

SYLLABUS

CSCI 4308 Senior Capstone Project

Course Information

Semester:	Fall 2020
Credit:	4 CREDITS
Dates:	Monday, August 24 through Monday, December 7
Class Meetings:	Lectures: Monday -- Live Lectures via Zoom 7:25 p.m. – 8:40 p.m. Lectures will be recorded and posted. Recitations: Tuesday -- 7:25 p.m. – 8:40 p.m. (recommended) Student teams must meet weekly (remotely) with their TA Student teams must meet with their sponsor at least bi-weekly

Instructor Information

Name:	Alan Paradise
Email:	alan.paradise@colorado.edu
Office Location:	Remote
Office Hours:	Via Zoom, By appointment through the Calendly app Monday 10 am - 12 noon Tuesdays 10 am - 12 noon Wednesdays 11 am - 1 pm

Course Information

Course description:

"This course is an advanced practicum in which students design, create, document, test and deploy software systems for use in industry, non-profits, government and research institutions. This course also offers extensive experience in Project Management skills, as well as oral and written communication skills throughout the software development process."

In other words:

- You are assigned to a team
- You are assigned to a project -- already defined by a sponsor
- You and your team will be held accountable to manage and execute the project over the next eight months
- You will deliver a meaningful, useful, fully-functional product to your sponsor

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Textbooks and Materials

In lieu of requiring students to purchase a textbook, the instructor will post in the course Canvas site various required/recommended readings each week.

Course Outcomes

There are a number of outcomes defined for the course. Upon completion of this class, students should possess:

- An understanding of a wide variety of software development lifecycle models.
- The ability to be a contributing and influential member of a software development team.
- Skills to be able to choose a software development model most appropriate to their project and skills to implement that model as a guide for the teamwork.
- Understanding of the how to gather, document and manage customer requirements for a software project.
- The ability to complete both high-level and detailed software design documentation.
- The ability to evaluate, assess and recommend alternatives and trade-offs among design options.
- The ability to perform project risk evaluation and to develop risk mitigation strategies and plans.
- Knowledge of tools and methods necessary to successfully implement and integrate individual software components into a larger software system.
- An ability to perform testing -- including unit testing, integration testing, and system validation -- along with the ability to create written test plans.
- The skills necessary create and publish user documentation for the targeted end users of the software.
- An ability to create a software product release, along with the ability to create associated written release notes.
- An ability to communicate (both written and orally) effectively with a wide variety of audiences, including other developers, management, customers and end users.

Course Website

- The course's Canvas site provides all necessary information regarding each week's readings, homework and project assignments, assignment submission links, lecture slides, grades, etc.
- The Canvas site links to the Piazza online forum for announcements and student questions/answers/discussions.

Piazza

- This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TAs, and myself. Rather than emailing questions to the

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teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.

- Find our class signup link at: <https://piazza.com/colorado/fall2020/csci4308>

Grading

Component	Percentage
Group Grades (shared equally among team)	60%
Group Project Deliverables	
1. Project Charter	10%
2. Work Breakdown Structure	5%
3. Functional/Non-Functional Requirements	10%
4. Project Plan – GANTT chart	5%
5. Project Architecture Plan	5%
6. Formal Project Status Report	5%
7. Project Risk Mitigation Plan	5%
8. Detailed Design Specifications	10%
Student Group Presentations	5%
Individual Grades	40%
Attendance (at recitation/team meetings with TA)	10%
Evaluations, Peer	15%

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Evaluations, TA	5%
Exams	
Mid-Term Exam	5%
Final Exam	5%

Letter Grade Scale
93 to 100 = A
90 to 92 = A-
87 to 89 = B+
83 to 86 = B
80 to 82 = B-
77 to 79 = C+
73 to 76 = C
70 to 72 = C-
60 to 69 = D
< 60 = F

Attendance

You are responsible for learning the material presented during lectures, even if you are not in attendance when the material is presented via live zoom. Recordings of all zoom lectures will be available for asynchronous viewing.

Course Calendar

This course consists of 16 weeks.

Here is a schedule of Lecture Topic by week:

Week	Lecture Topic
Week 1 Aug 24-30	Introductions, Course Overview Student Project Review and Project Assignment Survey

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Week 2 Aug 31 – Sep 6	An Overview of Project Management principles, techniques, tools Student Project Review and Project Assignment Survey
Week 3 Sep 7 – Sep 13 NO LECTURE on Monday, Sep 7 (Labor Day)	Student Project Team Assignment Preliminary Team Meeting Software and the Law
Week 4 Sep 14 – Sep 20	The Project Charter
Week 5 Sep 21 – Sep 27	Project Status Reporting
Week 6 Sep 28 – Oct 4	Student Project Overview Video Presentation
Week 7 Oct 5 – Oct 11	Project Planning – The Work Breakdown Structure
Week 8 Oct 12 – Oct 18	Defining and Documenting Project Requirements Midterm Exam (take home)

