

COURSE # CS 1410

OBJECT ORIENTED PROGRAMMING

*2018-2019*

**Instructor**

**Instructor:**

**Phone:**

**Email:**

**Office Hours:**

**Course**

## Course Description

***This is a Concurrent Enrollment Course, offering both high school credit through \_\_\_\_\_\_\_\_\_\_\_\_\_\_ High School and college credit through Utah Valley University. Credit from this course is transferable to all colleges and universities. Contact the receiving institution for how the credits will be applied.***

This course builds on the object-oriented design and programming principles taught in CS 1410. In this course, you will learn Object-Oriented Programming using C++. This includes a study of classes in depth, inheritance, and polymorphism, and pointers and memory management.

**Catalog Description**

Introduces the key concepts of object-oriented programming. Includes pointers and dynamic memory allocation, linked lists, inheritance and polymorphism, the development of graphical user interfaces, operator overloading, memory management, exceptions, templates and the standard template library, and an overview of object-oriented analysis and design.

**Course Prerequisites**

This class is available to all high school students in good academic standing. High school prerequisites apply.

Completion of CS1400.

Completion of CS 1030 Strongly recommended.

## Course Objectives or Learning Outcomes

At the completion of this course, students should be able to

1. Analyze moderately sized computing problems and develop object-oriented solutions to those problems.
2. Apply good object-oriented design and analysis methods to develop programs.
3. Use an integrated development environment and appropriate design documents to construct moderately complex programs in C++.
4. Test and debug programs to assure quality and usability.
5. Document programs for understandability and maintainability by providing in-line comments, standardized class and file headers, and elements of good programming style.

Topical Sequence

This course is organized into eight modules, as follows.

* Module 1: Introduction to C++
* Module 2: Functions, Arrays, and Vectors
* Module 3: Recursive Functions
* Module 4: Classes
* Module 5: Streams and Exceptions
* Module 6: Pointers
* Module 7: Inheritance and Polymorphism (OOP)
* Module 8: Templates

You can get information for each module by clicking **Modules** at the left. Each module has homework and a programming project.

You can obtain PowerPoint slides by clicking the link in the first chapter of each module in your online Zybook. You must be familiar with the material on the slides, since some things are covered that do not appear in your Zybook. You are responsible for all material in the slides and in your Zybook.

**Required Text and Materials**

We will use an interactive, online "book" created by Zybooks. You submit all of your work, including programming projects, in your Zybook, therefore, you *must* buy the book. This book costs $67. Go to [learn.zybooks.com (Links to an external site.)Links to an external site.](http://learn.zybooks.com) and enter the code UVUCS1410Fall2017. You will also enter the section number for your class. You will need a credit card to purchase the book. If you must get your books through the bookstore, tell any sales associate there that you need the Zybook for CS 1410.

Each section of your Zybook as two types of "homework". The first, Participation Activities, are easy exercises that you do immediately as you are reading. It is best if you do these *before* class (all submissions are time stamped). Your work on Participation Activities will be a 5% extra credit bonus on top of your grade. The effect of this bonus is that your grade could increase a step. In fact, if you had a high B, for example, and got 100% on the extra credit activities, you could skip a B+ and get an A-. It is important that you do the Participation Activities as you read the book, and that you do them early.

The second type of homework, Challenge Activities, are only slightly more involved and are more like traditional homework. They are also fewer in number than the Participation Activities. These are required, and you must complete these by their due date. You will also submit your programming projects in your Zybook. Details can be found in each module (click **Modules** at the left).

**Department Policies**

**Assessment**

**Exams**

Midterm exams will be given in the UVU Orem campus testing center on the days indicated in the course calendar and Chitester.  Because the exams will be available in the testing center for several days, NO MAKE-UP EXAMS WILL BE GIVEN except under extenuating circumstances that are *beyond your control*, e.g. a death in the family. If necessary, arrangements can be made to take exams on an alternative date if your instructor knows about it well before the posted exam dates. Keep in mind the latest you may take an exam in the testing center is one hour before closing time.

**Exam dates:**

|  |  |  |
| --- | --- | --- |
| Test 1 (Modules 1–3) | Feb 9–12 | (Covering Modules 1–2) |
| Test 2 (Modules 4–5) | Mar 12–14 | (Covering Modules 3–5) |
| Final (Comprehensive) | TBD | (Comprehensive) |

(If your final is given in class, then the date of the final will be according to the UVU Final Exam Schedule. Check with your instructor.)

**Matriculation in CS Programs**

In order to take upper-division Computer Science classes, students are required to complete the following classes with the grades as listed below:

|  |  |
| --- | --- |
| CS 1400 | Minimum grade C+ |
| CS 1410 | Minimum grade C+ |
| CS 2300 | Minimum grade C+ |
| CS 2420 | Minimum grade C+ |
| Math 1210 | Minimum grade C |
| English 1010 | Minimum grade C |

**Additional Requirements**:

* Overall GPA must be at least 2.5.
* Students may not repeat a class more than once

**Screening:**

Students are reviewed in CS 1400 and CS 1410.  They are screened for matriculation while taking CS 2420. Students will be notified approximately ½ way through the semester as to their status.

