CSCI 1010 Fall 2019
Introduction to Computer Programming (with Python)

Course Description
Computer programming is a way of thinking. A successful programmer needs to take a word problem, generate a pseudocode algorithm, and convert it to the syntax of a specific programming language. This course is an alternative to CSCI 1010 and is intended for students who want an introduction to this programming process but do not intend to do further course work in programming or computer science. Emphasis will be on the generation of the algorithms. This course will use Python as a coding language because its widely used and is easier to learn. It will help us concentrate on the fundamentals and not get sidetracked by language complexity. It will also afford students a tool for creating useful personal applications or prototypes in the future. Students cannot get credit for this course if they have already taken any other CSCI course.

Instructors

Course Instructor: Dr. Uzma Mushtaque	mushtu@rpi.edu
Office Location: Amos Eaton 111	
Office Hours: Tuesday: 12:00 pm to 1:00 pm Friday: 12:00 pm to 1:00 pm Or by appointment.	
Course (Teaching Assistant)TA Jessup Barrueco:	barrruj@rpi.edu
Office Location: Lally Lab	
Office Hours: Wednesday 3-4 pm	
Course Mentors:	
Shreya Barua	baruas@rpi.edu
William Asai	asaiw@rpi.edu
Patrick Berne	bernep@rpi.edu

Course Meeting Times
Tuesday and Friday 10:00 am to 11:50 am at Lally 102.

Course Textbook
We will use the University of Toronto book, Practical Programming: An Introduction to Computer Science Using Python by Campbell, Gries, and Montojo. This is available in both print and electronic versions. While purchase of this book is not mandatory, we will follow its order and coverage fairly closely. The examples we use in class will largely complement rather than repeat the ones in the book.

Very important: You must have the second edition of this text because it works with Python 3.5 which we will use in this class. The first edition of this book use an earlier version of Python

which is not compatible with Python 3.5. There is Edition 3 as well which uses Python 3.6. For class purposes both Edition 2 and Edition 3 are fine.

Required Software

Required software is Python 3.5 or above. We will install Miniconda in Class, which is a Python distribution.

Course Goals / Objectives

The main objective of this class is to teach basics of computational problem solving using Python. Python has a simple syntax, a powerful set of programming primitives, and a rich set of libraries, making it ideal for classroom learning and for rapid prototyping.

Student Learning Outcomes

1. Demonstrate proficiency in the purpose and behavior of basic programming constructs.
2. Design algorithms to solve small-scale computational programs.
3. Write, test and debug small-scale programs.
4. Demonstrate an understanding of the application of computational thinking to real-world problems.

Course Assessment Measures

Assessment	Number	Learning Outcome #s
Exam/Tests	2-3	1, 2, 3
Homework	7-9	1, 2, 3, 4
In class exercise	16-18	3
Final Exam	1	1,2,3,4

Assignment Submission

We will use Submitty for all homework submissions. More information will be shared as the semester progresses.

Grading Criteria

Lecture Exercises: 5%, Homework: 40%, Tests: 35%, Final: 20% . The cutoff for grades are as follows:

A : 93-100
A-: 90-92
B+: 87-89
B : 83-86
B-: 80-82
C+: 77-79
C : 73-76
C-: 70-72

D+: 61-69
D : 50-60
F : 0-49
Cut-offs may end up lower than this but will not be raised from here. Thus, for example, if you earn a 93 average you are assured of earning an A, regardless of what other students earn.

