CSE 1010 Fall 2020 Syllabus

In CSE 1010, you will learn how to solve computing problems using algorithmic thinking, programming, computing logic, processes, and environments. The course follows a flipped design: recorded lectures and an interactive textbook are used to teach materials outside of class, while class-time is reserved for solving challenging problems along-side peers and instructors. Lab assignments were developed from problems in mathematics, science, and engineering.

Prerequisites: Not open for credit to students who have passed CSE 1100 or 1729.

Logistics

The **course instructors** are

- Prof. Derek Aguiar (Storrs, Hartford, Stamford campuses), derek.aguiar@uconn.edu, physical office is ITE 267, virtual office is through Blackboard Collaborate.

- Prof. Wei Wei, wei.wei@uconn.edu (Storrs, Hartford, Stamford campuses), physical office is ITE 258, virtual office is
  https://us.bbcollab.com/guest/b6e94b7d49de4f6c82065392fc40dbb7.

- Prof. Chris Kmiecik (Avery Point campus), chris.kmiecik@uconn.edu. Virtual office is through Blackboard Collaborate.

- Prof. Daniel Farrelly (Waterbury campus), daniel.farrelly@uconn.edu. Virtual office is through Blackboard Collaborate.

- The Lab Instructors (Teaching Assistants) are given in Table 1.

Class times and locations for all lab sections of CSE 1010 can be found in in the course directory or the Lab Section Instructors document.

Online office hours are held each day by some instructor. Instructor office hours are detailed in the Office Hours Sheet.

The **course website** is hosted on **HuskyCT** which is used for course material distribution, announcements, exams, and grades. The title of the course in HuskyCT is **CSE-1010-Storrs-Stamford-AveryPoint-Hartford Lab Sections-1208**. The online textbook zyBooks will be used to disseminate readings and homework assignments. Discussion forums are hosted by Piazza and can be reached through HuskyCT. Professors and lab instructors will have hours in which they are active on Piazza. By default, we are allowing anonymous posting (even to professors), but we will remove this if it gets abused. **Do not publicly post code and partial solutions to problems, mark these private to professors and lab instructors only**. Also, please spend time thinking about your question – the best questions are clear, concise, and ask about concepts. These types of questions can be made public and benefit the entire class. Questions that, for example, ask lab instructors to debug code are of minimal use. Changes to the course syllabus, schedule, or homeworks will be announced immediately in class and HuskyCT.

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Table 1: Course staff.

Learning Objectives and Outcomes

After completion, you will be able to:

LO1: Develop computational programs to analyze data and solve computing problems in Python and MATLAB.

LO2: Translate science and engineering problems to mathematical models using algebra, probability, statistics, and domain knowledge.

LO3: Compute statistics and visualizations of various types of data using Python visualization libraries and pandas to clearly communicate information.

Assessment and Evaluation

Grades are administered in HuskyCT. Students are responsible for tracking their progress through the HuskyCT grade center.

CSE 1010 includes 6 types of formative and summative assessments.

- **Participation questions (LO1,LO3) – 5%**: Participation questions are activities completed while reading the textbook. Everyone can get full points just by trying.

- **Homework (LO1,LO2,LO3) – 25%**: Homeworks consist of challenge questions and lab assignments. Several special homework assignments are inspired by real-world problems in one of UConn's seven engineering disciplines and science more broadly. Students will be required to present a special homework assignment in a group of their peers during a lab session towards the end of the semester.
  Challenge questions: Small tasks to practice some concept in the book chapter, give immediate feedback, and allow for unlimited attempts.
  Programming assignments: Both short and long programming assignments that give immediate feedback. Allows for unlimited attempts but must wait 3 minutes between each attempt.

- **Lab assignments (LO1,LO2,LO3) – 15%**: Lab assignments consist of problem formalization and programming problems.

- **Piazza posts (LO1,LO2) – 5%**: Contribute (create or reply) to a thread at least 5 times. Must be a substantive reply, e.g., cannot be simply a few words.

- **Review session participation (LO1,LO2) – 0%**: Optional, but good for you!

- **Exams (LO1,LO2,LO3) – 50%**: A midterm (25%) and cumulative final (25%).

We strongly encourage high-level discussion of ideas and concepts with peers and instructors, but all assignments besides the last take-home lab assignment, must be completed and submitted individually.

