Systems Analysis and Software Design (aka Software Engineering)
COSC 445W
Spring 2005

Meeting Information

College Hall 223
Monday/Wednesday 3:00 – 4:15
Final exam: Monday, May 2, 11:00 – 1:00 (if no conflicts)
Course web page: http://www.blackboard.duq.edu

Instructor

Dr. Jeffrey Jackson
Office: 433 College Hall
Office Hours: Monday 10 a.m.–11 a.m. and 1 p.m.–2 p.m., Tu 2–4 p.m., Wed 10–11:45 a.m.,
drop-in, and by appointment
Phone: 412-396-6466
Email: jackson@mathcs.duq.edu

Textbook


My intention is to provide high-level coverage of all material appearing on exams in lecture, but the textbook provides details, depth of coverage, and examples that I may not cover. Readings will be assigned via Blackboard. You should expect to read through an average of at least 25 pages a week over the course of the semester. Written assignments will be taken from the textbook.

Objectives

If you have satisfied the prerequisites for this course then you already know a fair amount about writing small, well-defined programs that are never used after they are graded. This course is intended to introduce you to techniques that are increasingly used to produce software that is intended to have a long life cycle and that may require a team effort to produce.

Some of our specific course content objectives will be:
Develop a basic understanding of what software engineering is and why it is important.

Become familiar with concepts of requirements analysis, with a focus on emerging object-oriented methods including the use of the Unified Modeling Language (UML).

Learn principles of software system design to supplement existing knowledge of detailed design principles, with a focus on object-oriented design.

Learn basic principles of user interface design.

Understand the importance of verification and validation in the overall software development process and become familiar with various testing strategies.

Develop working knowledge of basic project management planning and documentation methodologies, including notions such as critical path and resource allocation.

The knowledge gained in this course will be immediately applied to the development of a large, real-world software product. The product will include software, data, test procedures, and user documentation.

Grading

Grading will be based on:

- Written assignments (content) 15%
- Written assignments (writing) 10%
- Project participation and performance 25%
- Project documentation (writing) 15%
- Midterm exam 15%
- Final exam 20%

There are no quizzes in this course.

As this course is listed in the catalog as a W (writing-intensive) course, a large portion of the course grade is expected to reflect my assessment of your writing skills. Therefore, we will have approximately 10 written assignments over the semester, approximately half of which will be graded both on how well you understand the technical content and on how well you express yourself in writing. You will normally have one week to complete each assignment; due dates will be announced in class when the assignment is made. I will also frequently return marked assignments for correction of English usage. Therefore, all written assignments for this class are to be generated using a computer and to be double-spaced, in order to
facilitate revision. Diagrams in written assignments may be hand drawn. Language skills will not be graded directly on exams.

Similarly, although the project component of this course will be a team effort, each student will be responsible for documenting some portion of the project. Note that the project documentation writing assignment(s) will count fairly heavily in the overall course grade: it is important that we deliver a quality product to our customer.

A significant portion of the project’s technical work will be performed in class, and in-class participation will therefore contribute to the project grade. Individual grades will be based on feedback from team members and my own observations. I will have individual “performance reviews” with each student near the middle of the semester that will give you feedback on your performance in each of five areas: Level of effort (work ethic), Contribution to team-building, Communication, Productivity/accomplishments, and Idea generation. Near the end of the semester I will assign scores (0–5) for your contribution in each area. The sum of your end-of-semester scores will determine the “project participation and performance” percentage of your overall course grade. Note that this is the largest single contributor to your overall course grade, as your project work will most directly reflect how well you have learned and can apply the principles taught in the course. More detail on each review area is provided at the course web site.

The midterm and final exams will be written, in-class, closed book exams. The final will be comprehensive, but will give more weight to topics from the second half of the course than to topics from the first half.

I do not grade directly on class attendance or participation in classroom discussion during lectures. However, see above for a discussion of the performance review component of the grade.

Late Work Policy: Assignments will be discussed in class the day they are due. Therefore, unless I have approved your absence in advance (or in other exceptional circumstances at my discretion), I will not accept a late homework assignment. I plan to drop the lowest content and writing homework grades, so you can essentially miss one homework assignment with no penalty.

The final grade will be assigned as follows:


I do give minus grades, and I don’t curve much if at all. So if a particular grade is important to you, make sure that you understand my grading policies and put in the effort to get that grade.

Honor Policy

All work that you turn in, whether exams or assignments, must be your own unless I specify otherwise, although of course any help you receive from me is acceptable. Work that is not
your own will receive no credit. Repeat offenses may result in course failure. If you are not sure what constitutes “your own” work, I expect you to ask me rather than assuming that your understanding is correct. If you don’t have time to ask, assume that if you have a question about whether or not something is your own work, it probably is not.

Schedule

We are scheduled to have 28 class meetings plus the final exam. The tentative schedule is (number of meetings in parentheses):

1. Introduction of the course, project discussion (Jan 10)
2. Software: Product and Process
3. Principles of System Engineering and Requirements Analysis
4. Object Oriented Analysis I
5. FAST session (Jan 26)
6. Object Oriented Analysis II
7. CRC session (Feb 2)
8. User interface design
9. Requirements review (Feb 9)
10. Object Oriented Design
11. Object Oriented Testing
12. Design Review, review for midterm (Feb 18)
13. Midterm Exam (Feb 23)
14–15. Software Project Management (2)
16–17. Software Project Scheduling (2)
18–19. Software Configuration Management (2)
20–23. Software Quality Assurance and Testing (4)
24. Software Risk Management (1)
25. Final internal technical review (Apr 18)
26–27. Selected topics.
28. Final project presentation, course review (Apr 26)
Notes

Students with documented disabilities are entitled to reasonable accommodations if needed. If you need accommodations, please contact the Office of Freshman Development and Special Student Services in 309 Duquesne Union (412-396-6657) as soon as possible. Accommodations will not be granted retrospectively.

The information in this syllabus is subject to change at the instructor’s discretion.