CSCI 150 INTRODUCTION TO SOFTWARE ENGINEERING

SYLLABUS FOR CSCI 150 INTRO TO SOFTWARE ENGINEERING	
Semester: Fall 2018	**Department of Computer Science California State University, Fresno**
Course Name: Introduction to Data Structures	**Instructor Name: Shih-Hsi "Alex" Liu**
Units: 3	**Office Location: Science II, Room 271**
Time: TTh 2-2:50pm	**E-Mail: shliu@mail.fresnostate.edu**
Location: Kremen 390	**Telephone: 559-278-4789**
Website: http://zimmer.csufresno.edu/~shliu	**Office Hours: TBA (Will be available on my website)**
Lab info: TTh: 3:30-4:20 in IT104 or TTh: 4:30-5:20 in IT104	**Lab instructor: Aakash Lalchandani aakashl1993@mail.fresnostate.edu**

Course description:

History, goals, and motivation of software engineering. Study and use of software engineering methods. Requirements, specification, design, implementation, testing, verification, and maintenance of large software systems. Team programming. (2 lecture, 2 lab hours)

Prerequisites:

CSCI 41 Introduction to Data Structures (4)

Two key philosophies:

- "Coming together is a beginning. Keeping together is progress. Working together is success." *--Henry Ford*
- "Teamwork is the ability to work together toward a common vision. The ability to direct individual accomplishments toward organizational objectives. It is the fuel that allows common people to attain uncommon results." *--Andrew Carnegie*

REQUIRED COURSE MATERIALS

The following textbooks will be used for this course in Fall 2018.

- Ian Sommerville, *Software Engineering*, the 10th edition, Addison- Wesley, 2015. **[SE] in the course schedule table.**
- Stephen R. Schach, *Object-Oriented and Classical Software Engineering*, McGraw-Hill, the 8th edition, 2010. **[UML] in the course schedule table.**
- (Optional) Ivan Marsic, *Software Engineering*, 2012 (online book).

The following textbook will be *references* for this course in Fall 2018 (They will become CSci 152 textbook in Spring 2019).

Andrew Hunt and David Thomas, *The Pragmatic Programmer: From Journeyman to Master*, Addison Wesley, 1999. **[PP] in the course schedule table.**

Steve McConnell, *Code Complete: A Practical Handbook of Software Construction*, the 2nd edition, Microsoft Press, 2004. **[CC] in the course schedule table.**

Martin, Robert C. *Clean Code: A Handbook of Agile Software Craftsmanship*. Prentice Hall, 2009.

COURSE SPECIFICS

Summary/outline of the course:

CSCI 150 and CSCI 152 are software engineering classes in sequence. In addition to the course description above, CSCI 150 will introduce a team-based environment for students to cultivate students' ability to learn from peers and gather, digest, analyze, and consolidate sources outside of class. Additionally, students will learn how to utilize software tools, framework and/or environments and apply "modularization" concepts to design, implement, test, and maintain small- to mid-size projects.

The goal of CSCI 152 is to further introduce more advanced topics and techniques (e.g., advanced design, implementation, testing, and modern software engineering) and demonstrate the abovementioned topics/techniques.

Student Learning Outcomes:

After successfully completing this course, students will be able to:

- Explain, analyze and design a variety of UML diagrams.
- Demonstrate how to elicit requirements informally, semi-formally, or formally.

- Demonstrate the capability to design, implement, and test a team-based software project.
- Demonstrate the capabilities of utilizing modern software tools/frameworks/environments.
- Compare and then apply different software processes and team organizations suitable for students' own needs.

