For those who plan to pursue a career in international business or related field, learn the business language for Portuguese, or understand Portuguese speaking cultures. Teaches Portuguese business terminology. Presents the role of Portuguese-speaking countries in a global economy. Explores how students can effectively do business with Brazilian and Portuguese companies within the framework of Lusophone cultures. Includes current materials dealing with today's issues. Taught entirely in the Portuguese language.

**PORT 3430  
Masterpieces of Brazilian Film**

**3**  
\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): PORT 3050 recommended

Develops listening comprehension and speaking skills through discussion of Brazilian films. Enhances understanding of Brazilian culture and contemporary society through analysis of cultural and social issues presented in Brazilian cinema. Conducted entirely in Portuguese.

**PORT 352G  
Brazilian Culture and Civilization**

**3**  
\* Prerequisite(s): PORT 3050 and University Advanced Standing

Explores a multitude of aspects that construct Brazilian national identity. Completers should acquire an understanding of contemporary issues, and ethnic and economic development of Brazil, as well as historical interdependence with other nations. Presentations and class instructions conducted entirely in Portuguese.

**PORT 3610  
Brazil through Literature and Film--1500-1900**

**3**  
\* Prerequisite(s): (PORT 3050 recommended, or equivalent knowledge) and University Advanced Standing

Examines the literary and filmic construction of Brazil 1500-1900. Reflects on the philosophical, social, and aesthetics issues that shaped Colonial and Old Republic Brazil. Conducted entirely in Portuguese, presentations and class instruction included.

**PORT 3620  
Modern Brazil through Literature/Music/  
Film--1900-1945**

**3**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): PORT 3050 recommended

Examines the literary, musical and filmic construction of Brazil in the beginning of the 20th century. Reflects on the aesthetics, social, and philosophical issues that shaped Brazil. Conducted entirely in Portuguese.

**PORT 3630  
Post-Modern Brazil through Literature/  
Music/Film--1945-today**

**3**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): PORT 3050 or equivalent

Examines the literary, musical and filmic construction of Brazil at the end of the 20th century. Reflects on the philosophical, social, and aesthetics issues that shape Brazil. Conducted entirely in Portuguese.

**PORT 490R  
Special Topics in Brazilian Studies**

**3**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): PORT 3050

Engages students in critical analysis of discourse in Brazil. Develops language skills required to such analysis and specific to the topic. Possible topics include Brazilian Film, Brazilian Music, Lusophone Literature, Women's Texts, Advanced Business Portuguese. Conducted entirely in Portuguese. May be repeated for up to nine credit hours towards graduation.

**Paralegal Studies  
(PRLG)****PRLG 3300  
Criminal Law and Procedure**

**3**  
\* Prerequisite(s): PRLG 1000 and University Advanced Standing

Examines the legal and procedural aspects of crime, including the elements and categories of criminal acts and jurisdictional considerations. Studies the procedure of criminal prosecution according to the Federal Rules of Criminal Procedure, from both a prosecution and defense perspective, including constitutional assurances, investigations, case preparation, motion processes, trials and appeals.

**PRLG 4400  
Family Law**

**3**  
\* Prerequisite(s): PRLG 2100; PRLG 2200; University Advanced Standing

Covers family issues and drafting of legal documents relating to domestic litigation. Explores case law related to the marriage contract, divorce, adoption, guardianships, paternity, illegitimacy, and prenuptial agreements. Emphasizes family law document production in domestic cases. Lab access fee of \$25 for computers applies.

**PRLG 481R  
Internship**

**1 to 8**  
\* Prerequisite(s): Approval Paralegal Director and University Advanced Standing; PRLG 2100, PRLG 2200, PRLG 2300

Provides actual, on-the-job work experience in a non-paying (volunteer) basis in a law office or other approved law-related situation. Emphasizes successful work experience, especially identifying and solving problems. Completers should be qualified to work in the Paralegal profession. May be repeated for a maximum of 8 credits. May be graded credit/no credit.

**Automotive Power  
Sports (PST)****PST 1110  
Two Stroke Engine Systems**

**2**  
\* Corequisite(s): PST 1115

Studies the theory, diagnosis, and repair of two stroke engines. Emphasizes design and capabilities of the two stroke engine. Includes engine rebuilding techniques and principles, basics of engine fasteners, sealants, and tightening methods.

**PST 1115  
Two Stroke Engine Systems Lab**

**1**  
\* Corequisite(s): PST 1110

Enhances the technical theory covered in the PST 1110 course. Provides an engine laboratory experience by following industry task lists for two stroke engine systems. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual vehicles and vehicle systems of major manufacturers in completing the task lists. Course Lab fee of \$12 for materials applies.

**PST 1120  
Constant Velocity Transmissions and Drive Systems**

**2**  
\* Corequisite(s): PST 1125

Studies the theory, operation, diagnosis, and repair of Continuously Variable Transmissions (CVT) in snowmobiles, ATVs, and UTVs. Includes component identification and theory of tuning the CVT for optimal performance. Covers driveshaft and constant velocity boot inspection, diagnosis, and replacement.

**PST 1125  
Constant Velocity Transmissions and Drive Systems Lab**

**1**  
\* Corequisite(s): PST 1120

Enhances the technical theory covered in the PST 1120 course. Provides a transmission laboratory experience by following industry task lists for continuously variable transmission (CVT) systems. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual vehicles and vehicle systems of major manufacturers in completing the task lists. Course Lab fee of \$12 for materials applies.

**PST 1210  
Four Stroke Small Engine Systems**

**2**  
\* Corequisite(s): PST 1215

Studies the theory, diagnosis, and repair of four stroke small engines. Emphasizes design and capabilities of the four stroke small engine. Includes engine rebuilding techniques and principles, basics of engine fasteners, sealants, and tightening methods.

# Course Descriptions

## **PST 1215 Four Stroke Small Engine Systems Lab**

**1**  
\* Corequisite(s): PST 1210

Enhances the technical theory covered in the PST 1210 course. Provides an engine laboratory experience by following industry task lists for four stroke small engine systems. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual vehicles and vehicle systems of major manufacturers in completing the task lists. Course Lab fee of \$12 for materials applies.

## **PST 2110 Snowmobile Systems**

**2**  
\* Corequisite(s): PST 2115

Studies the operation, diagnosis, and repair of snowmobile systems. Emphasizes design, capabilities, and uses of the snowmobile system. Includes instruction on individual systems and how these systems interrelate into the platform as a whole. Stresses safety procedures. Covers advanced repair techniques.

## **PST 2115 Snowmobile Systems Lab**

**1**  
\* Corequisite(s): PST 2110

Enhances the technical theory covered in the PST 2110 course. Provides a laboratory experience for snowmobiles by following industry task lists for snowmobile systems. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual vehicles and vehicle systems of major manufacturers in completing the task lists. Covers advanced repair techniques. Stresses safety procedures.

## **PST 2120 ATV and UTV Systems**

**2**  
\* Corequisite(s): PST 2125

Studies the history, operation, diagnosis, and repair of ATV and UTV systems. Emphasizes design, capabilities, and uses of the ATVs and UTVs. Includes instruction on individual systems and how these individual systems interact on the machine as a whole. Stresses safety procedures. Covers advanced repair techniques.

## **PST 2125 ATV and UTV Systems Lab**

**1**  
\* Corequisite(s): PST 2120

Enhances the technical theory covered in the PST 2120 course. Provides a laboratory experience for ATV and UTVs by following industry task lists for ATV and UTV systems. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual vehicles and vehicle systems of major manufacturers in completing the task lists. Covers advanced repair techniques. Stresses safety procedures.

## **PST 2130 Small Motorcycles and Scooters**

**2**  
\* Corequisite(s): PST 2135

Studies the history, operation, diagnosis, and repair of small motorcycles including dirt bikes and dual purpose motorcycles and scooters. Emphasizes design, capabilities, and uses of the motorcycle systems. Examines motorcycle systems and how these systems interact. Stresses safety procedures.

## **PST 2135 Small Motorcycles and Scooters Lab**

**1**  
\* Corequisite(s): PST 2130

Enhances the technical theory covered in the PST 2130 course. Provides a laboratory experience for small motorcycles by following industry task lists for off-road bikes and dual purpose motorcycles and scooters. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual motorcycles and scooters and systems of major manufacturers in completing the task lists. Stresses safety procedures.

## **PST 2230 Street and Sport Motorcycles**

**2**  
\* Corequisite(s): PST 2235

Studies the history, operation, diagnosis, and repair of larger street motorcycles including cruiser style and sport bikes. Emphasizes design, capabilities, and uses of the complex street motorcycle systems. Includes advanced diagnosis and repair of complex street bike systems. Examines motorcycle systems and how these systems interact. Stresses safety procedures.

## **PST 2235 Street and Sport Motorcycle Lab**

**1**  
\* Corequisite(s): PST 2230

Enhances the technical theory covered in the PST 2230 course. Provides a laboratory experience for larger street motorcycles by following industry task lists for larger street motorcycles including cruiser style and sport bikes. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual vehicles and vehicle systems of major manufacturers in completing the tasks. Covers advanced repair techniques. Stresses safety procedures.

## **PST 2240 Outdoor Power Equipment**

**2**  
\* Corequisite(s): PST 2245

Studies the operation, diagnosis, and repair of the most popular segments of the outdoor power equipment market. Emphasizes design, capabilities and uses of lawn mowers, chainsaws, trimmers, edgers, tillers, snow blowers, and generators. Includes instruction on basic maintenance and reliability of these units. Teaches rechargeable and electric outdoor power equipment. Stresses instruction of safety procedures.

## **PST 2245 Outdoor Power Equipment Systems Lab**

**1**  
\* Corequisite(s): PST 2240

Enhances the technical theory covered in the PST 2240 course. Provides a laboratory experience for outdoor power equipment by following industry task lists for the most popular segments of the outdoor power equipment market. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual equipment of major manufacturers in completing the tasks. Includes the study of rechargeable and electric outdoor power equipment. Stresses safety procedures.

## **PST 2250 Personal Watercraft**

**2**  
\* Corequisite(s): PST 2255

Studies the history, operation, diagnosis, and repair of personal watercraft systems. Includes the study of their unique drive systems and advanced cooling systems. Covers advanced diagnosis and repair of complex personal watercraft systems. Discusses hull repair and graphics installation. Stresses proper safety procedures.

## **PST 2255 Personal Watercraft Systems Lab**

**1**  
\* Corequisite(s): PST 2250

Enhances the technical theory covered in the PST 2250 course. Provides a laboratory experience for personal watercraft by following industry task lists for the most popular segments of the personal watercraft market. Emphasizes demonstrations, observations, and hands-on participation. Utilizes actual equipment of major manufacturers in completing the tasks. Covers advanced repair techniques of complex personal watercraft systems. Stresses safety procedures.

## Psychology (PSY)

### PSY 1010 SS General Psychology 3

An introductory course in modern scientific psychology. Covers major domains of scientific psychology including biological foundations, sensations, perception, learning, motivation, human development and abnormal psychology. Examines major psychological and professional applications. Canvas Course Mats \$42/Lumen applies.

### PSY 101H SS General Psychology 3

Covers major domains of scientific psychology including biological foundations, sensation and perception, learning, motivation, human development, and abnormal psychology. Examines major psychological and professional applications. Students will be expected to write at least two papers and work collaboratively.

### PSY 1100 SS Human Development Life Span 3

Explores genetic and environmental influences on human development and behavior from conception and birth through old age and death. Examines typical physical, cognitive, and psychosocial changes at each developmental stage throughout the life span. Explores major theoretical perspectives on human development. Canvas Course Mats \$70/McGraw applies.

### PSY 1250 Psychology Applied to Modern Life 3

\* Prerequisite(s): PSY 1010 with grade C- or higher and (ENGL 1010 or ENGH 1005 with a C+ grade or higher)

Examines knowledge about key concepts and findings from the science of psychology. Applies effective strategies, grounded in psychology, to their own lives in areas that will help them to be healthier and happier. Key topic areas include: stress, social influences and interpersonal communication, relationships and life transitions, and mental and physical health.

### PSY 2020 Psychology as a Science and Profession WE 3

\* Prerequisite(s) or Corequisite(s): PSY 1010

Exposes students to psychology as a field of study and as a career option and serves as a foundation of their undergraduate education. Teaches the basics of social science writing convention (scholarly tone, precise language, APA style, etc.). Shows how psychology can provide insight into important social and scientific requirements.

### PSY 2250 Psychology of Interpersonal Relationships 3

\* Prerequisite(s): ENGL 1010 or ENGH 1005 (with a C- grade or higher) and PSY 1010 (with a C- grade or higher)

Integrates cognitive psychological theory in an experiential setting to build personal communication skills. Helps students better understand their interactions with others. Teaches practical skills used in personal, professional, and social relationships. Studies problem-solving models and conflict resolution methods.

### PSY 2300 Abnormal Psychology 3

\* Prerequisite(s): PSY 1010 (with C- grade or higher) and (ENGL 2010 with a C+ grade or higher)

Examines the psychology, historical explanations, and current biological and psychological theories of abnormal behavior. Emphasizes the description of mental disorders according to the American Psychiatric Association Diagnostic and Statistical Manual. Canvas Course Mats \$42/Lumen applies.

### PSY 2400 Positive Psychology 3

\* Prerequisite(s): PSY 1010 (grade of C- or higher) and ENGL 1010 or ENGH 1005 (grade of C- or higher)

Provides an overview of the scientific study of human strengths and virtues. Examines topics such as happiness, optimism, gratitude, altruism, forgiveness, human strengths, optimal performance, and personal fulfillment. Knowledge gains are reinforced with personalized experiential learning activities.

### PSY 2710 Introduction to Brain and Behavior SS 3

\* Prerequisite(s): ENGL 1010 or ENGH 1005 with a C+ or higher

Introduces neuroanatomy and neurophysiology. Includes how neurons communicate to coordinate various functions and behaviors. Addresses research methods used to study the brain and the nervous-system mechanisms to control functions and behaviors.

### PSY 275R Survey of Current Topics 1 to 3

\* Prerequisite(s): (ANTH 101G or PSY 1010 or SOC 1010) and (ENGL 1010 or ENGH 1005) with a C+ grade or higher

Presents selected topic in Psychology and will vary each semester. Approaches subjects from cross-disciplinary perspective. Requires a project demonstrating competency in the specific topic. May be repeated for nine credits toward graduation.

### PSY 2800 (Cross-listed with: HLTH 2800) SS Human Sexuality 3

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Interdisciplinary course in human sexuality, exploring topics in biology, health, psychology, and sociology. Introduces basic concepts of human sexuality, including anatomy, reproduction, and sexual response across the life-cycle. Studies gender roles, sexual orientation, dysfunction, and sexually transmitted disease. Examines sexual behavior from the perspective of ethics, religion, the law, and education. Students assess their sexual attitudes and should be able to make responsible sexuality decisions.

### PSY 289R Beginning Research Experience 1 to 3

\* Prerequisite(s): PSY 1010 with a C or higher; ENGL 1010 or ENGH 1005 with a C+ or higher; Instructor approval

Beginning course on research in psychology. Explores psychological literature to investigate topics of interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. Projects will vary based on the student's needs and interests but may include literature searches, materials creation, data collection, or other options as approved by the instructor. May be repeated for a maximum of six credits toward graduation.

### PSY 3030 Research Methods for Psychology 4

\* Prerequisite(s): (PSY 3110 with a C- or higher), (ENGL 2010 with a C+ or higher), and University Advanced Standing

Explains the logic of the classical true experiment and how it permits causal inferences. Compares and contrasts the benefits and drawbacks of quasi-experimental and correlational research designs. Includes the design of an empirical psychological study. Covers compliance with guidelines for ethical research as codified in law and the American Psychological Association's ethics code. Requires collection, analysis, and presentation of quantitative data for an empirical psychological study. Includes a lab.

### PSY 3100 Psychology of Gender 3

\* Prerequisite(s): PSY 1010 (with a C- grade or higher) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

For Behavioral Science majors and others interested in gender issues from a psychological perspective. Examines the topic of gender behaviors and attitudes that relate to (but are not entirely congruent with) biological sex. Discusses biological influences on gender, gender differences, gender development, and the influence of gender on various dimensions of daily life.

# Course Descriptions

## **PSY 3105**

### **Health Psychology**

**3**

\* Prerequisite(s): (PSY 1010 or PSY 1100) with grade C- or higher or (Community Health major and HLTH 2800 or HLTH 3260) with grade C- or higher, ENGL 2010 with grade C+ or higher, and University Advanced Standing

Examines underlying biological, psychological, and social factors, that interact and contribute to illnesses. Examines how beliefs, attitudes, and lifestyles contribute to overall health. Includes preventative strategies and techniques. Introduces motivational strategies to work productively with patients in healthcare settings.

## **PSY 3110**

### **Statistics for the Behavioral Sciences**

**4**

\* Prerequisite(s): MAT 1010 or higher and University Advanced Standing

Introduces use of statistics for research purposes. Teaches descriptive and inferential statistics. Includes central tendency, variability, correlation and regression, probability (particularly probability distributions), and various inferential techniques such as t-test for independent and dependent samples, one-way and two-way analysis of variance, post-hoc tests, and non-parametric statistics.

## **PSY 3200**

### **Infant and Child Development WE**

**3**

\* Prerequisite(s): (PSY 1010 or PSY 1100) with grade C- or higher or (Community Health major HLTH 2800 or HLTH 3260) with grade C- or higher, and PSY 2020 with a grade of C- or higher; University Advanced Standing

Introduces concepts, theories, and research on normative processes of infant and child development. Describes developmental change in biological, socioemotional, and cognitive domains. Explores topics such as attachment, temperament, emotion development, relationships, aggression, and moral development. Situates infant and child development in the context of families, peers, neighborhoods and communities, and the larger cultural contexts. Includes how theories and empirical findings can be applied to promote positive development throughout infancy and childhood.

## **PSY 3210**

### **Adolescent Development WE**

**3**

\* Prerequisite(s): PSY 1010 and PSY 2020 with C- grade or higher and University Advanced Standing.

Introduces concepts, theories, and research on normative processes of adolescent development. Describes developmental change in biological, socioemotional, and cognitive domains of development during adolescence. Explores topics such as self and identity, intimacy, autonomy, morality, and sexuality, and psychosocial problems during adolescence. Situates adolescent development in the context of families, peers, neighborhoods and communities, and the larger cultural contexts. Includes how theories and empirical findings can be applied to promote positive development throughout adolescence.

## **PSY 3220**

### **Adult Development and Aging WE**

**3**

\* Prerequisite(s): PSY 1010 and ENGL 2010 with grade C- or higher and University Advanced Standing

Introduces concepts, theories, and research on normative processes of adult development and aging. Describes developmental change in biological, socioemotional, and cognitive domains of development during adulthood. Explores topics such as mental health, social roles and relationships, and transitions in work and retirement. Situates adult development in the context of families, social relationships, workplaces, neighborhoods and communities, and the larger cultural contexts. Includes how theories and empirical findings can be applied to promote healthy adult development and aging.

## **PSY 3300**

### **Motivation and Emotion**

**3**

\* Prerequisite(s): PSY 1010, (ENGL 1010 or ENGL 1005 with a C+ or higher), and University Advanced Standing

Examines motivation and emotion that underlie thought and behavior from a variety of perspectives. Explores the various theoretical approaches to motivation and emotion such as biological, phenomenological, cognitive, developmental and social constructivist approaches. Examines the historical background of motivation and emotion research, as well as a number of current applied motivational approaches.

## **PSY 3420**

### **Cognitive Psychology WE**

**3**

\* Prerequisite(s): PSY 1010 (with C- grade or higher) and (ENGL 2010 with a C+ or higher) and University Advanced Standing

Introduces the core concepts, theoretical perspectives, empirical findings, and historical trends in cognitive psychology. Includes perception, attention, memory, and higher cognitive processes. Explores animal as well as human research.

## **PSY 3425**

### **Cognitive Psychology Lab**

**1**

\* Prerequisite(s): PSY 1010 (with C- grade or higher); (ENGL 2010 with a C+ or higher); and University Advanced Standing  
\* Corequisite(s): PSY 3420

Provides firsthand experience with core concepts and empirical practices within cognitive psychology. Creates opportunities for the application of practical research skills. Includes a discussion of topics such as sensation, perception, attention, memory, and higher-order cognition.

## **PSY 3430**

### **Psychopharmacology WE**

**3**

\* Prerequisite(s): PSY 2710 (with C- grade or higher) or (ZOO 2320 and ZOO 2420 with C- grade or higher in both courses) and (ENGL 2010 with a C+ grade or higher); University Advanced Standing

Addresses basic principles of nervous system function with emphasis on communication between nerve cells. Focuses on therapeutic drugs as well as drugs of abuse to include mechanisms of action and behavioral effects.

## **PSY 3450**

### **Behavioral Neuroscience**

**4**

\* Prerequisite(s): PSY 2710 (with C- grade or higher) or (ZOO 2320 and ZOO 2420 with C- grade or higher in both courses) and (ENGL 2010 with a C+ grade or higher); University Advanced Standing.

Identifies major interactions between physiology and behavior. Covers physiological analysis, structures, and functions of the nervous system. Investigates topics including sensory and motor function, states of consciousness, sexual behavior, psychopathology, learning and memory. Course lab fee of \$15 for supplies applies.

## **PSY 3460**

### **Personality Theory**

**3**

\* Prerequisite(s): PSY 1010 (with C- grade or higher) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Introduces the basic psychological theories attempting to answer the question 'What is Personality?' Examines the scientific study of the uniqueness of each of us as individuals. Explores how individuals develop personality similarities as well as differences by examining classical personality theories, societal influences, cultural variations, behavioral genetics, anatomy and biochemistry, sex and gender differences and family function. May be delivered hybrid and/or online. Canvas Course Mats of \$70/McGraw applies. Course fee of \$15 for materials.

**PSY 3480****Principles of Learning****4**

\* Prerequisite(s): PSY 1010 (with C- grade or higher) and (ENGL 2010 with a C+ or higher) and University Advanced Standing

Examines major concepts, theoretical perspectives, empirical findings, and historical trends in the scientific study of behavior. Focuses on application of psychological principles to personal, social, and organizational issues, as appropriate. Stresses use of critical and creative thinking, skeptical inquiry, and the scientific approach to solve problems related to behavior.

**PSY 3490****Sensation and Perception WE****4**

\* Prerequisite(s): (PSY 1010 and PSY 2710 both with C- grade or higher), ENGL 2010 (with a C+ grade or higher), and University Advanced Standing.

Provides a foundation in how sensory systems interpret the world. Explores each of the primary sensory systems by defining the physical energy that is detected. Examines how that energy is transduced into neural impulses, and samples how aspects of that information are encoded to provide a representation of our world. Takes a neuroscientific approach to the topic, beginning with an overview of the nervous system, including the organization of the brain and spinal cord, how neurons work, and how neurons communicate with each other. Course lab fee of \$15 for supplies applies.

**PSY 350G****Social Psychology****3**

\* Prerequisite(s): PSY 1010 (with grade C- or higher) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Studies the ways in which social context influences behavior. Reviews both social and psychological research. Includes culture and personality theory. Presents a multi-disciplinary approach to understanding human behavior. Requires a research project to observe and report individual or group behavior in a real life setting. May be delivered hybrid.

**PSY 3660****Neuroscience of Emotion****3**

\* Prerequisite(s): PSY 2710, University Advanced Standing and Instructor approval

Explores the scientific investigation of the biological basis of emotion in human and non-human animals. Provides an overview of the neural correlates of emotional states. Examines the role of neurotransmitter systems, anatomical structures, and neural circuits. Requires collection, analysis, and presentation of current primary research.

**PSY 3710****Introduction to Forensic Psychology****3**

\* Prerequisite(s): PSY 1010 (with grade C- or higher) and (ENGL 2010 with a C+ or higher) and (PSY 2300 or PSY 3500 with a C- or higher) and University Advanced Standing

Introduces the complex field of forensic psychology which involves the overlap between the science of psychology and the law. Builds a basic understanding of the psychological principles and concepts that are part of the legal system. Highlights how the science of psychology potentially contributes to improvements and changes in the legal system. Outlines the role of forensic psychologists with regard to the legal system. Emphasizes ideas regarding potential careers in the field. Provides students the opportunity to customize course activities to suit their learning needs and styles from a variety of choices.

**PSY 3850****Psychology of Good and Evil****3**

\* Prerequisite(s): PSY 1010 and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Provides an integrated approach to understanding the roots of good and evil in human behavior. Explores theories and studies of human caring and destructiveness. Analyzes and develops psychological explanation of why individuals choose different courses of action under similar circumstances. Explores such concepts as attachment and parental discipline, bystander phenomena, response to authority, genocide, killing during war, group identity, bullying, views of the other and racism, forgiveness and reconciliation, and psychopathology and the biology of emotion.

**PSY 4150****Tests and Measurements****3**

\* Prerequisite(s): (ENGL 2010 with a C+ grade or higher), PSY 3110 (with grade C- or higher), and University Advanced Standing

Introduces the history of psychological tests, examines tests in use at the present time and considers the appropriate roles of psychological testing in modern society. Studies individual and group assessment in the areas of intelligence, aptitude, achievement, personality and interest. Critically evaluates tests and other instruments of measurement for validity and reliability.

**PSY 4300****Introduction to Counseling and Psychotherapy****3**

\* Prerequisite(s): PSY 1010 (with grade C- or higher) and PSY 2300 (with a C- grade or higher) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing.

Surveys concepts and practices of major therapeutic systems. Introduces students to the major psychotherapeutic models. Addresses basic counseling issues including ethics and professionalism. Develops skills in relationship development, interviewing, initial assessment and intake procedures.

**PSY 4400****Introduction to Group Psychotherapy****3**

\* Prerequisite(s): PSY 1010 (with C- grade or higher), PSY 2300 (with grade C- or higher), (ENGL 2010 with a C+ or higher), and University Advanced Standing

Discusses group therapy theory, research applied to client assessment and outcomes, legal and ethical issues. Includes learning activities such as screening, assessment, treatment, evaluation, and termination of group members.

**PSY 4461 (Cross-listed with: PHIL 4461)****Moral Psychology****3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205G or PHIL 205H or PSY 1010 or PSY 101H) and University Advanced Standing

Analyzes questions about how people engage in moral thinking and in moral behavior from the perspectives of the philosophy of mind, ethics and psychology. Explores topics such as virtue and character, reason and passion, altruism and egoism, agency and responsibility, and moral intuitions.

**PSY 4500****History and Systems of Psychology****3**

\* Prerequisite(s): PSY 1010 (with C- grade or higher) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Identifies key contributors, historical systems and theories within the field of psychology. Includes contributions to present knowledge of affect, behavior, and cognition. Stresses similarities and differences between theories. Especially for students planning to take the Advanced Psychology Subject Test portion of the GRE.

## Course Descriptions

### **PSY 4666**

#### **East Meets West Psychology**

**3**

\* Prerequisite(s): PSY 1010, ENG 2010, and University Advanced Standing

Examines Eastern and Western spiritualities and their application to mental health. Synthesizes these systems of belief with Western phenomenology. Critiques the theory and practice of psychology from this broader spiritual perspective. Applies these spiritual systems to the theory, research and practice of psychology. Provides experience of meditation, spiritual centering, and respectful spiritual discourse.

### **PSY 4690**

#### **Human Intelligence**

**3**

\* Prerequisite(s): PSY 1010 (with grade C- or higher), PSY 3110 (with grade C- or higher), and ENGL 2010 (with a C+ grade or higher); University Advanced Standing

Explores theories about human intelligence and how intelligence impacts health, social, and psychological outcomes. Considers how cognitive and biological variables are related to individual differences in human intelligence.

### **PSY 475R**

#### **Current Topics in Psychology**

**1 to 3**

\* Prerequisite(s): PSY 1010 and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Presents selected topic in Psychology and will vary each semester. Requires a project demonstrating competency in the specific topic. May be repeated with different topics for 9 credits toward graduation.

### **PSY 480G**

#### **Cross-Cultural Psychology**

**3**

\* Prerequisite(s): PSY 1010 and University Advanced Standing

Offers an opportunity to develop an appreciation for the interplay between psychological and cultural contributions to personal and group growth and well-being. Explores how culture influences the lived experience, particularly as it pertains to relationality. Gives consideration to both within and between culture variability.

### **PSY 482R**

#### **Internship Seminar**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): BESC 481R

Provides integration of classroom learning with learning that takes place in an on-site internship. To be taken concurrently with BESC 481R, Senior Internship. May be repeated for a maximum of 8 credits toward graduation.

### **PSY 483R**

#### **Psychology Internship**

**1 to 3**

\* Prerequisite(s): PSY 1010 with grade C- or higher; PSY 3110 with grade C- or higher; and University Advanced Standing

Allows psychology students with non-clinical orientation to receive psychology credits for interning in a governmental, corporate, or private agency apart from their regular employment. Provides practical and research experience over the course of the 15-week semester. Requires professional supervision. May be repeated for a maximum of 8 credits toward graduation.

### **PSY 4850**

#### **Introduction to Pedagogy**

**3**

\* Prerequisite(s): PSY 1010; (ENGL 2010 with a C+ or higher); instructor approval; and University Advanced Standing

Builds a foundation for teaching at the college level through the study of best practices in college pedagogy via primary sources, review papers, and expert perspectives. Applies pedagogical knowledge through the delivery of multiple guest lectures on campus after creating appropriate course materials.

### **PSY 488R**

#### **Advanced Research Experience in**

#### **Psychology**

**1 to 3**

\* Prerequisite(s): PSY 1010 with a C grade or higher; ENGL 2010 with C+ grade or higher; University Advanced Standing; Instructor approval

Expands research experience by either (1) significantly assisting on a faculty member's research project or (2) carrying out an independent research project of the student's design under faculty mentorship. May be repeated for a maximum of 6 credits toward graduation.

### **PSY 490R**

#### **Independent Studies**

**1 to 3**

\* Prerequisite(s): Instructor approval, department chair approval, and University Advanced Standing; for Behavioral Science Bachelor Degree students only

For qualified students who wish to undertake a well-defined project or directed study related to an area of special interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. Projects may include writing a publishable paper, passing a competency exam, producing an annotated bibliography, oral presentation, or other options as approved by instructor. May be repeated for a maximum of 6 credits.

### **PSY 491R**

#### **Psychology Capstone Internship**

**1 to 3**

\* Prerequisite(s): University Advanced Standing and instructor approval

\* Corequisite(s): PSY 492R

Provides an in-depth experience applying knowledge from two or more of the following areas of psychology: statistics/research methods, biological, developmental, cognitive, social/personality, and mental and physical health. May not be part of the student's regular employment. Requires professional supervision. Requires faculty approval and signed written contracts. May be repeated for a maximum of 8 credits toward graduation.

### **PSY 492R**

#### **Psychology Capstone Seminar**

**1**

\* Prerequisite(s): Advanced University Standing and instructor approval

\* Corequisite(s): PSY 491R

Provides integration of classroom learning with the student's capstone internship. Reinforces learning outcomes of the psychology capstone internship. May be repeated for a maximum of 8 credits toward graduation.

## **Recreation (REC)**

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### **REC 1500**

#### **Canoeing I**

**1**

Teaches basic canoeing techniques including safety, technical information, equipment, paddling skills, and canoe maneuvering. Requires overnight camping. Requires the ability to swim 100 yards without stopping on the first day of class. Course fee of \$88 for transportation, equipment applies.