**Communication**
To keep you informed of changes in course content or deadlines, we will use Canvas. Be sure that you set up your Canvas account to receive notifications. Feel free to initiate discussions on Canvas.

**Honesty**

If you cheat your way through this course, you are only cheating yourself, and it will catch up with you in a subsequent course. You only learn to program by writing programs *yourself!*

Find a friend, or better yet, a group of friends to study with for this course. It often helps to have someone else explain an idea or explore a different solution to a problem. However, all work that you hand in must be **your own**. Please read the [CS Imperative of Ethics and Conduct (Links to an external site).](http://www.uvu.edu/cs/ethics.html) before you continue with the course. Violations of academic honesty will be **swiftly dealt with**. Talk to your instructor about penalties for cheating.

All programs must contain the following declaration as comments at the beginning of each file:

*"I declare that the following source code was written solely by me. I understand that copying any source code, in whole or in part, constitutes cheating, and that I will receive a zero on this project if I am found in violation of this policy.*

If you have questions, don't understand a concept, or are having problems understanding why a program you are working on does not work, talk to your instructor, and/or go to the CS Tutoring Lab.

**Grading Scale**

Evaluation of your achievement of the course objectives will be based on the following, subject to change during the semester:

|  |  |
| --- | --- |
| Challenge Activities | 10% |
| Programming Projects | 40% |
| Two Mid-term Exams | 30% |
| Final Exam | 20% |
| ------------------------ | ---- |
| Total | 100% |

There is also an extra credit opportunity by completing the Participation Activities in your Zybook, as explained above.

Grades will be assigned according to the official UVU grading scale:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 94% or higher | A |         | 73–75.9% | C |
| 90–93.9% | A- |  | 70–72.9% | C- |
| 86–89.9% | B+ |  | 66–69.9% | D+ |
| 83–85.9% | B |  | 63–65.9% | D |
| 80–82.9% | B- |  | 60–62.9% | D- |
| 76–79.9% | C+ |  | 0–59.9% | E |

**Grades and Credit**

Your grade for this class will become part of your permanent college transcript and will affect your GPA. A low grade in this course can affect college acceptance and scholarship eligibility.

Grades are determined by instructors, based upon measures determined by the instructor and department and may include: evaluation of responses, written exercises and examinations, performance exercises and examinations, classroom/laboratory contributions, mastery of pertinent skills, etc. The letter grade “A” is an exceptional grade indicating superior achievement; “B” is a grade indicating commendable mastery; “C” indicates satisfactory mastery and is considered an average grade; “D” indicates substandard progress and insufficient evidence of ability to succeed in sequential courses; “E” (failing) indicates inadequate mastery of pertinent skills or repeated absences from class; “UW” indicates unofficial withdrawal from class.

**University Policies**

**Academic Integrity**

Utah Valley University expects all students to maintain integrity and high standards of individual honesty in academic work, to obey the law, and to show respect for others. Students of this class are expected to support an environment of academic integrity, have the right to such an environment, and should avoid all aspects of academic dishonesty. Examples of academic dishonesty include plagiarizing, faking of data, sharing information during an exam, discussing an exam with another student who has not taken the exam, consulting reference material during an exam, submitting a written assignment which was authored by someone other than you, and/or cheating in any form.

In keeping with UVU policy, evidence of academic dishonesty may result in a failing grade in the course and disciplinary review by the college.  Any student caught cheating will receive, at minimum, zero points on that particular assignment for the first offense.  A second offense can result in failing the course and will entail being reported to Student Advising.  Academic dishonesty includes, in part, using materials obtained from another student, published literature, and the Internet without proper acknowledgment of the source.   Additional information on this topic is published in the student handbook and is available on the UVU website.

### **Student Code of Conduct**

All UVU students are expected to conduct themselves in an appropriate manner acceptable at an institution of higher learning. All students are expected to **obey the law**, to **perform contracted obligations**, to **maintain absolute integrity and high standards** of individual honesty in academic work, and to observe a **high standard of conduct for the academic environment**.

The Student Rights and Responsibilities Code, or Code of Conduct, outlines for students what they can expect from the University and what the University expects of them.

Students should review their Rights and Responsibilities. The Code of Conduct also outlines the process for academic appeals, and appeals related to misconduct and sanctions. It can be found at <http://www.uvu.edu/studentconduct/students/>

**Student Responsibilities**

You are expected to take an active role in the learning process by meeting course requirements as specified in written syllabi. Faculty members have the right to establish classroom standards of behavior and attendance requirements. You are expected to meet these requirements and make contact with faculty members when unable to do so.

**Withdrawal Policy**

If you do not wish to take this course or find that you are unable to continue, you should officially withdraw by the deadline stated in the current semester UVU Student Timetable.