Course requirements/assignments:

Your final grade for this course will be determined by the following items:

Lab attendance	-0.5%	for each absence w/o official doc from doctors/supervisors.
In class quizzes	9%	1.5% each. 7 written quizzes in total. Drop the worst one. (Quizzes may be scheduled during lab sessions).
Lab assignments	11%	3 UML exercises (3%, 4%, 4%). This is individual work.
Project (Team)	13%	Evaluate performance as a team, 9% from me, 3% from your teammates and whole class
Project (Individual)	13%	Evaluate individual performance, 9% from me, 3% from your teammates and whole class
Project (Milestone presentations)	4%	Two milestone presentations for current project status. 2% each (1% to individual; 1% to team).
Midterm:	20%	1 midterm
Final:	30%	**Comprehensive**

COURSE POLICIES & SAFETY ISSUES

- The Midterm exam is on Oct. 24 during class AND lab sessions. The final exam schedule is Dec 20, 2018 3:30pm-5:30pm. Please refer to the following link for further information: http://fresnostate.edu/academics/scheduling/documents/Final%20Exam%20Schedule_Fall_2018.pdf. Midterm may be rescheduled based on lecture progress (*final exam cannot be rescheduled*). There will be NO makeup midterm or final exam once announced. Please see me well in advance of the exam date if you have a conflict. Both midterm and final exams are structured with close books and notes.

Questions will be taken from the textbook as well as any possible supplemental materials (e.g., lab assignments, project, quizzes etc.)

- There will be a total of 7 quizzes. Each quiz will be conducted at the beginning of the *class or lab* on the scheduled date. You will be able to drop the lowest score (that is, only the top 6 scores will count toward your overall quiz grade). **Quiz schedule may be changed according to lecture progress**, and there will be **NO makeup quizzes**. Lecture attendance is encouraged. However, if you are absent from class, it is your responsibility to check on announcements and quiz schedule made while you were away.
- **Teamwork** in labs is a substantial part of the course. **Requirements, design, implementation (with comments), testing artifacts and project plan should be continuously and consistently updated to your Github repository**. ***Each individual will be evaluated by the history of commits to the repository***. Note that a small percentage of your grade will be based on my interpretation of peer reviews of your work.
- Course materials will be available on Blackboard. It is students' responsibility to check CSci 150 materials on Blackboard.
- Lab attendance and participation is REQUIRED. If you are absent from class, it is your responsibility to check on announcements and quiz schedule made while you were away. If student is absent from a lab session without official proof, -0.5% penalty will be given. If student is >= 10 minutes late or leave >=10 minutes earlier without official proof are considered absence, -0.5% penalty will be given. *Proofs should be submitted to both lecturer and lab instructor.* Cumulative absence penalties will be deducted from your overall score at the end of semester.
- Some lab sessions will be used for lecturing important Software Engineering team concepts.
- Assignments and Projects deadlines will be clearly specified. Except those with *hard deadlines*, assignments/projects will not be accepted more than one class meeting late, at a cost of 20% of the assignment credit. Submissions of homework/projects are through blackboard.fresnostate.edu. TurnItIn will be turned on to make sure students follow honor code. No hardcopy or email is accepted. It is YOUR responsibility to verify if your submission is successful or not. Help regarding blackboard is available at Blackboard webpage.
- For each submission, students will be randomly drawn to demonstrate and explain their submissions to instructor.
- Please frequently access to campus emails and blackboard for any announcements. It is your responsibility to keep up to date about any change of the course. Please feel free to bring in your laptops with needed software properly installed during lab sessions.

Grading policy:

Your final grade will be based on your total score according to the following scale. The instructor reserves the right to curve the final grade or not

SCORE GRADE

SCORE	LETTER MARK
90 ~ 100	A
80 ~ < 90	B
70 ~ < 80	C
60 ~ < 70	D
< 60	F

Assignment and examination schedule:

Please refer to course calendar available in the syllabus.

UNIVERSITY POLICIES AND SERVICES

Honor Code:

Members of the CSU Fresno academic community adhere to principles of academic integrity and mutual respect while engaged in university work and related activities.

Students should:

- understand or seek clarification about expectations for academic integrity in this course (including no cheating, plagiarism and inappropriate collaboration)
- neither give nor receive unauthorized aid on examinations or other course work that is used by the instructor as the basis of grading.
- take responsibility to monitor academic dishonesty in any form and to report it to the instructor or other appropriate official for action.
- do his or her own work. This means that you are not to seek out the help of other students in order to solve specific problems of your assignments (i.e., homework and projects). It also means that you should not sign up for mailing lists and ask for detailed help from others on the net.