### **REC 1501**

#### **Canoeing II**

**1**

\* Prerequisite(s): REC 1500 or Instructor Permission

Prepares students to qualify to become instructors who will teach on water up to and including Class I on the International Scale of River Difficulty. Prepares students to teach the American Canoe Association's Intro to Canoe course on flat water, and the Basic River Canoe course in a river environment and to teach students fundamental river paddling skills including boat handling, paddling technique, identifying hazards, river reading and self-rescues in moving water.

**REC 1505  
Whitewater Kayaking I**

1

Teaches basic kayaking skills to the beginning kayaker. Includes roll techniques, paddle strokes, eddy turns, ferrying, river hazards, and rescue techniques. Requires the ability to swim 100 yards without stopping first day of class. Course fee of \$150 applies for transportation, equipment applies.

**REC 1506  
Whitewater Kayaking II**

1

\* Prerequisite(s): REC 1505

Builds on whitewater skills initially taught in Whitewater Kayaking I. Develops the skills and knowledge to assist in instruction and river rescue. Prepares students to help others learn to kayak, preparing them for ACA whitewater certification.

**REC 1512  
Fly Tying I**

1

For students interested in learning or perfecting fly tying skills. Discusses and demonstrates necessary fly tying tools, materials, and knots. Introduces aquatic entomology. Studies various fly types including wet fly, dry fly, nymph, and streamer. Includes hands-on experience.

**REC 1513  
Fly Casting I**

1

For students interested in learning or perfecting fly casting skills. Studies types and classification of fly rods and reels. Teaches the physics of casting and casting techniques. Includes hands-on experience. Course fee of \$10 applies for materials, equipment applies.

**REC 1516  
Ropes Course and Teambuilding**

1

Provides participants with the opportunity to participate in a group and personal development process which utilizes the ropes course as an educational tool. Consists of 3 phases. Phase I - game and exercises designed to help participants get to know and feel at ease with each other. Phase II - group initiative games/ problem solving activities which develop group communication skill, cooperation, and problem solving ability. Phase III - Ropes Course activities/individual challenge which allows class members to test their physical capabilities and individual limits. Course fee of \$80 for transportation, equipment, and support.

**REC 1521  
Indoor Rock Climbing I**

1

Teaches basic rock climbing skills to the beginning indoor rock climber. Includes knot tying, belaying, rappelling, fixed anchors, beginning indoor climbing, and rescue techniques. Prepares student for enjoyment of indoor climbing facilities, and introduces concepts related to sport climbing. Course fee of \$90 for support, equipment applies.

**REC 1522  
Indoor Rock Climbing II**

1

\* Prerequisite(s): REC 1521

Builds on skills and experiences gained in Indoor Rock Climbing I. Focuses on lead climbing in the indoor sport context with emphasis on higher skill development, onsite and red point techniques. Course fee of \$90 applies for support, equipment applies.

**REC 1525  
Mountaineering**

1

\* Prerequisite(s): REC 1535, REC 1527

Covers mountaineering subjects including hiking, rock climbing, mountain camping, and mountain survival. Requires good health and fair physical condition in order to enjoy the class. Provides technical climbing and safety equipment. Students provide camping equipment (this may be rented at a low cost at the Outpost on campus), boots or shoes, clothing and leather gloves suitable for hiking and climbing. Taught on block only. Course fee of \$70 for transportation, materials, and equipment applies.

**REC 1527  
Rock Climbing I**

1

Teaches basic rock climbing skills to the beginning rock climber. Includes knot tying, belaying, rappelling, top-rope anchors and site management, beginning lead climbing, and rescue techniques. Course fee of \$20 for equipment applies.

**REC 1528  
Rock Climbing II**

1

\* Prerequisite(s): REC 1527 or Instructor Approval

Teaches intermediate rock climbing skills. Includes placing passive and active anchors on simulated lead climbs, multi-pitch belaying and rappelling. Teaches self- and partner-rescuing, ascending, route finding, crack and face climbing techniques, rock shoe resoling, and an introduction to aid climbing. Course fee of \$90 for transportation, equipment applies.

**REC 1535  
Backpacking**

1

\* Prerequisite(s): Ability to carry a 40 lbs pack for 15-25 miles

Covers the basic aspects of backpacking, camping, and wilderness travel. Includes labs, lectures, demonstration, audio-visual and extended field trips. Teaches basic components of backpacking and lifelong values of outdoor recreation. Requires multi-night backpacking trip. Course fee of \$88 for transportation, equipment, and support applies.

**REC 1542  
Wilderness First Responder**

2

Teaches advanced emergency care specific to situations encountered in a wilderness context. Prepares students for certification exam in Wilderness First Responder (WFR) or Wilderness Emergency Medical Technician Module (WEMT). Experiential Learning Credit must be from a WFR course with at least 72 hrs of contact time.

**REC 1550  
Mountain Biking**

1

\* Prerequisite(s): Ability to carry a 40 lbs pack for 15-25 miles

Provides the students with knowledge of cycling techniques when traveling off the pavement. Teaches bicycle maintenance and tuning. Includes several off-road rides. Stresses the enjoyment and lifetime benefits of mountain biking riding. Taught on block only. Course lab fee of \$16 applies.

**REC 1580  
Kayak Touring**

1

\* Prerequisite(s): Must be able to swim 100 yards without stopping

Introductory course which teaches basic skills necessary to safely enjoy flat water (non-tidal) kayak touring. Teaches equipment selection, strokes, safety and rescue techniques. Field trip required for course completion. Course fee of \$84 for transportation, equipment applies.

**REC 1600  
Winter Exploration**

1

\* Prerequisite(s): REC 1535

Teaches basics of snowshoeing, cross-country skiing, and winter camping, including Leave No Trace, cooking, staying warm, and building shelters. Covers risks and hazards of the winter environment. Requires overnight camping. Course lab fee of \$45 course fee for equipment applies.

# Course Descriptions

## **REC 1605**

### **Skiing I**

**1**

For the beginning skier. Covers basic skiing concepts including straight runs, stops, turns, traverses, and beginning parallel. Includes demonstration and participation. Grading is based on attendance. Lessons are at the Sundance Ski Resort. (Transportation is not provided.) Uses UVU and Sundance instructors. Students are required to have own equipment and purchase a half-day pass each ski day.

## **REC 1606**

### **Skiing II**

**1**

For the intermediate skier. Designed for those with basic ski skills and who would like to improve their skiing technique. Instruction is given in parallel skiing over bumps and flat terrain, hockey stops, moguls and traversing steep terrain. Uses demonstration and participation. Grading is based on attendance. Lessons are at the Sundance Ski Resort. (Transportation is not provided.) Uses UVU and Sundance instructors. Students are required to have own equipment and purchase a half-day pass each ski day.

## **REC 1615**

### **Snowboarding**

**1**

Provides a fun challenge to snow boarders of every ability level, starting with the beginning novice to the advanced boarder. Gives instruction in straight runs, stops, turns (falling leaf, heel edge, toe edge), and carving. Includes skill demonstration and student participation. Grading is based on attendance, participation, demonstrating skills, and tests. Lessons are at the Sundance Ski Resort. (Transportation is not provided.) Uses UVU and Sundance instructors. Requires students to have their own equipment and purchase a half-day pass each ski day.

## **REC 1625**

### **Cross Country Skiing**

**1**

Presents basic ski touring techniques. Studies selection and utilization of winter touring equipment and clothing in relation to varying climatic and terrain conditions. Includes trail etiquette, avalanche avoidance, and other important factors for a successful winter tour. Includes classroom instruction and ski touring. Taught on block only.

## **REC 2010**

### **Avalanche Awareness**

**1**

Examines the relationship of people in the backcountry and their cause/effect relationship with ever-changing snow conditions. Prepares students to safely and effectively venture into the winter backcountry. Course fee of \$53 for equipment applies.

## **REC 2200**

### **Foundations of Recreation**

**3**

\* Prerequisite(s) or Corequisite(s): ENGL 1010 or ENGH 1005

Introduces the study of Recreation. Studies the history and philosophy of the field of Recreation. Analyzes problems in areas covered under the umbrella of Recreation. Explores the Recreation sub-disciplines and related career and employment opportunities in this area.

## **REC 2400**

### **Principles of Experiential Education in Recreation**

**3**

\* Prerequisite(s): REC 2200, ENGL 1010 or ENGH 1005

\* Prerequisite(s) or Corequisite(s): ENGL 2010 and MATH 1000 or higher

Introduces the principles and concepts of experiential education in the general context of recreation programming and prepares students for further study and skill development in context specific experiential education programming. Teaches history, theory, and ethics in the domain. Offers experience in the use of learning cycles, facilitation, feedback, processing, and effective communication techniques, risk management from both physical and emotional perspectives. Uses pedagogical lecture methods and experiential learning. Requires participation in experiential education programming and observation and participation in programs outside of class time.

## **REC 2450**

### **Rock Climbing Site Management and Facilitation**

**3**

\* Prerequisite(s): REC 1527, REC 2400

Introduces the principles and concepts of experiential education in the general context of recreation programming and prepares students for further study and skill development in context specific experiential education programming. Teaches history, theory, and ethics in the domain. Offers experience in the use of learning cycles, facilitation, feedback, processing, and effective communication techniques, risk management from both physical and emotional perspectives. Uses pedagogical lecture methods and experiential learning. Requires participation in experiential education programming and observation and participation in programs outside of class time.

## **REC 2500**

### **Introduction to Adventure Recreation**

**2**

Explores the philosophy, meaning and value of outdoor adventure recreation. Studies planning, organizing and leading outdoor excursions. Includes hiking, canoeing, camping, scuba diving, cross-country skiing, snowshoeing, compass navigation, outdoor cooking, archery, golfing, etc.

## **REC 2600**

### **Principles of Outdoor and Adventure Education**

**3**

\* Prerequisite(s): REC 1535 and REC 2400

Teaches leadership of outdoor and adventure education topics necessary for instructing the beginning student. Uses pedagogical lecture methods and experiential learning. Includes industry standard presentations and critiques of orienteering, map reading, packing, backcountry cooking, campsite set-up, food rationing, river crossing, proper clothing, water purification, hygiene, weather forecasting, backcountry travel, Leave No Trace ethics, and personal risk management. Requires hiking or orienteering assignments outside of class. Prepares students to qualify for certification as Wilderness Stewards through the Wilderness Education Association. Addresses risk management from both physical and emotional perspectives. Uses pedagogical lecture methods and experiential learning. Requires observation and participation in programs outside of class time.

## **REC 2650**

### **Principles of Challenge Education**

**3**

\* Prerequisite(s): REC 1516, REC 2400

Prepares students for employment in the challenge education and experientially-based training and development sectors. Teaches students functional aspects of challenge education, facility design and use, program design for specific populations, facilitation and processing; as well as, assessment and evaluation of programs. Addresses risk management from both physical and emotional perspectives. Utilizes pedagogical lecture methods, experiential learning, and participation in challenge education programming. Requires observation and participation in programs outside of class time. Course fee of \$95 for transportation, support applies.

## **REC 2700**

### **Leave No Trace Trainer**

**1**

\* Prerequisite(s): REC 1535

Designed to train environmental leaders and interpreters in the delivery of Leave No Trace (LNT) principles and practices. Emphasizes the skills and ethics necessary for low impacts on the environment.

## **REC 2750**

### **Principles of Water Based Adventure Education**

**3**

**REC 3100**

**Recreation Program Planning**

**3**

\* Prerequisite(s): (REC 2200 or instructor approval) and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): MATH 1000 or higher

Investigates program planning and development in outdoor programs, camps, agencies, and education organizations. Emphasizes writing of technical program plans that state goals, program organization, curriculum, budgets, marketing, and evaluation.

**REC 3200**

**Inclusive Recreation**

**3**

\* Prerequisite(s): REC 2400, REC 3100, and University Advanced Standing

Recreation service delivery for individuals with disabilities and other under-represented groups. Presents solutions to full recreation participation for individuals with physical, sensory, emotional and/or intellectual impairments. Incorporates hands on experience working with diverse populations.

**REC 3300**

**Wilderness Skills**

**1**

\* Prerequisite(s): REC 1535 and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): REC 2200

Teaches tools and skills needed for surviving in the wilderness. Includes orienteering, map reading, packing, backcountry cooking, campsite set-up, food rationing, river crossing, proper clothing, water purification, hygiene, weather forecasting, backcountry travel, Leave NO Trace ethics, and personal risk management. Course fee of \$30 for transportation, equipment, and support applies.

**REC 3400**

**Risk Management**

**3**

\* Prerequisite(s): REC 2200 and University Advanced Standing  
 \* Prerequisite(s) or Corequisite(s): MAT 1010

Studies outdoor recreation risk management. Focuses on applying models of risk management, negligence, torts, risk management planning, and outdoor recreation safety.

**REC 3500**

**Recreation Administration**

**3**

\* Prerequisite(s): REC 3100 and University Advanced Standing

Analyzes the internal organization of a recreation department dealing with finances and accounting, records and reports, publicity and public relations, state and federal legislation, staff organization, coordination of community resources.

**REC 3700**

**Natural Resource Interpretation**

**3**

\* Prerequisite(s): REC 2400 and University Advanced Standing

Investigates theories, principles, and techniques of interpreting park, cultural, and natural resources to the public. Emphasizes techniques for providing interpretive programs developed for natural resources.

**REC 385G**

**Ethical Concerns in Recreation**

**3**

\* Prerequisite(s): REC 2400, PHIL 2050, and University Advanced Standing

Examines the complex and controversial world of ethics as it pertains to the fields of outdoor recreation and natural resource management. Examines these fields from numerous perspectives; anthropocentric, biocentric and ecocentric, and theocentric.

**REC 4000**

**Outdoor Leadership**

**4**

\* Prerequisite(s): REC 1535, REC 3300, REC 2600, REC 1542, and University Advanced Standing

Examines principles and practices of leadership in outdoor recreation programs. Focuses on the examination of theories, practices, and problems of leadership in an adventure environment. Provides hand-on experiences with students required to plan and be in a leadership position. Requires 30 hours of volunteer work experience. Course fee of \$126 for transportation, equipment, and support applies.

**REC 410R**

**Experiential Learning Expedition**

**1 to 6**

\* Prerequisite(s): Department approval and University Advanced Standing

Teaches experiential learning and leadership in a expedition context. Includes but not limited to expedition planning, hard skills development, expedition behavior and group dynamics, team building, adventure tourism, and local cultural/natural resources. Repeatable up to 12 credits. Course fee of \$700 for transportation, activities applies.

**REC 420R**

**Outdoor Leadership and Management Practicum**

**2**

\* Prerequisite(s): REC 2400, Instructor approval, and University Advanced Standing

Provides students with practical work experience (volunteer or paid) either through a program offered by the college or in an existing outdoor or experientially based agency. Includes participation in a 150 hour department approved supervised outdoor recreation service. Examines topics that vary by practicum experience. May be repeated for a total of 6 hours toward graduation. May be graded credit/no credit.

**REC 430R**

**Teaching Assistantship in Outdoor Recreation**

**1 to 4**

\* Prerequisite(s): Instructor Approval and University Advanced Standing

Provides students who have demonstrated a high level of proficiency to serve as assistant instructors in selected Outdoor Recreation courses. Requires students to take active leadership roles. Includes planning, sequencing and teaching outdoor recreation topics and skills with faculty supervision. May be repeated for up to 8 credit hours toward graduation. Graded Credit/No Credit.

**REC 4350**

**Research Methods in Outdoor Recreation**

**3**

\* Prerequisite(s): REC 2400 and (MAT 1010 or higher) and University Advanced Standing

Introduces students to key research in their field. Emphasizes analytical and interpretive skills. Develops scientific writing skills. Promotes design and utilization of comprehensive research methodologies commonly applied in Outdoor Recreation.

**REC 4400**

**Natural Resource and Protected Area Management**

**3**

\* Prerequisite(s): REC 2200 and University Advanced Standing

Examines topics in the management of Nation Parks, National Forests, Bureau of Land Management, and other public lands and protected areas focusing on management strategies and techniques for addressing common resource and social problems in natural resource recreation management. Emphasizes case studies and problem analysis. Course fee of \$30 applies for transportation, support applies.

**REC 4500**

**Wildland Recreation Behavior**

**3**

\* Prerequisite(s): REC 4400 and University Advanced Standing

Studies behaviorally-based models and relevant research in wildland recreation. Provides an in-depth analysis of human behavior influences and topics including visitor satisfaction, crowding, carrying capacity, resource destruction, motivations, attitudes, preferences, norms, conflicts, and specialization. Using these theoretical concepts, visitor-based management models will be presented and criticized. Emphasis on critical problems affecting public land recreation management. Course fee of \$20 applies for transportation, support applies.

# Course Descriptions

## **REC 4800** **Professional Preparation in Recreation**

**1**  
\* Prerequisite(s): University Advanced Standing  
\* Prerequisite(s) or Corequisite(s): REC 2400

Prepares the student to make the transition from student to professional in Outdoor Recreation. Includes discussion of internship selection, application materials, interviewing skills, job search, salary negotiation, and other professional issues. Provides mentoring during the internship search process.

## **REC 481R** **Senior Internship**

**1 to 8**  
\* Prerequisite(s): REC 4800, REC 420R, 80 credit hours completed, minimum 2.5 GPA, instructor approval, and University Advanced Standing

Provides supervised, hands-on field experience for excellent students preparing to take entry-level positions in recreation. May be repeated for a maximum of 12 credits toward graduation. May be graded Credit/No Credit.

## **REC 489R** **Undergraduate Research in Recreation**

**1 to 4**  
\* Prerequisite(s): REC 2200, Departmental approval of research proposal, and University Advanced Standing

Provides students the opportunity to conduct research under the mentorship of a faculty member. Students will put in practice the theoretical knowledge gained in prior major courses. Students will create a significant intellectual or creative product that is characteristic of the recreation discipline and worthy of communication to a broader audience. May be repeated for a maximum of 8 credits toward graduation.

## **REC 490R** **Topics in Recreation**

**1 to 3**  
\* Prerequisite(s): (REC 2200 or Instructor Approval) and University Advanced Standing

Focuses student reading, research, and discussion on specific areas of concentration within the field of outdoor recreation management. (Specific areas of focus will change as the instructor and his or her focus or expertise changes.) Analyzes how outdoor recreation affects and is affected by culture, ideology, socio-economic factors, history, etc. Focuses may include: Recreation and Popular Culture, Recreation and Diversity, and History and Philosophic Issues in Recreation, among others. May be repeated for up to 6 credits toward graduation.

## **REC 4950** **Senior Seminar**

**2**  
\* Prerequisite(s): REC 2400, REC 3100, REC 4800, STAT 1040 or higher, and University Advanced Standing

Examines current outdoor recreation topics that allow senior students the opportunity to relate academic studies to the latest problems, changes, and trends in the field.

# **Respiratory Therapy (RESP)**

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## **RESP 1540** **Survey of Respiratory Therapy**

**1**  
Introduces students to the profession of respiratory therapy. Includes field trips and limited lab activities. Open to all students.

## **RESP 2145** **Fundamentals of Respiratory Care Lab**

**3**  
\* Prerequisite(s): Acceptance into the Respiratory Therapy Program  
\* Corequisite(s): RESP 2300 and RESP 2520

Provides laboratory experiences to develop basic patient interaction and assessment skills required of an entry-level respiratory therapist. Emphasizes students' ability to carry out commonly ordered respiratory therapy procedures. Includes participation in respiratory care simulations. Course lab fee of \$225 applies.

## **RESP 2165** **Mechanical Ventilation Lab**

**2**  
\* Prerequisite(s): RESP 2145  
\* Corequisite(s): RESP 2320  
Provides laboratory experience with mechanical ventilation techniques and equipment. Emphasizes patient observation and assessment skills, as well as techniques in initiating, troubleshooting, monitoring, managing, and weaning ventilator parameters. Course lab fee of \$217 applies.

## **RESP 2210** **Cardiopulmonary and Renal Anatomy and Physiology I**

**3**  
\* Prerequisite(s): Acceptance into the Respiratory Therapy Program  
Introduces anatomy and physiology of the pulmonary, cardiovascular, and renal systems. Includes principles of fluid dynamics governing oxygen and carbon dioxide transport throughout the body.

## **RESP 2230** **Cardiopulmonary Pathophysiology I**

**2**  
\* Prerequisite(s): Acceptance into the Respiratory Therapy Program  
\* Corequisite(s): RESP 2210

Covers the underlying pathophysiology of medical and surgical cardiopulmonary diseases. Emphasizes abnormal physiological processes which result in the signs and symptoms of each cardiopulmonary disorder. Includes diagnosis, selection, and implementation of therapeutic modalities and the role of the respiratory therapist in treatment.

## **RESP 2250** **Basic Patient Assessment**

**2**  
\* Prerequisite(s): Acceptance into Respiratory Therapy Program.

Introduces basic patient assessment techniques, including respiratory therapy application of obtaining patient history and physical examination. Emphasizes integration of laboratory and imaging studies.

## **RESP 2270** **Application of Cardiopulmonary Diagnostics**

**3**  
\* Prerequisite(s): RESP 2210  
Introduces theory and clinical application of basic cardiopulmonary diagnostic studies, including simple spirometry, arterial and mixed venous blood gases, and electrocardiograms. Emphasizes critical thinking skills in interpretation of diagnostic findings.

## **RESP 2300** **Fundamentals of Respiratory Care**

**3**  
\* Prerequisite(s): Acceptance into the Respiratory Therapy Program.  
\* Corequisite(s): RESP 2145 and RESP 2520

Examines principles and theory of clinical application of basic respiratory treatments and therapies, including indications, contraindications, hazards and complications, and equipment management. Includes principles and theory of clinical application of airway management and invasive and non-invasive ventilation. Emphasizes patient assessment and critical thinking skills.

## **RESP 2320** **Mechanical Ventilation I**

**3**  
\* Prerequisite(s): RESP 2300  
\* Corequisite(s): RESP 2165  
Introduces basic principles of mechanical ventilation, including determining the need for ventilation support, as well as initiation, maintaining, monitoring, and weaning from mechanical ventilation.

**RESP 2330****Entry Level Respiratory Therapy Review****1**

\* Prerequisite(s): RESP 2320

Provides a comprehensive review to integrate concepts and skills in Respiratory Therapy.

**RESP 2420****Critical Thinking in Respiratory Care****2**

\* Prerequisite(s): RESP 2300

Provides learning experiences for students to develop a deep and broad understanding of respiratory care content based on sound clinical decision making. Requires students to solve practical problems in respiratory care.

**RESP 2520****Principles of Pharmacology****2**

\* Corequisite(s): RESP 2300 and RESP 2145

Introduces pharmacology, including general principles, autonomic and central nervous system agents, cardiovascular agents, and immunotherapeutic agents. Includes the study of drugs used in managing renal, GI tract, endocrine, and infectious or neoplastic diseases and disorders.

**RESP 2705****Clinical Practice I****3**

\* Prerequisite(s): RESP 2145

Provides clinical rotations in the hospital environment allowing for mentored practice of skills. Emphasizes application of assessment skills including medical chart reviews and patient observation and examination. Includes recommendation, performance, and modification of basic therapies.

**RESP 2715****Specialty Clinical Experiences****1**

\* Prerequisite(s): RESP 2145

Provides opportunity to observe and participate in specialty areas of the respiratory care profession.

**RESP 2725****Clinical Practice II****3**

\* Prerequisite(s): RESP 2705

Provides clinical rotations in selected medical settings, focusing on skills of initiation, management, and weaning of mechanical ventilation. Includes case studies as well as patient care.

**RESP 3210****Cardiopulmonary and Renal Anatomy and Physiology II****2**

\* Prerequisite(s): RESP 2210 and University Advanced Standing

Addresses cardiopulmonary anatomy and physiology specifically for the advanced-level respiratory care practitioner focusing on the advanced physiologic considerations of the cardiovascular, pulmonary, and renal systems.

**RESP 3220****Cardiopulmonary Pathophysiology II****2**

\* Prerequisite(s): RESP 2230 and University Advanced Standing

Examines pathophysiology and diagnosis of coronary artery disease, fungal lung diseases, neoplasms, HIV, adult respiratory distress syndrome (ARDS), chest trauma, shock, multiple organ dysfunction syndrome (MODS), and differentiation of extracellular and intracellular fluid compartments.

**RESP 3230****Advanced Cardiopulmonary Technology****2**

\* Prerequisite(s): RESP 2270 and University Advanced Standing

Explores advanced diagnostic procedures and develops interpretive skill in cardiopulmonary function, lung dynamics, specialty gases, blood gas analysis, and metabolic assessment.

**RESP 3260****Neonatal/Pediatric Critical Care****3**

\* Prerequisite(s): RESP 2320 and University Advanced Standing

\* Corequisite(s): RESP 3265

Examines pediatric and neonatal respiratory care with an emphasis on intensive care activities, therapeutic procedures, life support modalities, and fetal, neonatal, and pediatric pathophysiology. Course lab fee of \$69 applies.

**RESP 3265****Neonatal/Pediatric Critical Care Lab****1**

\* Prerequisite(s): RESP 2165 and University Advanced Standing

\* Corequisite(s): RESP 3260

Provides laboratory experiences to develop advanced patient interaction and assessment skills in the areas of neonatal and pediatric critical care. Emphasizes students' ability to carry out commonly ordered respiratory therapy procedures. Includes participation in respiratory care simulations.

**RESP 3270****Adult Critical Care****2**

\* Prerequisite(s): RESP 2725 and University Advanced Standing

Explores advanced level adult respiratory care in the intensive care setting. Emphasizes ventilation/perfusion monitoring, hemodynamic monitoring airway, assessment and critical patient management.

**RESP 3280****Extended Care Roles for Respiratory Therapists****2**

\* Prerequisite(s): RESP 2270 and University Advanced Standing

Analyzes theory and principles of extended care roles for the respiratory therapist. Examines the respiratory therapist's role in quality management, pulmonary rehabilitation, sleep medicine, homecare, and hyperbaric medicine. Includes legal, ethical, and moral considerations of chronic and extended care.

**RESP 3320****Mechanical Ventilation II****3**

\* Prerequisite(s): RESP 2320 and Advanced University Standing

\* Corequisite(s): RESP 3325

Focuses on the study of advanced mechanical ventilation. Emphasizes advanced modes of ventilation, patient management, and assessment. Includes invasive and non-invasive ventilation techniques.

**RESP 3325****Mechanical Ventilation II Lab****1**

\* Prerequisite(s): RESP 2165 and University Advanced Standing

\* Corequisite(s): RESP 3320

Provides laboratory experience with mechanical ventilation techniques and equipment. Emphasizes advanced modes of ventilation, patient management, and assessment.

**RESP 3430****Principles of Healthcare Education and Disease Management WE****3**

\* Prerequisite(s): RESP 2330 and University Advanced Standing

Introduces concepts and principles of respiratory chronic disease management. Examines health models, processes, staffing, training, patient advocacy/engagement, and reporting/reimbursement necessary to improve patient outcomes and reducing healthcare costs. Provides background in educational theory and practical application skills of educational delivery and evaluation within the construct of the health care environment.

## Course Descriptions

### **RESP 3510**

#### **Anatomy and Physiology of Sleep**

**3**

\* Prerequisite(s): University Advanced Standing and Department approval. Requires (acceptance into the Respiratory Care Program or completion of a respiratory care program) or R.N. credential.

Introduces anatomy and physiology of the neurological, cardiac, and respiratory systems during the wake and sleep cycles. Emphasizes changes related to sleep disorders.

### **RESP 3520**

#### **Introduction to Sleep Disorders**

**3**

\* Prerequisite(s): RESP 3510 and University Advanced Standing

Provides an overview of the history of sleep medicine, normal sleep physiology, the effects of sleep-wake disruption, sleep disorders, and abnormal sleep physiology. Includes an introduction to polysomnography and the fundamentals of therapeutic interventions utilized to treat sleep disorders.

### **RESP 3765**

#### **Clinical Practice III Neonatal/Pediatric Respiratory Care**

**3**

\* Prerequisite(s): RESP 3260 and University Advanced Standing

Provides mentored participation in the clinical care of patients in the neonatal/pediatric critical care setting. Emphasizes cardiovascular and patient/ventilator monitoring and assessment and airway management.

### **RESP 3785**

#### **Extended Roles in Respiratory Therapy Clinical**

**2**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): RESP 3280

Provides clinical experiences related to RESP 3280, such as rehabilitation, extended care, home care, polysomnography, patient assessment for discharge planning and quality management.

### **RESP 4610**

#### **Advanced Patient Assessment WE**

**3**

\* Prerequisite(s): RESP 3270 and University Advanced Standing

Emphasizes the diagnostic processes involved in assessing, evaluating, and treating patients with cardiopulmonary disease, with an intensive, mentored clinical experience.

### **RESP 4630**

#### **Continuous Quality Improvement**

**2**

\* Prerequisite(s): University Advanced Standing

Enhances understanding of how to construct and conduct quality improvement projects in the clinical workplace.

### **RESP 4640**

#### **Respiratory Therapy Capstone**

**2**

\* Prerequisite(s): RESP 3270 and Advanced University Standing

Focuses on areas of advanced respiratory care, leadership and management, case management, research, education, or other special area of interest. Student will identify and complete a project applying knowledge and skills learned in the program.

### **RESP 4775**

#### **Clinical Practice IV Adult Critical Care**

**4**

\* Prerequisite(s): RESP 3270 and University Advanced Standing

Provides mentored participation in the clinical care of patients in the adult critical respiratory care setting, with emphasis on hemodynamic monitoring and assessment, ventilation/perfusion monitoring, patient/ventilator monitoring and assessment, and airway management.

### **RESP 4800**

#### **Respiratory Therapy Seminar**

**3**

\* Prerequisite(s): RESP 3270 and University Advanced Standing

Explores problem-based clinical concepts. Includes a comprehensive program review and preparatory focus on the written and clinical simulation examinations of the NBRC. Covers resume writing and interviewing skills.

### **RESP 480R**

#### **Health Education and Promotion**

**1 to 4**

\* Prerequisite(s): University Advanced Standing and departmental approval.

Provides students an opportunity to pursue independent study in respiratory therapy with a faculty mentor. The health promotion project addresses the growing role of the Respiratory Care Practitioner (RCP) in patient education, public education, and health promotion in general. Requires preparation and presentation of oral and/or written reports. May be repeated for up to 4 credits toward graduation.

### **RESP 4890**

#### **Principles of Respiratory Care Research and Management**

**3**

\* Prerequisite(s): RESP 3270 and University Advanced standing

Examines research methods and the scientific approach to critical appraisal of research literature. Analyzes scientific data to support approaches to respiratory care. Introduces theories, principles, and skills needed to function in a leadership position. Addresses the key issues confronting respiratory care leaders today.

### **RESP 490R**

#### **Special Projects in Respiratory Therapy**

**1 to 4**

\* Prerequisite(s): RESP 3210 and University Advanced Standing

Involves independent research projects related to the cardiopulmonary system and/or quality improvement. May be repeated for a maximum of 6 credits toward graduation.

### **RESP 4940**

#### **Special Topics in Respiratory Therapy**

**1**

\* Prerequisite(s): RESP 2320 and University Advanced Standing

Provides moderated discussion and/or laboratory experiences relating to current events in health care, legislative and ethical issues, and emergent technologies in respiratory care.