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Week 9 Oct 19 – Oct 25	Leadership
Week 10 Oct 26 – Nov 1	Project Planning – The GANTT chart, the Network Activity Diagram
Week 11 Nov 2 – Nov 8	System Design – Process Models Data Flow Diagrams
Week 12 Nov 9 - Nov 15	Web Page Design Using Wireframes Screen Mock Up Tools
Week 13 Nov 16 – Nov 22	Designing System Architecture
Week 14 Nov 23 – Nov 29	Fall + Thanksgiving Break No Lectures
Week 15 Nov 30 – Dec 6	Student Project Progress Video Presentation
Week 16 ** Dec 7	Semester Wrap-Up Final Exam (take home)

** Week 16 is a Short Week with no classes after Monday, December 7

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Student Project Teams

Project Sponsors are aligned for the start of the Fall semester. This semester (as of August 24) we have lined up 29 sponsors/projects. A booklet of sponsors and project proposals will be posted on the Canvas site for students to review during the first two weeks of class.

After reviewing the project proposals, students will complete a survey. Student responses to the survey will help the staff form teams and assign teams to projects. In the survey students will be asked to rank their TOP FIVE choices among the 29 projects. Students will also have the opportunity to request to be on a team with specific individuals. Similarly, students will also have the opportunity to request to NOT be placed on a team with certain individuals. Team member preferences will override student project choices.

The survey will include student self-assessment of both technical and non-technical skills. Student responses will assist the staff in creating diverse, balanced teams while matching student skill sets to specific project requirements.

It will be impossible to assign all students to their first choice of a project. Students should NOT expect to be assigned to their first choice. However, it is very likely that students will be assigned to a project team that is one of their top five choices.

Teams will be announced at the first class of Week Three, and the first team meeting must be held virtually during Week Three for students on each team to get to know each other and to make plans for meeting with your TA and with your project sponsor.

Teams must meet (virtually) with sponsors as soon as possible to find out more about the project, and to confirm that the project and the team are a good fit.

When submitting project preferences, students should pay careful attention to sponsor stated prerequisites and requirements, which may include expectations of technical knowledge and experience, as well as non-technical requirements such as citizenship requirements. Regarding certain technical skills, you should either already have the skill or be willing to come up to speed rapidly on your own.

Three weeks after teams are announced, in Week Six, teams must prepare a short (6 minute) video presentation to the class to describe the project that their team will be working on for the year. And, at the end of the Fall semester, each team will prepare a project status video presentation.

Teams will meet with their assigned Team Advisor (TA) on a weekly basis, with their team more frequently, and with their sponsor as needed.

Due to the complexity of scheduling group meetings, it is essential that all team members be as flexible as possible. Development team meeting attendance is required. Likewise, TA meeting attendance is required, and students missing a team meeting or TA meeting will be penalized for each unexcused absence. In order for an absence to be excused, you must inform your team and your TA of your absence before the meeting occurs.

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A relatively large (15%) portion of the student's course grade is determined by their evaluation from their peers. This includes things like participation, communication, attitude, cooperation, work ethic, commitment to quality in all work, leadership, creativity. **How your team mates assess your participation will have a significant impact on your grade for the course.**

Accommodations

The university is committed to providing to all students the support and services needed to participate in this course. If a student qualifies for accommodations because of a disability, the student should submit to the instructor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu. If you have a temporary medical condition or injury, see Temporary Medical Conditions: Injuries, Surgeries, and Illnesses guidelines under Quick Links at Disability Services website and discuss your needs with the instructor.

Religious Observances

[Campus policy regarding religious observances](#) requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required assignments/attendance. For students in situations where this applies, such issues must be communicated to the instructor as early as possible.

Zoom Lecture and Team Meeting Behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, ability, and nationality. Class rosters are provided to the instructor with the student's legal name. The instructor will honor student requests to be addressed by an alternate name or gender pronoun. Students must advise the instructor of this preference early in the semester so that appropriate roster annotations may be made. For more information, see the policies on [class behavior](#) and [the student code](#).

Discrimination and Harassment

The University of Colorado Boulder (CU-Boulder) is committed to maintaining a positive learning, working, and living environment. CU-Boulder will not tolerate acts of discrimination or harassment based upon Protected Classes or related retaliation against or by any employee or student. For purposes of this CU-Boulder policy, "Protected Classes" refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been discriminated against should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Student Conduct (OSC) at 303-492-5550. The [full policy on discrimination and harassment](#) has more information.

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Honor Code

All students of the University of Colorado at Boulder are responsible for knowing and adhering to [the academic integrity policy](#) of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). The [Honor Code Office](#) has more information.

Syllabus Changes

The instructor reserves the right to modify this syllabus as needed during the semester. Should any changes be necessary, the instructor will inform students of the change and post an updated copy of the syllabus to Canvas.