Cheating and Plagiarism:

"Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include

assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it includes any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work." Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university. For more information on the University's policy regarding cheating and plagiarism, refer to the Class Schedule (Legal Notices on Cheating and Plagiarism) or the University Catalog (Policies and Regulations).

Copyright Policy:

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Tardiness:

You are expected to **arrive on time** (for lectures and labs) so that you do not cause a disruption in the middle of class. I would like to start the class at the scheduled time. If you cannot make it on time for some reason, please let me know. Persistent tardiness will be noted. Also, if you are late for a quiz or exam, you will not be given extra time to finish it.

Disruptive Behavior:

The classroom is a special environment in which students and faculty come together to promote learning and growth. It is essential to this learning environment that respect for the rights of others seeking to learn, respect for the professionalism of the instructor, and the general goals of academic freedom are maintained. ... Differences of viewpoint or concerns should be expressed in terms which are supportive of the learning process, creating an environment in which students and faculty may learn to reason with clarity and compassion, to share of themselves without losing their identities, and to develop and understanding of the community in which they live . . . Student conduct which disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class.

More specifically, please turn off all cell phones and pagers while you are in lecture and lab. Also, *please do not surf the web, check emails/text messages, or play (online)* ***games*** *during the lecture.*

Students with Disabilities:

Upon identifying themselves to the instructor and the university, students with disabilities will receive reasonable accommodation for learning and evaluation. For more information, contact Services to Students with Disabilities in the Henry Madden Library, Room 1202 (278-2811).

If you have any disability that would put you at a disadvantage in performing an assignment, or in taking an exam, please meet with me privately to discuss ways in which I can assist you as you perform the required work in this course.

Labs

- Lab attendance will be recorded every time. Lab absences *without* any compelling reasons will result in 0.5%. Tardiness Students with compelling reasons to absent lab sessions shall provide official proof(s) from supervisor or care giver.
- You are expected to arrive on time so that you do not cause a disruption in the middle of lab. Due to peer-learning environment, the lab instructor will start the lab at the scheduled time and students shall arrive the lab on time. If you cannot make it on time for some reason, please let the lab instructor know in advance. Students should not leave the lab in the middle and then come back to proceed. Exceptions can be made only under specific circumstances with proofs and approved by instructor well in advance. Due to intensive coding during lab sessions, tardiness is not acceptable. Students coming in 10+ minutes late or leave 10+ minutes earlier without proof are considered absence and will result in 0.5% penalty.

- **You are required to bring a laptop (you may borrow one from library for a semester) for all lab sessions. Install all necessary software** required by your lab exercises and term project. Lab exercises and term project should be implemented using designated object-oriented (modeling) languages (e.g., UML, Java/C#/C++). Failure to follow exercise/term project requirements will result in **zero credit**.

Study/Project Expectations

Besides class and lab sessions, it is expected that students will spend approximately 2 hours of study/project time **outside** of class/lab for every one credit hour. Since Csci 150 is a 3-unit class, **you should expect to study course materials or implement project an average of 6 hours outside of class each week**. Some students may need more outside study/implementation time and some less.

For your term project, all your source code needs to be committed to Github continuously during the entire semester. All your documentation should be written to WIKI or any other tools that shows ownership and history. All your project plan should be written to *Github Project* or any other tools that shows ownership and history. Also, learn how to use commit, merge, branch, push, fetch commands for your project. You will get ZERO for your term project if you do not use Github correctly.

For free tutoring on campus, contact the Learning Center (www.csufresno.edu/learningcenter) in the Collection Level (basement level) of the Henry Madden Library. You can reach them by phone at 278-3052.

Computers

At California State University, Fresno, computers and communications links to remote resources are recognized as being integral to the education and research experience. Every student is required to have his/her own computer or have other personal access to a workstation (including a modem and a printer) with all the recommended software. The minimum and recommended standards for the workstations and software, which may vary by academic major, are updated periodically and are available from Information Technology Services (http://www.csufresno.edu/ITS/) or the University Bookstore. In the curriculum and class assignments, students are presumed to have 24-hour access to a computer workstation and the necessary communication links to the University's information resources.

