Welcome to CSC111!

Computer science is an exciting and expanding field that is increasingly becoming imbedded into every facet of life. Having a basic understanding of computational thinking and programming is the first step to contributing to the next great innovation. In this course we focus on fundamental ideas, principles, and methodologies in computer science. To contextualize these ideas we write programs using Python, but the skills you develop will apply to other languages as well. In the first half of the semester we discover individual constructs in programming and in the second half we look at applications as well as an introduction to some data structures.

Learning Promises

By the end of this course, you will be able to:

- Create and document computer programs using correct Python syntax that can be readily understood and used by other programmers.
- Propose algorithms in order to analyze problems that use basic control flow constructs (e.g., if-then statements, loops, functions, lists, simple input-output).
- Demonstrate foundational development techniques, including top-down design, program documentation, modular design, and library usage.
- Understand the high-level internal operation of a computer, including the central processing unit, simple memory management.
- Explain core computer science topics, such as complexity, object-oriented programming (OOP), sorting, and recursion.

This course will also help you develop the Essential Capacities for Smith Students.

Course Topics

In CSC111 we will cover the following topics, but not necessarily in this order):

- How Computers Work
- Logical and Mathematical Operators
- Conditionals, Iteration, and Loops
- Strongs, Lists, and Dictionaries
- User Input and Output
- Functions and main()
- Random Numbers, Debuging, and Testing

In addition to these core programming concepts, we will also introduce foundational computer science principals:

- Classes and Object-Orientation
- Graphics and Animation
- Files and Data Storage
- Advanced Topics: Recursion, Sorting

Course Details

Grading

Your final grade in this course will be calculated as follows:

- Homework assignments and class participation. 60%
- Tests. 20%
- Course Project. 20%

Homework Assignments

This course has approximately 8 homework assignments. Assignments will be uploaded to Moodle/Replit on Wednesday and due on the following Thursday at 10:00 PM (EST). Please begin your assignments as early as possible, as most of them demand many hours of work. Also, before going to TA hours for help, try to spend enough time (at least 1 hour) working on your assignment. It will help your learning. Even though the assignments may appear to be a lot of work, by completing them and understanding every line of code you write, you will make progress toward your learning goals each week. At the end of the semester, your learning will pay off for the final project and furthermore.

Class Participation

In-class activities are a very important part of this class, in which all students are expected to be active participants. Grades for this part will take into account the following factors: attendance, respect for other students and for the instructor, contribution to group discussions and pair programming, submission of in-class labs, and preparedness for each class (having completed the assigned readings, video, or a problem set for the day). All students are allowed three unexcused absences, but four or more absences will start to impact your grade. When you are unable to attend class, you can watch the recorded videos of the class, and it will count as attendance.

Tests

In this course, there will be two tests. These tests are intended to evaluate your progress toward learning constructs and complement the labs and homework assessments. Prior to each test, more information regarding the format and content will be provided.

Course Project

There is one major group final project on a topic of your choice. As a group, you will propose a topic and create prototypes of your program throughout the second half of the term. You will present your project in the final week of class and reflect on the experience. As the term progresses, more details will be provided.

(Extra Credit) Learning Quests

To receive extra credit in this course, you are invited to participate in roughly one learning quest each week (up to 10 for the course). There are 20+ quests to choose from and you should only complete each learning quest once. See the main Moodle page for the list of learning quests. You should report your progress each week on the Google form linked from the main Moodle page.

Prerequisites

This course does not have any prerequisites. In this class, we will not assume that you have prior computer science or programming experience. If initially you find the pace of class too slow and homework too easy, then you are invited to help your peers in the lab, until everyone has caught up to your prior experience. To this end, everyone is expected to respect and honor the unique perspectives each participant brings to this course and work to help one another.

Course Materials

There is no required textbook for the course, and you do not need to buy any textbook to be successful. Below are textbooks that you may want to review as a resource and some students have found helpful in the past:

1. Allen B. Downey. Think Python; 2nd edition (2015). ISBN: 978-1491939369 Note: eBook available for **FREE**.
2. John M. Zelle. Python Programming: An Introduction to Computer Science. Franklin, Beedle & Associates; 3rd edition (August 8, 2016). ISBN: 978-1590282755 *Note: This is the newer edition, but the 2nd edition is also fine as a reference.*
3. ZyBooks. CSC 111: Introduction to Computer Science Through Programming. ISBN: 979-8-203-93703-2 (see below).

