

COURSE # CS 1030

Foundations of Computer Science

*2025-2026*

**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.***

**Catalog Description**

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.

**Course Prerequisites**

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

## Course Objectives or Learning Outcomes

1. Describe the major components of a computer system and how these components work together.

2. Recognize the fundamentals of how a computer is instructed (scripting and programming) to perform computer related tasks.

3. Describe the basic components of computer networks including the internet and world wide web.

4. Recognize computer science and related professions and their relationship to the various majors within the College of Engineering and Technology.

**Required Text and Materials**

Required materials, fees and technology:

1. Access to [Harvard CS50x](https://cs50.harvard.edu/x/2024/) website
	* **do not**sign up with edX for this course
	* **do not** sign up for a GitHub account for this course
2. In class your instructor will give you their own instructions on how to submit assignments.

Optional materials, fees and technology:

* + No books are required for this course.
	+ No fee is required for using CS50 materials and cs50 tools [under this License](https://cs50.harvard.edu/x/2024/license/)
	+ Harvard's CS50 website gives various useful resources and there are many great ones online you can find.
	+ Your instructor may opt to use other tools and technology for programming environments and tools, so be sure to check with them on that.

**Course Requirements**

**Assignments**

Problem Sets: You will work on a variety of coding projects in several languages, as follows:

* Scratch - 1 problem set.
* C - 5 problem sets.
* Python - 1 problem set.
* SQL - 1 problem set.
* Front-End Web (HTML / CSS / Javascript) - 1 problem set.
* Back-End Web (Python / Flask / Jinja) - 1 problem set.
* Final - 1 project in a language of student’s choice.

 Your instructor may adjust these assignments and may add additional assignments to meet state standards.

There are 10 Problem Sets + the Final Project. Your instructor may adjust how these are graded to the needs of the class.

**Assessments**

The final project is your final exam. Submit the final project as instructed in the project description, with THE FOLLOWING significant changes.

1. In step 1 the final project instructions mention using EdX and your GitHub user. DON'T involve edX at all, including DON'T submit the edX form under step 1.
2. Step 3 of 3 mentions the grade book. **Make sure you follow your instructor’s submission process.** DON'T be concerned about the free CS50 certificate or the paid edX certificate. You don't need them to get credit for CS 1030.

Your instructor may include additional exams or other assessments as required by state standards.

## Course Topics

* History and computer basics
* Computer Hardware and software overview
* Internet, networking and the Web
* Operating System Software (Roles, User Interface, File System, etc.)
* Computer Applications (gaming, music, video, etc.)
* Web and Mobile Applications
* Privacy and Security
* Societal Issues
* Introduction to Programming
* Variables, Expressions and Types
* Branching and Loops
* Functions
* Strings
* Classes
* Exceptions, File I/O

These topics are woven into the material and class discussion provided by CS50 and by your instructor.

**Grading Scale**

 A = 93+ B - = 80+ D+ = 67+

 A - = 90+ C+ = 77+ D = 63+

 B+ = 87+ C = 73+ D - = 60+

 B = 83+ C - = 70+ E = 0 +

**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.

In this class, we drop your lowest 3 scores among the 10 problem sets and the Final Project. Your instructor may allow you to use one of the problems you did not do, or an extension of some problem set, as your final project. Make sure you know what your instructor expects.

