CSC 110 - Survey of Computer Science

Summer 2023

Instructor: Chan Young Koh
e-mail: ckoh04@uri.edu
Office hours: T W 2:30-3:30 pm
Office hour Zoom link:
https://uri-edu.zoom.us/j/96701196062?pwd=MCt2Rmt0dk9OWVhrb09tcitZSlU1Zz09

Class meetings: T W: 10:00-11:50 am
Lab: TR 10:00-11:50 am
Class Location: Tyler Hall 106

Course Description:
This course will introduce students to computer science as a problem-solving discipline. We will introduce students to algorithms and demonstrate algorithms' implementation through a simple programming language. This course will also be an opportunity to learn about some interesting fields of computer science in which algorithms are used to solve complex problems. This course will give students the basics they need for many of the more advanced courses they will take later in the CS curriculum.

Prerequisite: C- or better in CSC 106, or instructor approval.

Learning Outcomes:
After completing this course, a successful student will be able to:

1. Read, write, and interpret code in Python programming language.
2. Define "algorithm" and explain the relevance of algorithms to computer science.
3. Translate simple algorithms into Python code.
4. Identify problems solved in various areas of computer science.
5. Analyze and modify simple algorithms in various computer science areas.

Textbook:
How to Think Like a Computer Scientist: Learning with Python 3,
Online book by Peter Wentworth, Jeffrey Elkner, Allen B. Downey, and Chris Meyers,
www.openbookproject.net/thinkcs/python/english3e/index.html

Nine Algorithms That Changed the Future: The Ingenious Ideas That Drive Today's Computers,
John MacCormick, Princeton University Press (May 5, 2013), ISBN-13: 978-0691158198.

Optional textbook:
Python Programming for the Absolute Beginner, 3rd Edition,
Michael Dawson, Cenage Learning, 2010.

Lab Materials and Software:
Python 3.87 - free download
Each student should bring a laptop to class and the lab for every class meeting. Be sure that your laptop is fully charged before each class meeting, as there may be challenging access to power for every student. If you do not have access to a laptop, please get in touch with the instructor.

Assignments:
Readings/Videos and Quizzes: Students are expected to view assigned videos and read assigned readings before the Zoom class meetings. **There will be a short quiz based on this material at the beginning of class each Tuesday**.

***Homework*:** Each week a programming assignment is assigned for homework. These assignments are due the following Monday. Homework assignments are individual assignments meant to be done without collaboration among students. Please see the statement on Plagiarism and Cheating below for specific rules and individual assignments.

***Writing Assignment*:** The writing assignment will involve a two-part paper about a well-known algorithm that has greatly impacted society. This assignment is an individual assignment.

***Programming Project*:** There will be a large programming project that will be assigned in the second half of the semester. The project will be done in two parts: a proposal and a final implementation. You will be given a choice of two problems to solve. This programming project is an individual assignment meant to be done without student collaboration. Please see the statement on Plagiarism and Cheating below.

***Group Activities*:** Most days in class there will be a group activity that involves solving problems related to the weekly topic. These activities will be submitted through Brightspace and graded at the end of class. Group activities encourage collaboration among students and the full participation of all group members.

Labs: Each week, students will meet for Zoom lab sessions on Thursday to work in pairs on exercises that help demonstrate issues discussed in class. Lab work will be completed during the allotted lab time and turned in at the end. Collaboration among lab partners is required, and pair programming will ensure both partners participate in the learning activity.

***Exams*: This course will have a midterm and final exam**. Each covers approximately half of the course material.

Programming Rubric:
All programming assignments in this class will be graded based on the Programming Rubric found in the above link.

Course Topics and Tentative Schedule:
The following is a tentative schedule of topics, labs, and readings. Please check the *Weekly Course Work* lessons for the most up-to-date information about your assignments.

***Grading Policy*:**
All assignments are to be handed in on time. No late assignments will be accepted without prior approval.

Homework	20%
Quizzes	10%
Labs	15%
Class Activities	5%
Great Algorithms	10%
Midterm Exam	15%
Final Exam	15%
Project	10%

Attendance Policy:
Students are required to attend class. Each class period will be a graded assignment (Quiz and/or Group Activity). Students will not be allowed to make up this work for unexcused absences. Please inform the instructor if you cannot attend a class or lab and make arrangements to catch up on what you missed.

Labs will be done individually or with partners, so you must be present on time. If you are late, your lab grade will be deducted. You will be given a grace period of 5 minutes. After the first 5 minutes of the lab period, you will lose 1 point on the lab for every 5 minutes you are late.