The Downey and Zelle books have been put on course reserve at the Library.

How to buy the ZyBook ($69.30):

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: `SMITHCSC111Spring2022`
3. Subscribe

If you need help covering the cost of textbooks or other academic supplies (for this or any of your courses!) please fill out the Academic Funding Application found at socialnetwork.smith.edu/forms (you must login before the forms will appear).

Late Policy

Doing the homework assignments in a timely manner greatly contributes to your learning experience. The assignments are meant to help you exercise the material you learned while it is still fresh in your mind. It also enables you to check your grasp of the material and ask for help, if needed, so you do not fall behind. In my effort to motivate you to do your homework assignments in a timely manner, no late assignments will be accepted.

However, sometimes life rears its ugly head; and yes, as you will hopefully see in this class, context does influence learning, thinking, and overall development. When something happens in terms of family, friends, or school, it is hard to focus and concentrate. So, I want to be able to accommodate these situations fairly for everyone and will give you three days (i.e., up to Sunday night at 10 PM) extensions as long as you meet the following conditions.

1. By the initial assignment deadline (i.e., Thursdays 10 PM EST), you must submit a partially finished project on Replit, demonstrating what you have completed thus far.

2. By the initial assignmnet deadline (i.e., Thursdays 10 PM EST), you must send a direct message (DM) to the instructor (Shinyoung) on class Slack, stating which assignment will be late and when it will be submitted. Email requests will not be accepted.

3. You must recognize that TA support is unavailable on Fridays and Saturdays, and that the instructor (Shinyoung) cannot guarantee help over the weekend.

Class Dean extensions are acknowledged. Travel, especially for seniors interviewing, allows extensions as long as you notify me of your absence in advance. Other late work, other from homework assignments, should be discussed with me ahead of time.

Audio/Visual Recording Policy

Recording class meetings may be a more accessible option for students, as we learned during the pandemic. As a result, the instructor will record and post the class sessions. By participating in class sessions, you consent to being recorded. Distributing class recordings without permission of the instructor is considered a violation of the Honor Code.

Classroom Policy

For accessibility reasons, we kindly ask that you refrain from wearing any scented products in class, TA hours, or office hours for CSC111.

Please do not attend class if you have a cold or the flu symtoms. This puts your health, as well as the health of those in our classroom, at jeopardy. This can be especially severe for people who suffer from autoimmune diseases. Send a note to the instructor (Shinyoung) via Slack Direct Message if you're sick or/and have to miss class. This will be considered class participation. I will record each class session and release the videos and transcripts to ensure that all students in the class have access to them.

If we are using Zoom at any point during the semester, I encourage you to turn on your camera if your internet connection allows it while in class/discussion. However, if you opt to attend class without interacting via video or voice, you will not be punished in any way. When you are not speaking, please mute your microphone. You can ask questions by raising your hand or typing them into Zoom's chat feature. Zoom will only record your video if you are speaking and have your microphone turned on (known as spotlight view). If you don't want your image to be recorded, turn off your camera before answering a question.

Accessibility

We all learn in different ways, and we each have unique strengths and capabilities. I work hard to foster a supportive learning environment and vary the activities used during the course to suit a variety of learning patterns, and I am always open for suggestions. Please come talk to me if you have an idea that will make the course more accessible to you and/or other students. If you need special accommodation, like extended

exam time, please check with the Office of Disability Services in College Hall 104 or at ods@smith.edu. Let me know if you need help with this process

University policies and information

Academic HonestyStatement: Smith College expects all students to be honest and committed to the principles of academic and intellectual integrity in their preparation and submission of course work and examinations. All submitted work of any kind must be the original work of the student who must cite all the sources used in its preparation. Smith Honor Code, Student Handbook,retrieved from https://www.smith.edu/sao/handbook/socialconduct/honorcode.php.

Acknowledgement: Some of the materials used in this course and this syllabus are derived from previous offerings of this and other courses at Smith College, as well as similar courses taught at other institutions. Appropriate references will be included on all such material.