**Course Schedule**

| UVU Semester Schedule of Topics and Due Dates |
| --- |
| **Module** | **Week** | **Virtual Class** | **Topic** | **Assignments** |
| **Module 0** | Week 1 |  | Scratch | Problem Set 0 |
| **Module 1** | Week 2 |  | C | Problem Set 1 |
| **Module 2** | Week 3 |  | Arrays  | Problem Set 2 |
| **Module 3** | Week 4 |  | Algorithms | Problem Set 3 |
| **Module 4** | Week 5 |  | Memory | Problem Set 4 |
| **Module 5** | Week 6 |  | Data Structures |  |
|  | Week 7 |  | Data Structures | Problem Set 5 |
| **Module 6** | Week 8 |  | Python; AI | Problem Set 6 |
| **Module 7** | Week 9 |  | SQL | Problem Set 7 |
| **Module 8** | Week 10 |  | HTML, CSS, Javascript |  |
|  | Week 11 |  | HTML, CSS, Javascript | Problem Set 8 |
| **Module 9** | Week 12 |  | Flask |  |
|  | Week 13 |  | Flask | Problem Set 9 |
| **Module 10** | Week 14 |  | Cybersecurity |  |
| **Module 11** | Week 15 |  | Installing tools locally |  |
| **Module 12** | Week 16  |  |  | Final Project |

Topics are listed in the weeks they will be covered for class. Problem Sets are due the last day of class, but this is the progression to follow if you want to be sure you are keeping up with the material. The Final Project is due during finals week and is the final exam.

**Artificial Intelligence (AI) Expectations and Requirements**

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

[**https://cs50.ai/**](https://cs50.ai/) the CS50 AI formerly known as duck.ai is ChatGPT adapted for CS 50 and is the only AI assistant authorized for use in CS 1030. Any other other similar tool is not authorized. cs50.ai is trained on the the problem sets and the course and is customized to guide someone to a solution but not to give it outright. Like the cs50.dev tool, it requires a user to log in with their GitHub user credentials.

While CS50 has the AI mentioned above, your instructor may require you NOT to use an AI at all. Follow your instructor’s requirements.

**University Policies**

**Responsibilities** Student Responsibilities:

* *Start class the first week of the term.*
* *Be accountable by setting aside regular time each week to complete course activities and assignments on time as noted per the due dates.*
* *Learn how to use Canvas including communication tools (e.g. discussion, Canvas inbox, etc.). Learn how to use Microsoft Teams to hold video/voice meetings, post chats, and retrieve files. If you have technology-related problems contact the*[*Service DeskLinks to an external site.*](https://www.uvu.edu/servicedesk/)*.*
* *Learn to use GitHub and the associated cs50 tools for this course.*
* *Abide by ethical standards. Your work must be your own.*
* *Contact your instructor as early as possible if an emergency arises.*

Instructor Responsibilities:

* *Respond to messages within ONE business day. If multiple messages are received regarding the same question or concern, they may be responded to with an announcement to the entire class.*
* *Provide timely, meaningful and constructive feedback on assignments.*
* *Facilitate an effective learning experience.*
* *Refer students to appropriate services for issues that are non-course content specific. For instance, technical issue, writing labs, accessibility services, etc.*
* *Mentor students through the course.*

[**Technology Support Services**](https://uvu.instructure.com/courses/520371/pages/syllabus-2#dpPanel1)

  For 24/7  technical support contact [Instructure's Canvas Support Live ChatLinks to an external site.](https://cases.canvaslms.com/liveagentchat?chattype=student&sfid=001A00000085cNxIAI)

  (385) 204-4930 (Available 24/7)

[Student Success Resources](https://www.uvu.edu/success/resources.html)

[Accessibility Services](https://www.uvu.edu/accessibility-services/)

**Accommodations/Students with disabilities Statement**

Students needing accommodations due to a disability including temporary and pregnancy accommodations may contact the UVU [Accessibility ServicesLinks to an external site.](https://www.uvu.edu/accessibility-services/) at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in LC 312.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers should contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in LC 312.