## **Religious Studies (RLST)**

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### **RLST 3540 (Cross-listed with: PHIL 3540)**

#### **Christian Ethics**

**3**

\* Prerequisite(s): PHIL 1610 and University Advanced Standing

Examines key developments and conceptions in Christian ethics through historical and conceptual methodologies. Explores the relationship between religious and secular approaches to ethics in their approach to questions of war, economics, politics, and/or other relevant issues.

### **RLST 3610 (Cross-listed with: PHIL 3610)**

#### **Introduction to Christian Theology**

**3**

\* Prerequisite(s): PHIL 1610 and University Advanced Standing

Examines key developments and conceptions in Christian theology through historical and conceptual methodologies.

### **RLST 3620 (Cross-listed with: PHIL 3620)**

#### **Mormon Theology and the Christian**

#### **Tradition**

**3**

\* Prerequisite(s): PHIL 1610 and University Advanced Standing

For students majoring in humanities-related disciplines and other students interested in the academic study of religion. Engages students in exploring the defining features of Mormon thought in relation to the broader Christian tradition. Examines traditional theological questions such as the problem of evil, the scriptural canon, the nature of God and humanity, and the role of ritual.

**RLST 3650 (Cross-listed with: PHIL 3650)****Approaches to Religious Studies****3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G or instructor approval) and University Advanced Standing

For students majoring in humanities-related disciplines and other students interested in the academic study of religion. Teaches methodological approaches and critical thinking strategies in the study of religion. Explores various disciplines in their approaches to religious belief and practice. Includes the study of such thinkers as David Hume, Immanuel Kant, Friedrich Schleiermacher, Rudolf Otto, William James, Ludwig Feuerbach, Soren Kierkegaard, Max Weber, Emile Durkheim, John Hick, and Rene Girard.

**RLST 366R (Cross-listed with: PHIL 366R)****Issues in Religious Studies****3**

\* Prerequisite(s): (PHIL 2050 or PHIL 205H or PHIL 205G or instructor approval) and University Advanced Standing

For students majoring in humanities-related disciplines and other students interested in the academic study of religion. Addresses specific topics and theoretical approaches related to religious studies. Topics may include religion and violence, religion and public discourse, religious ritual, etc. Subject matter varies by semester and is repeatable for a total of 9 hours of credit.

**RLST 367G (Cross-listed with: PHIL 367G)****Engaging Religious Diversity****1 to 3**

\* Prerequisite(s): University Advanced Standing

Explores how religious communities engage one another and examines the implications of these interactions for religious conflict, spiritual identity, and the role of religion in societal contexts. Employs the tools from diverse disciplines to study the phenomenon of religious encounter in both historical and contemporary contexts. Investigates theories of religious diversity, American religious history, interreligious leadership practices, and narrative encounters.

**RLST 3680 (Cross-listed with: PHIL 3680)****Interreligious Studies Practicum****3**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): PHIL 367G or RLST 367G

Engages religious, spiritual, and secular diversity through experiential learning opportunities. Explores how religious and worldview diversity affects the ethical, social, civil, and personal dimensions of the human experience. Provides opportunities for students to apply the theories and principles studied in the other Interreligious Studies Certificate courses.

**Russian (RUS)****RUS 1010****Beginning Russian I****4****LH**

Offers an introduction to basic Russian. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Provides comprehensive explanations of basic Russian grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**RUS 1020****Beginning Russian II****4****LH**

\* Prerequisite(s): Students need equivalent knowledge of RUS 1010

Offers a continuation of basic Russian. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Provides comprehensive explanations of basic Russian grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**RUS 115R****Russian Conversation I****1**

Offers novice Russian speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen listening comprehension for natural conversational flow. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

**RUS 135R****Russia in the Headlines****1**

Explores current issues in Russian headlines. Explains cultural, historical, political and social factors that contribute to positions taken by current Russian leaders. May be repeated for a maximum of 3 credits toward graduation.

**RUS 2010****Intermediate Russian I****4****LH**

\* Prerequisite(s): Students need equivalent knowledge of RUS 1020

Offers a continuation of basic Russian. Reviews and builds additional skills from 1000-level language courses. Uses various methods of instruction that focus on the development of functional competence in listening, speaking, reading, and writing. Introduces authentic texts and provides discussions based on reading. Provides comprehensive explanations of basic Russian grammar along with structural practice for building language accuracy. Lab access fee of \$10 applies.

**RUS 202G****Intermediate Russian II****4****HH**

\* Prerequisite(s): Students need equivalent knowledge of RUS 2010

Studies fourth-semester conversational Russian that is used in daily settings. Includes culture study, speaking, listening, reading, and writing. Emphasizes conversation in real life situations. Uses the Natural and Total Physical Response teaching methods. Completers should be able to converse enough to visit or work in a Russian speaking country. Lab access fee of \$10 applies.

**RUS 215R****Russian Conversation II****1**

\* Prerequisite(s): Students should have equivalent knowledge of RUS 1020

Offers lower division / novice Russian speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, sharpen listening comprehension, and develop conversational strategies such as circumlocution and managing a conversation with useful expressions for starting a conversation, gaining time to think, helping the other speaker, seeking agreement, etc. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

**RUS 266G****Introduction to Russian Culture****3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005

Studies Russian culture (988-1900) within a historical, cultural, thematic, and aesthetic context.

## Course Descriptions

### **RUS 3030**

#### **Russian Conversation and Composition I** **3**

\* Prerequisite(s): (RUS 202G or instructor approval) and University Advanced Standing

Emphasizes production skills [speaking and writing], reviews and expands lexical depth and advances mastery of Russian grammar. Examines contemporary Russian culture topics through studying a variety of Russian sources: readings, film, lecture, individual research, etc. Analyzes topics through active class discussion in Russian. Conducted entirely in Russian.

### **RUS 3040**

#### **Russian Conversation and Composition II** **3**

\* Prerequisite(s): (RUS 202G or instructor approval) and University Advanced Standing

Explores communicative skills in Russian. Provides opportunity for students to improve language production through extensive oral and written instruction and study of selected literary and cultural texts. Advances mastery of Russian grammar while emphasizing production skills of speaking and writing. Prepares students to participate fully in subsequent advanced courses. All course work conducted in Russian.

### **RUS 3050**

#### **Advanced Russian**

**3**

\* Prerequisite(s): It is recommended that students have either taken RUS 202G, had at least one year residency in a Russian-speaking country, or instructor approval

Designed for non-native Russian speakers, who, as a result of foreign residency or similar exposure to the language, have attained a fairly good mastery of basic Russian. Targets major grammatical concepts with a focus on oral proficiency development. Overviews Russian culture and gives an introduction to Russian literature. Lab access fee of \$10 applies.

### **RUS 3200**

#### **Business Russian**

**3**

\* Prerequisite(s): RUS 3050 and University Advanced Standing

Teaches Russian business terminology and prepares students to take the Business Russian Proficiency Tests sponsored by the Russian Chamber of Commerce.

### **RUS 3520**

#### **Russian Culture and Civilization**

**3**

\* Prerequisite(s): (RUS 3050 or equivalent) and University Advanced Standing

Explores chronologically the evolution and development of Russia, and a multitude of aspects that construct Russian national identity. Completers should acquire an understanding of contemporary issues, ethnic and economic development of Russia, as well as historical interdependence with other nations. Presentations and class instructions conducted entirely in Russian.

### **RUS 3620**

#### **Nineteenth-Century Russian Literature and Its Film Adaptations**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces Russian Realist literature from 1800 and explores how these classic texts have been adapted for film. Emphasizes literary and film analysis and criticism, explores literary history, develops skills in interpreting literary and filmic texts, and deepens understanding of Russian culture. All coursework conducted in English with select readings in Russian upon request.

### **RUS 366G**

#### **Twentieth Century Russian Culture**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Explores the main Russian cultural influences of the 20th century. Examines the cultural, social and political movements developed from roughly 1880-1999 and considers the main figures who embody these movements. Focuses on individuals who exemplify cultural achievements in their given field or sphere of influence. Requires a research paper that focuses on an individual who contributed to the 20th century cultural milieu. Taught in English.

### **RUS 367G**

#### **History of Russian Film**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005) and University Advanced Standing

Studies Russian cinema within the historical, cultural, thematic, and aesthetic context.

### **RUS 4050**

#### **Special Problems in Grammar Usage and Style**

**3**

\* Prerequisite(s): [(RUS 3030 and RUS 3040) or RUS 3050] and University Advanced Standing

Reviews Russian grammar focusing on problem areas. Explores grammar as deployed in different genres. Emphasizes writing in different styles. Identifies styles in readings and compose according to certain styles.

### **RUS 4110**

#### **Translation and Interpretation**

**3**

\* Prerequisite(s): (RUS 3050 or equivalent) and University Advanced Standing

Introduces translation as a discipline. Develops the special skills needed for translating and interpreting, and to achieve mastery of the contemporary spoken and written language. Discusses basic theory, principles and tools of translation. Employs the tools of translation: dictionaries, glossaries, grammars and computerized resources. Focuses on the extensive practice of translation and interpretation from English to Russian and from Russian to English.

### **RUS 416G**

#### **Post Soviet Russian Media and Film**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Examines visual media with special attention paid to the embedded cultural discourse that can only be understood with references to Russian history, language, and cultural identity. Explores Russia's depiction of and relationship with its past, present and future. Explores certain questions about visual media in post-Soviet society: the function of cinema in the new Russia; how cinema offers what reality cannot -- a goal for people to live up to at a time when politics and ideology fail to provide direction; how cinema articulates the reality of contemporary Russian life.

### **RUS 4170**

#### **Russia Under Putin**

**3**

\* Prerequisite(s): University Advanced Standing

Examines the social, political and cultural institutions that have informed the evolution of contemporary Russia following the collapse of the Soviet Union.

### **RUS 490R**

#### **Special Topics in Russian Studies**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Explores a variety of subjects relevant to the study of Russian language, literature and culture. Engages students in critical analysis and discourse. May be repeated for a maximum of 6 credits toward graduation.

## **Science Education (SCIE)**

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### **SCIE 4210**

#### **Science Teaching Methods I**

**3**

\* Prerequisite(s): University Advanced Standing

Explores foundational aspects of learning science and how this intersects with the nature of science in secondary schools. Includes introductions into state science standards, best methods of engaging learners, how to generate inclusive science learning environments, and promote discourse and collaboration in the service of greater student learning.

**SCIE 4220**  
**Teaching Methods in Science II**

**3**  
 \* Prerequisite(s): SCIE 4210 and University Advanced Standing

Examines instructional methods and curriculum for teaching science in the secondary school. Includes developing, adapting, evaluating, and using strategies and materials for teaching biological and physical sciences, appropriate both to the special needs of the learners and the special characteristics of science discipline.

## Student Leadership and Success (SLSS)

**SLSS 1000**  
**University Student Success**

**3**  
 \* Prerequisite(s): Appropriate reading skills

Introduces and integrates new students to the UVU community, both academically and socially. Teaches strategies for academic success, such as critical thinking skills, time and financial management, and effective collaboration techniques. Develops student awareness of campus resources and assists in exploring and establishing personal, academic, and career goals. Includes lectures, group interaction, online interaction with faculty and students, in class exercises, and projects which apply learning to real life situations.

**SLSS 101R**  
**Student Success Topics**

**1 to 3**  
 \* Prerequisite(s): Appropriate reading skills

Variable credit course that surveys essential skills for success in college. Topics covered include, but are not limited to: memory, note taking, test taking, textbook reading and study strategies, time management, writing processes, communication, and thinking skills. May be repeated for a maximum of 9 credits toward graduation. May be graded credit/no credit.

**SLSS 103R**  
**Student Leadership Development I**

**1 to 4**  
 Provides an overview of leadership styles, personalities, and organizational dynamics for student leaders. Explores the structure and culture of Student Leadership, Utah Valley University, the governing boards of higher education, and the State of Utah relating to shared governance and student involvement in campus leadership. May be repeated for a maximum of 8 credits toward graduation.

**SLSS 104R**  
**Student Leadership Development II**

**1 to 4**  
 \* Prerequisite(s): Departmental Approval

Focuses on the nature of leadership, citizenship, and advocacy in a democracy. Provides an overview of leadership and civics as crucial to the success of any leader, including a student leader. May be repeated for a maximum of 8 credits toward graduation.

**SLSS 1050**  
**Research Skills for Student Success**

**1**  
 Introduces students to concepts of information literacy and academic research. Demystifies the information landscape and emphasizes critical evaluation and ethical use of a variety of information sources. Prepares students for college-level research.

**SLSS 1100**  
**Stress Management**

**3**  
 Presents strategies to develop new attitudes for coping with stressful circumstances. Increases a broader perspective and deeper understanding of acute and chronic stress. Develops conflict resolution techniques through improved communication skills. Studies physiological signs of stress and strain. Emphasizes relaxation techniques to increase performance and reduce the effects of stressful situations. Presents how diet affects personal performance and stress reduction. Explores physical fitness and the effects a sound body can have on coping with stress. May be delivered online.

**SLSS 1120**  
**Leadership and Civic Engagement**

**3**  
 Identifies how student leaders can impact the UVU community and the community which they live. Explores student leadership models in relation to change and discover community needs in a service-learning environment. Applies student leadership practices and understanding of civic engagement to inform the UVU community of a local, national or world-wide community need(s). Reflects on student leadership, civic engagement, and community. Practices life-long learning and advocacy for community change.

**SLSS 1190**  
**Power Learning Strategies**

**3**  
 Introduces what successful college students do and invites students to begin implementing these research-based techniques and methods in their other courses. Focuses on developing a conceptual and strategic framework for effective learning at the college level. Includes attention to creating the conditions for effective learning, comprehension of academic texts, identifying and remembering key information, test preparation and test taking.

**SLSS 1195**  
**Speed Reading**

**2**  
 For students with good reading skills who want to increase reading speed and flexibility while maintaining or increasing their level of comprehension. Also teaches methods of speed studying.

**SLSS 1200**  
**The 7 Habits of Highly Effective People**

**3**  
 Provides the foundation for personal leadership by teaching fundamental principles of character and life-changing paradigms. Examines the personal and organizational components of effectiveness. Focuses on high leverage changes such as time management, communication skills, win/win negotiation, and principle-centered life choices. Prepares students for life-long success. Includes highly interactive class discussions, application exercises, videos, and group work. May be delivered hybrid and/or online. Course fee of \$40 applies.

**SLSS 120H**  
**The 7 Habits of Highly Effective People**

**3**  
 Provides the foundation for personal leadership by teaching fundamental principles of character and life-changing paradigms. Examines the personal and organizational components of effectiveness. Focuses on high leverage changes such as time management, communication skills, win/win negotiation, and principle-centered life choices. Prepares students for life-long success. Includes highly interactive class discussions, application exercises, videos, and group work. Engages in more complex personal leadership material and applies the concepts with a more comprehensive approach to meet honors requirements. Course fee of \$40 applies.

**SLSS 120R**  
**Testing Strategies for Educators**

**1**  
 Provides prospective Elementary Education Majors an opportunity to acquire the study strategies and test taking skills necessary to pass examinations that allow them to be admitted into the education program and to receive state licensure. May be repeated for a maximum of 3 credits toward graduation.

**SLSS 1400**  
**Dimensions of Engaged Learning**

**1**  
 Introduces students to theories and best practices related to engaged learning in higher education. Provides opportunities for students to collaborate, share ideas, and participate in common experiences.

# Course Descriptions

## **SLSS 141R** **University Forum** **1**

Encourages student participation in the academic and intellectual life of UVU through attendance and critical reflection on select academic and scholarly events. Integrates students' classroom learning with topical events through exposure to scholars and practitioners on a wide range of issues and from a variety of perspectives. May be repeated for a maximum of 6 credits toward graduation. Graded credit/no credit.

## **SLSS 2100** **Major and Career Exploration** **3**

For students who are undecided about their major or career goals. Provides students with the opportunity to interact with career professionals; understand how to access internship, career preparation, and placement resources at UVU; and integrates understanding of self with knowledge of majors, careers, and the world of work. Utilizes an appropriate decision making model to identify possible major and career choices. Course fee of \$25 for materials applies.

## **SLSS 2300** **Leadership Mentoring II** **3**

Provides the ongoing and further development of the theoretical base and hands-on training in leadership and mentoring techniques for peer mentors, and also assists them in further exploring and developing their own learning skills and strategies, and methods for mentoring these skills in others. Explores higher cognitive application and analysis of teaching/facilitating learning as a form of leadership.

## **SLSS 240R** **Mentoring Leadership Practicum** **2**

Provides the theoretical base and hands-on training in leadership and mentoring techniques as well as an understanding of and ability to apply the UVU Student Core Leadership Competencies. Assists student leaders in further developing their own self-awareness, learning skills and strategies, and explores methods for facilitating these in others. Provides an avenue for student leadership program administrators to facilitate goal development, fulfillment and performance among student leaders and the individuals they serve. Emphasizes building relationships with students, teaching life skills and learning strategies, and guiding students through the college experience. Repeatable for a maximum of 8 credits towards graduation.

## **SLSS 2500** **Leader--Strengths-Based Leader/Coach** **3**

Advances the study and practice of personal leadership by focusing on research-based character strengths. Uses strengths-based inquiry and assessment, identifies and examines character strengths as they relate to optimal functioning, well-being, and personal leadership (leadership of self and others). Draws upon the theories of positive leadership, positive paradigms and practices to develop a strengths-based core that they can transfer to diverse situations and a wide array of roles. Course fee of \$10 applies.

## **SLSS 281R** **Internship** **1 to 8**

\* Prerequisite(s): Department Approval  
\* Corequisite(s): SLSS 2100 recommended

Provides supervised, practical, and professional experience for students exploring a variety of career areas. May be repeated for a maximum of 12 credit hours towards graduation. May be graded credit/no credit.

## **SLSS 3200** **Leader--Teacher and Mentor** **3**

Provides concurrent theoretical and engaged learning experiences that invite students to explore the notion of leader as an effective facilitator of learning and as a coach for self and others. Engages a broad range of current academic literature exploring relevant intra- and interpersonal leadership principles and their interactions within micro and macro level settings. Develops adaptable philosophical and practical toolkit to more effectively navigate within and across multiple settings as a mentor, teacher, and coach to self and others.

## **SLSS 402G** **Global Professionalization** **3**

\* Prerequisite(s): University Advanced Standing

Underscores UVU's commitment to valuing global and intercultural opinions, backgrounds, traditions, perspectives, and experiences. Fosters an intercultural learning curriculum and an understanding of and an appreciation for, a variety of cultural perspectives and experiences is an essential element of higher education. Invites learners to move away from the view of "difference as deficiencies" which continues to be prevalent in society. Invites learners to become increasingly aware of the value and strength of diversity and to be more reflective of each person's role within education and society in general. Explores a growing body of literature and experience that implies a demanding personal and professional commitment. Examines deeper understanding that enhances learners' cultural awareness and prepare them for future employment in global and intercultural settings.

## **SLSS 405G** **Leader--Global Contributor** **3**

\* Prerequisite(s): Placement into ENGL 1010 or ENGH 1005 or higher

Examines what the world will look like in 25 years due to the influence of seven global dimensions or the 7 Revolutions (population, resource management, technology, information/knowledge, economic integration conflict, and governance). Explores various global, political, economic, social, and behavioral systems; and examines underlying causes of those issues within students' lives. Introduces academic skills in research, communication, critical thinking, and personal leadership.

## **SLSS 4800** **Leader Capstone--Lifelong Change Agent** **4**

\* Prerequisite(s): SLSS 2500 or SLSS 3200

Integrates three central components: experiential learning, service, and leadership. Provides the opportunity to demonstrate knowledge, application, and proficiency of the core Leadership Certificate content areas. Allows students to propose projects in areas related to their academic and/or professional interests or goals. Projects are subject to approval by department faculty.

## **SLSS 481R** **Advanced Internship** **1 to 12**

\* Prerequisite(s): Department approval and University Advanced Standing

Provides mentorship during professional internships in a variety of career areas. Internships will be focused on the student's major and future career and will require development of industry specific skills and abilities. Provides networking opportunities within the industry. May be Graded Credit/No Credit. May be repeated for a maximum of 12 credits towards graduation.

# **Sociology (SOC)**

## **SOC 1010** **SS** **Introduction to Sociology** **3**

Studies and compares social groups and institutions and their inter-relationships. Includes culture, socialization, deviance, stratification, race, ethnicity, social change, and collective behavior.

## **SOC 101H** **SS** **Introduction to Sociology** **3**

Studies and compares social groups and institutions and their inter-relationships. Includes culture, socialization, deviance, stratification, race, ethnicity, social change, and collective behavior.

**SOC 1020****Modern Social Problems****3**

Studies and analyzes modern social problems such as crime, delinquency, family dysfunctions and inequality and exploitation among people in contemporary society. Class requires volunteer experience in community agencies.

**SOC 107G****Multicultural Societies****3****SS**

Examines the benefits and challenges of diversity in the United States. Explores history and life experiences of people from various racial and ethnic groups. Provides a forum for constructive interaction among people of different racial, ethnic, social, economic, and religious backgrounds.

**SOC 1200****Sociology of the Family****3****SS**

Discusses the family in the context of society and its seven sociological institutions: family, media, government, economy, technology, education, and religion. Evaluates how changes in these institutions have facilitated many changes in the structure and function of the modern family. Examines traditional, current, and anticipated definitions of the family using core sociological theory and research tools. Evaluates cultural influence on the family. Focuses on strengthening marriages at the levels of dating, mate selection, marriage, newly wedded adjustment, parenting, finance, proactive family maintenance, and elderly family experiences. Emphasizes the application of one's own life and family experiences while maintaining scientific rigor and critical awareness.

**SOC 2370****Sociology of Gender****3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005 with a C+ or higher

Examines sociological perspectives on gender roles globally. Addresses the effect of social construction of gender roles in various cultures around the world. Investigates how roles have changed over time and the consequences of these changes to broader societal norms globally and in the United States.

**SOC 263G****Race and Minority Relations****3**

\* Prerequisite(s): ENGL 2010 with a C+ or higher

Studies ethnic and racial minority groups and the development of formal and informal relationships shared by these groups and the majority group. Explores the roles and origins of these groups and the concepts of prejudice, ethnic inequalities, current minority group movements, cross-cultural issues, economic, political, and educational aspects of majority-minority relations.

**SOC 275R****Survey of Current Topics****1 to 3**

\* Prerequisite(s): (ANTH 101G or PSY 1010 or SOC 1010) and ENGL 1010 or ENGH 1005 with a C+ grade or higher

Presents selected topics in Sociology. Approaches subjects from a cross-disciplinary perspective. Requires a project demonstrating competency in the specific topic. May be repeated for nine credits toward graduation.

**SOC 3030****Social Research Methods WE****3**

\* Prerequisite(s): PSY 3110 (statistics) with a C- or higher and University Advanced Standing

Teaches how to conduct social science research. Introduces different research methods in social sciences, including experiments, surveys, field research, and unobtrusive research. Covers the following topics: steps in scientific research, the ethics of social research, research design, the logic of sampling, and strengths and limitations of each type of data collection method.

**SOC 3400****Sociology of Religion****3**

\* Prerequisite(s): ENGL 2010 with a C+ or higher, SOC 1010, and University Advanced Standing

Examines religion from a sociological perspective. Analyzes religion as a social phenomenon. Discusses religious organizations, religion and politics, and religion and social class.

**SOC 3430****Sociology of Education****3**

\* Prerequisite(s): ENGL 2010 with a C+ or higher, SOC 1010, and University Advanced Standing

For students who desire a better understanding of United States and world education systems. Examines and investigates educational trends and issues such as private vs. public systems; dropout rates; desegregation; student achievement/failure; education policies; race; class; gender issues; the 'Hidden Curriculum'; and education reform using Sociological theory and empirical research.

**SOC 3460****Political Sociology****3**

\* Prerequisite(s): ENGL 2010 with a C+ or higher, SOC 1010, and University Advanced Standing

Explores the distribution of political power at the national and international levels from a variety of theoretical perspectives. Pays particular attention to the power wielded by international media conglomerates and the influence of international institutions such as the World Trade Organization, the World Bank, and the International Monetary Fund.

**SOC 3501****Social Psychology****3**

\* Prerequisite(s): SOC 1010 and University Advanced Standing

Examines individual's thoughts, feelings, and behaviors in social contexts. Analyzes human behaviors from a sociological perspective. Includes the history of sociological social psychology, perspectives and research methods in sociological social psychology, the social psychology of stratification, self and identity, socialization over the life course, social psychology of deviance, mental health and illness, social attitudes, sociology of emotions and relationships, and collective behavior.

**SOC 3510****Sociology of Work and Occupations****3**

\* Prerequisite(s): ENGL 2010 with a minimum C+ grade, SOC 1010, and University Advanced Standing

Examines work and occupations in historical and contemporary contexts. Examines current employment patterns and trends, the nature of labor markets and jobs, the gendered arrangements of paid and unpaid work, the organization and management of work. Explores transformations in occupational settings resulting from changes in economy and labor market. Focuses on the macro level (the effects of advancements in technology, bureaucratization and unionization on the division of labor), the micro-level (job satisfaction and alienation), and on the interface between macro and micro levels (job prestige, rewards, effects of ethnicity, age, and other characteristics).

**SOC 3520 (Cross-listed with: ENST 3520)****Environmental Sociology****3**

\* Prerequisite(s): SOC 1010 and ENGL 2010 with a C+ grade or higher and University Advanced Standing

Explores in detail several different approaches to understanding the social causes of and solutions to environmental degradation. Discusses the development of a wide variety of theory-based critiques of various social institutions (e.g., economic, political, religious) and how these institutions' values can create and perpetuate unsustainable practices.

**SOC 3560****Sociology of Deviance****3**

\* Prerequisite(s): ENGL 2010 with a C+ or higher, SOC 1010, and University Advanced Standing

Examines the strengths and weaknesses of several different definitions of deviance. Explains deviant behavior from a variety of theoretical perspectives and summarizes the existing data on several different forms of deviance, i.e., individual violations of social mores, street level crime, corporate crime, and crimes committed by nation states.

## Course Descriptions

### **SOC 3690**

#### **Internet and Society**

**3**

\* Prerequisite(s): (ENGL 1010 or ENGH 1005), SOC 1010, and University Advanced Standing

Traces the history of new media through a sociological approach. Utilizes sociological theories of mass media and new media, (internet, smartphones, social media, etc.) and their impact on identities and institutions. Refers to sociological theories created in the pre-internet era – such as symbolic interactionism – to explain the pervasive presence of new media in society as well as our use of them.

### **SOC 3700**

#### **Social Inequality**

**3**

\* Prerequisite(s): (ENGL 2010 with a C+ or higher), SOC 1010, and University Advanced Standing

Studies social structure, culture, environment (urban/rural axis), inequality, and poverty in American Society. Examines Spanish Harlem, Detroit, Appalachia, and the Bitterroot Valley of Montana.

### **SOC 375G**

#### **Sociology of Aging**

**3**

\* Prerequisite(s): University Advanced Standing

Explores the social aspects of aging at the personal, group, and larger social levels of society including the social implications of aging, the theories of aging, as well as formal and informal support of medical care, housing, and well-being of elderly persons. Includes the study of the identify the biological processes of aging and its impact on the roles and relationships elderly person experience in the later stages of life. Emphasizes the individual's experience in the context of national and global demographic trends, cultural and ethnic diversities and economic realities across the classes and across political boundaries.

### **SOC 3800**

#### **Animals and Society**

**3**

\* Prerequisite(s): ENGL 2010 with a C+ or higher, SOC 1010, and University Advanced Standing

Examines the roles that non-human animals play in human societies. Utilizes sociological approaches to study human-animal relationships and to critically evaluate the ideologies which justify these relationships. Pays particular attention to human relationships in North America to domestic pets, livestock, and wildlife.

### **SOC 3850**

#### **Rural Life--Global and Local**

**3**

\* Prerequisite(s): ENGL 2010 with a C+ or higher, SOC 1010, and University Advanced Standing

Introduces rural life across the globe. Discusses the views of agrarian writers and thinkers. Explores rural values, rural communities, rural race relations, and rural poverty. Evaluates how the rural perspective provides a platform for critique of modern societal transformations in the twentieth and early twenty-first centuries.

### **SOC 4000**

#### **Classical Social Theory**

**3**

\* Prerequisite(s): (ENGL 2010 with a minimum C+ grade), SOC 1010, and University Advanced Standing

Examines the contributions of key theorists such as Durkheim, Weber, Marx, DuBois, and Addams to the development of contemporary sociology. Applies key theoretical concepts and frameworks created and used by classical sociologists to current and historical social issues.

### **SOC 4020**

#### **Survey Research Design**

**3**

\* Prerequisite(s): University Advanced Standing

Teaches methods of conducting survey research. Explains how to construct, validate, and administer surveys, how to conduct interviews, how to report data, and how to interpret findings.

### **SOC 4100**

#### **Contemporary Social Theory WE**

**3**

\* Prerequisite(s): SOC 1010 and SOC 4000 and (ENGL 2010 with a C+ or higher) and University Advanced Standing

Examines major contemporary sociological theories that provide the basis for sociological research and the interpretation of social processes. Explores the nature of sociological theory and theory-building to understand the difference and connection between theoretical, methodological, and empirical works in sociology. Covers influential theoretical frameworks, such as structural functionalism, Frankfurt School, exchange and rational choice theories, symbolic interactionism, phenomenology, poststructuralism, postmodernism, feminism, and world systems theories.

### **SOC 4400**

#### **Social Change**

**3**

\* Prerequisite(s): ENGL 2010, SOC 1010, and University Advanced Standing

Analyzes societies and their component parts. Evaluates various endogenous and exogenous forces which bring about social change. Examines historical and contemporary processes of social change and stratification. Explores current social conditions and applicable methods of social change. Offered once every other year.

### **SOC 475R**

#### **Current Topics in Sociology**

**1 to 3**

\* Prerequisite(s): ENGL 2010 with a minimum grade of C+, SOC 1010, and University Advanced Standing

Presents selected topic in Sociology and will vary each semester. Requires a project demonstration competency in the specific topic. May be repeated 3 times with different topics.

### **SOC 490R**

#### **Independent Studies**

**1 to 3**

\* Prerequisite(s): Instructor approval, department chair approval, and University Advanced Standing; for Behavioral Science Bachelor Degree students only

For qualified students who wish to undertake a well-defined project or directed study related to an area of special interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. Projects may include writing a publishable paper, passing a competency exam, producing an annotated bibliography, oral presentation, or other options as approved by instructor. May be repeated for a maximum of 6 credits.

## **Social Science (SOSC)**

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### **SOSC 291H**

#### **National Honors Study Topic**

**3**

Sponsored and promoted by Phi Theta Kappa, national organization. Designed for an intellectual pursuit of National Honors Study topic. Discussion topic changes annually. Deals with current international issues that impact society and the quality of life. Students research and discuss the topic from several different perspectives and develop a knowledge base from which to formulate their own ideas.

## Spanish (SPAN)

### SPAN 1010 LH Beginning Spanish I 4

Emphasizes listening, speaking, and writing skills along with basic grammar, vocabulary, and verb conjugations, all within the cultural context of modern Hispanic societies. Uses an eclectic method of instruction, emphasizing conversational exchanges. Requires weekly lab. Lab access fee of \$10 applies.