- You may appeal a grade by contacting me within five days of grades being announced
- Quizzes and exams will be handed back and reviewed in class
- Such assignments will then be available during my office hours

Attendance and Classroom Policies

Attendance is required; please attend class and be prepared to participate in class discussions. Please remember to turn off cellphones and other non-classroom electronic devices before class begins. Please shut your laptops unless you are actively using them to take notes or participate in class activities, etc.
IMPORTANT: For prescheduled and unforeseen absences, see
http://studentlife.rpi.edu/student-success/excused-absence

Disability Services for Students

- From http://studenthealth.rpi.edu/disabilityservices:
  - "The Office of Disability Services for Students (DSS) assists Rensselaer students with disabilities in gaining equal access to academic programs, extracurricular activities, and physical facilities on campus. DSS is the designated office at Rensselaer that obtains and files disability-related documentation, assesses for eligibility of services, and determines reasonable accommodations in consultation with students."
- Contact: dss@rpi.edu or 518-276-8197 or Academy Hall 4226
- For accommodations, please contact DSS this week!

You must renew your accommodations each academic year

Academic Integrity Policy

Student-teacher relationships are built on trust. For example, students must trust that teachers have made appropriate decisions about the structure and content of the courses they teach, and teachers must trust that the assignments that students turn in are their own. Acts that violate this trust undermine the educational process. The Rensselaer Handbook of Student Rights and Responsibilities defines various forms of Academic Dishonesty and you should make yourself familiar with these.
In this class, all assignments that are turned in for a grade must represent the student's own work. You are encouraged to collaborate in class exercises as long as you write the final solution to the problem on your own.
Homework submissions should be your own work, but you are allowed to discuss the goals of an assignment and the overall design, testing and debugging of the solution. Your code should

be your own. Program submissions, especially longer ones, that are too similar to have been written independently will be flagged electronically (comparing all submissions across all sections and potentially across semesters), and students will be asked to explain the cause of the similarity. Students who do not submit their own work will receive a 0 on the assignment and will likely receive an additional overall grade penalty, depending on the severity of the infraction. Typical penalties are 5 to 10 percentage points subtracted from the semester average. Students caught a second time will receive an F in the course. All infractions will be reported to the Dean of Students office.
Copying, communicating or using disallowed materials during an exam is cheating. Students caught cheating on an exam will receive an F in the course and will be reported to the Dean of Students office.
Students who do not submit their own work will receive a 0 on the assignment and will likely receive an additional overall grade penalty, depending on the severity of the infraction. Typical penalties are 5 to 10 percentage points subtracted from the semester average. Students caught a second time will receive an F in the course. All infractions will be reported to the Dean of Students office.
Students caught cheating on an exam will receive an F in the course and will be reported to the Dean of Students office.

Course Schedule

We will have two lectures per week. Each Tuesday a new topic will be introduced with a follow-up problem-solving/practice class on Friday. Students must bring their laptops to class both days.

The following schedule is subject to minor changes as the course progresses based on students' requirements.

Week (of)	**Topic of the Week**
August 26	Introduction to Programming
September 2	Introduction to Python: Installing and Running Python Programs, Python as a calculator Homework 1 Posted on Tuesday (September 3).
September 9	Strings Homework 1 Due on Tuesday (September 10). Homework 2 Posted.
September 16	Functions and Modules Homework 2 Due on Tuesday (September 17). Homework 3 Posted.
September 23	Logic and Decision Making Part 1 Homework 3 Due on Tuesday(September 24).

September 30	Tuples, Modules, Images Test 1 on Tuesday October 1st
October 7	Lists Homework 4 Posted.
October 14	While Loops Homework 4 due on Tuesday (October 15)
October 21	Decisions Part 2 Homework 5 Posted
October 28	Error and Exception Handling Test 2 on Tuesday October 29th
November 4	Controlling Loops Homework 5 due on Tuesday (November 5) Homework 6 Posted.
November 11	Data from Files Homework 6 due on Tuesday (November 12) Homework 7 Posted.
November 18	Problem Solving and Design Homework 7 due on Tuesday (November 19) Homework 8 Posted.
November 25	Thanksgiving week.
December 2	Sets and Dictionaries (Part 1)
December 9	Dictionaries Part 2 Homework 8 due on Tuesday (December 10)

The final exam will cover all the above topics.