COMP/EECE 4081: Software Engineering

Fall 2011

Tuesday, Thursday 2:40–4:40 p.m.
Dunn Hall 233

http://www.cs.memphis.edu/~sdf/comp4081/

Instructor

Dr. Scott D. Fleming <Scott.Fleming@memphis.edu>
Office Hours: Tuesday, Thursday 10:30–12:00 p.m., or by appointment
Office: Dunn Hall 378

Teaching Assistant

Danielle L. Jones <dljones9@memphis.edu>
Consulting Hours: Monday 7:00–9:00 p.m., Tuesday, Thursday 12:00–2:40 p.m., 4:40–6:00 p.m.
Location: Dunn Hall 232

Course Description

> **COMP 4081 - Software Development (3)**
> *(Same as EECE 4081). Scope of software engineering; software life cycle models; software process; team organization; requirements analysis and design methodologies; metrics, inspections, testing strategies and maintenance; software risks; professional and ethical responsibilities. Computer Science majors should plan to take COMP 4882 during the following spring semester. PREREQUISITE: COMP 3160. (F)*

Why This Course?

This course provides a practical introduction to software engineering. Software life cycle models and modern software development techniques, which support the object-oriented paradigm, are discussed. Students work in teams to develop requirements, analysis, design, and testing documentation for a software system. This course is essential for students who plan to work as software engineers in the corporate world, as employers expect new college graduates to know "best of breed" software development process models.

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Required Texts

Software Engineering: Theory and Practice (4th ed.)
by Pfleeger and Atlee, Prentice Hall, 2009.

Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development (3rd ed.)
by Larman, Prentice Hall, 2004.

Ethics for the Information Age (4th ed.)
by Quinn, Addison-Wesley, 2010.
(Students should already have an ethics textbook as it is required for COMP 3160 and 3715.)

Note: All of these textbooks are also required for COMP 4882 – Software Capstone Project.

Evaluation

Grading weights: 55% homeworks, 45% exams (12% for midterm, 33% for final)
Converting from percentages to letter grades: see chart at right

A+	$\geq 97\%$
A	91–96%
A−	89–90%
B+	87–88%
B	81–86%
B−	79–80%
C+	77–78%
C	71–76%
C−	69–70%
D+	67–68%
D	62–66%
D−	60–61%
F	$\leq 59\%$

Grading scale.

Students will mostly work in teams of 5–10 students. Each team will design and implement a software system based on ideas that you provide.

Here is how it will work:

1. In the first week of class, each student will submit a Vision Statement. This statement will describe a software system that he/she believes will help to make the world a better place.
2. All Vision Statements will be posted on the Web. All students will vote on which vision statements they find most compelling.
3. The top few Vision Statements will be selected based on popularity. While Vision Statements will not receive grades, the authors of the top Vision Statements will receive extra credit for the course and will serve as "customers" for the systems that they envisioned.
4. The students will be divided into teams based on which of the top Vision Statements they are interested in. Note that it is not guaranteed that you will be assigned to your favorite choice, since the teams must be fairly equal in size.
5. For homeworks 2 through 5, each team will design a system based on their assigned Vision Statement (and input from the vision's customer). These will be graded as described below.

Then the teams are broken up and the process start overs with new teams on a second project:

6. At the midpoint of the course, each student will submit an updated Vision Statement. This will give you a chance to improve it or rewrite it completely, based on your classmates' feedback.
7. As before, the updated Vision Statements will be posted on the web, students will vote on them, and new teams will be formed based on the top few updated Vision Statements. Extra credit will again be given.

8. For homeworks 6 through 8, each team will design and implement a system based on their assigned Vision Statement and customer input. Teams will also present their systems on the final day of class.
9. At the end of the term, each student will submit a final revision of the Vision Statement.

Be forewarned that every single homework will require a lot of work. Do not wait until the night before to start the homework; you will be dismayed. Start on each homework the week before it is due, and spread the work throughout the week. Also spread out the work over the entire team. There is so much work that it would be hard for a single person to do it all.

Course Policies

Working in Teams

Students must work alone on homework HW1 and exams. Students must work together as a team on all other homeworks; *every student* must make a contribution to *every team homework*. When your team submits each homework, you must honestly and accurately indicate what each team member contributed to the homework. Individual team members will usually get approximately the same grade on each team homework, but individual team member grades may be reduced depending on the quality and quantity of their contribution. The rules regarding Academic Dishonesty will be strictly enforced. Note that the penalties are quite severe and that the instructor has no discretion once a case of cheating is detected. Please see Plagiarism/Cheating below for more details.

In extreme cases, a team can decide to fire a member for cause on or before the day that the team's first homework is due (ie: HW2 or HW6). To do this, the team members must first attempt to discuss potential firing with the teammate, and then contact me and make their case for why the teammate should be fired. Fired team members may join together (if there are others who are willing to join you), or may continue the course as a one-person team. Since being a one-person team would mean a lot of work, it would be sensible to avoid getting fired.

Submitting Homework

All homeworks must be submitted electronically as PDF files. To produce PDF files, you can create your documents with Google Docs (which lets you convert docs to PDF). Alternatively, on Windows, you can install the free PDF995 software, which creates a virtual "printer" that saves printouts from any editor as PDF files. (Using PDF995 requires you to download and install two files, the Pdf995 Printer Driver and the Free Converter.) If you have a Mac, choose Save as PDF from the print dialog (lower left). A final option if you have very legible handwriting is to do all your work on paper, then scan the paper into PDF using an image scanner (or if you have exceptionally big and clear handwriting, take a photograph and convert the photo to PDF).

Attendance

Students are expected to attend class and participate in classroom discussions. If it is absolutely necessary for a student to miss class, it is recommended that the student obtain the lecture notes from another student.

Lateness

You are expected to complete work on schedule as deadlines are a part of the real world. Work is not accepted late unless prior arrangements are made with the instructor.

Testing

In general, makeups will NOT be administered due to instructor commitments. If a student has an extenuating circumstance, the instructor should be notified as soon as possible. Makeups for tests will only be given under extreme circumstances and if the instructor has approved the absence before the exam is given. All excused absences must be documented.

Plagiarism/Cheating

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated***. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted***, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: http://www.people.memphis.edu/~jaffairs/.

Acknowledgments

The design for this course is based largely on a design created by Dr. Christopher Scaffidi for his software engineering course at Oregon State University. We are grateful to Dr. Scaffidi for granting us access to his materials and permission to adapt them for this course.