UNION COLLEGE

CSC 105 - Game Development: Introduction to Computer Science Syllabus

Winter, 2022

Instructor Information

Instructor	Email and Phone	Office Location & Hours
Poorna Talkad Sukumar (she/her)	talkadsp@union.edu (518) 388-6935	Steinmetz 235 or Zoom WF 3-4 PM and Tue 2-3 PM, or by appointment

Course Information

Class Times	Classroom and Zoom Link	Course Webpages
MWF 1:50-2:55 PM and Tue 10:55 AM -12:40 PM	Olin 107 (Please find the Zoom link on Nexus)	http://nexus.union.edu https://poornats.github.io/CSC105/

COVID-Specific Rules for In-Person Instruction

- Masks must be worn at all times and should cover your mouth and nose
- No eating or drinking during class
- By the end of the first week of in-person instruction, you should always be seated in the same place
- During class, always use the same lab computer

General Information

Course Description

Introduction to the field of computer science with a computer games theme. Introduces students to algorithms, basic data structures, and programming techniques. At its core, this course is about **how computer scientists think about and solve problems**. Computer game development is used as

an example application area and students learn to implement the logic behind well-known games, such as chess and poker.

Expectations and Goals

A student successfully completing this course will be able to do the following:

- Understand and explain a given Python program
- Simulate the outcome of a given Python program
- Design and implement effective solutions to problems using Python by defining functions to solve subproblems
- Write algorithms in pseudocode that will successfully solve a problem
- Practice good debugging skills
- Apply this understanding of programming and problem solving in other computer science courses

The following topics will be covered (at minimum):

functions
variables
assignment
conditionals
loops
recursion
lists/arrays
file reading/writing
binary numbers and ASCII
strings and string methods
dictionaries

Prerequisites

No prior knowledge of programming is required for this course.

Course Materials

Required Materials

- **Textbook:** Guttag, John. *Introduction to Computation and Programming Using Python: With Application to Understanding Data Second Edition*. MIT Press, 2016. ISBN: 9780262529624. (Chapters 1 to 5)

  An older version of the ebook is available in the Union College library. See here for more buying and renting options.
  I will also be referring to the **lecture slides** based on the textbook available here. The slides only present summaries of the topics but there is more detail in the book.

• Free online textbook: https://greenteapress.com/thinkpython2/html/index.html

Optional Materials

Here are some additional textbooks that you can refer to:

• John Hunt. *A Beginners Guide to Python 3 Programming (Undergraduate Topics in Computer Science) First Edition.*
• Magnus Lie Hetland. *Beginning Python: From Novice to Professional 3rd Edition.*

Course Software and Labs

You will be learning how to program in Python 3 with IDLE. All computer science labs have this software installed. We have three spaces that you can use:

• Olin 107, where we have class
• Pasta lab (N104 in the Science & Engineering building)
• CS Resource room (Steinmetz Hall, 209A, just down the hall from my office)

All of these labs are available to you 24/7 using your ID card, except when classes are being held in them. If you have never logged into a computer in one of these labs before, your username is the same as the part of your union email address before the @ and your password is "unionXXXXXXX" where the X's are replaced by your 7-digit student id number.

Python/IDLE are available for free on the internet, you should feel free to install and use them on your personal machine.

Coursework and Grading

Exams (60%)

There is one midterm, one final exam, and four mini-exams:

Midterm (20%) - **Feb 07, 2022**
Final Exam (20%) - TBD

Each mini-exam will contribute 5% to your grade. The mini-exams will each focus on specific topics covered in class and will mainly consist of programming problems.

All exams are closed book and limited notes. You may bring one single-sided page of notes to the midterm and the mini-exams and two single-sided pages of notes to the final. If you cannot be at an exam for a good reason (illness, for example) then please let me know so we can make other arrangements. The final will be cumulative. On exams, you will be responsible for all material covered in the readings and in lectures.

