Course Syllabus

**CSDS 395: Senior Project in Computer Science**

**· Course Description**

Capstone course for computer science seniors. Material from previous and concurrent courses used to solve computer programming problems and to develop software systems. Professional engineering topics such as project management, engineering design, communications, and professional ethics. Requirements include periodic reporting of progress, plus a final oral presentation and written report. Scheduled formal project presentations during last week of classes. Counts as SAGES Senior Capstone.

**Important Notes:**

1. **Fall 2020 lecture will be online (live), all lecture videos will be recorded and uploaded on Canvas. You can use Canvas to start your zoom meeting (or through Zoom app), our meeting id is: 996 6422 7331, the password is: 123456**
2. **You can find all recorded videos on Canvas (click the Zoom section on the left)**
3. **I am using US Eastern Standard Time (EST) in this Course Syllabus.**

**· Course Components**

This course has two components:

1. Group-based software development projects: (group size at least 4)
2. Ideally integrating various principles from different CS areas
3. Written reports and demos
4. A poster at intersections
5. A paper on potential adverse uses of computing technology and their mitigation (each person)

**· Prerequisites:**

Senior Standing

**· Instructor: Shuai Xu**

Email: [sxx214@case.edu](mailto:sxx214@case.edu)

Office: Zoom only (personal Zoom ID: 918-696-9213, password is: 123456)

Office Hours: By appointment

**· Course Assessments:**

**Grading scheme:**

|  |  |
| --- | --- |
| Project Proposal: | 5% |
| Progress Report 1: | 10% |
| Progress Report 2: | 10% |
| Final Project Oral Presentation: | 15% |
| Final Project: | 35% |
| Paper: | 25% |
| **Total:** | **100%** |

**Grade scale:**

The class will use the following scale to translate your percentage grade to a final grade.

|  |  |
| --- | --- |
| If your percentage grade is at least | Your final grade will be at least |
| 90 | A |
| 80 | B |
| 70 | C |
| 60 | D |

**Project Proposal (5%):**

A proposal that specifies the project and the team’s commitments. This document will contain technical project requirements and specifications, proposed solutions, background/related work, work to be done, and a management plan. The proposal should be submitted electronically (on Canvas) and may be up to 5 pages in length.

Project Proposal Due: Feb 15 (Monday)

**Progress Report 1 & 2 (10% each):**

Each project team will submit two progress reports. No presentations required. Progress reports as well as the final reports should always be cumulative, including (and improving) the earlier reports.

Progress report 1 will build upon the proposal, and contain:

1. Appropriate background on the project
2. A section on what is done so far
3. Description of what the team plans to do to complete the project in the remaining time
4. An up-to-date project management plan
5. **Report on each project member’s contributions**: in each report, the contributions of each project team member (design, coding, testing, report writing, etc.) must be explicitly specified.

Progress report 1 is important as it summarizes the design progress. Typically, it is a very good indication of how well the team will do in the course.

Progress report 2 has the similar requirements as report 1. But progress report 2 **must** include the source code. The source code should send to me as a single zip file. If the source code is too large, you can upload your source code to Github, or make it available on the web.

Progress report 1 Due: March 12 (Friday)

Progress report 2 Due: April 12 (Monday)

**Final Project Oral Presentation (15%):**

The presentation will include a description of the project, the project team, the design goals, work done, a demonstration of the final results as appropriate, and a summary. The presentation should be 20 minutes + 5 minutes Q&A, and each team member must present one part of the project. Remember, all presentations will be open to the department and the general university community.

Due to the COVID-19, students are not all on campus, they may live in different time zone, so live presentation is not required, you can record your final presentation and send it to me by **May 17.**

**Final Project (35%):**

The final project should include a final report and your demonstration. The final report should contain appropriate background to the project, present design specifications and requirements, any calculations and simulations, any test results, and how well the final product meets the design specifications. The final report should **at least 5 pages** length. Each group need to prepare a **poster**, which will be presented at the Intersections of CWRU.

Final Project Due: May 5 (Wednesday)

**Paper (25%):**

Write a 12-page (at least) paper on **Adverse Effects** of Computing Technology and their Mitigation (12 point font, 1.5 line spaced). The following are possible topics you can use:

1. Cybercrime, cyberfraud
2. Spam, phishing and social engineering
3. Cyberwarfare and industrial espionage
4. Disruptive effects of technology on labor markets
5. Underemployment and wage stagnation due to automation
6. Increased alienation and loneliness from social media overuse
7. Development of addictive video games with delayed intermittent rewards
8. Smartphone anxiety
9. Use of technology to create and disseminate fake news
10. Sexism, racism and homophobia in online communities
11. Loss of privacy due to ad-based web services and large scale data mining
12. Global surveillance and government control of free expression using technology
13. Monopolistic behavior of large software corporations controlling social media
14. Development of autonomous weapon systems
15. Misuse of cryptographic currencies for criminal activities

If you want to write this paper on some topics you are not sure, you can always email me to discuss it.

Paper Due: April 28 (Wednesday)

**CWRU Intersections:**

Virtual Intersections Begins on Thursday, May 6

Friday, March 26: Capstone Registration (form) Deadline

Thursday, April 8: Abstract Submission Deadline

Thursday, April 22: Presentation Submission Deadline

**· Other Course Details:**

**Attendance:**

Students are required to attend final project presentations. Failure to attend will result in the loss of 10% of your overall score. Attendance will be taken.

If you are unable to attend class, *and you can provide a note from an appropriate college official such as Health Services or Counseling Services*, you will be excused from the submissions due that day.

If you are going to miss class for a scheduled event such as a sporting competition, it is your responsibility to submit your homework *early*.

**Late Policy:**

Each late report submission day, in the absence of any extensions, will have a penalty of 15% of whatever the report is worth.

**Checking for code authenticity, code copying, or cheating:**

1. It is OK to (first ask for permission, then report and) use third-party libraries or code from elsewhere (such as GitHub, SourceForge, Bitbucket, GoogleCode, StackOverflow, etc)
2. It is NOT OK to use others code and not to report them.

**Academic Honesty:**

Please see the general [University Policy on Academic Integrity](http://www.case.edu/provost/ugstudies/acintegrity.htm). The specifics for the course are listed in the document, Honesty Policy, found on this site.

**Special Considerations**

**Physical Disabilities or Other Hardships**: If you have a physical disability or other hardship that can potentially put you at a disadvantage in this course, please see [Educational Student Services](http://studentaffairs.case.edu/education/). They will make certain you receive the necessary accommodations so that you may perform your best.

**Religious Holidays**: I strive to schedule all tests so that they do not conflict with important religious holidays. However, I am not always successful in doing that. If an important religious holiday conflicts with a class test or assignment in a way that makes it so that you cannot take the test or complete the assignment as originally assigned, please see me as soon as possible to make necessary arrangements.