

# CS 230: Software Engineering - Mobile Computing

## Syllabus – Spring 2021

**Instructor:** Nathan Sommer

**Email:** nsommer@wooster.edu

**Office Location:** Taylor 313

**Office Hours:** See course web site.

**Meeting Time:** MWF, 9:15 AM to 10:05 AM in Taylor 302 or Microsoft Teams

**Course Web Site:** [csweb.wooster.edu/nsommer/cs230](http://csweb.wooster.edu/nsommer/cs230)

## Course Description

Software engineering is the discipline concerned with the application of theory, knowledge, and practice to effectively and efficiently build reliable software systems that satisfy the requirements of customers and users. This course introduces the field of software engineering in the context of the design and implementation of software for mobile devices.

## Course Goals

Upon completion of this course, a successful student will be able to:

- Recognize and carry out the key steps involved in the software engineering process.
- Write cross-platform mobile applications using the Kivy framework.
- Apply testing practices to increase confidence in the correctness of code.
- Use Git for collaborative development of software projects.
- Use common design patterns to design modular programs with loose coupling.

## Required Text

The following text is required:

- *A Brief Introduction to Software Development and Quality Assurance Management* by Steven Shaffer. Available as an ebook from Amazon for \$0.99.

Reading assignments from the required text and from online sources will be assigned throughout the semester.

# Learning Amidst COVID-19

The current pandemic obviously has a dramatic effect on how we will conduct classes this semester. I will do my best to create a conducive environment for learning in the face of this challenge, and some adjustments to the course may be made as we go along. Let us all practice patience and kindness towards one another as we figure things out together.

## Course Format

Classes are to be held remotely via Microsoft Teams at the beginning of this semester, and in-person classes will start later (unless policy changes, this will be February 1). Once the College begins allowing in-person classes, students will have the option to attend this course in-person or to continue attending remotely via Teams. It may be the case that there are more students who wish to attend in-person than there are seats in our classroom. If that is the case, a rotation will be devised.

## Recording of Classes

Given the pandemic, circumstances are more likely to arise that make it difficult or impossible for some students to attend class at some point during the semester. Additionally, some remote students are in drastically different time zones and may find it difficult to attend class during our allotted time. Because of this, I plan to record our class sessions within Teams so that students can review the content at a later time, and students who have to miss class for exceptional circumstances can catch up more easily. These recordings will only be accessible by class participants, and they may not be distributed beyond this class in any form without the permission of all participants.

## Additional College Policies

See here for additional College-level information:

<https://www.wooster.edu/info/2020-2021-guide/>

## Course Outline

The exact schedule of the course will depend on our rate of progress through the material. Below is an outline of topics, roughly in the order that we will cover them.

- Git
- Python review
- Beyond beginner Python
- Design patterns
- Kivy

- Software engineering process
- Projects

## Assignments and Exams

Your grade will be calculated based on the following items:

- **Homework** – Homework will be assigned regularly throughout the semester. Homeworks will consist of small programming tasks, written exercises, and reading responses. Each homework will typically be due the class period after it is assigned. Some of the homework assignments will begin with coding in class.

Most assignments will be collected either through git-keeper or on GitHub. You are responsible for ensuring that assignments are submitted correctly. For assignments collected through git-keeper you will always receive an email when your submission has been received successfully. If you do not receive an email and you are certain you pushed your submission and there were no errors on your end, contact me.

- **Projects** – These assignments will be more involved than homework assignments, and you will be given more time to complete them. Completion time and grading will vary from project to project.

Some projects will be done individually and others as teams. For team projects, everyone on the team is expected to contribute to the project. For some of the projects you will keep a development journal where you will write about your contributions to the project. Should disputes within teams arise, try to resolve them as a team first. If this does not work, communicate problems to me in private.

The final project will be a group project that will culminate in a presentation.

- **Midterm Exams** – There will be two exams throughout the semester. They are tentatively scheduled for Monday, February 22 and Monday, April 5. You may only re-schedule a test for college approved absences or a documented illness. In either case you must contact me *before* the beginning of the exam.

## Grading

Grades will be weighted as follows:

- 35% Homework
- 35% Projects
- 30% Exams (15% each)

I will use the standard 90, 80, 70, 60 grading scale with pluses and minuses. I may relax these standards as necessary but I will not raise them.

## Communication

Feel free to talk to me about any issues that may arise. The preferred means of communication about course material is via direct message on Microsoft Teams. If you have questions about programming assignments, it is often most effective to talk via a video call so that you can share your screen with me.

You may book a time to meet with me during my office hours using the booking link on the course web site. If there are no spots free or you cannot make my normal office hours, let me know and we can figure out another time to meet.