You can officially withdraw from a course by dropping it through the online registration system or the campus One Stop desk (BA 106) by the listed date. If you officially withdraw from a course by the "Last Day to Drop and Not Show on Transcript," the course will not appear on your academic transcripts. If you officially withdraw from a course by the "Last Day to Withdraw," a "W" will appear on your transcripts. Although your GPA will not be affected — a "W" will indicate that you chose to withdraw. If you fail to complete the course and do not drop it before the "Last Day to Withdraw," a "UW" or "E" (a failing grade) will appear on your transcripts.

Withdrawing from a course may impact your financial aid status. For more information, see: UVU Financial Aid.

**Cheating and Plagiarism Policy Procedures**

This document was taken from the Utah Valley University Policy 541, The Student Rights and Responsibilities Code

5.4.4 Each student is expected to maintain academic ethics and honesty in all its forms, including, but not limited to, cheating and plagiarism as defined hereafter:

1) Cheating is the act of using or attempting to use or providing others with unauthorized information, materials, or study aids in academic work. Cheating includes, but is not limited to, passing examination answers to or taking examinations for someone else, or preparing or copying another's academic work.

2) Plagiarism is the act of appropriating another person's or group's ideas or work (written, computerized, artistic, etc.) or portions thereof and passing them off as the product of one's own work in any academic exercise or activity.

3) Fabrication is the use of invented information or the falsification of research or other findings. Examples include but are not limited to:

a) Citation of information not taken from the source indicated. This may include the incorrect documentation of secondary source materials.

b) Listing sources in a bibliography not used in the academic exercise.

c) Submission in a paper, thesis, lab report, or other academic exercise of falsified, invented, or fictitious data or evidence, or deliberate and knowing concealment or distortion of the true nature, origin, or function of such data or evidence.

 d) Submitting as your own any academic exercise (written work, printing, sculpture, etc.) prepared totally or in part by another.

### **Students with Disabilities**

**Students who need accommodations because of a disability** may contact the UVU Office of Accessibility Services (OAS), located on the Orem Campus in LC 312. To schedule an appointment or to speak with a counselor, call the OAS office at 801-863-8747. Deaf/Hard of Hearing individuals, email [nicole.hemmingsen@uvu.edu](https://owa.uvu.edu/owa/redir.aspx?C=r3xUa4y2bkalWljgIj1VXM3KzYlusNIIESMqIpkF5USfG-H3cUMstYl8DNScKc_quB49PvOQ-l0.&URL=mailto%3anicole.hemmingsen%40uvu.edu) or text 385-208-2677.

**Religious Accommodations**

At the beginning of each semester, you shall promptly review the course syllabus and class schedule and notify faculty to request an accommodation for sincerely held religious beliefs and practices using the *Religious Accommodation Request Form*.

**Dangerous Behavior**

The faculty member has the right to demand and secure the immediate removal of any person from the classroom whenever the faculty member determines, to the best of his or her knowledge or belief, that the person's actions are threatening or dangerous to students or themselves. If the faculty member cannot resolve a disruptive situation, the faculty member may request that the disruptive person(s) leave the classroom. If the disruptive person(s) will not leave voluntarily, the faculty member may call University Police for assistance. The incident shall be reported to the Dean of Students and to the Director of Judicial Affairs in accordance with Policy 541 *Student Rights and Responsibilities Code*.

**Discriminatory, Exclusionary, or Disruptive Behavior**

Faculty members observing discriminatory, exclusionary, or disruptive behavior follow procedures described in UVU Policy 541 *Student Rights and Responsibilities Code.* 5.6

**Attendance**

Attendance in this class is not mandatory due to the different learning preferences with each student. However, class will be held according to the schedule on the top of this syllabus. Chapters will be covered in class as listed in the semester schedule below. Class will consist of chapter reviews, discussion and group activities.

**Policies/References**

1. Policy 541: Student Rights and Responsibilities Code <https://www.uvu.edu/catalog/current/policies-requirements/student-rights-and-responsibilities.html>
2. Policy 601: Classroom Instruction and Management. <https://policy.uvu.edu/getDisplayFile/5750ed2697e4c89872d95664>
3. Policy 635: Faculty Rights and Professional Responsibilities. <https://policy.uvu.edu/getDisplayFile/563a40bc65db23201153c27d>

**Definitions**

* 1. Syllabus: An agreement between faculty and students that communicates course structure, schedule, student expectations, expected course outcomes, and methods of assessment to students.

### **Dropping the Class**

### \_\_\_\_\_\_\_\_\_ is the last day to drop the course without it showing on your transcript.

\_\_\_\_\_\_\_\_\_ is the last day to withdraw from the class.
If you drop the high school class, you must also withdraw from the UVU class to avoid receiving a failing grade.

Due dates and this syllabus may change at the instructor’s discretion due to the needs of the class members.