### SPAN 1020 LH Beginning Spanish II 4

\* Prerequisite(s): Students need equivalent knowledge of SPAN 1010

Includes the continuation of study of grammar and language concepts, literature, and cultural readings. Uses an eclectic method of instruction, emphasizing conversational exchanges. Conversational lab required. Computer and multimedia lab encouraged. Lab access fee of \$10 applies.

### SPAN 115R LH Spanish Conversation I 1

Offers novice Spanish speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, and sharpen listening comprehension for natural conversational flow. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

### SPAN 1500 LH Spanish Travel Study 3

Introduces students to a Spanish-speaking foreign country for a minimum of 10 days of intensive language and culture study. Course entails several meetings prior to departure and at least one after the return home to facilitate observation and analysis of data to be gathered on the tour. An organized presentation of that data will be contained in a multimedia project due no later than one month after tour.

### SPAN 2010 LH Intermediate Spanish I

4  
\* Prerequisite(s): Students need equivalent knowledge of SPAN 1020

Reviews and builds upon the grammar, reading, writing, and conversation skills learned in the first year courses. Introduces readings and discussions on the history, culture, and literature of the Spanish speaking world, maintaining a focus on oral proficiency. Lab access fee of \$10 applies.

### SPAN 202G HH Intermediate Spanish II

4  
\* Prerequisite(s): Students need equivalent knowledge of SPAN 2010

Emphasizes reading, writing, and conversation skills through studies in literature. Media reading labs are available to help reading comprehension. Requires oral and written response. Lab access fee of \$10 applies.

### SPAN 203G LH Spanish for Heritage Speakers

4  
\* Prerequisite(s): Must be a heritage Spanish speaker (heritage speakers are individuals who speak their first language, which is not English, at home).

For heritage speakers of Spanish with little knowledge of grammar and no formal training in the language. Emphasizes and develops the oral skills students already possess as well as the four language skills: listening, speaking, reading, and writing. Meets Global Intercultural requirements.

### SPAN 2100 LH Spanish for Social Workers

4  
\* Prerequisite(s): SPAN 2010 or SPAN 202G or SPAN 3030 or SPAN 3040 or SPAN 3050 or Department Approval

Teaches language terminology specific to the Spanish language in the field of Social Work. Examines the cultural issues present in the interactions with Spanish-speaking clients. Prepares students to work with Spanish-speaking clients in future careers in social work. Reviews and builds upon the grammar, reading, writing and conversation skills learned in the first years courses.

### SPAN 2110 LH Spanish for Nursing

4  
\* Prerequisite(s): SPAN 2010 or SPAN 202G or SPAN 3030 or SPAN 3040 or SPAN 3050 or Department Approval

Teaches Spanish-language terminology specific to the field of nursing. Examines the cultural issues present in the interactions with Spanish-speaking patients. Prepares students to work with Spanish-speaking patients in future careers in nursing. Reviews and builds upon grammar, reading, writing, and conversation skills learned in previous courses.

### SPAN 215R LH Spanish Conversation II

1  
\* Prerequisite(s): Students should have equivalent knowledge of SPAN 1020

Offers lower division / novice Spanish speakers opportunities to enhance their speaking proficiency in the target language by focusing on oral verbal production. Teaches how to improve authentic pronunciation, reduce errors in authenticity of language structure, generate thought in the target language spontaneously as a substitute for translation, sharpen listening comprehension, and develop conversational strategies such as circumlocution and managing a conversation with useful expressions for starting a conversation, gaining time to think, helping the other speaker, seeking agreement, etc. Contrasts with all other first year courses which must strive to produce mastery of the whole range of language acquisition components, including writing, grammar, etc. Facilitates lowering the affective filter when conversing in the target language by increasing the frequency of speech opportunities and defusing concern for such matters as spelling, etc. Increases mastery of lexical items through increased frequency of oral usage. May be repeated for a maximum of 3 credits toward graduation.

### SPAN 3030 LH Spanish Conversation and Composition I

3  
\* Prerequisite(s): (SPAN 202G or equivalent) and University Advanced Standing

Explores communicative skills in Spanish. Provides opportunity for students to improve language production through extensive oral and written instruction and study of selected literary and cultural texts. Reviews grammar topics such as verb tenses, use of adjectives, and object pronouns.

### SPAN 3040 LH Spanish Conversation and Composition II

WE  
3  
\* Prerequisite(s): (SPAN 202G or equivalent) and University Advanced Standing

Explores communicative skills in Spanish. Provides opportunity for students to improve language production through extensive oral and written instruction and study of selected literary and cultural texts. Reviews grammar topics such as the subjunctive, relative clauses, and future and conditional tenses.

# Course Descriptions

## **SPAN 3050**

### **Advanced Spanish WE**

**3**

\* Prerequisite(s): It is recommended that students have passed SPAN 202G, have had one year residency in a Spanish-speaking country, or instructor approval

Overviews the basic grammar of Spanish. Emphasizes major concepts including mastery of verb forms, object pronouns, preterite vs. imperfect, use of the subjunctive, etc., both orally and in writing. Intended for non-native Spanish speakers who have attained competency in basic Spanish as a result of foreign residency or similar exposure to the language.

## **SPAN 3060**

### **Oral Proficiency**

**1**

\* Prerequisite(s): University Advanced Standing

\* Prerequisite(s) or Corequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050

Designed to help students understand the standards for oral proficiency as defined by the American Council on the Teaching of Foreign Languages (ACTFL) and to improve their oral proficiency skills. Is required of all Spanish and Spanish Education majors, who should achieve minimally the Intermediate High level as per the ACTFL guidelines. Requires Oral Proficiency Interview (OPI).

## **SPAN 3116**

### **Pop Culture-Film/Media/Entertainment**

**3**

\* Prerequisite(s): High-school students have to pass the AP Spanish Language or AP Spanish Literature & Culture test with a 3 or higher.

This course is part of the State of Utah Spanish Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Explores the role that current film, media, and entertainment play in the Spanish-speaking world. Examines the historical and cultural perspectives presented through these media through a variety of approaches. Taught in Spanish.

## **SPAN 3117**

### **Breaking Down Walls-Building Identities**

**3**

\* Prerequisite(s): High school students have to pass the AP Spanish Language or AP Spanish Literature & Culture test with a 3 or higher

This course is part of the State of Utah Spanish Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Explores how critical moments of change in the Spanish-speaking world have shaped the present. Analyzes crucial social and historical events that affected Spain, Latin America, and the Hispanic people in the United States.

**LH**

## **SPAN 3118**

### **Literature and Film-Contemporary issues**

**3**

\* Prerequisite(s): High school students have to pass the AP Spanish Language or AP Spanish Literature & Culture test with a 3 or higher

This course is part of the State of Utah Spanish Bridge Program and it will be taught only in high schools and for high school students. Not to be taught on college campus for university students. Explores works of literature and film in Spanish to analyze contemporary societal issues. Emphasizes literary analysis and criticism. Develops knowledge of literary history, skills in interpreting literary texts, and deepens understanding of the Spanish language.

## **SPAN 315R**

### **Advanced Spanish Conversation**

**1**

\* Prerequisite(s): (SPAN 202G or instructor approval) and University Advanced Standing

Provides speaking opportunities for upper-division Spanish learners to expand their conversational skills. Promotes authentic Spanish pronunciation and helps students reduce grammatical and structural errors. May be repeated for a maximum of 3 credits toward graduation.

## **SPAN 3200**

### **Business Spanish**

**3**

\* Prerequisite(s): SPAN 3050 and University Advanced Standing

Teaches language structures and terminology specific to Spanish language in the field of Business. Examines the cultural issues present in the interactions with Spanish-speaking clients. Prepares students to work with Spanish-speaking clients in future careers in business, marketing, banking or translation/interpreting. Lab access fee of \$10 applies. Canvas Course Mats \$44/Cengage applies.

## **SPAN 3220**

### **Pronunciation Phonetics and Phonology**

**3**

\* Prerequisite(s): SPAN 3050 and University Advanced Standing

Explores comparatively the articulatory system of English and Spanish, not only to help students identify and correct anomalies or inaccuracies in their own speech or the speech of others, but also to strengthen their understanding of the nature of oral speech. Provides extensive laboratory involvement for practice and analysis.

## **SPAN 3310**

### **Spanish for Healthcare Professionals**

**3**

\* Prerequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050, and University Advanced Standing

Teaches language structures and terminology specific to Spanish language in the field of healthcare. Examines the cultural issues present in the interactions with Spanish-speaking patients. Prepares students to work with Spanish-speaking patients in future careers in medicine, nursing, or translation/interpretation.

## **SPAN 3320**

### **Spanish for Mental Health Professionals**

**3**

\* Prerequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050, and University Advanced Standing

Teaches language structures and terminology specific to Spanish language in the field of Psychology. Examines the cultural issues present in the interactions with Spanish-speaking patients/clients. Prepares students to work with Spanish-speaking patients/clients in future careers in healthcare, social work, education, or translation/interpreting.

## **SPAN 3340**

### **Spanish for Tourism and Hospitality**

#### **Management**

**3**

\* Prerequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050 and University Advanced Standing

Teaches language terminology specific to Spanish language in the field of Tourism and Hospitality Management. Examines the cultural issues present in the interactions with Spanish-speaking clients. Prepares students to work with Spanish-speaking clients in future careers in the tourist and hospitality industry.

## **SPAN 3350**

### **Spanish for Legal Professions**

**3**

\* Prerequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050 and University Advanced Standing

Teaches language structures and terminology specific to Spanish language in the legal field. Explores political and legal institutions in the Spanish-speaking countries. Examines the cultural issues present in the interactions with Spanish-speaking clients. Prepares students to work with Spanish-speaking clients in future careers in law, administration and government, business, translation and interpreting.

**SPAN 351G**

**Culture and Civilization--Spain**

**3**

\* Prerequisite(s): (SPAN 3050 or equivalent) and University Advanced Standing

Explores chronologically the cultural formation and development of Spain. Completers should acquire an understanding of the ethnic development and linguistic history of Spain. Presentations and class instruction conducted entirely in Spanish.

**SPAN 352G**

**Culture and Civilization--Spanish America**

**3**

\* Prerequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050 and University Advanced Standing

Explores chronologically the cultural formation and development of Spanish America. Completers should acquire an understanding of the ethnic development and linguistic history of Spanish American countries and societies. Presentations and class instruction conducted entirely in Spanish.

**SPAN 3610**

**Spanish Peninsular Literature to 1800**

**3**

\* Prerequisite(s): [(SPAN 3030 and SPAN 3040) or (SPAN 3050 or equivalent)] and University Advanced Standing

Introduces chronologically to 1800 representative Spanish authors. Emphasizes literary analysis and criticism. Completers should develop knowledge of literary history, acquire skills in interpreting literary texts, and deepen understanding of the Spanish language. Presentations and class instruction conducted entirely in Spanish.

**SPAN 3620**

**Spanish Peninsular Literature from 1800**

**3**

\* Prerequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050, and University Advanced Standing

Studies and analyzes chronologically from 1800 representative Spanish authors to focus on the relevance of their writings to the student's own life. Emphasizes literary analysis and criticism. Develops knowledge of literary history, skills in interpreting literary texts, and deepens understanding of the Spanish language. Analyzes works of diverse genres such as fiction, poetry, and essay. Provides students with enough exposure to each author to develop a feeling for his or her work.

**SPAN 3630**

**Spanish American Literature to 1880**

**3**

\* Prerequisite(s): [(SPAN 3030 and SPAN 3040) or SPAN 3050] and University Advanced Standing

Introduces chronologically to 1880 representative Spanish American authors. Emphasizes literary analysis and criticism. Completers should develop knowledge of literary history, acquire skills in interpreting literary texts, and deepen understanding of the Spanish language. Presentations and class instruction conducted entirely in Spanish.

**SPAN 3640**

**Spanish American Literature from 1880**

**3**

\* Prerequisite(s): [(SPAN 3030 and SPAN 3040) or SPAN 3050] and University Advanced Standing

Introduces chronologically from 1800 representative Spanish American authors. Emphasizes literary analysis and criticism. Completers should develop knowledge of literary history, acquire skills in interpreting literary texts, and deepen understanding of the Spanish language. Presentations and class instruction conducted entirely in Spanish.

**SPAN 3690**

**Spanish and Latin American Cultures through Cinema**

**3**

\* Prerequisite(s): SPAN 3050 OR (SPAN 3030 and SPAN 3040), and University Advanced Standing

Explores contemporary issues in the cultures and societies of Latin America and Spain by analyzing, interpreting and critically reading film and visual texts. Provides opportunities to improve students' proficiency in Spanish through oral and written interaction and production. Conducted entirely in Spanish.

**SPAN 380R**

**Community Engagement in Spanish**

**3**

\* Prerequisite(s): [(SPAN 3030 and SPAN 3040) or SPAN 3050 or instructor approval] and University Advanced Standing

Offers students the opportunity to participate in projects and with organizations in the local Hispanic community. Addresses the linguistic, cultural, historical, and socioeconomic concerns of the Spanish-speaking residents of Utah and surrounding counties. Requires regular activity, including volunteering, in local schools, clinics, social service agencies, or civic organizations. Repeatable for a maximum 6 hours credit toward graduation.

**SPAN 4050**

**Topics in Grammar Usage and Style WE**

**3**

\* Prerequisite(s): [(SPAN 3030 and SPAN 3040) or SPAN 3050] with a grade of C or higher and University Advanced Standing

Reviews Spanish grammar focusing on problem areas. Explores grammar as deployed in different genres. Emphasizes writing in different styles. Lab access fee of \$10 applies.

**SPAN 4100**

**Teaching Spanish Grammar**

**3**

\* Prerequisite(s): Admission to a Secondary Education teacher licensure program or departmental approval; [(SPAN 3030 and SPAN 3040) or SPAN 3050] and University Advanced Standing

\* Corequisite(s): LANG 4200 recommended

Enables prospective Spanish educators to acquire the strategies, methodology and techniques of how to present deductive and inductive principles of Spanish grammar. Discusses basic theory, principles and tools of Spanish linguistic issues. Includes extensive principle development and microteaching used as an assessment tool.

**SPAN 4110**

**Introduction to Translation and Interpreting English-Spanish**

**3**

\* Prerequisite(s): (SPAN 3030 and SPAN 3040) or SPAN 3050; and it is highly recommended to take previously 6 credits from the Spanish for the Profession courses (Medical Spanish, Business Spanish, Legal Spanish, Spanish for Psychology, Spanish for Tourism, etc.)

Teaches basic concepts from Translation Studies. Provides practice on translation and interpreting for the English-Spanish language pair and describes professional opportunities in the language services industry. Includes class discussion, oral presentations, translation and interpreting practice, analysis of translations, reflections on recorded interpretations, and collaborative translation projects. Examines technologies used in translation workflows. Lab access fee of \$10 applies.

## Course Descriptions

### SPAN 4120

#### Advanced Translation English-Spanish

3

\* Prerequisite(s): SPAN 4110 and University Advanced Standing

Provides opportunities for Spanish/English translation of texts in different fields (for example, health, law, business, science and technology, agribusiness, etc.). Examines the characteristics and terminology used in specialized texts. Analyzes conventional differences between writing norms in different English- and Spanish-speaking countries. Identifies career opportunities in the language services industry and examines the technological competencies necessary to be competitive in the industry. Includes class discussion, textual analysis, translation practice, analysis of translations, presentations, collaborative translation projects, a service-learning project, and a portfolio.

### SPAN 412R

#### Spanish for the Professions

3

\* Prerequisite(s): (SPAN 3050 or departmental approval) and University Advanced Standing

Offers Medical Spanish, Legal Spanish, or Spanish for Tourism according to student demand. Focuses on the practical needs of students who seek careers in the applicable areas. Addresses the specialized vocabulary and communicative ability necessary for a professional in a bilingual English-Spanish or monolingual Spanish environment. Introduces interpretation in professional situations. May be repeated for a maximum of 6 credits toward graduation with different topics.

### SPAN 4130

#### English-Spanish Interpreting

3

\* Prerequisite(s): SPAN 4110 and University Advanced Standing

Teaches skills for interpreting (oral translation) in Spanish and English with an emphasis on the mode of dialogue or bilateral interpreting, while also teaching skills for simultaneous interpreting. Deepens understanding of key concepts related to interpreting and the profession of interpreter. Teaches more advanced skills for interpreting like discourse analysis and oratory skills, general interpreting strategies like synthesis and anticipation, and specific strategies for dialogue or bilateral interpreting. Emphasizes professional standards and self-monitoring. Includes class discussion, readings, interpreting practice, observation and analysis of practice, oral presentations, a research project, and engaged learning projects.

### SPAN 4200

#### Advanced Business Spanish

3

\* Prerequisite(s): SPAN 3200 and University Advanced Standing

Focuses on Spanish business terminology, documentation, case studies and transactions. Explores grammar in different genres, emphasizing composition in different writing styles. Prepares students to take the Advanced Business Certification test offered by the Chamber of Commerce of Madrid, Spain. Canvas Course Mats \$44/Cengage applies.

### SPAN 4310

#### Advanced Spanish for Healthcare Professionals

3

\* Prerequisite(s): SPAN 3310 and University Advanced Standing

Teaches Spanish language structures and terminology specific to healthcare. Explores an inclusive range of essential knowledge and skills for a healthcare interpreter: interpreter ethics, standards of practice, and protocols; modes of interpreting; cultural competence with Spanish-speaking patients and the role of the healthcare interpreter; and government regulations relating to the US healthcare system. Fulfills requirements to work as a qualified medical interpreter in the state of Utah. Fulfills a pre-requisite for either of the two national certification exams for medical interpreters.

### SPAN 4410

#### Spanish Linguistics

3

\* Prerequisite(s): [(SPAN 3030 and SPAN 3040) or SPAN 3050] and University Advanced Standing

Provides a comprehensive introduction and overview of the different areas of Spanish Linguistics. Designed for students with a focus in Pedagogy, Business Spanish, Translation, Spanish for the Professions or Literature and Culture. Focuses on the core concepts of the various sub-fields of linguistics applied to Spanish: Phonetics and Phonology, Morphology, Syntax, Semantics, Sociolinguistics, the History of the Language, Dialectology and Pragmatics.

### SPAN 460R

#### Topics in Hispanic Literature

3

\* Prerequisite(s): SPAN 3610 or SPAN 3620 or SPAN 3630 or SPAN 3640 and University Advanced Standing

Addresses key texts representative of the development of genres, themes, or individual authors' works. Engages students in critical textual analysis. May be repeated for a maximum of six credits toward graduation with different topics.

### SPAN 484R

#### Special Topics in Hispanic Studies

1 to 3

\* Prerequisite(s): (SPAN 3050 or departmental approval) and University Advanced Standing

Presents selected topics in Hispanic Studies. Reflects the interdisciplinary nature of the Hispanic Studies field. May be repeated for a maximum of 6 credits toward graduation with different topics.

### SPAN 4900

#### Capstone Seminar

3

\* Prerequisite(s): (Spanish 4050 and 15 credits of upper-division Spanish courses) or instructor approval; University Advanced Standing

Engages students in independent, directed research and writing. Encourages further exploration of topics covered during courses in the major program through advanced research methods and peer review of others' work. Requires public exposition of research findings in Spanish.

## Statistics (STAT)

### STAT 1040

#### Introduction to Statistics

3

\* Prerequisite(s): One of the following: MAT 1010 or MAT 1015 with a grade of C or better within the past two years; an ACT mathematics score of 23 (assuming the test has been taken within the last two years); appropriate placement by the Accuplacer test score

A quantitative literacy course with a statistical theme. Includes descriptive statistics, sampling, and inferential methods. Emphasizes problem solving and critical thinking. Canvas Course Mat \$91/Macmillan applies.

QL

### STAT 1045

#### Introduction to Statistics with Algebra

5

\* Prerequisite(s): One of the following: MAT 1010 or MAT 1015 with a grade of C or better within the past two years; an ACT mathematics score of 23 (assuming the test has been taken within the last two years); appropriate placement by the Accuplacer test score

A quantitative literacy course with a statistical theme. Includes descriptive statistics, sampling, and inferential methods. Emphasizes problem solving and critical thinking. Canvas Course Mat \$91/Macmillan applies.

QL

**STAT 2040**  
**Principles of Statistics****4**

\* Prerequisite(s): Within the past two years, MATH 1050 or MATH 1055 or MATH 1080 with a grade of C or higher or appropriate math placement test score.

Includes summarizing data, measures of central location, measures of variation, probability, mathematical expectation, probability distributions, sampling and sampling distributions, estimation, hypothesis testing, analysis of variance, regression analysis, and correlation. Canvas Course Mats of \$66/Wiley applies.

**STAT 2050**  
**Introduction to Statistical Methods****4**

\* Prerequisite(s): Within the past two years, MATH 1050 or MATH 1055 or MATH 1080 with a grade of C or higher or appropriate math placement test score.

Is an introductory statistics course for statistics majors. Applies discrete and continuous probability distributions to real data sets. Teaches confidence intervals and hypothesis testing for both one and two sample problems. Covers introductory topics in experimental design, linear regression, bootstrapping, and categorical data analysis. Canvas Course Mats of \$66/Wiley applies.

**STAT 2060**  
**Introduction to Statistical Computing****1**

\* Prerequisite(s) or Corequisite(s): STAT 2040 or STAT 2050 with a grade of C or higher

Familiarizes students with the SAS statistical software package. Teaches how to organize, input data, and be able to use reference books to figure out the appropriate way to run the analysis needed using SAS.

**STAT 3000**  
**Applied Mathematics for Statistical Methods****3**

\* Prerequisite(s): STAT 2040 or STAT 2050, and University Advanced Standing

Provides students with the mathematical background to complete upper division courses in applied statistical methods. Includes topics from calculus, linear algebra, mathematical statistics and introductory probability.

**STAT 3040**  
**Probability and Statistics for Engineering and the Sciences****3**

\* Prerequisite(s): (STAT 2040 or STAT 2050 and MATH 2210 each with a grade of C or higher) and University Advanced Standing

Introduces mathematical statistics for scientists and engineers. Includes counting techniques, random variables, expected values, joint and marginal distributions, point estimation, hypothesis testing, analysis of variance, and regression.

**STAT 4000**  
**Applied Regression and Time Series WE****3**

\* Prerequisite(s): STAT 2040 or STAT 2050 with a grade of C or higher and University Advanced Standing

Provides students in non-mathematical disciplines the ability to answer typical research questions for their senior projects or graduate-level research. Includes linear regression, transformations, variable selection techniques, logistic regression, indicator variables, multicollinearity, and ARIMA time series. Satisfies the VEE statistics requirement for the Society of Actuaries. Introduces standard software as a tool for statistical analysis.

**STAT 4100**  
**Design of Experiment****3**

\* Prerequisite(s): STAT 2040 or STAT 2050 with a grade of C or higher and University Advanced Standing

Introduces the design and analysis of randomized comparative experiments. Includes single factor ANOVAs, randomized block designs, latin squares, factorial designs, and nested and split plot designs. Covers mixed models including random effects and computation of expected mean squares to form appropriate F-ratios. Uses SAS statistical program software to perform statistical analysis.

**STAT 4200**  
**Survey Sampling****3**

\* Prerequisite(s): STAT 2040 or STAT 2050 with a grade of C or higher and University Advanced Standing

Introduces survey sampling including simple random sampling, stratified random sampling, systematic and cluster sampling. Discusses ratio and difference estimators, weighting for non-responses, eliminating sources of bias and designing the questionnaire.

**STAT 4300**  
**Stochastic Processes****3**

\* Prerequisite(s): STAT 3040 or STAT 4710 with a grade of C or higher and University Advanced Standing

Teaches how to perform statistical inference on Markov chains, including classifying states, computing mean and variance of recurrence times, and investigating long-run limiting behavior to model physical systems uses the Poisson process. Teaches how to calculate and analyze queuing characteristics of each of the popular queuing models.

**STAT 4400**  
**Multivariate Analysis WE****3**

\* Prerequisite(s): MATH 2270 and STAT 4710, both with a grade of C or higher, and University Advanced Standing

Introduces multivariate data analysis. Covers inference on data arising from the multivariate normal distribution using MANOVA, principal component analysis, factor analysis, canonical correlation analysis, discriminant analysis, and cluster analysis. Uses statistical software throughout.

**STAT 4500**  
**Nonparametric Statistics****3**

\* Prerequisite(s): STAT 2040 or STAT 2050 with a grade of C or higher and University Advanced Standing

Introduces nonparametric statistical procedures to apply in situations when parametric statistics (usually based on normality) are not appropriate. Covers types of nonparametric analyses that includes one and two sample hypothesis tests, goodness-of-fit tests, contingency tables, block designs, and regression analysis.

**STAT 4600**  
**Statistical Process Control****3**

\* Prerequisite(s): STAT 2040 or STAT 2050 with a grade of C or higher and University Advanced Standing

Presents the theory and methods of quality monitoring including process capability, control charts, acceptance sampling, quality engineering, and quality design.

**STAT 4710**  
**Mathematical Statistics-Probability and Statistics****3**

\* Prerequisite(s): STAT 2040 or STAT 2050 with a grade of C or higher and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): MATH 2210 or MATH 221H

Introduces mathematical statistics including random variables, set theory, transformations, expectation, joint and marginal distributions, moment generating functions, and order statistics.

**STAT 4720**  
**Mathematical Statistics: Statistical Inference****3**

\* Prerequisite(s): STAT 4710 with a grade of C or higher and University Advanced Standing

Is a continuation of STAT 4710. Includes estimation, sufficiency, completeness, hypothesis testing, statistical inference with the normal distribution, and Bayesian statistics.

# Course Descriptions

## **STAT 6010**

### **Theory of Statistics I**

**3**

\* Prerequisite(s): Matriculation into the Mathematics Education, M.S. program or Matriculation into the Mathematics Graduate Certificate program, or approval of graduate program director

Covers probability theory, random variables, functions of random variables, probability distributions and their characteristics, transformations of random variables, Pearson's correlation coefficient, and bivariate normal distribution and regression.

## **STAT 6020**

### **Theory of Statistics II**

**3**

\* Prerequisite(s): STAT 6010 with C or better

Emphasizes theoretical statistical inference. Includes concept sufficiency, theory of estimation, testing of statistical hypothesis, the Neyman-Pearson lemma, Bayesian inference, sequential testing, and large sample theory for inference.

## **Substance Use Disorder Counsel (SUDC)**

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### **SUDC 3430**

#### **Psychopharmacology for the Substance Use Disorder Counseling Field**

**3**

\* Prerequisite(s): Admission to the UVU SUDC program and University Advanced Standing

Addresses basic principles of nervous system function with emphasis on communication between nerve cells. Focuses on therapeutic drugs as well as drugs of abuse to include mechanisms of action and behavioral effects. Includes content on dynamics of addiction.

### **SUDC 3470**

#### **Dynamics of Addiction**

**3**

\* Prerequisite(s): Admission to the UVU SUDC program and University Advanced Standing

Explores processes contributing to development and maintenance of addiction. Addresses internal (genetics, motivation) and external (family dynamics, peer pressure) contributors. Includes issues related to drug policy, costs of addiction, and prevention/treatment of drug addiction.

### **SUDC 4300**

#### **Introduction to Substance Use Disorder Counseling**

**3**

\* Prerequisite(s): Admission to the UVU SUDC program and University Advanced Standing

Surveys concepts and practices of major therapeutic systems, with a focus on substance use disorder counseling. Introduces students to the major psychotherapeutic models of both individual and group counseling. Addresses basic counseling issues including ethics and professionalism. Develops skills in relationship development, interviewing, initial assessment and intake procedures.

### **SUDC 4400**

#### **Advanced Substance Use Disorder Counseling**

**3**

\* Prerequisite(s): Admission to the UVU SUDC Program, completion of SUDC 4300 with a C- grade or higher, and University Advanced Standing

Expands concepts and practices of major therapeutic systems, with a focus on advanced substance use disorder counseling. Continues coverage of major psychotherapeutic models of both individual and group therapy. Elaborates on basic counseling issues including ethics and professionalism. Continues to develop skills in relationship development, interviewing, initial assessment, and intake procedures.

### **SUDC 4710**

#### **Introduction to Professional Development**

**2**

\* Prerequisite(s): Admission to the UVU SUDC program and University Advanced Standing

Defines the scope of practice and legal and ethical obligations of substance abuse counselors. Examines the knowledge, skills, attitudes, legal obligations, and limitations of practice of professional substance abuse counselors. Introduces the 12 core functions.

### **SUDC 4720**

#### **Advanced Professional Development**

**3**

\* Prerequisite(s): Admission to the UVU SUDC program, completion of SUDC 4710 with a C- grade or higher, and University Advanced Standing

Expands on professional issues in Substance Use Disorder Counseling. Focuses on the 12 core functions of substance abuse, ethics, theories of substance abuse, and theory and practice of individual and group counseling.

### **SUDC 481R**

#### **Internship**

**1 to 8**

\* Prerequisite(s): Admission to the UVU SUDC program, completion of SUDC 4710 with a C- grade or higher, instructor approval, and University Advanced Standing

Provides practical and research experience in the substance use disorder counseling field with a focus on the 12 core functions of substance use disorder counseling. Supervised by agency representative. Internships must be approved by the UVU SUDC program and written contracts must be signed. Requires students pursuing the SUDC license to complete a minimum of 200 hours of field experience. Requires students pursuing the ASUDC license to complete a minimum of 350 hours of field experience. May be repeated for a maximum of 8 hours toward graduation.

## **Land Surveying (SURV)**

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### **SURV 1020**

#### **Introduction to Surveying and Mapping WE**

**1**

Provides an orientation to the field of Surveying and Mapping including Boundary Surveying, Geodesy, Forensic Surveying, Construction Surveying, Geographic Information Systems (GIS), and other types of surveys. Involves presentations by community/industry professionals encompassing the surveying and mapping occupations. Covers college success principles and practices for the Surveying and Mapping program. Lab access fee of \$45 for computers applies.

### **SURV 1030**

#### **Fundamentals of Geodesy and Control Surveys**

**3**

Explores the science of geodesy or the size and shape of the earth. Involves Global Positioning Systems theory for computing a position on the earth using three-dimensional coordinate systems, reference coordinate systems, state plane coordinates, transformations, geoid datums, orthometric heights and leveling. Introduces basic properties and characteristics of the most common map projections. Explains principles and theories used to establish control surveys and survey networks based on geodesy. Introduces traverse, triangulation, and elevation adjustment computations along with random and systemic errors in measurement. Offers field application assignments of typical survey control networks using GPS and Total Stations to collect GPS data. Includes post processing coordinate transformation, creation, and report generation using the NGS OPUS system. Requires verifiable demonstration of field skills and techniques. Lab access fee of \$45 applies.

**SURV 1220**  
**Remote Sensing and Photogrammetry**

**3**  
 \* Prerequisite(s): MAT 1010 or appropriate math placement score

Introduces and describes digital imagery, aerial triangulation, Remote Sensing and their history. Covers principles of Remote Sensing and the integration of Remote Sensing with Geographic Information Systems (GIS). Teaches a fundamental knowledge of aerial photography, photogrammetry, multispectral, Hyperspectral, Thermal, RADAR, LiDAR image analysis. Identifies various equipment and instrumentation used in producing Remote Sensing products. Describes image preprocessing and image enhancements as well as differentiating and classifying various accuracy assessment techniques. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

**SURV 1340**  
**Fundamentals of Boundary Law**

**3**  
 Explains the fundamental responsibilities of a land surveyor in recognizing, locating and creating land boundaries, including sequential and simultaneous conveyances, easements and reversions, riparian and littoral rights. Presents basic rules of evidence. Provides exposure to principles and procedures used to establish new boundaries and locate existing boundaries.

