Welcome

Welcome to:

CSCI4308 Senior Capstone Project

Instructor:

Alan Paradise
alan.paradise@colorado.edu

Agenda

- Overview of Course
- Review Syllabus

The Course

What is it?

"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."

The Course

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

The Course

What is it?

- Has existed within the CS department for many years
- Expose students to REAL projects for REAL organizations
- Expose students to the use of software in industry
- Expose students to the challenges of developing software in a TEAM environment for a REAL customer

Why do we do it?

The Course

Why do we do it?

- Student Resume Builder
- Employment Opportunities
- Student Skill Builder
  - Technical Skills
    - Technical Architecture
    - Programming Languages, Development Environments, Frameworks
    - Repository – Managing CODE
    - Database Design
    - Data Processing, Database Processing
    - Web Page Design & Construction
    - Testing and Deployment

The Course

Why do we do it?

- Student Skill Builder
  - Semi-Technical Skills
    - Project Management Tools and Techniques
    - Project Planning, Task Planning
    - Managing ongoing progress
    - Documentation, Creating Critical Project Deliverables
    - Test Planning
    - Release Planning

The Course

Why do we do it?

- Student Skill Builder
  - Soft ("People") Skills
    - Communication
    - Leadership
    - Interpersonal Crisis Management
    - Team Dynamics

Senior Capstone

Sounds kind of like CSCI3308 Software Dev…

Differences:

- You don't define the project – the sponsor does
- You don't define the tools, architecture, stack, etc. – the sponsor does
- You Plan and Design in the Fall; Build and Deploy in the Spring **
- Projects are presented to the public vi video in the Spring (end of April)

** Typically, but not always. Some sponsors require a more agile approach that follows a design-build-deploy iterative model

How does it work?

- Align **Corporate Sponsors**, each with a project idea/proposal
  - Big, for-profit companies
  - Small, for-profit companies, Start-Ups
  - University Departments
  - Government Research Entities
  - Charities, Not-for-Profit

- Publish the **Project Book**
  - Lists all Corporate Sponsors
  - Describes the sponsor's project idea/proposal

How does it work?

- **Team Formation**
  - Students thoroughly and carefully review the Project Book
  - Students complete a mandatory survey indicating
    - Your top five project choices
    - A self-assessment of your skills (technical and non-technical)
    - Team mate preferences
  - The instructional staff will form teams
  - Teams will be announced the week of September 7
  - Each team will consist of 5 or 6 students
  - Each team is assigned to a TA

Meetings

- **"Recitation"**
  - Each team meets with their TA once a week
  - Attendance is mandatory
  - Meetings are virtual
- **"Sponsor"**
  - Each team meets with their sponsor at least twice monthly
  - Attendance is mandatory
  - Meetings are virtual
  - Some sponsors want to meet more often

Meetings

- **"Professor"**
  - I want to meet with each team during the "Recitation" meeting a few times during the semester
  - Progress Check
  - Obstacles, Risks

- **"Class"**
  - Each team will prepare and present (virtually) two brief videos to update the rest of the class on project status
    - Once at the beginning of October
    - Once at the end of the semester

You can view sample videos (from the end of the Spring semester last year) HERE:

https://www.colorado.edu/cs/2020-capstone-projects

Syllabus

So, let's take a look at the syllabus.

Course Information

Semester:	Fall 2020
Dates:	Monday, August 24 through Monday, December 7
Lectures:	Monday, 7:25 pm – 8:40 pm
Recitation	Tuesday, 7:25 pm – 8:40 pm

Instructor Information

Name:	Alan Paradise
Email:	alan.paradise@colorado.edu
Office Location:	Remote
Office Hours:	Virtual via Zoom
	By appointment through the Calendly app
Monday	10 am - 12 noon
Tuesday	10 am - 12 noon
Wednesday	11 am - 1 pm

Staff – grad students, TAs

- Chelsea Chandler
- Bryce Ikeda
- Jowie Koh

Textbook

None.

I will provide readings posted in Canvas week by week.

Outcomes - Students gain knowledge and experience with:

- A variety of software development lifecycle models
- Be a contributing member of a team
- Choose a software development model
- Define & document customer requirements
- High-level and detailed software design documentation
- Evaluate, assess and recommend trade offs among design options
- Perform project risk evaluation and mitigation strategies
- Software testing
- Create and publish user documentation
- Manage software product release
- Communicate (both written and orally) effectively
- Report status regularly to your sponsor and to your professor

Course Websites

Canvas

The course's Canvas site provides all necessary information regarding each week's readings, and project assignments, assignment submission links, lecture slides, recorded lectures, grades, etc.

Piazza

We will use Piazza for class questions and discussions. The system is highly catered to getting you help fast and efficiently from classmates, the TAs, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza.

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

Expectations

- Learn Material Presented in Lecture
- Apply project management techniques to your project
- Complete project deliverable assignments as a team
- Meet with your project team as needed
- Meet with your sponsor as needed - attendance is mandatory
- Meet with your TA once a week – attendance is mandatory
- Grading is divided between GROUP work and INDIVIDUAL work, 60/40
- Sponsor evaluations, peer evaluations, TA evaluations
- Some sponsors require maintenance of IP rights
- End result = a useful product for the sponsor. (Focus is NOT on your grade.)
- Teams present to each other 2X in the Fall
- Team Leadership
- Accountability – Including a weekly time sheet

Time Sheet

Name							
Project Team							
	Date						
Task	25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan	Week Total
Lecture								0
Read/Study								0
Team Meting								0
Sponsor Meeting								0
Task aaaaa								0
Task bbbbb								0
Task ccccc								0
Task xxxxxx								0
Task yyyyy								0
Task zzzzzz								0
Daily Total	0	0	0	0	0	0	0	0

Work is tracked in hours spent.

Total hours per week should be 12-16.

Tasks align with the project plan

Tasks will appear and fall off with each successive week

Fill this sheet out each week - keep for your records and submit a copy to your TA

If you are spending more than about 10 minutes per week filling this out, you are probably overthinking it

It is intended both as an accountability tool and as validation for your estimates

Syllabus

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%
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

Failing is rather easy

- Miss meetings
- Irritate your team mates, TA and/or professor
- Fail to cooperate
- Refuse to compromise
- Be lazy – ignore your tasks, offload work to others
- Be Careless - Sloppy work habits yield sloppy results
- Don't communicate regularly, thoroughly, openly, honestly

Syllabus

Calendar

- **Each Week has a MODULE in Canvas**

- **For each week:**
  - Summary of what we'll be doing
  - Lecture topic
  - Reading assignment
  - Project assignment

ReSubmissions

Your team can turn in another copy of an assignment with improvements after the due date.

Course Options

4308 – Senior Capstone Project

You are a member of a team doing a project for a sponsor. Design & Plan in the Fall. You must continue on to CSCI 4318 in the Spring for construction, testing & deployment.

4328 – Senior Capstone Project Mentor

Only for students with very significant professional software development experience. Requires instructor approval. You must continue to mentor through the Spring as well.

4338 – Cross-department Capstone Project

You are a member of a team from Mechanical or Electrical Engineering doing a project for a sponsor. Must continue through Spring.

Also: Thesis option, Entrepreneurial option (probably too late…)

Questions

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