SWE 265P, Reverse Engineering & Modeling, Spring 2024
Syllabus

Professor

André van der Hoek

http://www.ics.uci.edu/~andre

E-mail: andre@ics.uci.edu

Teaching assistants

Yirui He

E-mail: yiruih@uci.edu

Yu Lu

E-mail: ylu31@uci.edu

Office hours

André: Monday 10:00-11:00, in person, ISEB 2426

Yirui: Wednesday 15:00-16:00, in person, ISEB 2402

Yu: Friday 15:00-16:00, in person, ISEB 2402

Potential disruption during Spring 2024 quarter

There are various reasons why students may encounter disruption to their ability to complete class activities during Spring 2024. This particularly includes potential increases in COVID cases in parts of the US or other countries, but also may involve other situations such as wildfire evacuations in California. There are also other circumstances that students have little control over, such as their computer breaking or a loss of internet access.

I have therefore made several structural decisions for this class. These include:

- a more evenly distributed point distribution, across various homework assignments and diary entries, so that emergencies can be accommodated
- allowing up to two team homework assignments to be resubmitted after you have made updates based on the feedback received (must be resubmitted within five days after receiving the feedback)

I did this to ensure that we are prepared for most contingencies, should not need to make changes to the syllabus part way through the quarter, and so that the class is as equitable as possible to all students.

To make the most of this extra flexibility, I encourage you to:

- avoid resubmitting a team homework early in the quarter due to a minor situation so that you can make use of resubmitting a low score team homework later in the quarter if unexpected severe disruptions occur
- communicate with me as soon as possible if situations arise that prevent you from being able to complete the assigned work

Late work

Late work will not be accepted.

Accommodations

Any student who feels they may need an accommodation based on the impact of a disability should contact me privately to discuss their specific needs. Also contact the Disability Services Center at (949) 824-6272 as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

COVID-19 accommodations

Any student who feels they may need additional accommodation (beyond that outlined in the above) based on experiencing a particularly severe hardship should contact me privately to discuss their specific needs. Please do so as soon as possible to better ensure that such accommodation is implemented in a timely fashion.

Inclusion

UCI is a multicultural community of people from diverse backgrounds. Our activities, programs, classes, workshops, lectures, and everyday interactions are enriched by our acceptance of one another, and we strive to learn from each other in an atmosphere of positive engagement and mutual respect.

https://aisc.uci.edu/policies/pacaos/principles-of-community.php

In this class, wholeheartedly embracing this philosophy is essential. Software development has been proven to benefit from the diversity of perspectives and life experiences of those who are involved: the software that results is of higher quality, time and again.

Academic integrity

Academic misconduct, in its most basic form, is gaining or attempting to gain a grade, degree, or other academic accomplishment by any means other than through your own work. The formal policy, to which this class adheres, states:

"No student shall engage in any activity that involves attempting to receive a grade by means other than honest effort, and shall not aid another student who is attempting to do so."

For more information, please view UCI's Academic Integrity Policy:

https://aisc.uci.edu/policies/academic-integrity/AcademicIntegrityPolicyApproved-04.23.15.pdf

and Procedures:

https://aisc.uci.edu/policies/academic-integrity/Academic-Integrity-Procedures-06.07.2016.pdf

You may also view a flowchart:

https://aisc.uci.edu/policies/academic-integrity/OAISC%20Flowchart.pdf

of the Process for Resolving Violations of Academic Integrity.

Course lecture notes, video, and audio recordings

Selling, preparing, or distributing for any commercial purpose course lecture notes or video or audio recordings of any course unless authorized by the University in advance and explicitly permitted by the course instructor in writing. The unauthorized sale or commercial distribution of course notes or recordings by a student is a violation of university policies:

http://policy.ucop.edu/doc/2710530/PACAOS-100

whether or not it was the student or someone else who prepared the notes or recordings.

Catalogue description

Reverse engineering and Modeling (4). Introduces theories, concepts, representations, techniques, and case studies in understanding large-scale, complex software systems. Topics include static and dynamic modeling notations, manual and (semi-)automated reverse engineering techniques, APIs, patterns, and styles. A significant, hands-on project is included.

