

CMSC 461: Senior Capstone in Computer Science

19th of January, 2017

Lecture: TR 2:00-3:15pm, Ruffner 354
Website: <http://cs.longwood.edu/courses/cmsc461/s17/>

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Office hours: MWRF: 1pm–2pm

Course Description

A capstone course designed to consolidate experiences from a variety of other courses by working in groups on one or more large projects. Principles of software engineering will be covered, including traditional and object-oriented software design, software lifecycle models, software analysis, and management implications. The implementation of developing software using teams will be stressed along with various software tools. Reusability, portability, and interoperability will be discussed. A segment on assessment will be included. 3 credits.

This course is Speaking Intensive

Prerequisites

Senior standing

Course Objectives

1. identify and explain various aspects of the software creation process
2. identify, explain and apply different mechanisms for software design
3. identify, explain and use tools for software design, implementation, and testing
4. explain how topics from other courses in the curriculum impact software creation
5. speak in formal and informal settings regarding technical aspects of the software creation process

Textbook and Resources

There are no required textbooks. Readings may be linked on the website.

Course Requirements

Tentative Course Schedule

| Week | Date | |
|------|-----------------|-----------------------------------|
| 1 | Jan. 18-20 | Introduction |
| 2 | Jan. 23-27 | 2 Software Process; Design |
| 3 | Jan. 30- Feb. 3 | Large Project Management |
| 4 | Feb. 6-10 | Proposals |
| 5 | Feb. 13-17 | Requirements |
| 6 | Feb. 20-24 | Testing |
| 7 | Feb. 27-Mar. 3 | Documentation |
| 8 | Mar. 6-10 | <i>Spring Break</i> |
| 9 | Mar. 13-17 | Big-O; Searching; Sorting |
| 10 | Mar. 20-24 | Arrays; Strings; Linked Lists |
| 11 | Mar. 27-31 | Trees; Graphs; Recursion |
| 12 | Apr. 3-7 | Semaphores; Concurrency |
| 13 | Apr. 10-14 | Object-Oriented Programming |
| 14 | Apr. 17-21 | Networking; Computer Organization |
| 15 | Apr. 24-28 | Project presentations |

Important university dates

| | |
|---------|-------------------------------------|
| Jan. 25 | Last day of Add/Drop (5pm) |
| Feb. 2 | Last day for Pass/Fail (5pm) |
| Mar. 13 | Deadline to withdraw with "W" (5pm) |
| May. 2 | Last day of classes |

Grading Scale

| | | | | | |
|----|----|---|--------------|----|---------|
| | | A | 100-91 | A- | 90 |
| B+ | 89 | B | 88-81 | B- | 80 |
| C+ | 79 | C | 78-71 | C- | 70 |
| D+ | 69 | D | 68-61 | D- | 60 |
| | | | 59 and lower | | is an F |

Graded work

This course should take about 10-12 hours of time per week. This time includes reading, assignments, class, and projects.

Participation and Quizzes: You are expected to be an active participant in the class. You should be present and engaged. Pop quizzes may be given in class and cannot be made up.

Project: A semester long project

Exams: There will be one exam, the MFT.

Breakdown

| | |
|-----------------------|-----|
| Semester Project: | 45% |
| Final Exam: | 15% |
| Presentations: | 15% |
| Quizzes and Homework: | 25% |

Policies

Honor Code

We will follow the Longwood Honor Code in this class. When completing work please do not lie, cheat, or steal.

1. Do not lie and claim someone else's ideas as your own: you must give proper attribution
2. Do not cheat and copy work from another student or the Internet
3. Do not steal someone else's work and submit it: your files are to be written by you
4. YOU are responsible for securing YOUR code/work: do not let someone else have access to your work/files

If you are unsure if your action will violate the honor policy: DON'T DO IT. Feel free to talk with me if you have questions.

Infractions of these policies will be dealt with harshly under the Longwood Honor Code with cases turned in to the Honor Board. Any student convicted of an honor offense involving this class will automatically receive a lowered *final course grade*, potentially severe as an **F**. You should consider all work in this class to be pledged work, whether or not the pledge appears on the assignment.

Support

Programming (and mathematical proof) is a different way of thinking about problem solving. A solution is not necessarily easy or obvious. I strongly encourage you to follow along with the class in readings and activities. When you have questions, ask. In addition to my regular office hours, you can always email to schedule a time to meet. If my office door is open feel free to stop by, if my door is closed I'm not available.

Attendance and late work

You are expected to attend and participate in class. Attendance will be recorded in every class. In accordance with campus policy, missing more than 10% of scheduled class time to unexcused absences may, at my discretion, result in the loss of one letter grade. Missing 25% of class or more, whether excused or not, may result in an automatic failing grade.

Late work will not be accepted outside of exceptional circumstances such as serious medical or family emergencies. Most extensions will require a note from a Longwood administrator.

Inclement weather policy

I don't plan to cancel class for weather unless the entire college shuts down. If extenuating circumstances cause me to cancel class, you will be notified by e-mail.

Accommodations

If you have a documented disability, you should contact Longwood's Office of Disability Resources (Graham Hall, x2391) to discuss some of the support the college can offer you. All such conversations are confidential. Please speak to me early in the term to set up any special accommodations.