Homeworks (32%)

Homeworks (HWs) will be assigned throughout the term to reinforce the concepts discussed in class. There will be four HWs and each HW will contribute 8% to your grade. You will have one week's time to complete each homework assignment.

Late submissions will be accepted with a 50% deduction within the 24-hour period following the submission deadline. The deduction will be waived if there are extraneous circumstances out of the student's control and appropriate documentation is provided.

Microquizzes (8%)

There will be a 1-point closed-book, closed-notes quiz at the start of most classes and will likely contain a question on a topic covered in the previous class. You can miss 4 of these quizzes without penalty. You won't be allowed to take the microquiz if you enter class after I've finished passing it out. You may not make up for a missed microquiz.

Grades will be assigned via the scale listed below. Rounding or curving of grades is not anticipated.

A	>93	A-	90 - 92.99		
B+	87 - 89.99	B	82 - 86.99	B-	80 - 81.99
C+	77 - 79.99	C	72 - 76.99	C-	60 - 71.99
D	60 - 69.99				
F	<60				

In computer science, we start with simple things and build on them and combine them into more and more complex ideas. It is important that you don't fall behind. Microquizzes, mini-exams, etc. are there to motivate you to review material regularly and to keep up. If you feel at any point that something is not quite clear to you, it's your job to come see me so that we can clarify that issue before we get to something more complex that builds on it.

Note that you must get a C- or better in this course in order to take any other course that requires an Introductory CS course as a prerequisite.

Notes

Attendance and Participation

Students are urged and required to attend classes. This is the most effective and efficient way to study for this course. You are also strongly encouraged to participate in class.

Academic Dishonesty

All work that every student submits in this course must be the student's own. That is, it must represent the student's own understanding and effort and be written by the student. Discussion of problems is encouraged, but writing solutions together or looking at any other student's written

solutions are not allowed. All print or online resources that any student uses in the student's submitted work must be cited properly. Use of any solution manuals is not allowed.

In general, for homework and exams in this course, every student is required to abide by the principles and procedures set forth by the college in the Code of Honor. When in doubt, please consult the instructor for clarification.

Distribution of Course Materials

All course materials prepared by the Instructor and distributed privately (including through Nexus) should not be redistributed in any way.

Make Use of Resources

Ask questions and seek help. Please come to my office hours or schedule to meet with me as often as you would like. It's better for everybody (you AND me) if you understand things sooner rather than later. You'll get the help you need faster by starting on HWs sooner rather than waiting until the last minute.
There's also a **CS Helpdesk** (run by CS students) which will operate from Sunday to Thursday every week between 7 to 9 PM in Olin 107 starting Jan 10, 2022. I would also encourage you to go to the CS Helpdesk.
It is important that you fully understand the concepts that are covered in class and are able to solve the problems. Please do not hesitate to ask for help.

Accommodations

Union College facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions and temporary disabilities resulting in difficulties accessing learning opportunities. All students needing services must first register with Accommodative Services located in Reamer 303. It is strongly recommended that accommodations be requested within the first two weeks of the term. Last minute requests can be denied. Any student with a documented learning disorder is welcome to come talk to me privately about options for completion of exams and homework assignments.

Mental Health

Diminished mental health can interfere with optimal academic performance. The source of symptoms might be related to your course work; if so, please speak with me. However, problems with other parts of your life can also contribute to decreased academic performance. The Counseling Center provides cost-free and confidential mental health services to help you manage personal challenges that threaten your emotional or academic well-being.

Remember, getting help is a smart and courageous thing to do — for yourself and for those who care about you. For more resources please see https://www.union.edu/counseling-center.

Diversity and Inclusion

Union College is committed to social justice and diversity. In this course, we share that commitment and strive to maintain a positive learning environment based on open communication, mutual respect, and non-discrimination. In this course, we will not discriminate on the basis of race, sex, age, economic class, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment will be appreciated and given serious consideration.