**SURV 2010**  
**Land History of America WE**

**3**  
 Discusses how, what, and why certain countries, events, and individuals have significantly impacted the history of the lands of America. Describes how the contributions of the various inventions, instruments, individuals, conditions, and events impacted the lands of America. Identifies how current land conditions, policies, and laws in the State of Utah have been impacted by Utah land history. Lab access fee of \$45 for computers applies.

**SURV 2030**  
**Geodesy**

**3**  
 \* Prerequisite(s): EGDT 2400, MATH 1060 or EGDT 1600 and 1610 or appropriate math placement score

Examines the science of geodesy. Includes size and shape of the earth, spherical and ellipsoidal geometry, the celestial sphere, and astronomical trigonometry. Involves Global Positioning Systems theory for calculating position on the earth using three-dimensional coordinate systems, reference coordinate systems, state plane coordinates, transformations, spheroid, ellipsoid, geoid datums, celestial sphere, orthometric heights and leveling. Covers basic properties and characteristics of the most common map projections with emphasis on the projections used in State Plane Coordinates such as Lambert Conformal, Universal Transverse Mercator (UTM). Exposes the student to survey applications of practical astronomy including time systems, astronomical azimuth, and Solar/ Polaris observations and calculations. Lab access fee of \$45 applies.

**SURV 2100**  
**Mapping From Field to Finish**

**3**  
 \* Prerequisite(s): EGDT 1400, EGDT 1040, GIS 2640

Teaches how to identify, operate, and maintain common instrumentation used to collect field data including GPS, Total Stations, and Drones. Integrates survey field data, Geographic Information Systems (GIS) data, and Computer Aided Drafting (CAD) data to develop static and dynamic maps and plans often used by public and private entities. Demonstrates best practice field and office procedures and techniques commonly used by federal, state, and local governments and private industry. Explains potential field safety considerations, problems, and issues, as well as the development of a safety plan. Includes written and oral presentations. Lab access fee of \$45 applies.

**SURV 2310**  
**Surveying US Public Lands**

**3**  
 \* Prerequisite(s): EGDT 1400, MATH 1060 or EGDT 1600 and 1610 or appropriate math placement score

Studies U.S. Public Land Survey System (PLSS) as described in the current official Department of the Interior-Bureau of Land Management (BLM) Manual of Instructions for Surveying Public Lands with emphasis on federal, state, and other applicable laws, evidence, resurveys, and subdivision of sections. Covers a detailed study of general and special instructions, irregularities in subdivisions, lost and obliterated corners, single and double proportion methods, monumentation, riparian boundary laws and rights, hiatuses, mineral surveys, and official survey documents. Introduces Spanish and Mexican land grants, as well as state and national boundaries. Lab access fee of \$45 for computers applies.

**SURV 2320**  
**Property Descriptions and Public Land Records**

**3**  
 \* Prerequisite(s): (ENGL 1010 or ENGH 1005) and EGDT 1400

Involves analysis, interpretation, and writing of legal descriptions with proper form, controlling elements, metes-and-bounds, sectionalized land descriptions, easements, and rights-of-way. Discusses different types of descriptions, junior-senior rights in descriptions, latent & patent ambiguities, basis of bearing and interpretation, easements, and reversions. Applies practical exercises and case studies. Studies the responsibilities of the professional land surveyor regarding due diligence in searching public land records and performing applicable legal research. Examines public records and recording laws. Emphasizes title search to patent and includes zoning laws relating to land. Involves tour(s) of local record systems and/or public offices..

**SURV 2350**  
**Ethics and Liabilities for Surveyors**

**2**  
 Teaches the code of ethics adopted by the Utah Council of Land Surveyors (UCLS). Explains meaning and attributes of professionalism along with the ethical, moral, and social responsibilities of professional surveyors. Includes model law standards, professional liability cases, and professional client relationships. Involves lecture, readings, case studies, and other media.

# Course Descriptions

## **SURV 3010**

### **Measurement Analysis and Adjustments**

**4**

\* Prerequisite(s): EGDT 2400, MATH 1060 or (EGDT 1600 and 1610) or appropriate math placement score; and University Advanced Standing

Examines observation theory, and observational error analysis. Discusses the theory of measurement errors, principles of error propagation, variance and covariance, and the theory of the least squares method. Studies variances and co-variances of observed, derived, and adjusted quantities; regression analysis, and polynomial curve fitting. Involves systems of linear equations, linearization, and iteration of nonlinear equations; adjustment validation using hypothesis testing; modeling of surveying problems using different techniques of least squares and also presents several methods used to fit survey data to mathematical and survey models. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

## **SURV 3030**

### **Land Development Planning, Platting, and Mapping**

**3**

\* Prerequisite(s): EGDT 1040, EGDT 1400, matriculation into the Geomatics BS degree, and University Advanced Standing

Discusses land use planning techniques for residential and commercial developments. Subdivisions, industrial parks, and commercial complexes are studied along with the associated governmental regulations, codes, rules, and approval processes and procedures. Requires a mock public presentation on course projects. Uses current surveying/engineering software to develop and plot drawings including; subdivision plats, records of survey, ALTA surveys, topographic site surveys, and other maps. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

## **SURV 3210**

### **Advanced Photogrammetry**

**3**

\* Prerequisite(s): EGDT 1400, MATH 1060, or (EGDT 1600 and 1610), or appropriate math placement score; and University Advanced Standing

Examines principals of photogrammetry as applied to surveying and mapping. Analyzes geometry of vertical and aerial photographs, stereoscopic parallax, geometry of tilted photographs, and stereoplotter mapping. Discusses close-range photographic analysis, planimetric and topographic maps, flight planning, digital photogrammetry, aerial cameras and camera calibration. Involves the theory and techniques of photo orientation, digital imagery, and aerial triangulation. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

## **SURV 3220**

### **Control Surveys**

**3**

\* Prerequisite(s): SURV 2030, SURV 3010, matriculation into the Geomatics BS degree, and University Advanced Standing

Applies principles and theories presented in prerequisite courses and moves the student to an advanced applications level. Studies the establishment of control surveys and survey networks. Reviews compass rule adjustment computation, matrix methods and least squares adjustment methods, random and systemic errors in measuring, and error propagation. Offers field applications of Radial and GPS surveying systems: static, kinematic and RTK procedures, data collection, post processing coordinate transformation, creation, and report generation. Teaches practical applications of network adjustment, control surveys, triangulation, and precision traverses with precise elevation control. Requires demonstration of field skills and techniques. Software fee of \$18 applies. Lab access fee of \$45 for computers applies.

## **SURV 3230**

### **Construction and Route Surveys**

**3**

\* Prerequisite(s): EGDT 2400, MATH 1060 or EGDT 1600 and 1610, or appropriate math placement score; and University Advanced Standing

Applies principles and theories presented in prerequisite courses. Develops computations, standard practices and practical applications for common construction and route surveys. Includes survey staking of pipes, curbs, streets, parking lots, buildings, and other typical land development and infrastructure project elements. Develops volume and area calculations. Requires computer derived solutions and applications from plans and specifications using modern data collection and coordinate geometry (COGO) computer software. Lab access fee of \$45 for computers applies. Software fee of \$18 applies.

## **SURV 3340**

### **Boundary Law**

**3**

\* Prerequisite(s): University Advanced Standing

Studies the responsibilities of the land boundary surveyor in protecting rights, title, and interest of the land; riparian and littoral rights, bona-fide rights, boundary easements and reversions, conveyances; sequential and simultaneous. Presents principles and rules of evidence. Includes monuments and monumentation, boundary locations, and procedures used to establish new boundaries and locate existing boundaries. Lab access fee of \$45 for computers applies.

## **SURV 3400**

### **Surveying Applications and Field Techniques III**

**3**

\* Prerequisite(s): EGDT 2400, GIS 3600, and University Advanced Standing

Focuses on state of the art surveying applications and field survey techniques often employed by surveyors for various field and office tasks some of which may include horizontal and vertical networks and traverses, route surveys, and topographic/site surveys, and machine control methods. Teaches the construction, care, maintenance, calibration, effective setup and observation methods used for the latest in surveying instrumentation often including; global positioning systems (GPS), total robotic stations, 3D laser scanners, automatic levels, modern data collectors, coordinate geometry (COGO), computer-aided drafting (CAD) software, Drone surveying, and other geospatial surveying systems and instruments. Lab access fee of \$45 applies. Software fee of \$25 applies.

## **SURV 4340**

### **Surveying Legal Principles**

**3**

\* Prerequisite(s): SURV 2320, SURV 3340, matriculation into the Surveying and Mapping BS degree, and University Advanced Standing

Focuses on researching the body of law as it applies to the practice of surveying. Covers common law associated with the Statute of Frauds, Constructive Notice, and Surveyor/ Attorney interaction and roles. Discusses principles and concepts of dispute and conflict resolution as well as the specific role of the expert witness. Reviews the fact finder role of the surveyor in research/investigation techniques and sources while focusing on facts of a case and the applicable laws. Completers will work on case studies and prepare a final legal research paper. Involves tour(s) of a law library.

## **SURV 4400**

### **Surveying Applications and Field Techniques IV**

**3**

\* Prerequisite(s): SURV 3400 and University Advanced Standing

Focuses on projects both lab/office and field work. Uses a mentor based teaching model to engage in several projects from inception to final deliverables. Requires students to make project decisions individually and as a team regarding each aspect of the various assigned projects. Requires each team member to demonstrate their own ability to perform all tasks required to complete the assigned projects within a given time frame resulting in deliverables that meet a pre-professional level of competency. Lab access fee of \$45 applies. Software fee of \$25 applies.

**SURV 4500**  
**Professional Services Practicum**

**3**  
\* Prerequisite(s): University Advanced Standing

Examines the planning, organizing, and application of field and office practices, and develops a practical business plan including policies and procedures associated with a typical professional services firm providing civil engineering, architectural, and surveying services to the public and private sector. Reviews and applies a myriad management principles and functions including: operations, financial, marketing, human resource, project, and risk management. Exposes the student to the functions of typical financial software. Explores business concepts specific to professional services; pricing, fees, bidding, proposals, contracts, and professional liabilities. Involves developing a business plan for a professional services firm. Lab access fee of \$45 for computers applies.

**SURV 451R**  
**Surveying and Mapping Lecture Series**  
**.5 to 2**

\* Prerequisite(s): University Advanced Standing

Consists of lectures presented by guest speakers or faculty on various topics in Surveying and Mapping including but not limited to: land surveying, mapping, remote sensing, geodesy, legal issues, photogrammetry, and various new and emerging technologies. May be repeated for a maximum of 2 credits toward graduation.

**SURV 455G**  
**Global Professional Ethics and Liabilities**

**3**  
\* Prerequisite(s): PHIL 2050 and University Advanced Standing

Teaches the code of ethics adopted by the various professional services state and national organizations and/or associations. Explains meaning and attributes of professionalism along with the ethical, moral, and social responsibilities of professional engineers, architects, and surveyors. Integrates laws for practicing as a professional service with professional ethics as well as the roles of multi-culturalism and globalization. Includes model standards (international, national, and state), professional liability cases, safety, risks, professional client relationships, bribery, global engagement, contracts, and intellectual property. Involves lecture, readings, case studies, and other media.

**SURV 4700**  
**Fundamentals of Surveying Exam Prep**

**3**  
\* Prerequisite(s): University Advanced Standing

Explains Fundamentals of Surveying (FS) exam parameters, conditions, and knowledge base designed and maintained by the National Council of Examiners for Engineering and Surveying (NCEES). Focuses on exam preparations in surveying and mapping principles, processes, and methods. Includes special emphasis on survey computations, computer applications, and applied mathematics and statistics. Uses the Fundamentals of Survey Reference Guide.

**SURV 481R**  
**Surveying and Mapping Internship**  
**1 to 8**

\* Prerequisite(s): Junior or Senior Standing, departmental written approval, matriculation into the Surveying and Mapping BS degree, and University Advanced Standing

Provides opportunities to apply classroom theory and principles to actual on-the-job work experience, on a paid or non-paid basis, in the field of Surveying and Mapping. Emphasizes the establishment of goals, learning objectives, and expected outcomes with their Faculty Sponsor at the beginning of the internship and/or semester. Involves the submittal of a comprehensive written report at the end of the semester consisting of an evaluation of original goals and objectives and reflects on the achieved outcomes gained from the work experience. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

**SURV 490R**  
**Professional Topics in Surveying and Mapping**  
**2 to 4**

\* Prerequisite(s): University Advanced Standing

Studies a chosen topic in Surveying and Mapping. May include research, experimentation, analysis, and reporting. May be taken more than once for different topics and for a maximum of 9 credits toward graduation.

**SURV 4930**  
**Senior Surveying and Mapping Capstone**

**WE**  
**4**  
\* Prerequisite(s): University Advanced Standing, Senior Standing

Provides an opportunity for a senior Surveying and Mapping student to participate in a significant and current research project which may advance the field of Surveying and/or Mapping. Includes independent study and laboratory/field work as necessary and must be approved and supervised by assigned faculty and technical mentors. Culminates in the preparation and presentation of a written paper describing the results of the research and/or completed project to project stakeholders, interested students, faculty, administration, the professional community, or the broader general audience. Lab access fee of \$45 applies. Software fee of \$25 applies.

**Social Work (SW)**

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**SW 1010**  
**Introduction to Social Work**  
**3**

Introduces social work history, theory, and practice. Examines the relationship between policy and practice in the context of nine major fields of social work. Considers challenges faced by today's practitioners including concerns with policy, social justice, and oppression. Explores current career opportunities in the field. Canvas Course Mats \$41/Cengage applies.

**SW 2100**  
**Human Behavior and the Social Environment I**  
**3**

\* Prerequisite(s): Admission into the BSW program

Presents major theoretical concepts about human development and environmental factors influencing development from the social and behavioral sciences and their applications to micro, mezzo, and macro social work practice. Explores intersectionality and how diversity shapes human experience and identity development. Focuses on the first half of the life cycle, the prenatal period through adolescence.

**SW 275R**  
**Survey of Current Topics**  
**3**

\* Prerequisite(s): (ANTH 101G or PSY 1010 or SOC 1010 or SW 1010) and ENGL 1010 or ENGH 1005

Presents selected topic in Social Work and will vary each semester. Approaches subjects from a cross-disciplinary perspective. Requires a project demonstrating competency in the specific topic. May be repeated for nine credits toward graduation.

# Course Descriptions

## **SW 3000 (Cross-listed with: FAMS 3000)**

### **Social Work Practice I**

**3**

\* Prerequisite(s): Admission to the BSW program or declared major in Family Science and University Advanced Standing

Teaches students to apply the generalist social work Planned Change Model with individuals: engagement, assessment, goal setting/contracting, implementation, evaluation, and transition/ending. Prepares students to utilize core social work interpersonal communication skills to engage clients in a professional partnership with intervention and planning. Emphasizes the importance of cultural humility, principles of strengths-based and anti-oppressive social work practice, empirical research, and theories of human behavior and person-in-environment. Discusses ethical and professional demeanor and practice.

## **SW 3100**

### **Social Work Practice II**

**3**

\* Prerequisite(s): SW 3000, Admission to the BSW program, and University Advanced Standing

Teaches students to apply the generalist social work Planned Change Process with families and groups: engagement, assessment, goal setting/contracting, implementation, evaluation, and transition/ending. Introduces group and family development and the theory and models of social work practice with groups and families. Prepares students to utilize group leadership and family communication skills necessary for research-informed practice. Emphasizes ethical and anti-oppressive practice.

## **SW 3200**

### **Social Work Practice III**

**3**

\* Prerequisite(s): SW 3000, SW 3100, Admission into the BSW program, and University Advanced Standing

Applies the social work Planned Change Model (engagement, assessment, goal setting/contracting, implementation, evaluation, and transitions/ending) to community and organizational macro systems. Utilizes systems theory to examine macro social problems. Explores the values, principles, standards, laws, policies, and regulations that direct ethical social work practice on the macro level, including within communities and organizations.

## **SW 3400**

### **Human Behavior and the Social Environment II**

**3**

\* Prerequisite(s): SW 2100, Admission into the BSW program, and University Advanced Standing

Presents major theoretical concepts about human development and environmental factors influencing development from the social and behavioral sciences and their applications to micro, mezzo, and macro social work practice. Explores intersectionality and how diversity shapes human experience and identity development. Focuses on the second half of the lifecycle, young adulthood through older adulthood.

## **SW 3500**

### **Social Welfare Policies and Services**

**3**

\* Prerequisite(s): Admission into the BSW program and University Advanced Standing

Analyzes current social policy within the context of historical and contemporary factors that shape policy. Examines major social forces and institutions as they relate to and determine social policy emphasizing social welfare services in an industrialized society. Evaluates social welfare frameworks in light of the principles of social and economic justice. Identifies effect of social policy on generalist social work practice.

## **SW 3510**

### **Global Social Work**

**3**

\* Prerequisite(s): ENGL 2010 with a C+ grade or higher, SW 1010, and University Advanced Standing

Investigates ways in which micro and macro skills can be integrated via a social development model to address social welfare issues in international settings. Includes the development of interventions beginning at the community level and moving toward global as well as individual practice. Focuses on the enhancement of practice knowledge and skills in program design, development, implementation and evaluation. Addresses basic resources such as food, shelter, potable water and sanitation, as well as sustainable economic development, inter-ethnic conflict, global indebtedness, ethnoconscious organizational development, and empowerment/conscientization as a method of intervening in social challenges.

## **SW 355G**

### **Thanatology--Death and Dying**

**3**

\* Prerequisite(s): (PSY 1010 or SW 1010) and (ENGL 2010 with a C+ grade or higher) and University Advanced Standing

Introduces students to the subject of thanatology. Reviews theories and research associated with death and dying. Examines death systems, cultural norms, taboos and rituals. Studies the health care system, public policy, laws, and customs. Addresses death from a developmental perspective. Explores life-threatening illness, suicide, and end-of-life issues. Reviews grief and loss themes. Familiarizes students with vocabulary and explores related human service occupations such as bereavement counseling and hospice care. May be delivered hybrid.

## **SW 3600**

### **Ethics and Values in Social Work Practice**

**3**

\* Prerequisite(s): Admission into the BSW program and University Advanced Standing

Acquaints students with the values of the field of social work and the Code of Ethics of the National Association of Social Workers to help them begin to develop the ability to effectively deal with the ethical issues they will be confronted with in professional practice. Increases students awareness of new and emerging ethical issues and provide tools and methodologies for ethical decision-making. Addresses ethical dilemmas involving conflict between personal values, agency guidelines, professional standards, and cultural differences. Includes discussion of models for ethical decision-making, the NASW Code of Ethics, as well as the codes of ethics of other human services professional organizations.

## **SW 371G**

### **Diversity Issues in Social Work Practice**

**3**

\* Prerequisite(s): Admission into the BSW program and University Advanced Standing

Increases understanding and appreciation of diverse client populations, the nature of cultural identity, group membership and differential access to resources, and strategies to combat discrimination, oppression and economic deprivation and to promote social and economic justice. Examines socio-identities including: race, ethnicity, religion, gender, social class, sexual orientation, abilities, and age. Includes discussion of oppressive and discriminatory experiences as well as resilience and strengths encountered by different groups. Explores similarities, differences, and controversies between diverse populations in the context of their personal values and professional policy and practice.

**SW 3750****Child Abuse Neglect and Domestic Violence****3**

\* Prerequisite(s): SW 1010 and University Advanced Standing

Reviews definitions of child abuse and neglect and other forms of domestic violence using a multidisciplinary perspective. Explores theories explaining the causes of abuse/neglect and domestic violence. Identifies indicators of abuse/neglect and aids students in making assessments and intervening in situations of abuse/neglect and domestic violence. Educates students in mandatory reporting laws and the workings of the child welfare system in efforts to intervene and prevent abuse/neglect. Addresses current policy issues pertinent to child abuse/neglect and domestic violence and identifies effective methods in which students can advocate for social change within the social and child welfare system.

**SW 3760****Post Traumatic Growth--Beyond Survival****3**

\* Prerequisite(s): PSY 3110 and BESC 3020 or equivalent, and University Advanced Standing

Examines post-traumatic growth from an ecological perspective and across various at-risk populations. Emphasizes traditional and non-traditional approaches in dealing with physically and psychologically traumatic issues. Explores the characteristics of trauma from a strengths-based perspective and how to best provide services to people that have experienced traumatic events at the micro, mezzo, and macro levels. Considers events within their ecological context. Discusses sensitivity to a variety of circumstances and cultural patterns.

**SW 3860****Interviewing Skills****3**

\* Prerequisite(s): ENGL 2010 with C+ or better and University Advanced Standing; PSY 2300 with a C- grade or higher recommended

Develops knowledge of and skill in clinical interviewing across cultures. Familiarizes students with a broad range of clinical interviewing skills. Uses class discussions, video clips of master clinicians, instructor modeling, in-class practice, videotaped role plays, and class and instructor evaluations of role plays.

**SW 4450****Introduction to Child Welfare I****3**

\* Prerequisite(s): SW 1010 and (ENGL 2010 with C+ or higher) and University Advanced Standing

Prepares students to be effective interventionists in family systems where children are at risk of abuse, neglect, or dependency. Examines four-part Child Welfare CORE Competency-based series. Provides students with the basic knowledge, skills, and abilities necessary for successful performance as child welfare workers.

**SW 4460****Introduction to Child Welfare II****3**

\* Prerequisite(s): Admitted to BS in Social Work, SW 1010, (ENGL 2010 with C+ or higher) and University Advanced Standing

Addresses the basic effects of abuse, neglect, and separation on child development. Focuses on the knowledge and skills required for child welfare workers to provide services related to child placement, including risk assessment, attachment, separation, loss, grief, family intervention, and reunification and reintegration services. Teaches strategies to reduce trauma and promote effective child placement. Explains the foster-care system, including how to work with foster caregivers.

**SW 4500****Crisis Intervention****3**

\* Prerequisite(s): [SW 1010 and (ENGL 2010 with a minimum C+ grade) or instructor approval] and University Advanced Standing

Introduces the student to the philosophy, knowledge, techniques, and skills of crisis intervention. Provides opportunities through projects, written assignments, role playing, and first-hand interaction with professional crisis workers by which the students may deepen their understanding of this demanding method of social work practice.

**SW 4600****The DSM of Mental Disorders****3**

\* Prerequisite(s): SW 1010, PSY 2300, ENGL 2010 with a C+ grade or higher, and University Advanced Standing

Provides an overview of the Diagnostic and Statistical Manual of mental disorders (DSM) based on clinical diagnosis. Teaches DSM based clinical diagnosis. Teaches DSM diagnoses including diagnostic criteria, prevalence rates, gender and cultural differences in prevalence and symptomatology, disease course, and differential diagnosis. Uses class discussions, videotapes of individuals with different DSM diagnoses, and case scenarios.

**SW 4700****Case Management in Social Work Practice****3**

\* Prerequisite(s): SW 1010 and University Advanced Standing

Provides the conceptual foundation for providing case management services and crisis intervention to individuals in various population groups.

**SW 475R****Current Topics in Social Work****3**

\* Prerequisite(s): SW 1010 and ENGL 2010 and University Advanced Standing

Presents selected topic in Social Work and will vary each semester. Requires a project demonstrating competency in the specific topic. May be repeated with different topics for 9 credits toward graduation.

**SW 4800****Integrated Seminar I****1**

\* Prerequisite(s): SW 3000, admission to the BSW program, and University Advanced Standing

\* Corequisite(s): SW 481R

Provides a generalist base for social work practice that involves an on-site, supervised field agency practicum and a weekly seminar. Assists the student to integrate classroom learning with learning that takes place in the on-site field practicum. First of two courses in field practicum sequence. Graded Credit/No Credit.

**SW 481R****Field Placement****1 to 8**

\* Prerequisite(s): Admission to the BSW program and University Advanced Standing

\* Corequisite(s): SW 4800 or SW 4850

Provides a generalist base for social work practice that involves an on-site, supervised field agency practicum. Assists the student to integrate classroom learning with learning that takes place in the on-site field practicum. Performs a minimum of 225 hours of supervised social work in a local agency setting. May be repeated for a maximum of 10 credits toward graduation. May be graded credit/no credit. Course fee of \$84 applies for practical experience applies.

# Course Descriptions

## **SW 4850**

### **Integrated Seminar II**

**1**

\* Prerequisite(s): Senior Standing in the BSW program, SW 4800 with B- or higher, and University Advanced Standing

\* Corequisite(s): SW 481R

Provides a generalist base for social work practice that involves an on-site, supervised field agency practicum and a weekly seminar. Assists the student to integrate classroom learning with learning that takes place in the on-site field practicum. Provides an integrative classroom experience for students with a clinical interest currently working in related jobs or volunteer experiences in human service agencies or work sites. Second of two courses in the field practicum sequence.

## **SW 489R**

### **Advanced Research in Social Work**

**1 to 3**

\* Prerequisite(s): (SW 1010 and BESC 3020 with a C grade or higher); ENGL 2010 with C+ grade or higher; University Advanced Standing; Instructor approval

Expands research experience by either (1) significantly assisting on a faculty member's research project or (2) carrying out an independent research project of the student's design under faculty mentorship. Requires individual initiative and responsibility. Includes limited formal instruction. May include literature searches, completion of the IRB application process, materials creation, data collection, data analysis, writing a publishable paper, preparing a poster, preparing an oral presentation, or other options as approved by the instructor. May be repeated for a maximum of 6 credits toward graduation.

## **SW 490R**

### **Independent Studies**

**1 to 3**

\* Prerequisite(s): Instructor approval, department chair approval, and University Advanced Standing; for Behavioral Science Bachelor Degree students only

For qualified students who wish to undertake a well-defined project or directed study related to an area of special interest. Requires individual initiative and responsibility. Includes limited formal instruction and faculty supervision. Projects may include writing a publishable paper, passing a competency exam, producing an annotated bibliography, oral presentation, or other options as approved by the instructor. May be repeated for a maximum of 6 credits.

## **SW 6000**

### **Social Work Practice I--Generalist Practice with Individuals**

**3**

\* Prerequisite(s): Admission to the MSW program

Teaches students to apply the generalist social work Planned Change Model with individuals: engagement, assessment, goal setting/contracting, implementation, evaluation, and transition/ending. Prepares students to utilize core social work interpersonal communication skills to engage clients in a professional partnership and complete a comprehensive assessment. Emphasizes the importance of cultural humility, principles of strengths-based and anti-oppressive social work practice, empirical research, and theories of human behavior and person-in-environment. Overviews intervention modalities, including case management. Discusses ethical and professional demeanor and practice.

## **SW 6020**

### **Social Work Practice II--Generalist Practice with Families and Groups**

**3**

\* Prerequisite(s): SW 6000

Teaches students to apply the generalist social work Planned Change Process with families and groups: engagement, assessment, goal setting/contracting, implementation, evaluation, and transition/ending. Introduces group and family development and the theory and models of social work practice with groups and families. Prepares students to utilize group leadership and family communication skills necessary for research-informed practice. Emphasizes ethical and anti-oppressive practice and discusses how working with families and groups can advance human rights and social justice.

## **SW 6030**

### **Social Work Practice III--Advanced Practice with Individuals**

**3**

\* Prerequisite(s): SW 6000 or acceptance into the Advanced Standing MSW Program.

Examines clinical approaches most often used with clients. Emphasizes the theoretical basis of treatment modalities and how to apply them in practice.

## **SW 6040**

### **Social Work Practice IV--Advanced Practice with Families and Groups**

**3**

\* Prerequisite(s): Admission to the MSW Program

Builds on the skills and knowledge for generalist social work practice with an emphasis on advanced practice with small groups and complex family cases. Implements the planned change process to target workable intervention strategies. Identifies family and group problems such as scapegoating, manipulation, resistance, and how to solve those problems.

## **SW 6050**

### **Social Work Practice V--Advanced Practice with Organizations and Communities**

**3**

\* Prerequisite(s): SW 6300 or Acceptance into the Advanced Standing MSW Program

Analyzes multiple approaches social workers use to influence groups, organizations, communities, and systems. Examines concepts, theories, and models of macro level practice and skills for addressing complex practice and organizational situations.

## **SW 6200**

### **Human Behavior and the Social Environment**

**3**

\* Prerequisite(s): Admission to the MSW Program

Teaches students critical perspectives, theories, and frameworks that describe the behavior of individuals, families, interpersonal and group relationships, communities, and social and political systems. Focuses on theories and knowledge related to biological, sociological, psychological, spiritual, and cultural processes as they affect development across the lifespan as well as well-being, challenge, and coping. Emphasizes the person-in-environment framework for understanding the reciprocal nature of interactions between micro, mezzo, and macro systems. Investigates varying social environment factors, including historical, social, racial, cultural, economic privilege and power, oppression, and marginalization that impact individuals, families, organizations and communities.

## **SW 6250**

### **Macro Systems and Social Impact**

**3**

\* Prerequisite(s): Admission to the MSW program

Applies the social work Planned Change Model (engagement, assessment, goal setting/contracting, implementation, evaluation, and transitions/ending to community and organizational macro systems. Utilizes systems theory and thinking to examine social problems within actionable parameters: identifying stakeholders and their relationships to power and influence; examining historical precedence and current policy; identifying causes, consequences, and reinforcing feedback loops; investigating existing interventions; and determining the gaps and opportunities for intervention within a system. Examines the social work profession utilizing an anti-oppressive lens and explores the values, principles, standards, laws, policies, and regulations that direct ethical social work practice on the macro level.

**SW 6300**

**Social Welfare Policy and Analysis**

**3**

\* Prerequisite(s): Admission to the MSW program

Teaches students to identify the impacts of historical and current social policies on individual, family, and community well-being, human rights, social and economic justice, and structural oppression. Analyzes the role of governments, and the private and non-profit approaches to social policy and service formulation, implementation, and evaluation. Examines major social forces and institutions as they relate to and determine social welfare policy and welfare services in the United States. Teaches students how to advocate for policy that ensures that resources, rights, and responsibilities are distributed equitably.

**SW 6320**

**Social Work Practice with Diverse Populations**

**3**

\* Prerequisite(s): SW 6000

Emphasizes the social work profession's commitment to cultural humility, anti-oppression, diversity, equity, and inclusion, and advancing social, economic, and environmental justice. Explores how intersectionality (including, but not limited to age, social class, culture, disability and ability, ethnicity, gender, gender identity and expression, immigration status, nationality, religion, race, religion, sex, sexual orientation, and tribal sovereign status) determines experiences of power, privilege, and marginalization and shapes people's life experiences. Prepares students to practice social work reflexively in congruence with principles of anti-oppressive practice and to challenge dominant norms and world views that work to marginalize persons. Requires significant self-reflection to understand one's unique positionality as a social work practitioner.

**SW 6400**

**Social Work Research Methods**

**3**

\* Prerequisite(s): Admission to the MSW Program

Overviews social work research including the empirical research process and quantitative and qualitative methodologies. Prepares students to conduct ethical, responsible, and diverse social work research and/or evaluation on the macro, mezzo, and micro levels. Teaches critical analysis of scholarly literature and application of research in social work practice. Includes the importance of practice and program evaluation as social work research. Educates on effective oral and written presentation of research.