Others

The University Catalog and Schedule of Courses are available online (Catalog) and contain detailed policies on cheating and plagiarism, computer and internet access, disruptive classroom behavior and student with disabilities. Please familiarize these policies.

Tentative Course Schedule
Fall 2018
(Tuesday, Thursday Courses)

Week	Date	Topic	Note
1	8/23	Self intro and syllabus	
2	8/28	Project Proposals	Presentation during both lecture and lab sessions.
2	8/30	Project Proposals	Presentation during both lecture and lab sessions.
3	9/4	Project Proposals	Presentation during both lecture and lab sessions.
3	9/6	Ch1 of [SE] • Introduction of Software Eng: Define software engineering. Discuss various aspects of software engineering.	
4	9/11	Ch1 and some Ch 2	
4	9/13	Ch2+3 of [SE] • Software Processes: Introduce software processes, models and activities. Understand (Rational) Unified Process, and the Capability Maturity Model (CMM). • Agile Software Development: Introduce Agile Software Development Methods. Understand Scrum.	Quiz 1 (Ch1 of [SE])
5	9/18	Ch2+3 of [SE]	

5	9/20	Ch2+3 of [SE]	Assign Lab 1 (Use case diagram)*
6	9/25	Ch2+3 of [SE]	
6	9/27	Ch2+3 of [SE]	Quiz 2 (Ch2+3 of [SE])
7	10/2	Ch2+3 and Ch4 of [SE]	
7	10/4	Ch4 of [SE] (or catch-up)	
8	10/9	Ch4 of [SE] (or catch-up)	Quiz 3 (contents of W1-W6)
8	10/11	Ch4 of [SE] (or catch-up)	
9	10/16	Ch5 of [SE]	
9	10/18	Ch6 of [SE] Architectural Design: Introduce architectural design and patterns.	Assign Labs 2 and 3 (class diagram and sequence diagram)*
10	10/23	Ch6 of [SE]	Quiz 4
10	10/25	Midterm (During lab + class)	
11	10/30	Ch6 of [SE]	
11	11/1	Ch6/Ch7 Implementation	
12	11/6	Ch7	Quiz 5
12	11/8	Ch7	
13	11/13	Ch7 and selected topics of CC2	
13	11/15	Ch7 and selected topics of CC2	Quiz 6
14	11/20	Ch7 and selected topics of CC2	
14	11/22	Thanksgiving Recess	No Class. No lab
15	11/27	Ch7 and selected topics of CC2	
15	11/29	Ch7 and selected topics of CC2	Quiz 7 (all)
16	12/4	Project Presentations.	

16	12/6	Project Presentations.	
17	12/11	Project Presentations.	
17	12/13	Consultation Day	
18	12/20	Final exam	3:30pm to 5:30pm

*may postpone until we cover those chapters.

Tentative Lab Schedule
Fall 2018

Week	Topics
2	• Project Proposals
3	• Project Proposals.
4	• Introduction of IDEs, Github • Lecture Team organization
5	Project requirements • Lecture UML use case • Assign Lab 1
6	Project requirements/project design
7	Project Design • Lecture UML class diagram • Assign Lab 2
8	Project Design • Lecture UML sequence diagram • Assign Lab 3
9	Project Design
10	Project Design/Implementation/Testing
11	Project Design/Implementation/Testing
12	Project Design/Implementation/Testing
13	Project Design/Implementation/Testing
14	**No Lab on 11/22 (**Thanksgiving)

15	Project Design/Implementation/Testing
16	Term project presentation on Tuesday and Thursday
17	Term project presentation on Tuesday (turn in implementation artifact, testing artifact and term project report. Also, turn in the latest req., analysis, and design artifacts.)

***Note: The above lab schedule is based on waterfall. If your team wants to apply a different software process to your project, it is OK. But, you will still need to turn in req, design, impl., testing, and plan artifacts.**

SUBJECT TO CHANGE

This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent.