Course Syllabus

University of Washington
Computer Science & Engineering 403
(CSE 403) Software Engineering, Fall 2013

Description:
Fundamentals of software engineering using a group project as the basic vehicle.
Topics covered include managing complexity, requirements specification,
architectural and detailed design, testing and analysis, software process, and tools
and environments.

Prerequisites:
- either CSE 303 or CSE 331, and
- either CSE 332 or CSE 326

Recommended:
- either CSE 331 or project experience in a work setting

Instructor:
- name: Laura Campbell
- email: campbell at cs
- office: CSE 350
- office phone: TBD
- office hours: CSE 350, Tuesday 10:30am - 11:30am, Wednesday 1:00pm -
  2:00pm, or by appointment

Teaching Assistants:
- Nathaniel Guy (natguy at cs)
  - office hours: CSE 220: Thursday 10:30am - 11:30am, or by
    appointment
- Calvin Loncaric (loncaric at cs)
  - office hours: CSE 220: Monday 1:00pm - 2:00pm, or by appointment

Course Content:
This course is an introduction to software engineering using a large group project.
You will learn about:
- the phases of software development (the software "lifecycle")
- software development styles and methodologies
- software requirements analysis and specification
- design concepts and techniques, including Unified Modeling Language (UML)
- implementation practices such as design patterns
- testing, verification, and quality assurance (QA) techniques
- software and tools for software engineering and rapid development
- team and management skills for completing a project in a large group

Course Objectives:
A central objective of the course is to have students develop a deep understanding of the distinctions between software engineering and programming. In addition, the students understand the software lifecycle, increase their knowledge of classic and modern software engineering techniques, and develop concrete experience in turning ill-formed concepts into products working with a team.

Learning Goals:
Upon completion of the course, students will have demonstrated
    a) an ability to apply knowledge of mathematics, science, and engineering
    b) an ability to design and conduct experiments, as well as to analyze and interpret data
    c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
    d) an ability to function on multi-disciplinary teams
    e) an ability to identify, formulate, and solve engineering problems
    f) an understanding of professional and ethical responsibility
    g) an ability to communicate effectively

Lecture and Section Times:
- MWF 10:30am–11:20am, EEB 045 (lectures or in-class work)
- T/Th 9:30am–10:20am, EEB 105 (group project work time / discussion section led by TAs)
    - either T or Th may be co-opted for additional material especially at the beginning of the course; see course website for calendar

Textbooks and Readings:
There is no textbook, but there will be reading assignments throughout the quarter that will be posted to the course web site to print or read online. For many of the reading assignments, we will assign questions posted online for you to answer about the reading. You will submit your answers to these questions online.
These will be part of your course grade, and they will not be accepted late. To receive full credit, you must answer the questions about half or more of the assigned readings. If you answer more than half, we will drop your lowest score(s) if you lose any points on any of your reading assignments, thus increasing your chance to get a high score.

Course Web Site:
http://www.cs.washington.edu/403/

Grading:
Graded work will receive categorized point values, with the following categories and their respective weights:
- 10% online questions based on assigned readings

- 70% group project (to be distributed among several phases, as described later in the course; some of the components may form part of the individual portion of your grade)
  - All members of a group will receive the same grade on group work, except in unusual cases where scores may be adjusted based on your contribution. It is in your interest to choose other group members with similar goals to your own. It is also in your interest to work together and ensure that all tasks are completed effectively.
- 20% exam(s); dates and format TBD
- Team presentations will be held during the final exam time slot: Monday, December 9, 2013, 8:30–10:20am, EEB 045

Your percentage will be mapped onto the 4.0 grade scale.

Turn-in, Lateness, and Regrading Policy:
Each assignment will have its due date and time written on its specification, as well as the method for turning it in. If the assignment is to be turned in electronically, the URL and any special instructions will be found on the course web site.

Assignments will not be accepted by other than the specified turn-in method(s) unless the instructor or TA gives prior permission. It is your responsibility to ensure that your turn-in is completed successfully.

Answers to questions about readings are not accepted late. Other assignments may be turned in up to 24 hours late with a 10% penalty, or 24 to 48 hours late with a 20% penalty. No assignments will be accepted more than 48 hours late for any reason.

We will entertain questions about grades only for one week after they are posted in the grade database. Questions about assignment grades should be written and submitted to the staff via email.

Exams:
If you must miss an exam, you must notify the instructor at least 48 hours in advance of the time of the exam, and you must have a valid excuse. Make-up exams will not be given without instructor's permission.

Computing and Labs:
The course will be taught using Java and its associated tools. If you and your group wish to use a different set of language(s) and tools, you must demonstrate clearly to the instructor that corresponding features and utilities exist in your environment (such as tools for unit testing, source control, development environments, etc.)
If you work from home, it is your responsibility to ensure that your program will run on the school's machines, since that is the environment in which your code will

be tested and graded. This also means that your code must constrain itself to language features that exist in the labs.

Groups:
A large portion of the grade for this course will come from working on a large software project in a group with other students. As a group member, you will be expected to meet all of the following group requirements and responsibilities:
- contribute a significant amount to the analysis, design, implementation, and testing of your project
- meet at least once weekly with your group at a scheduled time
- meet at various times with the instructor and/or TA, together with your group, at a scheduled time
- read and respond regularly to email from your group partners
- communicate with your group partners as needed by email, in person, by phone, or otherwise
- send a weekly group progress email to the instructor
- hold your group partners accountable for their work, and report to the instructor if they fail to do it

Collaboration Policy:
Academic integrity is generally not a large problem in this course, but just to be sure, we want to make a few rules clear. Assigned readings and questions about them, along with other specified individual assignments, are to be completed by yourself. You may discuss ideas about these assignments with other students. But you should not divulge answers or program code on such assignments to other students. You should also make a reasonable effort to make sure that your answers cannot easily be copied by others.

Much of the work in this course, particularly the large project, is performed in groups. The rules here are similar: Groups may discuss ideas about their design or their project with other groups, but they should not share their actual design documents, code, or other work with other groups.

When in doubt, ask the instructor whether a particular behavior is acceptable under this policy. Furthermore, see the academic misconduct policy below:

Academic Misconduct:
http://www.cs.washington.edu/students/policies/misconduct

Disability Resources for Students:
http://depts.washington.edu/uwdrs

Changes:

The instructor reserves the right to modify any of the information found in this outline, particularly the syllabus, grading, and class policy. The instructor will notify you of any changes to this outline.