**Academic Integrity Statement**

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their [rights and responsibilities.](https://policy.uvu.edu/getDisplayFile/5bedd0ef7b23736d542192e3). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: *Student Code of Conduct*](https://policy.uvu.edu/getDisplayFile/5bedd0ef7b23736d542192e3)*.*

**Definitions and Examples:**

[Academic Integrity](https://uvu.instructure.com/courses/520371/pages/syllabus-2#dpPanel4)

Definition: Academic integrity is a basic principle which requires that students take credit only for ideas and efforts that are their own. Cheating, plagiarism, fabrication, and other forms of academic dishonesty are often defined as the submission of materials in assignments, exams, or other academic work that is based on sources that are prohibited by the faculty member or in ways that do not properly cite the source of a student's ideas and content. Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: *Student Code of Conduct*](https://policy.uvu.edu/getDisplayFile/5bedd0ef7b23736d542192e3)*.*

[Cheating](https://uvu.instructure.com/courses/520371/pages/syllabus-2#dpPanel6)

Definition: 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 others’ academic work.

Examples include but are not limited to:

* Submission of work that is not the student's own for papers, assignments or exams.
* Submission or use of falsified data.
* Theft of or unauthorized access to an exam.
* Use of an alternate, stand-in or proxy during an examination.
* Use of unauthorized material including textbooks, notes or computer programs in the preparation of an assignment or during an examination.
* Supplying or communicating in any way unauthorized information to a “homework help site” such as CourseHero or to another student in the preparation of an assignment or during an examination.
* Collaboration in the preparation of an assignment. Unless specifically permitted or required by the instructor, collaboration will usually be viewed by the university as cheating. Each student, therefore, is responsible for understanding the policies of the department offering any course as they refer to the amount of help and collaboration permitted in preparation of assignments.
* Submission of the same work for credit in two courses without obtaining the permission of the instructors beforehand.

[Plagiarism](https://uvu.instructure.com/courses/520371/pages/syllabus-2#dpPanel8)

Definition: Plagiarism is the act of presenting another person’s ideas, research or writing as your own.

Examples include but are not limited to:

* Using another person’s exact language without the use of quotation marks and proper citation.
* Rearranging another’s ideas or material and presenting them as original work without providing proper citation.
* Submitting another’s work as one’s own; this includes purchasing work from sources such as the internet.
* Submitting a translation of someone else’s words claiming them as one’s own
* Failing to acknowledge collaborators on homework and laboratory assignments.
* Duplicating or submitting work that was originally prepared for another class without the explicit permission of the instructor; or knowingly aiding another student who is engaged in plagiarism.

Resources: [Citation guide.](https://uvu.libguides.com/citations)

[Fabrication](https://uvu.instructure.com/courses/520371/pages/syllabus-2#dpPanel10)

Definition: the use of invented information or the falsification of research or other findings.

Examples include but are not limited to:

* Citation of information not taken from the source indicated. This may include the incorrect documentation of secondary source materials.
* Listing sources in a bibliography not used in the academic exercise.
* 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.
* Submitting as your own any academic exercise, (e.g., written work, printing, sculpture, etc.) prepared totally or in part by another.

We would like to acknowledge the following institutions: Northeastern University, University of Jamestown, Washington University in St. Louis, and UVU's Woodbury School of Business. This statement uses or adapts parts of their academic integrity statements or used them for inspiration.

**Religious Accommodation Statement**

UVU values and acknowledges a wide range of faiths and religions as part of our student body, and as such provides accommodations for students. Religious belief includes the student's faith or conscience as well as the student's participation in an organized activity conducted under the auspices of the student's religious tradition or religious organization. The accommodations include reasonable student absences from scheduled examinations or academic requirements if they create an undue hardship for sincerely held religious beliefs. For this to occur, the student must provide a written notice to the instructor of the course for which the student seeks said accommodation prior to the event.

The UVU campus has [a place for meditation, prayer, reflection, or other forms of individual religious expression.](https://www.uvu.edu/interfaith/reflectioncenter/index.html) as is described on their website.

**Equity and Title IX Statement**

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education’s Office for Civil Rights or UVU’s Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Abide by Harvard's CS50 [Academic Honesty Policy.](https://cs50.harvard.edu/x/2024/honesty/) for assignments in this course and use of AI.

Help and tutoring is available to you from your instructor, IA, CS Tutoring Lab in CS 726 and Academic Tutoring.

**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.