

CSE1010 Introduction to Computing for Engineers Spring 2017

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Description

This course gives students an introduction to using a computer as an instrument to solve problems in science and engineering. Students are shown how to use an operating system and its tools and applications, one or more programming languages, and microcontroller circuits.

No previous programming experience is required.

Text Book

There is no text book to purchase for this course. All readings will be from free online sources.

Arduino Kit

You are required to purchase an Arduino kit from the bookstore. They are currently not in stock, but they will be soon. You will not be required to use the kit until after they arrive.

Objectives

At the end of the course, the students should be able to:

- Use computer terminology correctly.
- Use of the Linux operating system, its basic installation and administration, and command-line tools.
- Solve a variety of problems using the Python programming language.
- Use a microcontroller to build sensor and control circuits.
- Manage the collection, logging, and visualization of data.

Requirements

Attendance: Students are expected to attend both the lecture classes and the laboratory periods.

Reading: Students are expected to read assigned sections in the book.

Laboratory exercises will be assigned weekly. You will be given a grade based on lab work done during the laboratory class and proper submission of the assignment. During the lab period you will use the lab computers for lab work only.

Homework assignments will be assigned on a weekly or bi-weekly basis. Homework

assignments will generally consist of the design, implementation, and execution of a program to solve a particular task, and possibly also a microcontroller circuit. Homework assignments are graded on both the quality of the required written documentation and on the quality of the actual computer program. To receive full credit, a program must meet all requirements and specifications, and must do so within the guidelines of coding quality described in the text and discussed in lectures and laboratory classes. It is recommended that you start working on a homework assignment as soon as it is assigned, and meet with the TA during the office hours if additional explanations are needed on a specific question.

All programs will also be submitted electronically using Husky CT's assignment tool. All homework assignments are to be completed individually (collaboration is not allowed), and are due by the midnight (or 11:59 PM) deadline. Remember, because clocks do not always match, you should be submitting your assignment at least 15 minutes before it is due. Extenuating circumstances should be discussed with the instructor prior to the due date (use email and/or office hours, not the lecture time). In the event of corrupted files uploaded on HuskyCT by students, it is the responsibility of the students to check before the deadline that the files they have just uploaded have been effectively submitted and are not corrupted. The students can check that the files have been correctly submitted by downloading them and test they can open their files.

Late submission of assignments is unacceptable. Severe penalties will be given for assignments submitted after the deadline.

There will be two exams: a midterm exam given during the normal lecture class period, and a final exam given during a final exam period established by the Registrar's office. You are not allowed to re-schedule an exam without permission from the Dean of Students' office.

Do not buy a plane ticket home or otherwise plan to leave campus for the semester until AFTER you have seen the final exam schedule. It is your responsibility not to miss the final exam. We will not give you an earlier exam just because you forgot to check the final exam schedule.

If you do need to re-schedule an exam, contact someone in the Dean of Students Office

<http://dos.uconn.edu/>.

It is your responsibility to check your UCONN.EDU e-mail account regularly, or have it forwarded to an account that you use regularly. Otherwise you will miss out on important announcements.

Grading Percentages

Lab exercises	15%
Homework assignments	40%
Midterm exam	20%
Final exam	25%

Course Grade

From	To	Grade
0	60	F
60	63	D-
63	67	D
67	70	D+
70	73	C-
73	77	C
77	80	C+
80	83	B-
83	87	B
87	90	B+
90	93	A-
93	100	A+

Academic Honesty

Academic dishonesty of any type will not be tolerated in this class. Students should refer to the Student Code (<http://community.uconn.edu/the-student-code-preamble/>) for specific guidelines. Note: It is a student's responsibility to protect their work from being used by another student. Students who permit their work to be used by another student are as guilty of academic dishonesty as the one who submits work that is not their own.

Students with Disabilities

Students with disabilities who believe they may need accommodations in this class are encouraged to contact the Center for Students with Disabilities (<http://csd.uconn.edu/>, 860-486-2020) as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

Topic Outline

The topics will be covered in roughly this order.

1. Course introduction | What is programming? | Installing and using Linux
2. Introduction to Python | Program script files | Variables and arithmetic
3. Control flow in Python | Conditionals | Iteration
4. Introduction to microcontrollers | Sensors
5. Data collection | Data structures in Python
6. Functions
7. User interfaces | Web programming
8. Data visualization
9. Control systems
10. Classes and OOP
11. Mobile device programming