Cheating and Plagiarism:
Any assignment that has been specified as Individual Work must be your work. When writing your Great Algorithms paper, if you consult other sources (class readings, articles or books from the library, and articles available through internet databases or websites), these MUST be properly documented. You either include a BibTex or other citation (APA, IEEE, MLA, etc.) in your submission.

Any programming assignment specified as Individual Work must be done on your own. While you may discuss general solutions and algorithms with classmates, **it is against the rules to:**

- **share code with other students.**
- **look at any other student's code.**
- **use the code provided to you by anyone else.**
- **use code that you find on the Internet**.

If you use code provided by the instructor or that you have used in a prior assignment include where the code came from in your comments and describe how the code works. If you ever have a question about what is acceptable when working on a programming assignment, don't hesitate to contact your instructor.

Any violation of these rules may result in a grade of 0 on the assignment. In addition, you may be reported to the Dean and the Office of Student Life. See the University Manual for more information about the potential consequences of cheating.
https://web.uri.edu/manual/chapter- 8/chapter-8-2/."

University Course Policies:

Accommodations for Special Needs
Any student with a documented disability is welcome to contact me as early in the semester as possible so that we may arrange reasonable accommodations. As part of this process, please be in touch with Disability Services for Students Office at 330 Memorial Union, 401-874-2098 (http://www.uri.edu/disability/dss/) or 239 Shepard Building, Feinstein Providence Campus, 401- 277-5221.

Academic Enhancement Center and Writing Center:
Nearly all students recognize that regardless of how well or poorly they are doing in a given class, there are ways to improve their learning and studying. The Academic Enhancement Center (AEC) and Writing Center (WC), located in Roosevelt Hall, offer several kinds of support that help students improve their learning and academic performance in this class and other classes. For information on these programs, visit uri.edu/aec, call the AEC's main number at (401) 874- 2367, or follow the specific suggestions below.

- Subject-Specific Tutoring, located on the fourth floor of Roosevelt Hall, helps students navigate 100 and 200-level math, chemistry, physics, biology, and other select STEM courses. Options for peer tutoring are designed to enable you to get the kind of help you need when you need it. Students can join a Weekly Tutoring Group with others in their courses (information on groups will be available in supported classes), stop by a subject-specific Drop-In Center as needed, or make a one-time Group Appointment. Information on what these programs offer when available and how to utilize them are available at uri.edu/aec/tutoring.

- Academic Skills and Strategies, programs help students identify their planning and studying needs in this or any other course and can teach you to implement new, more effective ways of studying, planning, managing time and work, and dealing with challenges like procrastination and motivation. Academic skills sessions are 30-minute, 1 to 1 appointments that students can schedule online by visiting the AEC on Starfish and making an appointment with Dr. David Hayes, the AEC's academic skills development specialist.

- **UCS160: Success in Higher Education** is a one-credit course offered each semester to all undergraduates on learning how to learn and excel in college academics. For more information on these programs or assistance with setting an appointment, visit uri.edu/aec/academic- skills or contact Dr. Hayes directly at davidhayes@uri.edu

- **The URI Writing Center**, located in Roosevelt Hall 009 (lower level, Memorial Union end), offers one-on-one and small group peer tutoring for student writers in all majors who need help developing ideas or would benefit from advice on any aspect of writing. The WC serves all student writers, not just "beginners." Writers are encouraged to bring a draft, notes, syllabus, or any relevant information to help facilitate the session. Appointments are 45 minutes in length and can be scheduled online at **uri.mywconline.com.** It's best to make appointments in advance, especially during midterms and finals, but we often have same-day and drop-in appointments available throughout the day so writers can stop by to see what's open. For more information visit **uri.edu/aec/writing**.

Standards of Behavior

Students are responsible for being familiar with and adhering to the published "Community Standards of Behavior: University Policies and Regulations," which can be accessed in the University Student Handbook.

Academic Honesty

All submitted work must be your own. If you consult other sources (class readings, articles or books from the library, articles available through internet databases, or websites) these MUST be properly documented, or you will be charged with plagiarism and will receive an F for the paper. In some cases, this may fail of the course as well. In addition, the charge of academic dishonesty will go on your record in the Office of Student Life. If you have any doubt about what constitutes plagiarism, visit the URI Student Handbook:

http://web.uri.edu/studentconduct/files/2015-2017-Student-

Handbook.pdf or the UNIVERSITY MANUAL (Chapter 8-27):

http://web.uri.edu/manual/chapter-8/chapter-8-2/

Any good writer's handbook as well as reputable online resources will offer help on matters of plagiarism and instruct you on how to acknowledge source material. If you need more help understanding when to cite something or how to indicate your references, PLEASE ASK.