Course goals

The course has three distinct course goals:

- for you to be able to effectively use a set of strategies and tools for understanding, working with, and changing large software
- for you to be able to effectively model different aspects of large software
- for you to initiate or expand your professional portfolio by making small contributions to a large open source software system

which together add up to the larger objective of preparing you for your future careers:

- for you to be able to talk intelligently about this course and smartly draw upon its content when you interview

Course components

Class time: Tuesday @ 16:00-18:50 (note: bring your laptop to class)
Team project: your own time
Diary: your own time

Book

No required book, though the course does draw from:

Software Design Decoded: 66 Ways Experts Think
Marian Petre and André van der Hoek
Hardcover or Kindle, New or Used
https://www.amazon.com/Software-Design-Decoded-Experts-Think/dp/0262035189

Grades

Course project: 90%

- how do you think it works: 7.5%
- UML class diagram & highlight two features: 10%
- context & identify four issues: 12.5%
- five patterns: 10%
- submit two issue-based pull requests: 10%
- submit three test cases as pull requests: 10%
- model new feature: 10%
- submit new feature pull request: 20%

Diary: 10%

Peer evaluations of teamwork

- your contributions to the team homework
- your enabling others to make contributions
- *may significantly impact your letter grade*

Please note that, as the course unfolds, <u>Canvas projected letter grades are not reflective of the actual letter grade you will receive at the end of the course</u>. I will calibrate letter grades at the end, once all components of the course have been completed.

Midterm and final

No midterm and no final.

Attendance

Attendance is mandatory. You should be at every lecture. Failing to do so may influence your grade.

Schedule

Lectures

Week	Date	Topic
1	April 2	Introduction & course logistics
2	April 9	Basic strategies
3	April 16	*No class – Andre @ ICSE*
4	April 23	Mental models/simulation
5	April 30	UML
6	May 7	Broader context
7	May 14	Design patterns
8	May 21	Test cases
9	May 28	Modeling/designing
10	June 4	Design principles

Course project

Studio	Out	Due
How do you think it works	April 23	April 30
UML class diagram & highlight two features	April 30	May 7
Context & identify four issues	May 7	May 14
Five patterns	May 14	May 21
Submit two issue-based pull requests	May 14	May 21
Submit three test cases as pull requests	May 21	May 28
Model a new feature	May 28	June 4
Submit new feature pull request	June 4	June 11

Diary updates

Due weekly before the start of class

Resources

Writing Center: The Center for Excellence in Writing and Communication (or "Writing Center") offers students services that help with effective writing and communication. Some of the services they provide include, but not limited to appointments with a writing specialist, peer tutoring, and writing feedback via email. To book an appointment or for more information please visit:

https://www.writingcenter.uci.edu/

Disability Services Center (DSC): DSC is committed to making UCI a campus of equal opportunities and inclusion for students with disabilities. DSC supports students by providing reasonable accommodations, and related disability services to UCI students, Continuing Education, Summer Session students, and other program participants. DSC also collaborates with faculty/staff to provide reasonable accommodations and services. For more information, visit their website:

https://dsc.uci.edu/

LGBTQ Resource Center: The LGBTRC offers students a variety of academic and interpersonal support through educational workshops, trainings, and access to its cyber center. The cyber center includes computers, Wii console, and library of movies for student use. For more information, visit their website:

https://lgbtrc.uci.edu/

International Center: The International Center assists international students through advising, immigration services, programming, advocacy, and outreach. Please visit their website for more information:

https://ic.uci.edu/

Dream Center: The UCI DREAM Center serves undocumented students and students with mixed-status families through advocacy, guidance, and support. The provides an array of programs and services to help students achieve academic, personal, and professional excellence. For more information, visit their website:

https://dream.uci.edu/

Office of Inclusive Excellence: The Office of Inclusive Excellence drives UCI's commitment to equity, diversity, and inclusion. This commitment is fundamental to advancing the campus's mission as a public research university. To this end, the office provides campus accountability, mounts training and education, conducts responsive research, and builds and sustains partnerships with universities and colleges that share this commitment. Our mission is to establish UCI as a national leader and global model of inclusive excellence, where all faculty, graduate and undergraduate students expect equity, support diversity, and practice inclusion. For more information, visit their website:

https://inclusion.uci.edu/

Basic Needs Center: Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the UCI Basic Needs Center at basicneeds@uci.edu. The

UCI Basic Needs center offers the UCI Food Pantry, an emergency meal swipe service, application assistance for CalFresh/EBT benefits, and other resources to help.

https://www.basicneeds.uci.edu