Course Design

CSE 1010 is a flipped course, so all lecture and reading materials will be available to you outside of class on HuskyCT (asynchronous). Lectures are broken into short video segments. It is essential that you finish the assigned reading, participation exercises, and lectures prior to the lab section to ensure that you are able to participate in discussions and complete the lab assignments.

Additionally,

- everyone has bad days, so, the lowest take-home lab assignment will be dropped (excluding the last take-home lab assignment). You will still be responsible for the material on the exams.

- everyone will be allotted 5 no-questions-asked late days. When you have used all 5 of your late days, submissions will be deducted 20% of the total points for each day. Submissions (with or without late days used) that are 4 or more days late will not be accepted. Late

days may be used at any point *except in the case of an exam following a homework hand-in*; in this case, no late days may be used so homework solutions can be distributed before the test. These are calendar days, not business days (Saturdays and Sundays count). You do not need to inform us when you are taking the late days – we will automatically apply them. Inform the instructor if observance of religious holidays, illness, disability, or other valid reasons interferes with your work so we can try our best to accommodate you.

- all work will either be tracked in zyBooks or handed into HuskyCT.

Required Book

This course uses a custom zyBook that is accessed online. The book can be bought directly from the zyBook's website or the UConn bookstore. Purchasing the book directly through zyBook's website is usually cheaper. In short, visit zyBook's website, make a new account or sign into an existing account, and enter in the ISBN: 9781394043095 or the book ID: UCONNCSE1010Fall2020 and make sure to select your lab section.

Online textbooks have several advantages over traditional printed textbooks. Many difficult concepts have interactive animations to help build intuition, participation activities that encourage you to engage with the material, and challenge questions to give you immediate feedback. If students are on campus and the computer labs are not closed due to SARS CoV-2, zyBooks can be accessed through these labs. If students are learning remotely and do not have regular access to the internet, please contact your instructor ASAP. It is not recommended for learning, but zyBook chapters can be downloaded as PDFs for offline study.

Extra Help & Resources

1. Office hours will be offered online. Online sessions will be scheduled in advance and available simultaneously to all sections – details will follow on HuskyCT. Portions of the online sessions will be dedicated to specific questions on assignments and topics from class; these video segments may be catalogued for streaming after completion of the online sessions. Instructors will also hold in-person sessions per lab section; see Office Hours Sheet.

2. Online discussion forums are available across lab sections. See HuskyCT announcement for more details.

3. If you are having difficulty with writing, the writing center is a great resource.

4. Tutoring services (on the Storrs campus) for CSE 1010 are available through the Engineering Tutoring Center or Upsilon Pi Epsilon.

Schedule of Topics

In CSE 1010 we cover one topic per week for fourteen weeks.

0. Course Overview, Scientific Computing, Python Basics

1. Variables and Expressions

2. Functions

3. Control Flow

4. Iteration and definite loops

5. Indefinite Loops

6. Classes and Basic Data Structures

7. Advanced Data Structures and Functions

8. Input, Output, and Modules

9. Data Science: Data and Visualization

10. Data Science: Probability and Statistics

11. Data Science: Random Variables and Distributions

12. MATLAB Interpreter and Programming

13. MATLAB Arrays and Functions

The latest schedule of topics can be found in the .

Policies

Academic Integrity

Formally, we follow the university policy on academic integrity to discourage and penalize academic misconduct.

> Academic misconduct is dishonest or unethical academic behavior that includes, but is not limited to, misrepresenting mastery in an academic area (e.g., cheating), failing to properly credit information, research, or ideas to their rightful originators or representing such information, research, or ideas as your own (e.g., plagiarism). – UConn Community Standards, Academic Misconduct

Students found in violation of academic integrity may be subject to failing the assignment, the course, and/or review by the academic integrity hearing board. See the student code and references therein for more information.

Informally, all academic work you submit must be your own or in collaboration with explicitly specified peers (where permitted). Discuss classwork, exercises, and problems with peers in a manner that helps all parties understand a problem or possible paths towards its solution. Do not copy solutions from other students or from any other resource. You will put your future self in the best position to succeed in academia or industry if you dedicate yourself to learning and retaining the material.

Disabilities

The University offers many services to its students with disabilities through the Center for Students with Disabilitiies. Eligibility for these services is determined individually based on documented need. If you have a diagnosed disability (physical, learning, or psychological) that will make it difficult for you to carry out the course work as outlined, or that requires accommodations such as recruiting note-takers, readers, or extended time on exams or assignments, please advise the instructor during the first two weeks of the course so that we may review possible arrangements for reasonable accommodations.