**SW 6407**

**The Social Work Profession and Ethical Practice**

**3**

\* Prerequisite(s): Admission to the MSW Program

Provides an overview of the NASW Code of Ethics. Emphasizes the application of the Code to social work practice situations among various client systems and populations. Addresses the relationships between the Code and the client's basic legal rights.

**SW 6490**

**MSW Advanced Standing Bridge Course**

**4**

\* Prerequisite(s): Acceptance into the MSW Advanced Standing program

Supplements the knowledge, skills, and values foundation developed in participants' BSW programs. Reviews content learned at the baccalaureate level and material that will be helpful in preparing students for the concentration year of the MSW program. Prepares MSW students to transition from the foundation year to the advanced concentration courses. Addresses topics necessary for advanced MSW-level practice and to support effective and ethical micro- and macro-level interventions. Covers key content addressed in SW foundation courses within the BSW program. This course is open to Advanced Standing students only.

**SW 6491**

**MSW Advanced Standing Skills Course**

**4**

\* Prerequisite(s): Acceptance into the MSW Advanced Standing program, SW 6490

Develops students' applied skills in Social Work practice. Integrates foundational social work approaches to practice, such as empowerment, strengths-based, and collaborative/person-centered skills. Assures that incoming Advanced Standing students have mastered foundational competencies in social-work practice skills with various types of human systems. Prepares MSW students to transition from the foundation year to the advanced concentration courses. Open to Advanced Standing students only.

**SW 6500**

**Social Work Practice with Substance Related and Addictive Disorders**

**3**

\* Prerequisite(s): SW 6000 or acceptance into the Advanced Standing MSW program.

Teaches how to reduce or eliminate the detrimental impact of substance use disorders at multiple levels, such as families, groups, organizations, and communities. Teaches the knowledge and skills that assist in reducing and eliminating addiction. Enables students to identify, assess, and evaluate those struggling with substance abuse and dependency throughout the life span and how to intervene when necessary.

**SW 6530**

**Psychopharmacology**

**3**

\* Prerequisite(s): Admission to MSW program

Addresses principles of nervous system function with emphasis on communication between nerve cells. Focuses on therapeutic drugs as well as drugs of abuse to include mechanisms of action and behavioral effects. Teaches content on dynamics of addiction within a pharmacological context.

**SW 6610**

**Spirituality in Social Work**

**3**

\* Prerequisite(s): Admission to MSW program

Addresses a theistic model for social work clinical practice. Examines various religious and spiritual world views and their application to counseling and psychotherapy. Emphasizes the need for increased sensitivity and competence in working with clients for whom faith-based interventions are desired.

**SW 6620**

**Family Therapy**

**3**

\* Prerequisite(s): SW 6000

Introduces a skills-based course in the field of family therapy. Trains prospective clinicians to work with families from a systems focus. Reviews the history of family therapy and the predominant models of the field. Emphasizes ethical and cultural issues in the realm of family therapy.

**SW 6630**

**Mental Health Assessment in Social Work Practice**

**3**

\* Prerequisite(s): Admission to MSW program

Introduces the theories, frameworks, research, and skills related to the assessment and diagnosis of mental health disorders. Provides an overview of the major disorders in the current edition of the DSM. Examines a range of mental disorders, including etiology, developmental course, diagnosis and diagnostic tools, and treatment planning. Addresses diversity and equity issues and ethical, socially responsible practice. Overviews biological, psychological, environmental, cultural, and relational risk and protective factors and summarizes the critiques and limitations of the DSM.

**SW 6640**

**Crisis Intervention**

**3**

\* Prerequisite(s): Admission to MSW program

Introduces the philosophy, knowledge, techniques, and skills of crisis intervention. Provides opportunities through projects, written assignments, role playing, and first-hand interaction with professional crisis workers to deepen understanding of this demanding method of social work practice.

# Course Descriptions

## **SW 6650**

### **Couples Therapy**

**3**

\* Prerequisite(s): SW 6000

Trains prospective clinicians in working with couples in a therapeutic capacity. Teaches the basic skills, dominant models, and unique challenges of couples therapy. Examines essential skills and techniques in working with dating, cohabiting, premarital, and marital couples. Examines unique situations of therapy such as addictions, affairs, and sexual issues. Addresses issues of diversity in couples therapy.

## **SW 6660**

### **Family Violence Across the Lifespan**

**3**

\* Prerequisite(s): Admission to the MSW program

Examines interpersonal violence within the context of familial role and across at-risk populations. Emphasizes a variety of family systems and the impact that issues such as divorce, substance abuse, child abuse, and incarceration have on the various units in the family system. Considers issues and builds practice skills related to family support services, child maltreatment, and substitute care.

## **SW 6670**

### **Post Traumatic Growth--Practice and Clinical Considerations**

**3**

\* Prerequisite(s): Admittance to the MSW Program

Examines post-traumatic growth across various at-risk populations. Considers several clinical and therapeutic issues in addition to other practice skills related to supportive services from a variety of theoretical frameworks that promote individual, familial, and community growth. Discusses diagnostic criteria and treatment differences in post-traumatic stress and post-traumatic growth. Explores events within their ecological context and works to build sensitivity to a variety of circumstances and cultural patterns. Emphasizes traditional as well as non-traditional approaches in dealing with physically and psychologically traumatic issues such as cancer, interpersonal violence, divorce, child abuse, etc. Discusses characteristics of trauma from a strengths-based perspective and how to best provide services to people that have experienced traumatic events at the micro, mezzo, and macro levels.

## **SW 6700**

### **Advanced Practice with Communities of Color and Other Diverse Populations**

**3**

\* Prerequisite(s): SW 6000, SW 6320

Explains diversity and difference, power and privilege, and oppression. Encourages self-examination within these systems as an essential foundation for culturally competent social work practice. Introduces issues related to service utilization within communities of color and providing effective interventions for historically under-served populations.

## **SW 679R**

### **Special Topics in Social Work Practice**

**3**

\* Prerequisite(s): Admission into the MSW Program, or approval from Program Director.

Presents selected topics in the field of social work at the master's level that may vary by section and/or semester. Provides students in-depth education and training in specialized topics within the field of social work practice. May be repeated with different topics for up to 9 credits toward graduation requirements.

## **SW 6810**

### **Integrative Seminar I**

**1**

\* Prerequisite(s): Admission to the MSW program

\* Corequisite(s): SW 6910

Integrates and applies the knowledge and skills obtained from course work to social work practice in the field practicum agency. Examines and evaluates practice experiences to increase the ability to apply theory, research, models, and skills with clients. Emphasizes ethical social work practice. Provides an opportunity to practice social work skills under the supervision of an experienced professional social worker.

## **SW 6820**

### **Integrative Seminar II**

**1**

\* Prerequisite(s): SW 6810

\* Corequisite(s): SW 6920

Builds on Integrative Seminar I. Integrates and applies the knowledge and skills obtained from coursework to social work practice in the field practicum agency. Examines and evaluates practice experiences to increase the ability to apply theory, research, models, and skills with clients. Emphasizes ethical social work practice. Provides an opportunity to practice social work skills under the supervision of an experienced professional social worker.

## **SW 6830**

### **Integrative Seminar III**

**1**

\* Prerequisite(s): SW 6820 or admission into the Advanced Standing MSW Program

\* Corequisite(s): SW 6930

Provides opportunities for integration of social work course work and field practicum experiences. Features in-depth analysis of specific social work competencies within the students' domains of practice. Teaches the domains of social work practice that include: assessment, interventions, program policies, and service delivery and leadership in the chosen practice area. Provides guidance in practicum and seminar.

## **SW 6840**

### **Integrative Seminar IV**

**1**

\* Prerequisite(s): SW 6830

\* Corequisite(s): SW 6940

Builds on Integrative Seminar III. Provides opportunities for integration of social work course work and field practicum experiences. Features in-depth analysis of specific social work competencies within the students' domains of practice. Teaches the domains of social work practice that include: assessment, interventions, program policies, and service delivery and leadership in the chosen practice area. Provides guidance in practicum and seminar.

## **SW 6910**

### **Foundation Field Practicum I**

**3**

\* Prerequisite(s): Admission to the MSW program

\* Corequisite(s): SW 6810

Offers engaged field education as the central form of instruction and learning to socialize students to become practitioners. Integrates social work theory with practice. Reinforces the purposes, values, and ethics of the social work profession. Fosters the integration of empirical and practice-based knowledge to promote the development of professional competence.

## **SW 6920**

### **Foundation Field Practicum II**

**4**

\* Prerequisite(s): SW 6910

\* Corequisite(s): SW 6820

Provides opportunity to apply classroom learning and to integrate theory with practice. Aligns with Council on Social Work Education standards for field education. Reinforces the purposes, values, and ethics of the social work profession. Promotes the development of professional competence.

## **SW 6930**

### **Advanced Field Practicum I**

**4**

\* Prerequisite(s): Admission to the MSW program

\* Corequisite(s): SW 6830

Provides agency-based field instruction for advanced learning and practice opportunities relevant to social work. Provides opportunity to integrate and apply advanced generalist practice theory within field experiences. Advances knowledge and skills in practice, research, and evaluation across multi-level systems. Combines field experience, traditional classroom, field supervision, online activities and assignments, and self-directed learning per the field practicum manual.

**SW 6940**  
**Advanced Field Practicum II**

**4**  
\* Prerequisite(s): SW 6930  
\* Corequisite(s): SW 6840

Continues agency-based field instruction and classroom seminar for advanced learning and practice opportunities relevant to social work. Provides opportunity to integrate and apply advanced generalist practice theory within field experiences. Increases knowledge and skills in practice, research, and evaluation across multi-level systems. Combines field experience, traditional classroom, field supervision, online activities, assignments, and self-directed learning per the field practicum manual.

**SW 6945**  
**Supplemental Field Practicum**  
**1 to 4**

\* Prerequisite(s): SW 6940 or departmental approval

Agency-based field instruction for advanced learning and practice opportunities relevant to social work. Provides opportunity to integrate and apply advanced generalist practice theory within field experiences. Increases knowledge and skills in practice, research, and evaluation across multi-level systems. Combines field experience, field supervision, and self-directed learning per the field practicum manual. May be repeated for a maximum of 4 credits toward graduation.

**SW 6950**  
**Advanced Applied Research--MSW**  
**Capstone**  
**3**

\* Prerequisite(s): SW 6000, SW 6300, and SW 6400 or admission into the Advanced Standing MSW Program

Teaches the knowledge and skills required to engage in practice-informed research across systems levels and stages of the social work helping process. Teaches the format of an empirical research poster presentation for a peer-reviewed conference. Synthesizes coursework throughout the MSW curriculum in alignment with the advanced competencies of the MSW program.

**Technology**  
**Management (TECH)****TECH 1000**  
**Experiential Credit Portfolio Development**  
**and Assessment**  
**2**

\* Prerequisite(s) or Corequisite(s): TECH 110R

Introduces basic concepts, theories and principals of a professional portfolio to demonstrate prior learning experience. Includes the identification of prior professional experience, certifications, licenses, etc. to document professional competencies for assessment by a committee of appropriate faculty and technology professionals to determine experiential credit granting equivalences in courses TECH 110R. Introduces the value of continuous learning and the process of learning how to learn.

**TECH 1010** **PP**  
**Understanding Technology**  
**3**

Covers the principal technologies that are important and prevalent today and their associated science principles. Explores how technology applies to, affects, and interacts with various fields, environments and workplaces. Develops an appreciation for how technology evolves and what possible new and exciting technologies are on the horizon

**TECH 1050**  
**Manufacturing Processes and Systems**  
**3**

Covers a wide variety of manufacturing processes, including: casting, welding, sheet metal forming, machining, composites fabrication, injection molding, extrusion, thermoforming, rotational molding, and electronics fabrication. Covers understanding of manufacturing systems and all the components required to work together, including: the production system, ERP software system, quality system, business structure, supply chain, and delivery.

**TECH 110R**  
**Technical Experiential Credit**  
**1 to 8**

\* Prerequisite(s): TECH 1000

Allows students to obtain technical experiential credit through an approved portfolio. Portfolio is developed and approved in TECH 1000. May be repeated for a maximum of 15 credits toward graduation.

**TECH 200G** **SS**  
**Technology and Human Life**  
**3**

Acquaints students with the major technologies affecting our culture and the global community, such as biotechnology, nanotechnology, information technology, and military technology. Places special emphasis on the moral, social, economic, legal, and political consequences of these technologies. Covers summary descriptions of various technologies, some of the major issues associated with them, and the underlying philosophical foundations of our encounters with them. May be delivered online.

**TECH 2010**  
**Supervision in Technology**  
**3**

Addresses employee motivation and the impact of the workplace environment (both physical and intangible). Presents various techniques of leadership and management (addressing different motivational theories and contemporary research on worker motivation). Teaches how to build and work in effective teams to inspire good performance and use conflict and negotiation effectively. Practices good communication skills both written and oral. Teaches how to understand the organizational structure, how to manage and assess performance, and how to be aware of opportunities and challenges when managing employees in a technological environment, including strategies for training and evaluation. May include hybrid or online delivery.

**TECH 2020**  
**Operational and Product Safety**  
**Management**  
**3**

Presents fundamentals of safety in the workplace including ergonomic, environmental, and other risk factors associated with new technology. Examines the role of technical managers through case studies and observation of local work places and businesses. Studies the impact of governmental agencies and regulations on workplace and product safety. Compares various communication and human factors techniques to prevent and mitigate human error.

**TECH 2050**  
**Introduction to Quality Management**  
**3**

\* Prerequisite(s): STAT 1040, STAT 1045, or EGDT 1600 with a grade of C- or higher

Introduces quality management. Includes ISO 9000, application of Lean Six Sigma, continuous process/product improvement, basic statistical methods, performance measurements, cost of poor quality, employee empowerment, and global quality initiatives. Covers requirements for relevant professional certifications for career enhancement.

# Course Descriptions

## **TECH 281R** **Internship in Technology** **1 to 3**

\* Prerequisite(s): Department Approval

Obtains work experience for lower-division students in their technical field. Provides supervised, practical, and professional experience. Demonstrates accountability regularly with a School of Technology and Computing coordinator. May be repeated for a maximum of 3 credits toward graduation. May be graded credit/no credit.

## **TECH 290R** **Current Topics in Technology** **3**

Demonstrates current developments in technology fields and how they apply to business and industry processes. Prepares students to use contemporary technologies in their professions. May be repeated for a maximum of nine credits toward graduation. May be delivered hybrid.

## **TECH 297R** **Independent Study** **1 to 3**

\* Prerequisite(s): Department approval

Requires individual initiative and responsibility. For qualified students who wish to undertake an independent project or directed study related to an area of technology or manufacturing. The topic must be approved by the instructor and the Department Chair. May be repeated for a maximum of 4 credits toward graduation.

## **TECH 3000** **Introduction to Technology Management** **3**

\* Prerequisite(s): University Advanced Standing

Addresses the special characteristics of managing and leading technology dependent organizations. Covers the leading influential technologies, technology's impact on organizational structure and the policy process, strategic technological planning, futures studies, leadership, global aspects of technology management, performance assessment, technology life cycles and financing, and some of the major ethical implications of managing technology dependent organizations. Canvas Course Mats \$85/McGraw applies

## **TECH 3010** **Creativity Innovation and Change Management** **3**

\* Prerequisite(s): ENGL 1010 or ENGH 1005, Sophomore Standing, and University Advanced Standing

Focuses on principles of creativity and innovation as they apply to technological enterprises. Covers theoretical and practical concepts of both creativity and innovation. Studies both concept and practice of structured methods of creative problem solving. Examines "Appreciative Inquiry" as an alternative management of change technique. Examines inventors and the invention process, including the patent process. Uses lecture, discussion, group projects, case studies, class activities, presentations, videos and guest lecturers.

## **TECH 301R** **Technology Lecture Series** **1**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Presents lectures from external speakers in various technology related subjects. Requires a written reaction paper for most of the lectures. May be repeated for a maximum of 2 credits toward graduation.

## **TECH 3400** **Project Management WE** **3**

\* Prerequisite(s): University Advanced Standing

Covers the fundamental principles, processes, and techniques of project management. Includes a systems approach to planning, scheduling, and controlling projects. Focuses on effective processes for managing projects across multiple disciplines/industries and varying management structures. Introduces project management tools that can be used to guide and manage individual and multiple projects. This is a writing intensive course.

## **TECH 3700** **Materials Management** **3**

\* Prerequisite(s): TECH 3000 and ENGL 2010 and University Advanced Standing

Involves a comprehensive approach to purchasing, raw and finished goods inventories, and determining and managing capacity and workers. Includes Just-in-time, Kanban, scheduling and emerging technologies. Assists in preparing students for national certifications.

## **TECH 3850** **Quality Management in Technology** **3**

\* Prerequisite(s): [(TECH 3000 and (STAT 1040 or STAT 1045) or advisor approval] and University Advanced Standing

Involves a comprehensive approach to Quality Management related to technical professions. Covers Lean and Six Sigma approaches, continuous improvement/Kaizen, Voice of the Customer (VOC), Statistical Process Control (SPC), cost of poor quality, leadership, employee empowerment, teamwork, change management, and quality standards. Assists in preparing students for the relevant professional certifications for career enhancement.

## **TECH 4000** **Reliability Management** **3**

\* Prerequisite(s): TECH 3000, TECH 3850, (STAT 1040 or STAT 1045), and IM 2010 each with a grade of C- or higher and University Advanced Standing

Introduces reliability as a component of successful business strategies. Covers processes for design for reliability in the context of quality management and product development. Presents the most common tools and techniques used to test and interpret reliability data. Examines the role of managers and reliability engineers to ensure product reliability and safety. Uses a mix of case studies, student research, and current events to examine the business impact of reliability in technical enterprises. Software fee of \$15 applies.

## **TECH 405G** **Global Ethical and Professional Issues in Technology** **3**

\* Prerequisite(s): PHIL 2050 with a grade of C- or higher and University Advanced Standing

Examines professional, ethical, and cultural issues related to the leadership of technological organizations. Studies the impact of emerging technologies, conflicting values, multiculturalism, and globalization on management practices in the workplace. Reviews current ethical theory and professional codes of conduct with special emphasis on global and intercultural issues. Includes lectures, readings, case studies and other media. May be delivered online.

**TECH 4200**

**Technology Marketing and Customer Relationship Management**

**3**

\* Prerequisite(s): TECH 3000 and IM 2010 both with the grade of C- or higher; and University Advanced Standing

Examines marketing theory and customer relationship management (CRM) theory, as well as the application of CRM technology in marketing, sales, and service operations. Includes exploration of CRM software. Covers the basic marketing processes, such as identification, acquisition, growth and retention of desired customers. Highlights the basics of how contemporary CRM software can help manage these processes.

**TECH 4400**

**Advanced Project Management**

**3**

\* Prerequisite(s): TECH 3400 with a C- or higher; University Advanced Standing

Presents advanced tools and techniques which build on the concepts presented in introductory project management class. Covers principles for managing multiple projects. Studies best practices for project management. Introduces the activities of Program Management, Project Portfolio Management and Strategic Project Leadership and Management. Analyzes basic cost justification techniques for making economic decisions in technical organizations. May be delivered online.

**TECH 4420**

**Organization Information Technologies**

**3**

\* Prerequisite(s): TECH 3000, IM 2010, and ACC 3000 all with a C- or higher; and University Advanced Standing

Introduces how information, and the management of that information, can affect the structure and operations of organizations. Covers technical and organizational foundations of information systems along with contemporary approaches to building, managing, and protecting information systems including hands-on work with a modern Enterprise Resource Planning (ERP) system. Emphasizes how information technology affects decision-making. Uses Excel as a decision support tool. Examines the ethical and legal issues raised by the capabilities of information technology. Lab access fee of \$45 for computers applies.

**TECH 481R**

**Internship**

**1 to 3**

\* Prerequisite(s): TECH 3400, Technology Management Department Chair Approval, and University Advanced Standing

Provides opportunities to apply classroom theory while students work as employees in a job that relates to their careers. May be repeated for a maximum of 9 credits toward graduation. May be graded credit/no credit.

**TECH 489R**

**Undergraduate Research in Technology Management**

**1 to 3**

\* Prerequisite(s): Department approval and University Advanced Standing

Provides the opportunity to conduct research under the mentorship of a faculty member. Practices the theoretical knowledge gained in prior major courses. Requires the creation of a significant intellectual or creative product that is characteristic of the Technology Management discipline and worthy of communication to a broader audience. May be repeated for a maximum of 3 credits toward graduation.

**TECH 490R**

**Current Topics in Technology Management**

**3**

\* Prerequisite(s): (Senior Status or Instructor Approval) and University Advanced Standing

Designed to show developments in business and industry professions in the short- and mid-term future. Acquaints students with the newest technological developments in their fields. Prepares students for the changes that various technologies will bring their professions. May be repeated for a maximum of 9 credits toward graduation.

**TECH 4910**

**Senior Capstone Project WE**

**3**

\* Prerequisite(s): TECH 3010, TECH 3400, and TECH 3850 each with a grade of C- or higher; Senior Status and University Advanced Standing.

Is for senior Technology Management majors. Provides a leadership transition from academic to applied/real-life work experience. Includes student, company liaison, and coordinator evaluation, on-site work visits, written assignments and oral presentations. Offers experience in establishing and accomplishing team objectives that improve their ability to add real value in their future employment. This is a writing intensive course.

**TECH 497R**

**Independent Study**

**1 to 3**

\* Prerequisite(s): Technology Management Department Chair Approval and University Advanced Standing

Offers independent study as directed in reading or individual projects at the discretion and approval of the department chair. May be repeated for a maximum of 4 credits toward graduation.

**TECH 6000**

**Strategic Management of Technology and Innovation in Engineering**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents contemporary concepts and frameworks of strategic management and technological innovation. Develops competence in analyzing novel technologies and business strategies through the exposure to strategy frameworks and historical and contemporary cases. Explores the relationship between technological innovation and strategy in the context of technology-based business firms.

**TECH 6010**

**Engineering Law and Patents**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Explores legal topics relevant to engineering and technology managers. Focuses on intellectual property. Covers contracts, torts, labor law, property, and environmental law. Emphasizes legal principles necessary to provide engineers with the ability to recognize issues that are likely to arise in the engineering and technology management profession.

**TECH 6400**

**Six Sigma Project Management**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents a range of advanced topics on how to define, plan, and execute a project whether your goal is simple or complex. Emphasizes the necessary skills to lead process improvement, and learn systematic methods used to improve performance efficiencies and to reduce variations in business operations to achieve productivity and profitability gains.

**TECH 6420**

**Finance for Technical Systems**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents financial management and information systems concepts relevant to managing business firms. Develops ability to analyze and produce financial management information using information systems. Explores future trends at the intersection of financial management and technology.

# Course Descriptions

## **TECH 6430**

### **Product Management Processes**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents contemporary product design and development concepts and frameworks. Develops competence in analyzing different categories of technological products as well as different product design and development processes. Explores future trends in managing technological product design and development.

## **TECH 6450**

### **Engineering Economics and Project Evaluation**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents concepts, methods, and tools of economic analysis and managerial decision-making from a cash flow perspective. Emphasizes the time value of money, present worth analysis, annual equivalent worth, rate of return, depreciation, and inflation analyses. Covers the evaluation of projects, and comparison and selection among alternatives addressed. Interprets general accounting principles and basic financial analysis.

## **TECH 6500**

### **Resource Management in Engineering and Technology**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Enhances the ability to analyze and successfully implement resource management techniques in areas of asset, information, and data management. Develops ability to implement optimal processes and procedures in resource estimation and planning, cost and billing, scheduling, and execution. Analyzes resource management responsibilities from a broad level of resource capacity through resource allocation and specific work management.

## **TECH 6700**

### **Data Driven Decision Making**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Critiques management practices for decision making within business. Defines appropriate uses of quantitative and visual data to influence the decision process. Presents engaging case studies drawn from publications, local business managers, and the experiences of faculty. Develops data analysis and presentation skills using appropriate software.

## **TECH 6710**

### **Materials Management**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents a comprehensive list of topics in materials management. Places special emphasis on materials flow improvement and waste reduction. Covers production planning, capacity management, purchasing, demand forecasting, inventory management, and lean production.

## **TECH 679R**

### **Special Topics in Engineering**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Presents a range of advanced topics of current interest in the fields of engineering management and technology management. Emphasizes new management practices that are emerging as a result of rapid technological advancements. Critiques theory and practice from the point of view of local guest speakers who present their unique management perspectives. May be repeated for a maximum of 6 credits toward graduation

## **TECH 690R**

### **Independent Study**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Offers independent study as directed in reading or individual projects at the discretion and approval of the graduate program director. May be repeated for a maximum of 6 credits toward graduation.

## **TECH 6950**

### **Engineering and Technology Projects I**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Interprets the nature of strategic thinking and the challenges of strategic alignment. Includes the development of a strategic planning process and methods for assessing strategic success. Describes organizing a proposal to summarize scope of work, work plan, team charter, and identified project outcomes based on ideas supported by a literature review.

## **TECH 6960**

### **Engineering and Technology Projects II**

**3**

\* Prerequisite(s): Acceptance into Master of Science in Engineering and Technology Management program or approval of graduate program director

Describes how to apply advanced processes to move a project from start to finish utilizing the project proposal created in Project I. Covers risk analysis, effective communication, and response to problems. Emphasizes financial and project management concepts to compliment a technical background. Describes how to implement optimized project standards of innovation promotion and leadership in product and/or project launch.

## **Theatre (THEA)**

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### **THEA 1013**

#### **Introduction to Theatre WE**

**3**

Examines theatre analysis, history, dramatic structure, outstanding dramatic literature, and the various roles in theatre production including the playwright, producer, director, the design team, production staff, house staff, run crew, and publicity. Utilizes lecture, film review, play reading, and live theatre attendance.

**FF**

### **THEA 1023**

#### **Introduction to Film**

**3**

Designed to develop the analytical skills necessary for understanding the motion picture - not only as an art form, but as a tool for the statement of ideas. Explores the visual and aural elements employed by movie-makers to influence audiences. Studies context--the historical, social, political, cultural, and artistic situation which produced the film and how it reflects ourselves and our society. Combines lecture, screening, and demonstration with critical discussions of assigned readings and films. Requires a weekly lab.

**FF**

### **THEA 1033**

#### **Acting I**

**3**

For theatre arts majors and anyone interested in developing acting skills. Covers basic acting terminologies and definitions, techniques of movement, voice, and script analysis with a strong emphasis on performance ethics.

**FF**

**THEA 1113**  
**Voice and Speech I**  
**3**

\* Prerequisite(s): THEA 1033

Provides student actors with tools for increasing vocal ease and expressivity, with an emphasis on cultivating free and spontaneous breath impulse. Introduces the range of human speech sounds experientially, as a prelude to detailed phonetics and accent work. Provides a framework for developing a personal practice of voice and speech outside the classroom and applying learning through in-class performance. Please note, this is a course in acting, not public speaking.

**THEA 1131**  
**Movement Principles**  
**2**

\* Prerequisite(s): BFA Theatre Arts Matriculation (Acting emphasis) or Instructor Approval

Introduces student actors to principles and practices of physical training, including experiential anatomy, physical conditioning, creative movement, yoga, Alexander technique, contact improvisation, or tumbling and acrobatics. Includes work on physical devising as a core element of creative storytelling.

**THEA 1223**  
**Makeup I**  
**3**

Introduction to character makeup application for stage and screen with emphasis on corrective, age, and period with some stylized applications. Studies include the development of physical characterization for scripted characters. Course fee of \$23 for materials applies.

**THEA 1513**  
**Stagecraft I**  
**2**

\* Prerequisite(s) or Corequisite(s): THEA 1514

Surveys all elements of theatre and film production including sets, lighting, sound, properties, and costumes. Offers experience in the construction, painting, dressing, and striking of sets and props; the hanging, focusing and gelling of lighting instruments; the preparation of sound effects; and the operation of sound and lighting control equipment. Utilizes lecture, demonstration, films, and observation of working production facilities and personnel. Course fee of \$30 for equipment applies.

**THEA 1514**  
**Stagecraft I Lab**  
**1**

\* Prerequisite(s) or Corequisite(s): THEA 1513

Laboratory component to THEA 1513. Provides experience in the construction, painting, and dressing of sets for current academic productions. Includes work with School of Arts Staff in the Scene Shop to develop basic set construction skills.

**THEA 159R**  
**Production Practicum for Stage and Screen**  
**1**

Provides the opportunity for students to earn college credit for supervised backstage crew positions on departmental productions. Includes assignments to wardrobe, deck crews, board operations, props and any additional positions a specific production might require. Requires participation for the entire technical rehearsal and production run to receive credit. May be repeated for a maximum of 2 credits toward graduation.

**THEA 1713**  
**Script and Text Analysis I**  
**3**

Introduces students to the analysis of story-based texts across a range of media. Focuses on the application of narrative and semiotic theory to dramatic literature from various periods in theatre history. Involves lecture, discussion, script and text analysis, film viewing, and live production attendance.

**THEA 184R**  
**Singing Technique for Actors I-BA**  
**1**

\* Prerequisite(s): Theatre Major

Offers private vocal instruction for BA Theatre Arts majors to develop skills and techniques for performance in musical theatre. Requires substantial individual weekly practice. May be repeated for a maximum of 3 credits toward graduation. Course lab fee of \$390 applies.

**THEA 2033**  
**Acting II**  
**3**

\* Prerequisite(s): THEA 1033; THEA 1113 recommended.

Designed to build upon the techniques learned in THEA 1033. Emphasizes character development and application in creating a role through intense scene study of scripts in both stage and screen.

**THEA 2100**  
**Teaching Theatre For Children FF**  
**3**

Introduces concepts and techniques to teach theatre to children in the community, schools or home consistent with state and national standards. Identifies methods to use drama to teach other subjects. Introduces concepts, theories and techniques in creative drama. Assists students to become independent, creative, and productive learners as they acquire the knowledge, skills, and experience to teach drama and theatre to children ages 5-12.

**THEA 2127**  
**Voiceover Acting**  
**3**

\* Prerequisite(s): THEA 1033; THEA 1113

Introduces students to voiceover techniques and the voiceover industry. Focuses on different types of voiceover work, including commercial/ industrial copy, book narration and animation/ video game work. Includes development of resume and demo reel.

**THEA 2131**  
**Movement for the Actor I**  
**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts or BA Theatre Arts

Helps actors for both stage and screen develop the physical awareness and self discipline critical to effective performance of period style, staged combat, and the musical. Emphasizes balance, strength, postural correction, energy drives, motivation, and basic movement vocabulary.

**THEA 2156**  
**Group Voice for Theatre**  
**3**

\* Prerequisite(s): Theatre major in BFA Theatre Arts or BA Theatre Arts

Provides group instruction for actors to develop technical skill and understanding of the singing voice. Requires a minimum of 2 hours of practice each week.

**THEA 2203**  
**Costume Construction I**  
**3**

\* Prerequisite(s) or Corequisite(s): THEA 1513, THEA 1514, and THEA 2204

Provides a beginning overview of the vocabulary and basic sewing methods of theatrical costuming. Familiarizes students with sewing machine and serger operation, basic sewing techniques, fabrics, simple patterning, and skills of costume construction. Course fee of \$12 for equipment applies.

**THEA 2204**  
**Costume Construction I Lab**  
**1**

\* Prerequisite(s) or Corequisite(s): THEA 1513, THEA 1514, and THEA 2203

Laboratory component to THEA 2203. Provides hands-on application of techniques taught in THEA 2203, including sewing of theatrical costumes, simple patterning, and other costume construction tasks.