## Course Policies

- **Assignment Submissions** – Assignments must be submitted in the appropriate fashion, generally either through git-keeper or GitHub. Assignments submitted through email or hard copy will not be accepted unless I explicitly ask for them to be submitted this way.
- **Late Policy** – I will do my best to grade and return assignments to you as soon as I can. Late submissions make timely grading much more difficult. As such, any submission I receive after I have started grading an assignment will be subject to a 25% penalty for each day that it is late, starting as soon as I start grading the assignment.

If an assignment's due date has passed and I want to start grading submissions but *nobody* has submitted, the 25% penalty starts at that point regardless of the fact that there is nothing to grade.

Exceptions to this policy will be granted in special circumstances. You must let me know *before* the due date if you feel you have a valid reason why you cannot turn an assignment in on time.

- **Extensions** – I will extend an assignment's due date for the entire class if it is clear that the original time frame was unreasonable. If you are going to bring up the possibility of a due date extension for a programming project, be prepared to demonstrate that you have already made substantial progress on the project.

Please contact me if you find yourself in a situation where you need an extension for personal reasons.

- **Academic Honesty** – You are encouraged to discuss homework assignments and programming projects with other students. However, any uncited work you turn in must be your own.

Software similarity is a tricky thing as some similarities between code submissions are inevitable. I draw the line at submissions that contain a significant amount of code that is either identical to someone else's code or submissions where the only differences are purely cosmetic (i.e. variable and function names have been changed to hide code copying). If in doubt, put a comment in your code citing a source or acknowledging collaboration. Contact me if you have any doubts about what is permissible.

Dishonesty in any of your academic work is a serious breach of the Code of Academic Integrity and is grounds for an F for the entire course. Such violations include turning in another person's work as your own, copying from any source without proper citation, crossing the boundary of what is allowed in a group project, submitting an assignment produced for a course to a second course without the authorization of all the instructors, and lying in connection with your academic work. You will be held responsible for your actions.

You are expected to know and abide by the rules of the institution as described in *The Scot's Key* and the *Handbook of Selected College Policies*. These policies are available here:

<https://www.wooster.edu/academics/affairs/policies/>

- **Conflicts with Academic Responsibilities** – The College of Wooster is an academic institution and its fundamental purpose is to stimulate its students to reach the highest standard of intellectual achievement. As an academic institution with this purpose, the College expects students to give the highest priority to their academic responsibilities. When conflicts arise between academic commitments and complementary programs (including athletic, cultural, educational, and volunteer activities), students, faculty, staff, and administrators all share the responsibility of minimizing and resolving them.

As a student you have the responsibility to inform the faculty member of potential conflicts as soon as you are aware of them, and to discuss and work with the faculty member to identify alternative ways to fulfill your academic commitments without sacrificing the academic integrity and rigor of the course.

- **Recording Classroom Activities** – No student may record or tape or photograph any classroom activity without the express written consent of the course instructor.

## The Learning Center: Academic Support and Disabilities

The Learning Center, which is in APEX (Gault library) offers a variety of academic support services, programs and 1:1 meetings available to all students. Popular areas of support include time management techniques, class preparation tips and test taking strategies. In addition, the Learning Center coordinates peer-tutoring for several academic departments. Students are encouraged to schedule an appointment at the APEX front desk or visit the Learning Center Website for additional options.

An additional support that the Learning Center offers is English Language Learning. Students can receive instruction or support with English grammar, sentence structure, writing, reading comprehension, reading speed, vocabulary, listening comprehension, speaking fluency, pronunciation, and American culture through 1:1 meetings with the Learning Center staff, ELL Peer Tutoring, ELL Writing Studio courses, and other programming offered throughout the year. Students seeking ELL support are encouraged to visit the APEX front desk.

The Learning Center also coordinates accommodations for students with diagnosed disabilities. At the beginning of the semester, students should contact the Learning Center (ext. 2595) to make arrangements for securing appropriate accommodations. Although the Learning Center will notify professors of students with documented disabilities and the approved accommodations, students are encouraged to speak with professors during the first week of each semester. If a student does

not request accommodations or does not provide documentation to the Learning Center, faculty are under no obligation to provide accommodations.

## **Title IX Reporting Policy**

The College of Wooster is committed to fostering a campus community based on respect and nonviolence. In accordance with Title IX, Wooster is legally obligated to investigate incidents of sexual harassment and sexual assault that occur on our campus. Faculty who become aware of any incident of sexual violence, including harassment, rape, sexual assault, relationship violence, or stalking, are required by law to notify Wooster's Title IX Coordinator. For more information about your rights and reporting options at Wooster, including confidential and anonymous reporting options, please visit <http://www.wooster.edu/offices/title-ix/>.

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The details of this syllabus are subject to change based on our progress through the material and the ever evolving COVID-19 situation.