

Course Syllabus
Software Engineering I: Requirements Engineering
CS4310 (12502)

Instructor: Dr. Ann Q. Gates
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Office hours: Tuesday: 9:00 to 10:00 am; by appointment
Class Time: 7:30 to 8:50 am TR, CCSB 1.0202/SE Lab in CCSB 1.0702
Prerequisites: Senior Standing in CS

Assistant: Elsa Tai
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Office hours: Monday and Wednesday 1:00 to 3:00pm; Friday 12:00 to 1:00pm; by appointment.

Communication Network. <https://www.ibm.com/cloud-computing/social/us/en/>

Communication. Communication of course announcements, assignments, and resources will be done through IBM Connections Cloud. You will be receiving an invitation as soon as the course roster is validated. Once you are assigned to a team, you will be given a space to post your weekly efforts. Please check IBM Connections Cloud on a daily basis and post questions about the course. This is the best way for us to know what parts of the course need clarification.

Text Book. Hull, E., Jackson, K., and Dick, J. *Requirements Engineering 3/E*. Springer, ISBN 978-1-84996-405-0 (<http://www.springer.com/computer/swe/book/978-1-84996-404-3>)

Course Goals. To prepare students to become proficient in applying software requirements engineering methods and techniques, working in cooperative teams, and managing projects.

This course is the first semester of a two-semester capstone project in which students work with a customer to capture and specify requirements for a real-world application. **In order to register for CS4311, students must pass this course with a C or better.**

Grading.	Assignments and quizzes	5% (includes participation)
	Connections Cloud entries	5%

Project	40%
Exams	50% (Final exam is 20% of the grade)

Handwritten notes in a spiral notebook will be allowed during all quizzes. Students are strongly encouraged to take notes during class and enhance their notes with other resources.

Assignments and quizzes. Assignments given as homework are **due at the beginning of the class. No late homework assignments will be accepted.** Problems that have been assigned as individual work can be discussed with other students in a general way, but the solutions must be done independently and the work must be unmistakably your own. Assignments completed as a team, must include all student names on the first sheet. By signing your name, you are stating that you agree with the answers and can explain them to the TA or instructor. Students are expected to read assigned sections of the book and to be prepared to discuss the material in class. Quizzes will be given after each assignment to check for general understanding of the material.

Project. Draft project assignments are graded. Because a draft is work-in-progress, comments by the guidance team are general. The assigned letter grade, if applicable, reflects the effort *at that point in time*. The final grade is calculated independently of the rough draft.

Each team member is responsible for documenting his/her work on the project on Connections Cloud. The percentage of the project grade calculated towards the final course grade is determined through this documentation and the individual's contribution toward creating an effective team environment. The entries will be maintained through Connections Cloud. **No late project work will be accepted.**

Exams. No make-up exams. Exams are tentatively scheduled for:

Exam1: September 15, 2015

Exam2: October 15, 2015

Exam3: November 17, 2015

Final Exam: December 11, 2015, Friday, 7:00 am – 9:45 am (comprehensive Final)

Attendance Policy. Students are allowed at **most three unexcused absences**. Students who exceed the limit will be dropped from the course.

A tardy will be recorded each time a student shows up ten minutes after the start of class. Your final grade will be lowered by one point for every three tardies.

Standards of Conduct. Students are expected to conduct themselves in a professional and courteous manner, as prescribed by the Standards of Conduct:

<http://admin.utep.edu/LinkClick.aspx?link=HOOP-Section+II.pdf&tabid=30181&mid=63285>

Students may discuss assignments in a general way with other students, but the *solutions on individual work must be done independently*. Again, graded work must be unmistakably your own. Collusion and plagiarism will not be tolerated. Professors are required to report academic dishonesty and any other violation of the Standards of Conduct to the Dean of Students.

Important Dates.

Sep 7 Labor Day

Oct 30 Course Drop Deadline

Nov 26-27 Thanksgiving Holiday

Dec 3 Last day of classes and complete withdrawal from the University

Dec 4 Dead Day

Learning Outcomes

Level 1. Knowledge and Comprehension

Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. The material has been presented only at a superficial level. Upon successful completion of this course, students will be able to:

- a. Define basic software engineering concepts and principles (abstraction, anticipation of change, modularity, stepwise refinement, and separation of concerns).
- b. Define quality attributes such as availability, correctness, efficiency, interoperability, maintainability, portability, reliability, security, modifiability, testability, and usability.
- c. State the main features of process improvement models, e.g., CMM, ISO, PSP, QPI, Plan-Do-Check.

- d. State the phases of the software development process
- e. State the phases of software requirements engineering

Level 2: Application and Analysis

Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details. Upon successful completion of this course, students will be able to:

- a. Determine which life cycle model to use by analyzing different scenarios.
- b. Apply techniques for eliciting requirements.
- c. Analyze requirements to determine if they meet the attributes of well-written requirements.
- d. Identify risks in software development and project management.
- e. Evaluate behaviors and work habits of individuals and groups with respect to the professional software engineering codes of ethics.
- f. Analyze a software project to determine its local and global impact with respect to individuals, organizations, and society.
- g. Describe the role of professional societies.
- h. Engage in self-directed study to learn new techniques and tools for software requirements definition.

Level 3: Synthesis and Evaluation

Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery. Upon successful completion of this course, students will be able to:

- a. Construct a feasibility report that demonstrates an ability to engage in self-directed study.
- b. Construct a software requirements specification document that meets IEEE standards and contains well-written requirements.
- c. Conduct verification and validation using techniques that include inspections, walkthroughs, and forward and backward tracing.
- d. Construct a prototype, which adheres to basic HCI principles, to validate the user interface of the course project.
- e. Analyze and model aspects of a problem by applying various modeling techniques that include object, data-flow, and state-transition modeling.
- f. Develop use cases and scenarios.
- g. Demonstrate an ability to assemble and orally present technical work to different constituencies.
- h. Compose technical documents that are grammatically correct and technically sound.
- i. Apply effective techniques for project management, collaboration, and problem-solving within groups.