

CS 3750 Software Eng II - Syllabus - Fall 2014

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Location: SLCC Redwood Business Building Room BB 215
Website: <https://weber.instructure.com/courses/341894>

Course Objectives: The objective of this course is to give students an opportunity to apply the skills learned in the prerequisite courses to design and prototype an enterprise-class application in a programming language and environment of their choice. This enterprise application will be created to meet the real-world business needs of a community partner, typically a non-profit organization. Your enterprise application will be placed into the open source public domain and made available to the community partner to address the public need for freely available, engineered, well-tested, business-class software. This course is designated as a Community Based Learning course.

You will work directly with key stakeholders representing the community partner in design, prototyping, testing and user acceptance of your application in an agile development environment, delivering value in each biweekly software delivery. You will meet regularly with your customer for approval of user interface, feature design and functional as well as non-functional system requirements.

As part of your CBL experience, students will submit a weekly reflection journal that summarizes their experience that week. Journals will include a summary of the accomplishments of that week, upcoming milestones, challenges, customer interaction and the student's feelings about the activities of the week.

At the end of the semester, each student will submit a peer evaluation of each of his or her team members, which the instructor will factor into the final grade for each student.

The software engineering practices emphasized include software modeling, architecture, design, development, testing and deployment while including security, configuration management, project management and human interface design. Students will document their design using UML, write formal documentation, schedule their project using Project Management methodologies and share their design and implementation plans with the class.

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Although CS 3750 is primarily a design class, programming work will be completed to enable prototypes and models and these prototypes will be demonstrated to the class.

Upon successful completion of this course, the student shall be able to:

- Describe software engineering and why it is important
- Describe why different types of software require different engineering methodologies
- Describe the concepts of software processes and process models
- Describe the process activities of software engineering
- Describe the Agile software development methodology and associated processes
- Demonstrate the Scrum approach to agile project management
- Identify the issues and problems with scaling of Agile
- Document software requirements using a variety of tools
- Define the difference between functional and non-functional requirements
- Describe why requirements are a necessary part of the software engineering process
- Document a system's requirements using Behavior-Driven Design.
- Model a system using UML
- Define software architecture and why it is important
- Describe at least three architectural patterns
- Create a system architecture
- Define the primary role of the project manager
- Describe the risks involved in managing a project
- Describe factors that influence personal motivation, team communication and organization
- Describe Plan Driven Development and what information should be found in a project plan, a project schedule
- Estimate project duration
- Define Software Testing, its various methodologies purpose of each
- Use Test Driven Development to create a working software system

Students with Disabilities:

Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 181 of the Student Services Center on the Weber State Ogden campus. SSD can also arrange to provide course materials (including this syllabus) in alternative formats if necessary.

Allocated Time:

You should anticipate spending two to three hours of study per week for each credit hour of a university course. Computer and programming classes typically require time in the upper range.

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Honesty CS Department policy dictates that any verifiable evidence of student academic cheating, as defined and determined by the instructor, will result in: 1) an automatic failing grade for the class and 2) a report to the Dean of Students that will include the student's name and a description of the student's dishonest conduct. Cheating is defined in the Weber State University Policies and Procedures Manual located at http://www.weber.edu/ppm/Policies/6-22_StudentCode.html.

Anyone determined to have copied another student's homework assignment, quiz or test will receive a failing grade for the semester. Please do your own work. You may study together but homework assignments, quizzes and tests are to be completed individually and not as a group. Please do not distribute or post solutions to homework assignments or the content of any quiz or test on the Internet.

Class Format: Class will consist of lecture and discussion on topics related to the study guide. Questions and comments during class time are encouraged. It is expected that students will have read the covered chapters prior to the class on the topic. Normally, time will be set aside each week as group time so that groups can meet to complete their assignments and the instructor can help students with specific problems and topics.

The official schedule, assignments and assessments may be added, changed or removed at the sole discretion of the instructor to meet the needs of the class. The official due date of an assignment is the due date listed in Canvas. The dates in this syllabus are estimates and are subject to change.

100% attendance is required and teams of 3-5 students will complete all project work. Lecture will occur during the first half of the semester with time nearly each week for teams to meet and complete their assignments.