Students are expected to be honest in all academic work. A student's name on any written work,
quiz, or exam shall be regarded as assurance that the work results from the student's independent thought and study. Work should be stated in the student's words and properly attributed to its source. Students must know how to quote, paraphrase, summarize, cite, and reference the work of others with integrity. The following are examples of academic dishonesty.

- Using material, directly or paraphrasing, from published sources (print or electronic) without appropriate citation
- Claiming disproportionate credit for work not done independently
- Unauthorized possession or access to exams
- Unauthorized communication during exams
- Unauthorized use of another's work or preparing work for another student
- Taking an exam for another student
- Altering or attempting to alter grades.
- Using notes or electronic devices to gain an unauthorized advantage during exams.
- **Using any AI-related solution, including but not limited to Chat-GPT, GPT-3, or GPT-4 in ANY course material.**
- Fabricating or falsifying facts, data, or references
- Facilitating or aiding another's academic dishonesty.
- Submitting the same paper for more than one course without prior instructor approval.

Religious Holidays
It is the policy of the University of Rhode Island to accord students, on an individual basis, the opportunity to observe their traditional religious holidays. Students desiring to observe a holiday of special importance must provide written notification to each instructor.
Course Schedule

Week	Date	Topics	Assignments	Quizzes
1	5/23	• Introduction to Computer Science • Programming with Python: Basics	• Introductory Activity due Tuesday at 10:00 am • HW 1 due Wednesday at 11:30 pm • Lab 1 due Tuesday at 11:50 am • Activity 1a due Wednesday at 11:50 am • Activity 1b Wednesday at 11:50 am • Lab 2 due Thursday 11:50	Quiz 1 due Tuesday 11:30 pm

			am • HW 2 due Sunday 11:30 pm	
2	5/30	• Programming with Python: Lists	• Activity 2a due Tuesday at 11:50 am • Activity 2b due Wednesday at 11:50 am • Lab 3 due Thursday 11:50 am • HW 3 due Sunday 11:30 pm • Great Algorithms Part 1 due Sunday 11:30 pm	Quiz 2 due Tuesday 11:30 pm
3	6/06	• Programming with Python: Functions	• Activity 3a due Tuesday at 11:50 am • Activity 3b due Wednesday at 11:50 am • Lab 4 due Thursday 11:50 am • HW 4	Quiz 3 due Tuesday 11:30 pm
4	6/13	• Programming with Python: Files	• Activity 4a due Tuesday at 11:50 am • Activity 4b due Wednesday at 11:50 am • Lab 5 due Thursday 11:50 am • HW 5 due Sunday 11:30 pm • Great Algorithms Part 2 due Sunday 11:30 pm	Quiz 4 due Tuesday 11:30 pm

5	6/20	• Exam Review • Analyzing Algorithms	• Activity 6a due Tuesday at 11:50 am • Activity 6b due Wednesday at 11:50 am • Lab 6 due Thursday 11:50 am • HW 6 due Sunday 11:30 pm	Quiz 5 due Tuesday 11:30 pm
5	6/23	Midterm Review Session		
5	6/24	**Midterm Exam- Friday**		**Midterm** due Friday 11:30 pm
6	6/27	Encryption Algorithms	• Activity 7a due Tuesday at 11:50 am • Activity 7b due Wednesday at 11:50 am • Lab 7 due Thursday 11:50 am • HW 7 due Sunday 11:30 pm	Quiz 6 due Tuesday 11:30 pm
7	7/05	Algorithms in Digital Forensics	• Activity 8a due Wednesday at 11:50 am • Activity 8b due Wednesday at 11:50 am • Lab 8 due Thursday 11:50 am • HW 8 due Sunday 11:30 pm • Project Design due Sunday 11:30 pm	Quiz 7 due Wednesday 11:30 pm
8	7/11	Operating Systems Algorithms	• Activity 9a due Tuesday at 11:50 am • Activity 9b due Wednesday at 11:50 am • Lab 9 due Thursday 11:50 am • HW 9	Quiz 8 due Tuesday 11:30 pm

9	7/18	Bioinformatics Algorithms	• Activity 10a due Tuesday at 11:50 am • Activity 10b due Wednesday at 11:50 am • Lab 10 due Thursday 11:50 am • HW 10 due Sunday 11:30 pm	Quiz 9 due Tuesday 11:30 pm
10	7/25	Algorithms in Computer Architecture	• Activity 11a due Tuesday at 11:50 am • Activity 11b due Wednesday at 11:50 am • Lab 11 due Thursday 11:50 am • Final Project Implementation due Friday 11:30 pm	Quiz 10 due Tuesday 11:30 pm
10	7/26	Exam Review		
10	7/27	**Final Exam - Thursday**		**Final Exam** due Thursday 11:30 pm