UCLA Computer Science 30: Principles and Practices of Computing

Overview

This course is intended for students who do not have prior programming experience, as a precursor to the existing introductory course sequence (CS31, CS32, and CS33). The course aims to illustrate the power and fun of computing through a variety of applications. It also aims to teach students how to use computers as a tool for problem solving, creativity, and exploration via the design and implementation of computer programs.

CS30 will use the popular Python programming language as a vehicle for introducing students to programming and the broader field of computing. Students will learn how to design, implement, and test programs that solve computational problems. Key concepts learned will include:

- functional decomposition: the ability to break a task into an appropriate set of subtasks, each implemented as a function
- usage of common data types: integers, booleans, strings, and lists and similar container data structures
- usage of common control structures: conditionals and loops

Logistics

Lectures are at 9am-12pm on Mondays- Friday on Zoom at this link. All of the course information and materials are available on the CS30 homepage. You must login using your BOL account in order to gain full access to the materials.

Getting Help Outside of Class

We will be using Piazza as our class discussion forum. You should sign up for the forum here.

If you have a general question that other students may be able to answer and/or could benefit from knowing the answer to, you can ask it on Piazza. Of course, you should never post anything that gives away part of your answers to an assignment or violates our academic integrity policy (see below) in any way. For example, **posting your code is never allowed**. If in doubt, don't post.

If you have a specific question about your work, you should attend either my or a TA's office hours. If for some reason you cannot attend office hours, then you can send a "private note" to the instructors on Piazza. **Do not send email to individual TAs or the instructor.**

Text

We will be using the textbook CS For All. It is available at the UCLA Bookstore, including a digital version I believe. Readings will be assigned from this book throughout the quarter.

Homework

Programming assignments constitute the majority of the course workload, and they are the primary means by which you actually learn the concepts taught in lecture.

Late Policy

You can turn in each homework up to one day late for partial credit. If your score would normally be S, then being 1 day late will make your score S * 0.5. **One second late is equivalent to 23 hours, 59 minutes, and 59 seconds late -- both cost one late day.**

Grading

- homeworks: 40%
- midterm exam : 30%
- final exam: 30%

The midterm exam will be on June 30. The final exam will be on Friday, July 9. More details to come.

Tentative Schedule

Week	Date	Topic/Lecture Morning 9:00-12:00 AM	Assignment	Due	Afternoon 1:00-4:00 pm
1	Monday 6/21	• Introduction: Computer System • What is program made of? • Common elements in programming languages • picobot			**Coding – Homework / Capstone Project** *Picobot*
	Tuesday 6/22	• Functions • lists	**Project1**	**6/25**	**Coding -- Homework / Capstone Project** *Functions, lists*
	Wednesday 6/23	• Conditional statements			**Coding -- Homework / Capstone Project** *Conditional statements*
	Thursday 6/24	• Random class • Recursive functions			**Coding -- Homework / Capstone Project** *Recursive Functions* *Random*
	Friday 6/25		**Project2**	**6/29**	**Lab Touring / Seminar**
2	Monday 6/28	• Turtle			**Coding – Homework** **Capstone Project** *Turtle*
	Tuesday 6/29	• Continue Turtle • Sorting algorithms	**Project3**	**7/2**	**Coding – Homework** **Capstone Project** *Sorting algorithms*
	Wednesday 6/30	• Introduction to Loops: ➢ The while loop	**Midterm**		**Midterm**
	Thursday 7/1	• For loop			**Coding -- Homework** **Capstone Project** *While, for loop*
	Friday 7/2		**Project4**	**7/6**	**Lab Touring Seminar**
3	**Monday 7/5**	**HOLIDAY—No Class**			***Holiday***
	Tuesday 7/6	• Lambda, map, list	**Project5**	**7/8**	**Coding - Homework** **Capstone Project** *Lambda, map, list*
	Wednesday 7/7	• Filter, reduce			**Coding -- Homework** **Capstone Project** *Filter, reduce*
	Thursday 7/8	• Files Read-Write			**Coding -- Homework** **Capstone Project** *File read-write*
	Friday 7/9	• Final			**Coding contest**

Academic Integrity

I trust you, and I take violations of this trust quite seriously. Both SEAS and the university as a whole have strict policies on academic integrity. Our course additionally has its own policy on academic honesty, which can be found on the course web page. **We will adhere to these policies strictly.**

CAPS

UCLA Counseling and Psychological Services (CAPS) provides mental health care and resources for all registered students, including short-term individual and/or group treatment, urgent services and referrals when needed. Your well-being is the #1 priority of UCLA CAPS. Counselors are available by phone at (310) 825-0768 24/7. Learn more at this website.