Assignments: Homework problems are to be submitted for grading on the date specified in the schedule. It is HIGHLY recommended that you complete the assigned homework problems since the quizzes and projects are based off of the material learned within the assigned chapter.

Campus Closures and Class Cancellations: If class is canceled due to weather or illness of the instructor, an email will be sent to your Weber State email address, a note will be placed on the door of the room and an announcement will be published on Canvas. Class will only be canceled for weather if SLCC closes the Redwood Road campus. If the SLCC campus is closed for an extended period, classwork will continue through the use of WSU email, Canvas, recorded videos and virtual meeting tools.

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Grading:

Team Project Management, Communications, Documentation, Website and Reports	10%
Midterm	15%
Individual Class Participation, Attendance, Presentation	15%
Weekly Journal	10%
Project Deliverables	50%
Total	100%

Letter Grades:

<i>Total</i> $\geq 94\%$	... A	<i>Total</i> $\leq 74\% < 77\%$	... C
$90\% \leq Total < 94\%$	... A-	$70\% \leq Total < 74\%$	... C-
$87\% \leq Total < 90\%$	... B+	$67\% \leq Total < 70\%$	... D+
$84\% \leq Total < 87\%$	... B	$64\% \leq Total < 67\%$	... D
$80\% \leq Total < 84\%$	... B-	$60\% \leq Total < 64\%$	... D-
$77\% \leq Total < 80\%$... C+	<i>Total</i> $< 60\%$... E

Incompletes can only be given in extraordinary circumstances.

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Class Schedule & Study Guide

Week #	Week Of	Topic	Chapters/Assignment
1	Aug 25	<p>Course Overview</p> <p>Talk about Syllabus and Final Project</p> <p>Software Engineering Principles</p>	<p>Read Chapter 1, 2 and 3</p> <p>Classmate Introductions</p> <p>Student Background Information</p> <p>Assignment: Homework 1 Chapters 1-3</p> <p>Tools Proposal</p>
2	Sep 1	<p>Team Assignments and Kickoff Meeting</p> <p>Gathering Requirements</p> <p>Understanding User Needs</p> <p>Github</p>	<p>Read Chapter 4; SSRS Template and Software Requirements Checklist</p> <p>Assignment: Homework 2 - Chapter 4</p> <p>Ch. 1-3 Homework Due</p>
3	Sep 8	<p>UML Use Cases and Activity Diagrams</p> <p>Analyzing the Features: Paper Prototyping</p>	<p>Read Practical UML Tutorial</p> <p>Team Website Setup</p> <p>Team Project Proposal Due</p>
4	Sep 15	<p>Project and Configuration Management</p>	<p>Read Chapters 22-23</p> <p>Assignment: Individual – Show and Tell on SE Tools (teams of 2)</p> <p>Assignment: Homework 3 - Ch. 22-23</p>
5	Sep 22	<p>Tools Presentations</p>	<p>Ch. 22-23 Homework 1 Due</p>
6	Sep 29	<p>Tools Presentations</p> <p>Course Project Work – Classroom will be open. Instructor will be available during class time to assist groups, as necessary. Teams should be meeting with client (either during class time or this week) for requirements gathering and analysis documentation for the First Report.</p>	

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Week #	Week Of	Topic	Chapters/Assignment
7	Oct 6	Tools Presentations Systems Modeling UML Communication and Sequence Diagrams Software Architecture Design – UML Class Diagramming	Read Chapters 5, 6 and 8; Software Design Document Exam Review Assignment: Homework 4 - Ch. 5, 6 and 8
8	Oct 13	Midterm Exam – Ch. 1-6, 8, 22, 23 Course Project Work – Classroom will be open. Instructor will be available during class time to assist groups, as necessary. Teams should be meeting with client (either during class time or this week) for requirements gathering and analysis documentation.	Chapters 5-6, 8 Homework Due
9	Oct 20	Course Project Work	
10	Oct 27	Course Project Work	Project: Report 2 Due
11	Nov 3	Course Project Work	
12	Nov 10	Course Project Work	Project: First Demo Due
13	Nov 17	Course Project Work	
14	Nov 24	Course Project Work	Project: Second Demo Due
15	Dec 1	Course Project Work	Project: Evals Due Project: Third Report Due Project: Final Website and eArchive Due