**THEA 2211**  
**Theatre for Children and Youth**  
**3**

Introduces the philosophy and practices of theatre for children and youth, including its range of uses in the classroom, on the stage, in the community, corporate world and beyond. Focuses on storytelling, puppetry, and dramatic texts for children and youth. Requires play attendance.

## Course Descriptions

### **THEA 222R**

#### **Theatre for Young Audiences Tour**

**3**

\* Prerequisite(s): Department Approval by Audition

Provides students with opportunities to perform in touring theatre productions for elementary and secondary audiences in school settings. Includes training in professional and amateur practices in performing, directing, designing, constructing, and managing touring shows for children and youth. May be repeated for a maximum of 9 credits toward graduation.

### **THEA 2311 (Cross-listed with: CINE 2311) FF Film History I**

**3**

Explores the development of the feature film, both in America and abroad from 1895 to 1945. Covers the evolution of motion pictures from conception as an entertainment novelty (c. 1895) to the mass-audience, commercial art form of the 1940's. Examines film as a serious historical study of a form of mass communication, which has had ethical, social, and political consequences on society. Includes lecture, screenings, and demonstrations with critical discussions of assigned readings and films.

### **THEA 2312 (Cross-listed with: CINE 2312) Film History II**

**3**

Explores the development of the feature film, both in America and abroad from 1940 to the Present. Emphasizes the continuing evolution of motion pictures from the height of the Studio System 1930s through to its status as one "form" of digital entertainment in 2010. Examines film as a serious historical study of a form of mass communication, which has had ethical, social, and political consequences on society. Includes lecture, screenings, and demonstrations with critical discussions of assigned readings and films. (Note: Some films screened may be considered controversial and carry an "R" rating.)

### **THEA 234R (Cross-listed with: CINE 234R) Special Topics in Cinema Studies**

**3**

\* Prerequisite(s): THEA 1023

Focuses upon a particular genre, director, or film movement for the benefit of theater students seeking a film emphasis and MCT and English students seeking added depth in their fields of study. Topic varies by semester. May be repeated for 3 credits toward graduation, more for interest.

### **THEA 2513**

#### **Introduction to Design for Stage and Screen**

**3**

\* Prerequisite(s): THEA 1513 and THEA 1514

\* Prerequisite(s) or Corequisite(s): THEA 2514

Studies the design process associated with costumes, scenery, and lighting. Uses research, conceptual renderings, models, and drafting. Introduces perspective drawing, figure drawing, three dimensional model building, and standard drafting practices. Lab access fee of \$25 applies. Software fee of \$25 applies.

### **THEA 2514**

#### **Introduction to Design for Stage and Screen Lab**

**1**

\* Prerequisite(s): THEA 1513

\* Prerequisite(s) or Corequisite(s): THEA 2513

Laboratory course to accompany THEA 2513. Offers experience in the construction, dyeing, and organizing of costumes. Involves collaboration with the School of Arts Staff on current UVU productions.

### **THEA 2515**

#### **Rendering for Theatre**

**3**

\* Prerequisite(s): ART 1020, ART 1650

Trains theatrical design students in the advanced drawing and painting skills necessary to create detailed renderings of costumes and scenery that effectively communicate visual ideas for stage design concepts.

### **THEA 2517**

#### **Visual Concepts in Theatre**

**3**

\* Prerequisite(s): THEA 2513

Introduces students to the translation of scripts into visual imagery for the stage. Focuses on the processes of conception, development, and implementation of design components to the point of actual presentation. Lab access fee of \$25 applies. Software fee of \$25 applies.

### **THEA 2531**

#### **Introduction to Lighting and Sound**

**3**

Exposes students to foundational technologies and system designs in lighting and sound for live performance. Provides opportunities for hands-on experience working on realized productions within the theatre department, rounding out their educational experience. Lab access fee of \$25 applies. Software fee of \$25 applies.

### **THEA 2541**

#### **Costume History**

**3**

Studies costume history from ancient to modern times. Focuses on the political, social, economic and aesthetic concerns of each period. Includes study of the impact of other cultures on Western costume design.

### **THEA 2574**

#### **Drafting for Theatre Design**

**3**

Introduces and trains technical theatre students in the processes of drafting for theatrical design. Focuses on attaining a basic proficiency in using the most recent computer-aided drafting software. Lab access fee of \$25 applies. Software fee of \$25 applies.

### **THEA 257R**

#### **Assistant Practical Design**

**1**

Involves working closely with a designer on main stage productions in scenic, lighting, costume, makeup, sound, projections, technical direction, or dramaturgy to develop, research, design, and implement designs. Requires application and approval by appropriate theater faculty. May be repeated for a maximum of 2 credits toward graduation.

### **THEA 259R**

#### **Production Practicum for Stage and Screen**

**1**

**1**

\* Prerequisite(s): THEA 1513

Provides the opportunity for students to earn college credit for supervised projects in production for the period up to dress rehearsal and during strike. Involves the development of a contract between the student and the assigned instructor. May be repeated for a maximum of 2 credits toward graduation.

### **THEA 271R**

#### **BFA Cohort Seminar**

**1**

Prepares BFA students for integration into the program through theatrical projects that encourage ensemble collaboration and cooperation with cohorts. Teaches critical unifying skills for future professional endeavors. May be repeated for a maximum of 8 credits toward graduation.

### **THEA 272R**

#### **BA Seminar**

**1**

Explores vocational and avocational applications for theatre training. Includes critical analysis of current productions in the department and beyond with faculty and production team members. Allows students and theatre artists to share insights with one another from their various specialties and perspectives. May be repeated for a maximum of 3 credits toward graduation.

### **THEA 2741**

#### **Scriptwriting for Stage**

**3**

Introduces students to storytelling for the stage. Focuses on writing short scripts using classic play structure. Emphasizes the structuring of stories, creating engaging characters, and communicating ideas in the process of developing an individual voice. Extensive writing required.

**THEA 2742**  
**Scriptwriting for the Screen WE**  
**3**

Introduces students to writing for both film and television. Focuses on writing short, 10-minute film scripts using classic film structure. Includes lectures, readings, viewings, and extensive writing assignments to help students develop their individual voice, observe the world, find story material, create engaging characters, structure stories, and communicate ideas.

**THEA 281R**  
**Theatre Internship**  
**1 to 6**

\* Prerequisite(s): Departmental Approval

Provides a transition from school to professional life where learned theory is applied to actual practice through meaningful on-the-job experience. May be repeated for a maximum of 4 credits toward graduation. May be graded credit/no credit.

**THEA 284R**  
**Singing Technique for Actors I - BFA**  
**1**

\* Prerequisite(s): Theatre major in BFA Theatre Arts and department approval

Offers private vocal instruction for theatre majors to develop skills and techniques for performance in musical theatre. Requires substantial individual practice each week and bi-monthly master class participation. May be repeated for a maximum of 3 credits toward graduation. Course lab fee of \$420 applies.

**THEA 290R**  
**Independent Study**  
**1 to 5**

For students with individual projects. Credits given for acceptable projects in playwriting, direction, acting, design or other supervised performance, labor, or research in theatre or film. Proposals must be submitted and approved by the department or instructor prior to enrollment. May be repeated for a maximum of 3 credits toward graduation.

**THEA 3033**  
**Acting III**  
**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts or BA Theatre Arts; THEA 2033; University Advanced Standing

Trains advanced students in the use of contemporary methods, theories, and practices in creation of roles. Focuses on material written and produced in late 20th and early 21st century theatre.

**THEA 3110**  
**Non Fiction Cinema History**  
**3**

\* Prerequisite(s): THEA 1023 and University Advanced Standing

Surveys the history of non-fiction/documentary film from 1896 to the present. Includes study of early pioneers from Flaherty's NANOOK OF THE NORTH to the current trend of reality television and the popular documentaries of Michael Moore.

**THEA 3113**  
**Acting for Film**  
**3**

\* Prerequisite(s): THEA 2033 or DGM 2110 and University Advanced Standing

Introduces the specialized techniques of performance, audition, and agent/actor relationships as they apply to the film and television industries.

**THEA 3115**  
**Improvisation I - BFA**  
**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts; THEA 2033; THEA 2131; University Advanced Standing

Introduces acting students to the use of improvisational techniques. Includes advanced training in the application of objectives, tactics, relationships, and movement in the creation of improvised scenes.

**THEA 3116**  
**Auditioning - BA**  
**3**

\* Prerequisite(s): Theatre Major in BA Theatre Arts; THEA 1033; University Advanced Standing

Prepares BA students with the specific skills to successfully audition for stage roles at the amateur level. Includes instruction on playing objectives, defining relationships, making emotional connections, and physicalizing action. Focuses on mental and psychological preparation for the audition situation.

**THEA 3117**  
**Auditioning I**  
**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts or BA Theatre Arts; THEA 2033; University Advanced Standing

Prepares students with the specific skills to successfully audition for stage and screen roles. Includes work on objectives, relationships, emotional connection, and honest physicality.

**THEA 311R**  
**Improvisation II-Performance Team-BFA**  
**2**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts; THEA 3115; University Advanced Standing

Develops acting skills through improvisational performance. Involves training in short and long form improv incorporating skills of story and song structure. Emphasizes application of objectives, tactics, relationships, honest response and communication, and sensory work. May be repeated for a maximum of 4 credits toward graduation.

**THEA 3122**  
**Voice and Speech II-BFA**  
**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts; THEA 1113; THEA 2131; University Advanced Standing

Continues the work of first-semester Voice and Speech. Strengthens the actor's use of voice, including resonance, range, and vocal variety. Introduces detailed phonetics using the International Phonetic Alphabet and identifies markers of formal versus informal speech. Emphasizes text work, including imaging and operative language. Please note, this is a course in acting, not public speaking.

**THEA 3123**  
**Acting in Accent - BFA**  
**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts and THEA 3122 OR department approval by audition; University Advanced Standing

Introduces methods for the actor to research, prepare, and perform any accent with authenticity. Includes exploration of the articulatory setting, pronunciation, and prosody of an accent, using primary research sources.

**THEA 3124**  
**Voice and Speech III - BFA**  
**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts; THEA 3122; University Advanced Standing

Introduces advanced topics in voice and speech including creating character voices, voice use in heightened emotional states and violence, and/or beginning and narration.

**THEA 3131**  
**Movement for the Actor II-BFA**  
**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts; THEA 1033; THEA 2131; University Advanced Standing

Trains advanced movement students in somatic techniques such as Yoga, Tai Chi, Feldenkrais, Alexander Technique, and Laban.

## Course Descriptions

### **THEA 3133**

#### **Stage Combat**

**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts or BA Theatre Arts; University Advanced Standing

Teaches basic principles of stage combat/choreography and safety practices. Course fee of \$25 applies.

### **THEA 314G (Cross-listed with: COMM 314G, ENGL 314G)**

#### **Global Cinema History**

**3**

\* Prerequisite(s): (ENGL 2150 or THEA 1023) and University Advanced Standing

Studies the evolution of global film styles, movements, stars, and genres with a focus on international cinema chronologies outside the United States. Some films screened may be considered controversial and carry an "R" rating.

### **THEA 3151**

#### **Acting for Musical Theatre I**

**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts or BA Theatre Arts; THEA 2033; University Advanced Standing

Introduces techniques of acting, singing, and dancing for the musical, as well as looking at the history and trends of the musical. Incorporates the art of transitioning between dialogue and song.

### **THEA 3152**

#### **Acting for Musical Theatre II - BFA**

**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts; THEA 3151; University Advanced Standing

Further develops and refines the performer's abilities as a singer, dancer, and actor. Links trends in musical theatre with past and present artistic choices. Explores design aspects of musical theatre and thematic integration of acting, singing, and dancing. Includes lecture, discussion, film, rehearsal, and performance.

### **THEA 3154**

#### **Dance for Musical Theatre I**

**3**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts or BA Theatre Arts; THEA 2033; University Advanced Standing

Focuses on the academic and practical study of the history and development of Musical Theatre Dance as an art form from the late 19th century to present. Mends tap, ballet, jazz, ballroom, and ethnic dance into practical character and story based movement while exploring historic context, landmark choreographers and productions.

### **THEA 3155**

#### **Dance for Musical Theatre II - BFA**

**3**

\* Prerequisite(s): Theatre Majors in BFA Theatre Arts; THEA 3154; University Advanced Standing

Continues the study of musical theatre choreography. Emphasizes practical application involving a blending of various styles of dance into the creation of practical character and story-based movement.

### **THEA 315R**

#### **Musical Theatre Practicum**

**2**

\* Prerequisite(s): Audition, University Advanced Standing

Provides opportunities for musical theater students to perform leading roles in shortened versions of multiple musicals, and collaborate in the full process of producing a musical. May be repeated for a maximum of 6 credits toward graduation. Course fee of \$30 for materials, specialized clothing applies.

### **THEA 319R**

#### **Performance Practicum for Stage and Screen**

**1**

\* Prerequisite(s): Audition, THEA 159R or Instructor Approval, and University Advanced Standing

Provides opportunity for earning college credit for supervised performance and production assignments in UVU theatre productions from dress rehearsal through closing performance (excluding strike). Allows students to apply learned skills to productions that are currently in performance. Requires project approval from instructor or Department Chair. May be repeated for a maximum of 4 credits toward graduation.

### **THEA 3211**

#### **Applied Theatre**

**3**

\* Prerequisite(s): University Advanced Standing

Provides training and experience in Applied Theatre with adult, youth, and child participants in educational and community settings. Includes using Theatre of the Oppressed techniques (as formulated by Augusto Boal), devising original theatre pieces, and creating theatre-in-education programs that address social and community needs and issues.

### **THEA 3223**

#### **Makeup II**

**3**

\* Prerequisite(s): THEA 1223; Instructor Approval; and University Advanced Standing

Teaches advanced techniques in makeup design and application, character analysis, and three-dimensional masks. Includes hair applications, prosthetic appliances, airbrush techniques, and variety characterizations. Course fee of \$120 for materials applies.

### **THEA 3231**

#### **Creative Drama**

**3**

\* Prerequisite(s): THEA 2211, THEA 2100, or Instructor Approval; University Advanced Standing

Examines how creative drama can be applied to other academic subjects, address social issues, and promote social change. Involves study of the works and creative processes of major theater practitioners.

### **THEA 3241**

#### **Storytelling**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces techniques associated with effective storytelling practice. Focuses on the use of storytelling as a means of interpreting, generating and preserving stories as an entertaining and empowering tool. Includes performance.

### **THEA 3251**

#### **Puppetry**

**3**

\* Prerequisite(s): University Advanced Standing

Introduces techniques for constructing and performing with various puppets. Emphasizes performance for child, adolescent, and adult audiences.

### **THEA 3511**

#### **Stagecraft II**

**3**

\* Prerequisite(s): THEA 1513 and University Advanced Standing

Develops intermediate skills in the various stage crafts including carpentry, property construction, lighting and sound for theatre and film. Includes further education in drafting; set and lighting principles; professional, management and safety practices. Students fulfill assigned responsibilities for UVU theatrical productions. Course Lab fee of \$40 for equipment applies.

### **THEA 3514**

#### **Period Styles for Theatre Design**

**3**

\* Prerequisite(s): THEA 2513 and University Advanced Standing

Introduces historical styles of architecture, painting, and dress that influence theatrical design. Lab access fee of \$25 applies.

### **THEA 3516**

#### **Art Direction for Film**

**3**

\* Prerequisite(s): THEA 3514 and University Advanced Standing

Focuses on the basics of production design and art direction, the importance of costumes, props, locations selection, special effects, and set decoration in the visual presentation of a cinematic story.

**THEA 3521  
Sound Design I**

**3**  
\* Prerequisite(s): THEA 2513 and University Advanced Standing

Introduces students to the physics of sound. Focuses on the production of audio content, and the design and engineering of playback systems. Facilitates collaboration with other members of a theatrical design team. Requires 25 hours of technical sound support for UVU theatrical productions. Lab access fee of \$25 applies. Software fee of \$25 applies.

**THEA 3531  
Lighting Design I**

**3**  
\* Prerequisite(s): THEA 2513 and University Advanced Standing

Focuses on the designing and practical application of theatrical lighting and sound. Includes laboratory work on UVU theatre productions. Lab access fee of \$25 applies. Software fee of \$25 applies.

**THEA 3535  
Lighting Design I Lab**

**1**  
\* Prerequisite(s): THEA 2513 and University Advanced Standing  
\* Corequisite(s): THEA 3531

Laboratory component to THEA 3531. Allows students to implement theatrical lighting and sound design plans. Includes laboratory work on UVU theatre productions.

**THEA 3541  
Costume Design I**

**3**  
\* Prerequisite(s): THEA 2513 and University Advanced Standing

Introduces theories and fundamentals of costume design with practical application through research and rendering. Provides an overview of costume history and period research. Emphasizes conceptual ideas based in script and director's concept. Course lab fee of \$19 applies.

**THEA 3542  
Costume Construction II**

**3**  
\* Prerequisite(s): THEA 2203 and University Advanced Standing

Provides more experience with sewing machine operations and advanced sewing techniques. Includes textile selection and construction skills. Focuses on specialized pattern drafting and draping. Course fee of \$25 for materials, equipment applies.

**THEA 3545  
Costume Design I Lab**

**1**  
\* Prerequisite(s): THEA 2513 and University Advanced Standing  
\* Corequisite(s): THEA 3541

Laboratory course to accompany THEA 3541. Provides opportunities for practical application of design fundamentals in creation of costumes for various genres and historical periods.

**THEA 3561  
Stage Management I**

**3**  
\* Prerequisite(s): THEA 1513 and University Advanced Standing

Introduces students to the basic processes of creating and managing a theatre production organization. Includes introductory structural organization, collaboration, strategic planning, accounting, and marketing concepts, procedures, and simulation exercises. Prepares students for upper division courses in theatre management.

**THEA 3565  
Technical Direction for the Stage**

**3**  
\* Prerequisite(s): THEA 2574 and University Advanced Standing

Explains the role of the Technical Director in the realization of a theatre production from page to stage. Offers training and hands-on experience in the collaborative production process as seen through the work of the Technical Director. Includes training in industry-standard software and tools. Lab access fee of \$25 applies. Software fee of \$25 applies.

**THEA 3571  
Scenic Design I**

**3**  
\* Prerequisite(s): THEA 2513 and University Advanced Standing  
\* Corequisite(s): THEA 3575

Focuses on the application of advanced principles of scenic design for sets and properties. Involves completion of project designs featuring elevation drawing and drafting, rendering, and model building. Emphasizes development of conceptual ideas based on script and director's concept. Student designers for UVU productions may be selected from this class. Lab access fee of \$25 applies. Software fee of \$25 applies.

**THEA 3573  
Scenic Painting**

**3**  
\* Prerequisite(s): THEA 2513 and University Advanced Standing

Introduces basic approaches to painting theatrical scenery. Covers traditional scene painting techniques and the tools and paints which support those techniques. Course lab fee of \$42 applies.

**THEA 3575  
Scenic Design I Lab**

**1**  
\* Prerequisite(s): THEA 2513 and University Advanced Standing  
\* Corequisite(s): THEA 3571

Provides the laboratory component to THEA 3571 in which students may acquire skills in creation and presentation of scale models used in the development of scenic design for theatrical productions. Includes layout, model making techniques, model finishes, and presentation.

**THEA 359R  
Production Practicum for Stage and Screen**

**1**  
\* Prerequisite(s): THEA 259R and University Advanced Standing

Provides the opportunity for students to earn college credit for supervised backstage crew positions on departmental productions. Includes possible assignments to wardrobe, deck crews, board operations, props, and etc. Requires participation in the entirety of the production, including technical rehearsal and run of the show to receive credit. May be repeated for a maximum of 2 credits toward graduation.

**THEA 3611  
Directing Actors for Stage and Screen**

**3**  
\* Prerequisite(s): (THEA 1033 and THEA 1713) or DGM 2110 and University Advanced Standing

Introduces basic directing techniques utilized in rehearsing and presenting acting scenes for stage and screen performance. Places emphasis on text analysis and effective communication with actors to achieve honest and believable performances in the intimate style of camera acting, as well as the highly physical acting style of the stage. Includes studies in script structure, visualization, movement, pace and rhythm, gesture and rehearsal techniques.

**THEA 3612  
Directing Actors for the Stage**

**3**  
\* Prerequisite(s): THEA 3611; University Advanced Standing

Builds upon concepts covered in Directing Actors for Stage and Screen. Includes class workshops and demonstrations followed by class/instructor critique. Requires completion and presentation of a director's book. Culminates in public presentation of a one-act play.

## Course Descriptions

### **THEA 3614**

#### **Directing Actors for the Screen**

**3**

\* Prerequisite(s): THEA 3611 or DGM 2110 or Instructor Approval; University Advanced Standing

Builds upon concepts covered in Directing Actors for Stage and Screen. Includes class workshops and demonstrations followed by class/instructor critique. Requires completion and presentation of a director's book. Culminates in public presentation of a short film. For Digital Media Majors and Theatre Majors with instructor approval.

### **THEA 3625**

#### **Development and Fundraising for the Arts**

**3**

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Introduces the development process, cultivating donors, and raising money through donations, sponsorships, and grants to support nonprofit arts organizations.

### **THEA 3711**

#### **Script and Text Analysis II**

**3**

\* Prerequisite(s): THEA 1713 and University Advanced Standing

Builds on the skills taught in Script and Text I. Focuses on theatre structure and thematic dynamics. Discusses plays and their possibilities for performance, then deconstructs the materials and methods with which messages are constructed through performance. Connects these works with the personal practices of theatre artists and to the ways audiences can perceive and interpret performance.

### **THEA 3721**

#### **Theatre History and Literature I WE**

**3**

\* Prerequisite(s): THEA 1013, THEA 1713, ENGL 2010, and University Advanced Standing

Examines the history of the theatre from its earliest origins through the Renaissance. Emphasizes theatre practice in its social, political and economic contexts. Introduces the theory and skills necessary for writing analytically about the theatre.

### **THEA 3722**

#### **Theatre History and Literature II**

**3**

\* Prerequisite(s): THEA 1013, THEA 1713, ENG 2010 and University Advanced Standing

Examines the history of the theatre and its associated literature and artists from the Restoration to the present time. Focuses on historical theatre practice in its social, political and economic contexts. Introduces the theory and skills necessary for writing performance reviews and extended research papers in theatre.

### **THEA 3725**

#### **Musical Theatre History**

**3**

\* Prerequisite(s): THEA 1713 and University Advanced Standing

Explores the evolution of musical theatre from the 1700s through present day, focusing on how politics, cultural trends, and technology have changed the art form.

### **THEA 3731**

#### **Dramaturgy**

**3**

\* Prerequisite(s): THEA 1713

Introduces students to the practice and theory of dramaturgy and literary management. Examines the involvement of "dramaturgs" and "literary officers" in contemporary theatre. Provides opportunities for work on UVU and outside productions.

### **THEA 3741**

#### **Script Writing II**

**3**

\* Prerequisite(s): (THEA 2741 or THEA 2742 or Instructor Approval) and University Advanced Standing

Builds upon skills taught in Scriptwriting for Stage and Screen courses. Explores the thoughts, theories, principles and processes of transforming story materials into viable one-act (i.e. short, 45-60 minute) film scripts. Involves an extensive writing component.

### **THEA 374R**

#### **New Script Workshop**

**3**

\* Prerequisite(s): THEA 1033 or THEA 2741 or THEA 3611; University Advanced Standing

Acts as a reading, performance, discussion and improvisation lab for scriptwriter's creative works. Involves students in the process of polishing, refining, and brainstorming dramatic works. Supports original student scripts with the ultimate goal of production. Integrates the work of writers, directors and actors into a collaborative effort. Includes active class discussions, readings, improvisations, written and oral presentations and critiques, research and completion of a project. May be repeated for a maximum of 6 credits toward graduation. Course fee of \$15 for materials applies.

### **THEA 4114**

#### **Film Acting II**

**3**

\* Prerequisite(s): THEA 3113, BFA Theatre Arts Matriculation, and University Advanced Standing

Focuses on development of the tools and skills necessary to compete as a professional actor. Involves creation of acting reels, head shots, and resumes. Emphasizes development of networking, professional etiquette and self-promotion skills needed to demonstrate a level of professionalism in the industry. Includes meetings with industry professionals.

### **THEA 4115**

#### **Acting Styles-BFA**

**3**

\* Prerequisite(s): BFA Theatre Arts Matriculation; THEA 2033, University Advanced Standing

Includes advanced preparation for performance of classical texts. Emphasizes voice, speech, movement, and character development. Covers Greek and Roman acting styles, Commedia dell Arte and 17th Century French Neoclassic styles, Shakespearean Tragedy and Comedy, Comedy of Manners, and 19th Century Romanticism and Melodrama. Includes a brief introduction to Modern and Post-modern acting styles.

### **THEA 4117**

#### **Auditioning and the Business - BFA**

**3**

\* Prerequisite(s): BFA Theatre Arts Matriculation, THEA 2033, and University Advanced Standing

Teaches advanced skills and methods involved in the audition process for stage and screen roles. Focuses on developing resumes, interview skills, and preparing a wide range of audition pieces.

### **THEA 4119**

#### **Senior Showcase and Career Management - BFA**

**3**

\* Prerequisite(s): Senior Standing; THEA 4117, BFA Theatre Arts Major, University Advanced Standing

Allows students to collaborate with a director to create a showcase of each student actor's performance for promotional purposes. Teaches key skills in career and personal financial management related to the acting profession.

### **THEA 4122**

#### **Speaking Shakespeare-BFA**

**3**

\* Prerequisite(s): BFA Theatre Arts Major, THEA 3122, and University Advanced Standing

Increases the actor's command of operative language, complex syntax, imagery, figures of sound, and rhythm to fulfill the demands of classical acting. Involves rigorous textual analysis of the verse and prose of Shakespearean texts followed by practice in vocal/physical interpretation and performance.

### **THEA 415R**

#### **Musical Theatre Workshop - BFA**

**2**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts; THEA 2156; THEA 3151; THEA 3154; University Advanced Standing

Prepares Juniors and Seniors for the rigor of a professional career in Musical Theater in terms of performance in acting, dance, music, and the relationship between the craft and the story. May be repeated for a maximum of eight credits toward graduation.

**THEA 416R (Cross-listed with: CINE 416R, ENGL 416R)**

**Special Topics in Film Studies**

**3**

\* Prerequisite(s): (ENGL 2150 or CINE 2150 or THEA 1023) and University Advanced Standing

Covers cinema directors, genre, theory, and social change on a rotating basis. Explains course focus, defines terminology involved, then studies evolution and/or specific texts or contexts, and considers theoretical discourse. May be repeated for a maximum of 9 credits toward graduation. Some films screened may carry an "R" rating.

**THEA 4200**

**Theatre and Drama in the Secondary School**

**3**

\* Prerequisite(s): EDSC 3000, EDSC 455G, matriculation in to a Secondary Education Program, and University Advanced Standing

For theatre majors interested in teaching theatre arts at the secondary and college levels. Introduces methodologies, strategies, and philosophies of theatre pedagogy based upon current research and practices. Emphasizes lesson plan writing using the Utah State Secondary Theatre Core Curriculum and the National Committee for Standards in the Arts. Integrates theory and practice through lecture, discussion, writing, activities, and classroom teaching experiences in the college and public school settings.

**THEA 451R**

**Special Topics in Theatre Design and Technology**

**1 to 3**

\* Prerequisite(s): Theatre Major in BFA Theatrical Arts or department approval; University Advanced Standing

Offers in-depth study of specialized topics in theatre technology and design. Includes possible topics such as scenic and integrated projections, mixed reality and video design, audience participatory technology, 3-D Modeling and prop design, special effects technology, and scenography and European technology. May be repeated for a maximum of 9 credits toward graduation.

**THEA 4522**

**Sound Design II**

**3**

\* Prerequisite(s): THEA 3521 and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): THEA 2574

Builds on the foundations of the Sound Design I and Live Sound Reinforcement classes to focus on the higher-level design skills needed to succeed as sound designers in professional theater. Includes the drafting and paperwork skills to thoroughly describe a design before moving into production. Introduces students to the physics of sound. Focuses on the production of audio content, and the design and engineering of playback systems. Facilitates collaboration with other members of a theatrical design team. Requires 25 hours of technical sound support for UVU theatrical productions. Lab access fee of \$25 applies. Software fee of \$25 applies.

**THEA 4535**

**Multimedia Design for Stage**

**3**

\* Prerequisite(s): Theatre major in BFA Theatre Arts, THEA 2513 and University Advanced Standing

Introduces the language, history, and technology of digital media as it applies to the theatre. Focuses on developing skills to conceive, create, and implement digital media designs for the stage. Lab access fee of \$25 applies. Software fee of \$25 applies.

**THEA 4537**

**Lighting Design II**

**3**

\* Prerequisite(s): THEA 3531 and University Advanced Standing

Explores and applies elements of design as they relate to lighting for theatre, dance and film from design process conception to final paperwork. Requires work on UVU productions as well as individual student projects. Software fee of \$25 applies. Lab access fee of \$25 applies.

**THEA 4546**

**Digital Costume Design**

**3**

\* Prerequisite(s): THEA 3541 and University Advanced Standing

Strengthens abilities to work with advanced design ideas based in script and director's concept. Develops digital rendering skills via training in Photoshop and Illustrator. Lab access fee of \$25 applies. Software fee of \$25 applies.

**THEA 4547**

**Costume Design II**

**3**

\* Prerequisite(s): THEA 3541 and University Advanced Standing

Expands on theories of costume design and provides more experience with practical application through research and rendering. Emphasizes advanced conceptual ideas based in script and director's concept. Encourages organization of a professional portfolio.

**THEA 454R**

**Special Topics in Costume Construction**

**1 to 3**

\* Prerequisite(s): THEA 2203 and University Advanced Standing

Introduces students to the most advanced methods of tailored costume construction. Focuses on practical application of these techniques in the creation of fine couture. May be repeated for a maximum of 9 credits toward graduation.

**THEA 4561**

**Stage Management II**

**3**

\* Prerequisite(s): THEA 3561 and University Advanced Standing

Introduces theatre management students to the advanced processes of creating and managing a professional theatre production organization. Emphasizes practical application of skills in professional situations (including work on UVU Theatre Arts main stage productions). Includes collaboration with directors, designers, and production crews to build both a personal methodology and the discipline of practice.

**THEA 4577**

**Scenic Design II**

**3**

\* Prerequisite(s): THEA 3571 and University Advanced Standing

Focuses on integration of elements and phases of advanced set construction, property construction and paint finishes for theatrical sets. Includes shop experience and work on UVU productions. Lab access fee of \$25 applies. Software fee of \$25 applies.

**THEA 457R**

**Practical Design**

**1**

\* Prerequisite(s): Instructor Approval and University Advanced Standing

Involves work on approved projects requiring sophisticated skills in scenic, lighting, costume, or makeup design. Includes designs for UVU productions or for community and regional performing groups. Requires approval by appropriate theatre faculty. May be repeated for a maximum of 5 credits toward graduation.

**THEA 458R**

**Special Topics in Theatre**

**1 to 3**

\* Prerequisite(s): THEA 1013 and Instructor Approval, or THEA 1713

Provides in-depth study of performance or academic topics such as theatrical artists, movements, theories, genres, and social changes. Involves delineation of course focus, defines terminologies involved, then studies evolution and/or specific texts or contexts and considers theoretical discourse. May be repeated for a maximum of 12 credits toward graduation.

# Course Descriptions

## **THEA 4621**

### **Theatre Administration I**

**3**

\* Prerequisite(s): University Advanced Standing

The first of two culminating courses in undergraduate theatre administration (theatre management). Introduces concepts in theatre administration for the nonprofit theatre organization. Focuses on the framework of the four functions of administration with emphasis on the strategic planning process. Utilizes lecture, discussion, video, and real-world simulation experiences.

## **THEA 4622**

### **Theatre Administration II**

**3**

\* Prerequisite(s): ACC 3000, THEA 4621, and University Advanced Standing

A continuation of the arts administration concepts begun in Arts Administration I. Discusses financial recordkeeping requirements, financial planning, and promotional aspects of the nonprofit theatre organization. Culminates in a business startup plan for a hypothetical nonprofit theatre organization. Discusses careers in arts administration. Discusses human resources as they apply to the theatre organization. Utilizes lecture, discussion, video, and real-world simulation experiences.

## **THEA 4741**

### **Scriptwriting III**

**3**

\* Prerequisite(s): THEA 2741 or THEA 2742 or Instructor Approval; University Advanced Standing

Extends student dramatic writing skills by creating, rewriting, and polishing a full-length film or play. Focuses on choice of material for specific audiences as well as the specific issues of adaptation of material from an already published source. Emphasizes the processes of selection, securing legal rights, adaptation management imperative to the success of a venture. Includes active class discussions, readings, written and oral presentations, research and final readings of students completed projects.

## **THEA 474R**

### **New Play Practicum**

**1**

\* Prerequisite(s): THEA 1013 or Permission of instructor, and University Advanced Standing

Provides student writers, actors, directors, designers, and dramaturgs with opportunities to participate in the development of new scripts for the stage. Emphasizes the process from script selection to actual production in UVU's Short Attention Span Theatre (SAST) festival. May be repeated for a maximum of 4 credits toward graduation.

## **THEA 475R**

### **Special Projects in Dramatic Writing**

**2 to 9**

\* Prerequisite(s): THEA 4741 and University Advanced Standing

Offers upper-division directed study with professional/academic supervision to motivated students for writing projects such as commissioned or speculative scripted and/or dramatic works, i.e., musicals, one-man shows, guerilla theatre, mimes, short or full-length films, documentaries, television shows, sit-coms, movies-of-the-week and other forms not covered by current classes. Allows for a semesters of writing/re-writing and/or critique/development and possible workshop presentation. May be repeated for a maximum of 9 credits toward graduation.

## **THEA 481R**

### **Theatre Internship**

**1 to 8**

\* Prerequisite(s): Departmental Approval and University Advanced Standing

Provides a transition from school to professional life where learned theory is applied to actual practice through meaningful on-the-job experience. Repeatable for a maximum of 4 credits toward graduation. May be graded credit/no credit.

## **THEA 484R**

### **Singing Techniques for Actors II-BFA**

**1**

\* Prerequisite(s): Theatre Major in BFA Theatre Arts; complete a total of 3 credits out of THEA 184R and THEA 284R, or receive department approval; University Advanced Standing

Offers private vocal instruction for upper-division theatre majors to continue developing skills and techniques for performance in musical theatre. Requires bimonthly master class participation and substantial individual practice. May be repeated for a maximum of 4 credits toward graduation. Course Lab fee of \$420 for private voice lessons applies.

## **THEA 490R**

### **Independent Study**

**1 to 3**

\* Prerequisite(s): University Advanced Standing

Provides independent study as directed in reading and individual projects at the discretion and approval of the Dean and/or Department Chair. May be repeated for a maximum of 9 credits toward graduation.

## **THEA 497R**

### **Professional Topics**

**1**

\* Prerequisite(s): Junior Status Theatre Major, Department Approval, and University Advanced Standing

For those intending to enter professional theatre. Includes, but not limited to, the following topics: literature, research, analysis, design, management or performance aspects of theatre and the performing arts. May be repeated for a maximum of 3 credits toward graduation.

## **THEA 4981**

### **Portfolio**

**1**

\* Prerequisite(s): University Advanced Standing

Features development of student portfolio for the areas of performance, design, management, directing, script writing, and performance. Includes interview skills and website development. Emphasizes placement in the theatrical job market or graduate school placement.

## **THEA 4993**

### **Senior Project in Performance**

**3**

\* Prerequisite(s): THEA 3722, Senior Status, and University Advanced Standing

Provides credit for independent projects and research of advanced nature in the area of Theatre Arts under faculty supervision. Requires an area of study to be designated.

## **THEA 4994**

### **Senior Project in Theatre**

**3**

\* Prerequisite(s): THEA 3722, Senior Status, and University Advanced Standing

Provides credit for independent projects and research of advanced nature in the area of Theatre Arts under faculty supervision. Requires an area of study to be designated.

## **THEA 4995**

### **Senior Project in Design**

**3**

\* Prerequisite(s): THEA 3722, Senior Status, and University Advanced Standing

Provides credit for independent projects and research of advanced nature in the area of Theatre Arts under faculty supervision. Requires an area of study to be designated.

## Transportation Technologies (TT)

### TT 3126

#### Advanced Hydraulics

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Utilizes advanced thermal imagery to examine efficiency loss in fluid power systems. Demonstrates the operation and diagnosis of electronic over hydraulic controls. Demonstrates diagnosis of closed loop and closed circuit fluid power systems. Examines micro-leak testing of hydraulic system components. Focuses on electrical over hydraulic schematic interpretation.

### TT 3140

#### Vehicle Safety and Emissions

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Studies testing and diagnostics of vehicle safety systems, SRS systems, and adaptive strategies on modern vehicles. Explores current EPA standards and regulations and future emissions testing requirements in the automobile industry.

### TT 3230

#### High Performance Engines

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Offers a more in-depth study of the design factors that are unique to high output engines and how to modify engines to obtain the desired outcome. Studies the characteristics of various fuels used in high performance engines and their effects. Discusses the implications of service learning and ethics in high performance engine applications. Tool room fee of \$19 for equipment applies. Course Lab fee of \$17 for materials applies.

### TT 3260

#### Energy Storage and Advanced Electrical

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Explores advances in electronics and energy storage systems found on Battery Electric Vehicles (BEV), Hybrid Electric Vehicles (HEV), and Plug-in Hybrid Electric Vehicles (PHEV). Topics include advanced operation, repair, diagnosis and troubleshooting of BEVs, HEVs and PHEVs using manufacturer-specific diagnostic tools and equipment.

### TT 3320

#### Design and Construction

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Analyzes the current use and function of advanced systems and materials used in modern and future transportation vehicles. Includes advanced driver assistance and urban air mobility systems, their function and diagnostic calibration and repair procedures. Teaches advanced structural material usage and the damage analysis process necessary for proper advanced system repair.

### TT 3350

#### Alternative Fuel Systems

3

\* Prerequisite(s): Matriculation and University Advanced Standing and AUT 2250 or AUT 2260 recommended

\* Corequisite(s): AUT 2240 recommended

Studies current and upcoming alternatives to gasoline as a fuel for the transportation industry that are being promoted, used, and developed by sources within and without the mainstream production system. Includes new alternatives such as CNG/Propane, hydrogen, electric, hybrid (both plug-in and non-plug-in), bio-fuels (both diesel and alcohol), diesel, and fuel cells such as proton exchange membranes. Discusses the implications of service learning and ethics in alternative fuel powered vehicles.

### TT 3406

#### High Performance Diesel Engines

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Studies the operation and performance efficiencies of light duty, heavy duty and industrial applications of diesel engines including marine, mining and gen-sets. Examines current engine performance advancements and designs with modern technology. Utilizes Dynamometer testing to analyze engine performance differences in relation to the design theory.

### TT 3450

#### Failure Analysis Materials Science and Treatments

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Analyzes the physical properties and applications of metals, ceramics, composites, surface treatments and polymers. Studies Material Science Technology, including the study of organic and Inorganic matter and solid matter. Researches and describes the means and data to determine root causes of failure. Introduces FMEA (Failure Mode Effects Analysis) and PFMEA (Process Failure Mode Effects Analysis). Conducts both NDT (Non Destructive Testing) and DT (Destructive Testing) methods. Utilizes testing equipment for compliance with ASTM (American Standard Testing Methods).

### TT 3460

#### Can Bus Ladder Logic and PLC Systems

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Explores in vehicle network communication systems including: Network system protocols, body control modules and other LAN controllers, and smart sensors. Covers development and current trends in use of CAN BUS and network systems and sensors in modern automobiles. Introduces the use of scan tools and other diagnostic tools and diagnostic strategies. Covers updating of CAN BUS systems through factory tools and software and theory, programming, and industrial control system applications of small and medium sized programmable logic controllers (PLCs). Studies basic maintenance, operation, troubleshooting, and programming.

### TT 3500

#### Fabrication and Automotive Interior Design

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Explores basic fabricating tools such as sheet metal brake, slip rolls, band saw, and nibblers. Uses specialty tools such as English wheel, power hammer, kraft former, plinish hammer, shrinkers, and stretchers. Teaches panel fabrication and hammer forming on steel and aluminum panels. Explores the design process of vehicles, advanced interior components and materials.

### TT 3840

#### Dynamometer/Data Acquisition

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Studies dynamometer testing and evaluation tools and skills relevant to data acquisition systems. Analyzes data collected to measure horsepower, torque, and energy output. Teaches how to collect and create proper baselines and testing procedures. Discusses compiled data to help change drivability and manage the many different systems on the vehicle.

### TT 4000

#### Capstone

3

\* Prerequisite(s): TT 4510, TT 4270, and University Advanced Standing

Provides a leadership transition from academic to applied/real-life work experience. Includes students, company liaison, and coordinator evaluation, on-site work visits, written assignments and oral presentations, creation of transportation related business improvements. Offers experience in establishing and accomplishing team objectives that improve their ability and add real value in their future employment.

# Course Descriptions

## TT 4230

### Advanced Welding Technologies and Attachment Methods

3

\* Prerequisite(s): CRT1230, CRT2510, Matriculation, and University Advanced Standing

Explores all welding processes. Investigates advanced welding processes such as MIG, TIG, ARC, laser welding, friction welding, explosive welding, ultra-sonic welding, and electron beam welding. Examines attachment methods with the use of rivet technology in conjunction with panel bonding technology. Covers advanced attachment processes of the future.

## TT 4260

### Electric Drive Systems

3

\* Prerequisite(s): TT 3260 and University Advanced Standing

Introduces power electronics and electric drive systems electronic devices and their switching performance and thermal design including: power converters, AC-AC converters, DC-DC converters, inverters. Analyzes energy-efficient AC and DC motor drives.

## TT 4270

### Compliance EPA OSHA Others WE

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Analyzes the Environmental Protection Agency (EPA) purpose, powers, and the regulations as it relates to Transportation Technologies. Covers the national program for greenhouse gas emissions (GHG) and fuel economy standards for light-duty vehicles. Includes the study of the National Highway Traffic Safety Administration (NHTSA) guides. Explores Occupational Safety and Health Administration (OSHA) case studies, lawsuits, and depositions as it pertains to transportation. Covers passenger cars, over-the-road heavy trucks, equipment, and off-road vehicle regulations and laws.

## TT 4320

### Noise Vibration and Harshness

3

\* Prerequisite(s): TT 3840 and University Advanced Standing

Analyzes the production of and the modification of noise, vibration and harshness characteristics of transportation vehicles. Measures noise and vibration frequencies and harmonics. Uses analytic tools and jury evaluations to reflect human subjective interpretations of noise, vibration and harshness (NVH). Evaluates case studies of NVH.

## TT 4400

### Advanced Composites

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Examines advanced composite materials, processes, layup/lamination, vacuum bagging, adhesive bonding, tooling, repair, proper surface preparation and inspection methods and techniques. Includes lecture, demonstration and practical application.

## TT 4510

### Operations Management Fleet and Personnel WE

3

\* Prerequisite(s): Matriculation and University Advanced Standing

Studies common shop managerial skills and techniques. Explores strategies in streamlining efficiency through inventory control, targeted scheduling, shop-based software implementation. Offers exposure to the hierarchy of positions in a fleet or shop setting. Studies manufacturer warranty process and approvals, personnel management skills, inventory control, fleet maintenance procedures and deployment. Instructs on the production of written improvement policy plans.

## TT 4840

### Performance Tuning

3

\* Prerequisite(s): AUT 2250, TT 3840, and University Advanced Standing

Studies computer communication processes, sharing of data and information of vehicles. Studies requirements, opportunities, and challenges of re-programming factory computers. Explores aftermarket computer use on engine operations.

## University Studies (UVST)

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### UVST 1100

#### Prior Learning Assessment Portfolio

3

\* Prerequisite(s): Departmental Approval

Identifies student's individual work related to specific skills, theoretical background, and content to prepare a portfolio for prior learning credit evaluation. Graded Credit/No Credit.

### UVST 289R

#### Undergraduate Research

1

\* Prerequisite(s): Department Approval

Utilizes Phi Theta Kappa's theme from their "Honors in Action" program as a vehicle to introduce undergraduates to research. Requires students to write a literature review and to present their findings. Requires students to be a member of Phi Theta Kappa. May be repeated for a maximum of 4 credits toward graduation.

## UVST 290R

### Community Engagement and Applied Service Learning

1

\* Prerequisite(s): UVST 289R or Department Approval

Utilizes Phi Theta Kappa's theme from their "Honors in Action" program as a vehicle to introduce undergraduates to service learning. Requires students to plan and implement a service project. May be repeated for a maximum of 4 credits toward graduation.

## UVST 3110

### Theory and Practice of Tutoring Writing

3

\* Prerequisite(s): ENGL 2010 and University Advanced Standing

Teaches investigative theories, methods, practices and processes of tutoring writing. Has students practice tutoring as a process, actively participating in tutorial sessions and developing tutees ability to do the same. Teaches students to read scholarship from the field of writing center studies that will give them an awareness of the concepts of professional and intellectual tutoring. Requires students to compose several responses to writing center theory, conduct numerous observations of tutorials, participate in tutorials, and ultimately compose an individual philosophy of tutoring.

## UVST 481R

### Internship

1 to 8

\* Prerequisite(s): University Advanced Standing and Departmental Approval

Increases students' knowledge and skills in personal or career-related areas while synthesizing previous and new learning experiences. Final project involves reflection and demonstration of learning outcome achievement. For BA/BS University Studies majors, requires a project planned with and evaluated by a faculty mentor from an academic discipline closely related to the emphasis for the degree. Repeatable for a maximum of 16 credits toward graduation. May be graded credit/no credit.

## UVST 4930

### Capstone WE

3

\* Prerequisite(s): Matriculation into the BA/BS University Studies and University Advance Standing

For UVST BA/BS students in their last semester. Involves reflection on learning, demonstration of the achievement of stated learning outcomes, and advanced development of writing and communication skills. Includes a research/writing project or the creation of a professional portfolio to display knowledge and abilities. Culminates with an oral presentation.

## Zoology (ZOOL)

### ZOOL 1090 BB Introduction to Human Anatomy and Physiology

**3**  
\* Prerequisite(s): BIOL 1010 or BIOL 1610

Presents a basic introduction to the sciences of anatomy and physiology. Covers the basic structure and function of the human body at the cellular, tissue, organ, and system levels. Provides a foundation of particular value for pre-nursing students who wish to have a preview of their required life science courses.

### ZOOL 2320 Human Anatomy BB

**3**  
\* Prerequisite(s): BIOL 1610 and (ENGL 1010 or ENGH 1005) with a minimum of C- or written permission of the Anatomy program coordinator  
\* Corequisite(s): ZOOL 2325

Studies, in-depth, the anatomy of the human body. Covers the structure and some functions at the cellular, tissue, organ, and system levels. Emphasizes the names, locations, and functions of body components. Involves problem solving and analytical thinking. Includes weekly laboratory study of human cadavers, models, and specimens. Canvas Course Mats \$85/McGraw applies.

### ZOOL 2325 Human Anatomy Laboratory

**1**  
\* Corequisite(s): ZOOL 2320

Studies, in-depth, the anatomy of the human body. Covers the structure and some functions at the cellular, tissue, organ, and system levels. Emphasizes the names, locations, and functions of body components. Involves problem solving and analytical thinking. Includes weekly laboratory study of human cadavers, models, and specimens. Course Lab fee of \$30 applies.

### ZOOL 232H Human Anatomy

**3**  
\* Prerequisite(s): BIOL 1610, (ENGL 1010 or ENGH 1005 or written permission of the Anatomy program coordinator), a minimum of a C- required in prerequisite courses.  
\* Corequisite(s): ZOOL 2325; at least one semester of college level experience is highly recommended.

Is for students who intend to pursue careers in the bio-medical sciences; especially pre-nursing, pre-med, pre-dent, and pre-vet students. Emphasizes the role and value of anatomical knowledge in health and disease. Covers the same general material as ZOOL 2320, but emphasizes clinical applications of the information. Requires students to choose and complete a course project that may involve short written reports, a term paper, or a poster presentation. Includes weekly laboratory study of human cadavers, models, and specimens. Canvas Course Mats \$85/McGraw applies.

### ZOOL 232L Human Anatomy Honors Laboratory

**1**  
\* Prerequisite(s): BIOL 1010 or BIOL 1610. ENGL 1010 or ENGH 1005 or written permission of the Anatomy program coordinator.  
\* Corequisite(s): ZOOL 232H

For students who intend to pursue careers in the bio-medical sciences; especially pre-nursing, pre-med, pre-dent, and pre-vet students. Emphasizes the role and value of anatomical knowledge in health and disease. Covers the same general material as ZOOL 2320, but emphasizes clinical applications of the information. Students will choose and complete a course project that may involve short written reports, a term paper, or a poster presentation. Includes weekly laboratory study of human cadavers, models, and specimens. Course Lab fee of \$30 applies.

### ZOOL 2420 Human Physiology

**3**  
\* Prerequisite(s): BIOL 1610 with a minimum grade of C- and CHEM 1110 with a minimum grade of C-  
\* Corequisite(s): ZOOL 2425

Studies the functions of the human body at the chemical, cellular, organ, and system levels. Explains control mechanisms involved in homeostasis and stimulus/response pathways. Involves problem solving and analytical thinking. Includes weekly laboratory.

### BB ZOOL 2425 Human Physiology Laboratory

**1**  
\* Prerequisite(s): BIOL 1610 and CHEM 1110  
\* Corequisite(s): ZOOL 2420

Accompanies ZOOL 2420. Covers topics that include the scientific method, scientific data presentation, diffusion and osmosis, enzymatic function, buffers, neurotransmission, skeletal and cardiac muscle physiology, hematology, respiratory physiology and renal physiology. Course Lab fee of \$24 applies.

### ZOOL 242H Human Physiology

**3**  
\* Prerequisite(s): BIOL 1610 with a minimum grade of C- and CHEM 1110 with a minimum grade of C-, written permission of the physiology program coordinator  
\* Corequisite(s): ZOOL 2425

Studies the functions of the human body at the chemical, cellular, organ, and system levels. Explains control mechanisms involved in homeostasis and stimulus/response pathways. Involves problem solving and analytical thinking. Includes weekly laboratory. Requires a term paper, project, or presentation.

### ZOOL 242L Human Physiology Honors Laboratory

**1**  
\* Prerequisite(s): BIOL 1010 (or BIOL 1610), CHEM 1110, written permission of the physiology program coordinator.  
\* Corequisite(s): ZOOL 242H

Studies the functions of the human body at the chemical, cellular, organ, and system levels. Explains control mechanisms involved in homeostasis and stimulus/response pathways. Involves problem solving and analytical thinking. Includes weekly laboratory. Course Lab fee of \$24 applies.

### ZOOL 3100 Vertebrate Zoology

**3**  
\* Prerequisite(s): BIOL 1620 with a C- or higher and University Advanced Standing  
\* Corequisite(s): ZOOL 3105

Covers the evolutionary development of the vertebrates pertaining to major skeletal and physiological adaptations. Has an ecological approach as to vertebrate habitat requirements, their distribution, and community roles. Designed for Biology or Zoology majors who desire a broad introduction to the vertebrates and a greater understanding of their unique structure, distribution and the importance of these organisms in the present and past history of the Earth. Includes weekly laboratory.

# Course Descriptions

## **ZOOL 3105**

### **Vertebrate Zoology Laboratory**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): ZOOL 3100

Provides students with hands-on laboratory experience in classification and identification of vertebrates. Course Lab fee of \$50 applies.

## **ZOOL 3200**

### **Invertebrate Zoology**

**3**

\* Prerequisite(s): BIOL 1620 with a C- or higher and University Advanced Standing

\* Corequisite(s): ZOOL 3205 Invertebrate Zoology Laboratory

Intended for Biology Department majors. Covers the anatomy, physiology, systematics, evolution and ecology of invertebrate animals.

## **ZOOL 3205**

### **Invertebrate Zoology Laboratory**

**1**

\* Prerequisite(s): BIOL 1620 with a C- or higher and University Advanced Standing

\* Corequisite(s): ZOOL 3200 Invertebrate Zoology

Covers the anatomy, physiology, systematics, evolution and ecology of invertebrate animals. Course Lab fee of \$25 applies.

## **ZOOL 3300**

### **Herpetology**

**3**

\* Prerequisite(s): BIOL 1620 with minimum grade of C-, and University Advanced Standing

\* Corequisite(s): ZOOL 3305 Herpetology Laboratory

Covers the evolution, ecology, and diversity of reptiles and amphibians. Includes active class discussions, oral presentations. Emphasizes native Utah herpetofauna. Must be taken concurrently with weekly laboratory and required field trips.

## **ZOOL 3305**

### **Herpetology Laboratory**

**1**

\* Prerequisite(s): BIOL 1620 with minimum grade of C-, and University Advanced Standing

\* Corequisite(s): ZOOL 3300 Herpetology

Covers the evolution, ecology, and diversity of reptiles and amphibians. Includes active class discussions, oral presentations, and field trips. Emphasizes native Utah herpetofauna. Must be taken concurrently with lecture. Course Lab fee of \$65 for transportation, support, and lab applies.

## **ZOOL 3430**

### **Entomology**

**3**

\* Prerequisite(s): BIOL 1620 and BIOL 1625 with a minimum grade of C- in each, and University Advanced Standing

\* Corequisite(s): ZOOL 3435

Introduces the study of insects, including insect diversity and classification, anatomy and physiology, relationships to other animals and plants, behavior, and ecology. Includes the application of the study of insects to pest management, environmental assessment, and forensic investigations.

## **ZOOL 3435**

### **Entomology Laboratory**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): ZOOL 3430

Introduces the study of insects, including insect diversity and classification, anatomy and physiology, relationships to other animals and plants, behavior, and ecology. Includes the application of the study of insects to pest management, environmental assessment, and forensic investigations. Course lab fee of \$45 applies.

## **ZOOL 3500**

### **Mammalogy**

**3**

\* Prerequisite(s): BIOL 1620 with a minimum grade of C-, and University Advanced Standing; ZOOL 3100 and ZOOL 3105 strongly recommended

\* Corequisite(s): ZOOL 3505

Explores the taxonomy, morphology, behavior, ecology, evolution, development, and conservation of mammals. Includes three weekly lectures and a weekly laboratory.

## **ZOOL 3505**

### **Mammalogy Laboratory**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): ZOOL 3500

Explores the taxonomy, morphology, behavior, ecology, evolution, development, and conservation of mammals. Includes three weekly lectures and a weekly laboratory. Course Lab fee of \$67 for transportation, lab applies.

## **ZOOL 3600 (Cross-listed with: FSCI 3600)**

### **Forensic Anthropology I**

**3**

\* Prerequisite(s): ZOOL 1090, or ZOOL 2320 and ZOOL 2325, University Advanced Standing

Provides instruction on the study of human bones and their remains as physical evidence in criminal investigations. Teaches the importance of dentition in determining an age estimate of human remains. Identifies the differences among the sexes, whether the remains are human or nonhuman, and what is of forensic significance. Explains crime scene methodology and clinical applications in Forensic Anthropology. Teaches problem solving and analytical thinking in order to develop a biological profile based on population-specific data and standards. Investigates different pathological conditions and variables which must be taken into consideration when determining the cause of death.

## **ZOOL 3700 (Cross-listed with: EXSC 3700)**

### **Exercise Physiology**

**3**

\* Prerequisite(s): EXSC Majors: ZOOL 2320 (or 232H), ZOOL 2325 (or 232L), and EXSC 270G all with a C- or higher and (MATH 1050 or MATH 1055). PETE Majors: PETE 2700 and ZOOL 1090 with a C- or higher and (MATH 1050 or MATH 1055). All: University Advanced Standing

\* Prerequisite(s) or Corequisite(s): ZOOL 2420 (or 242H), ZOOL 2425 (or 242L)

Studies acute and chronic physiological responses to exercise, as well as nutritional and environmental effects on these responses. Requires separate weekly laboratory. Canvas Course Mats \$70/McGraw applies.

## **ZOOL 3705 (Cross-listed with: EXSC 3705)**

### **Exercise Physiology Laboratory**

**1**

\* Prerequisite(s): University Advanced Standing

\* Corequisite(s): EXSC 3700

Investigates acute and chronic physiological responses to exercise, as well as nutritional and environmental effects on these responses. Provides a hands-on experience where students conduct a variety of testing procedures, as well as analyze and interpret the various physiological responses. Course Lab fee of \$28 for materials applies.

**ZOOL 4000****Animal Behavior****3**

\* Prerequisite(s): BIOL 1610 and University Advanced Standing

Examines the biological basis of animal behavior with emphasis on the underlying mechanisms and evolutionary causes of behavior. Covers first the proximate causes of behavior and then the ultimate or evolutionary causes of behavior. Includes topics such as the genetic basis of behavior, perceptual and effectual systems, ethology, neurophysiology, learning, animal communication, sexual behavior, and social systems.

**ZOOL 4100 (Cross-listed with: MICR 4100)****Parasitology****4**

\* Prerequisite(s): (BIOL 1620 or MICR 2060) with a C- or higher and University Advanced Standing

Introduces the study of parasites. Emphasizes the biology of principal groups of parasites affecting humans, livestock, and other animals, including their medical, economic, and ecological significance. Emphasizes parasites causing zoonotic diseases. Includes weekly laboratory experience involving identification of parasites. Course Lab fee of \$25 applies.

**ZOOL 4300****Histology****4**

\* Prerequisite(s): [(ZOOL 2320 or ZOOL 232H) with a C- or higher or written instructor approval] and University Advanced Standing

For pre-professional students pursuing biomedical careers and Biology majors with a particular interest in vertebrate structure and function. Studies the microscopic structure of the body at the cellular, tissue, and organ levels. Emphasizes physical and functional relationships of various tissues in the organs of the body. Includes weekly laboratory. Course Lab fee of \$35 applies.

**ZOOL 4400****Pathophysiology****4**

\* Prerequisite(s): ZOOL 2320, ZOOL 2420, and MICR 2060 each with a minimum grade C-, and University Advanced Standing

For Biology majors with an emphasis in human physiology, pre-professional majors, and nursing students. Studies pathophysiological etiologies and mechanisms that cause disease and examines physiological adaptations and dysfunction of organs and organ systems in a disease state.

**ZOOL 4500****Comparative Vertebrate Zoology****3**

\* Prerequisite(s): BIOL 1620 and (ZOOL 1090, ZOOL 2320, or ZOOL 3100) with a grade of C- or higher and University Advanced Standing  
\* Corequisite(s): ZOOL 4505

Studies the structure and function of vertebrates at the cellular, tissue, organ and systems levels. Emphasizes developmental and evolutionary comparative aspects of mammalian, avian, reptilian, amphibian, and piscine organs and systems.

**ZOOL 4505****Comparative Vertebrate Zoology****Laboratory****1**

\* Prerequisite(s): BIOL 1620 and (ZOOL 1090, ZOOL 2320, or ZOOL 3100) with a grade of C- or higher and University Advanced Standing  
\* Corequisite(s): ZOOL 4500

Accompanies the comparative vertebrate zoology lecture. Studies the structure and function of vertebrates at the cellular, tissue, organ and systems levels. Incorporates dissections of mammalian, avian, reptilian, amphibian, and piscine organs and systems. Course Lab fee of \$40 applies.

**ZOOL 4600****Ornithology****4**

\* Prerequisite(s): BIOL 1620 and University Advanced Standing; ZOOL 3100 and ZOOL 3105 highly recommended

Provides an in-depth study of avian evolution, systematics, developmental anatomy (wings, beaks, feathers), physiology, and social and reproductive behavior. Emphasizes an evolutionary and adaptive theme to the study of birds. Includes lectures, laboratories and field trips. Course Lab fee of \$41 for transportation, lab applies.

**ZOOL 4700****Advanced Anatomy****4**

\* Prerequisite(s): ZOOL 2320 with a minimum grade of C- and University Advanced Standing

For students interested in biomedical science careers or with a special interest in anatomy. Covers principles and techniques of anatomical investigation and specimen preparation. Provides supervised experience in human cadaver dissection, anatomic interpretation of radiographs, craniometrics, and palpation of the body. A regional dissection approach will be used in the lab. Requires problem solving and analytical thinking. Includes the theory and basic principles of various forms of diagnostic imaging, light and electron microscopy, skeletal preparation, and injection/maceration techniques. Includes weekly laboratory. Course Lab fee of \$13 applies.

**ZOOL 4750****Human Physiology A Cell Biology****Approach****4**

\* Prerequisite(s): BIOL 3400 and University Advanced Standing

Addresses physiological principles and functions of the human body systems at the molecular level. Emphasizes cell signal transduction involved in the body maintaining homeostasis. Gives special attention to nervous, muscular, cardiovascular, urinary and respiratory systems. Requires problem solving and analytical thinking skills to be successful in the class. Includes weekly laboratory. Course Lab fee of \$25 applies.

**ZOOL 4780****Neuroscience****4**

\* Prerequisite(s): ZOOL 2420 with a C- or higher and University Advanced Standing

Covers aspects of molecular and cell biology, physiology, pharmacology, anatomy and the interplay of these and other disciplines in our understanding of the structure and function of the nervous system. Discusses neuroanatomy, developmental neurobiology, electrophysiology, membrane specializations related to signal propagation and signal transmission, neurotransmitter function and neuropharmacology, structure and function of simple neuronal circuits and complex neural networks and the plasticity of the nervous system. Incorporates discussion of journal articles related to the latest advances in neuroscience.

**ZOOL 4800****Dissection Techniques****3**

\* Prerequisite(s): ZOOL 2320 and ZOOL 2325

Covers techniques (knife, probe, finger, etc.) used to dissect human cadavers and other mammalian specimens such as horse, cow, cat, dog, and pig for use in gross anatomy labs. Reviews how to procure different types of specimens to preserve and dissect cadavers including, but not limited to, fresh specimens, preserved specimens, and frozen specimens. Introduces various techniques for suturing, plastination, and vascular casting. Emphasizes OSHA standards for laboratory safety, including how to safely use a bone saw.

**ZOOL 490R****Special Topics in Zoology****1 to 4**

\* Prerequisite(s): BIOL 1620 and University Advanced Standing

Explores and examines special topics relating to the field of zoology. Emphasizes areas of rapid growth in zoology or current importance to society. May be repeated for a total of 9 credits toward graduation.