CSC491/2600

University of Toronto's Capstone Design Course through the Department of Computer Science Innovation Lab (DCSIL).

Website Table of Contents

Course Overview

Students will write a software application that implements the business ideas developed in CSC454/2526 (Business of Software). This course will expose students to the core technologies, ideas, and processes in developing a startup.

Students will be given a theme, in the corequisite course (CSC454), in which to develop a startup. Students are expected to:

- Define their own scope of problem within the theme
- Develop a cohesive plan
- Produce a working MVP (minimum viable product)
- Present their work in various mediums, including written, orally, visually, and through the internet.

Class time will be a mixture of project-focused workshops, lectures, and discussions. The class will be small and very interactive. Students may hear from guest lecturers from the field.

Requirements to take this course

There is a co-requisite to CSC491/2600, students must also be enrolled in CSC454/2527 or have taken CSC454/2527 before to take this course.

There is also an application process on the DCSIL website.

I would also encourage you to review the recommended skills and knowledge on the DCSIL website

Required Materials/Software

There aren't any *required* materials persay, but it is highly recommended to bring a laptop to class with a fully functioning developer environment for your project. While not all classes will be workshops, it is recommended to bring your laptop during each class for other uses such as research.

You will also need a GitHub account.

It is **required** to download, install, and set up Zoom as this will be used for all communications throughout the term.

Lecturer

Hello! My name is Julian Nadeau. You can reach me at julian.nadeau[at]utoronto.ca.

I am a Senior Software Developer at GitHub during the day. I've also worked in the startup space quite a lot having experienced explosive growth in various roles at Shopify from 2013 through 2019, including their IPO.
I've run a not-for-profit startup as well, called Code For Kids, that helped teach kids how to code.

You can view my personal website at https://jnadeau.ca and my LinkedIn Profile here.

Office Hours

Office hours are by appointment. Please email me at julian.nadeau[at]utoronto.ca, though messaging me on DCSIL's Slack group is more likely to get a response.

While the course is online due to Covid-19, I am willing to meet up for a socially distanced coffee or park visit in person in the downtown core of Toronto to discuss any issues in person if you would strongly prefer that. Please wear a mask (except when drinking your coffee/tea/water), I will not meet with you if you are not wearing your mask.

Time and Location

Class is on Thursdays from 4-7PM EST on Zoom. If you are not in a time zone that aligns with EST, please let me know early!

This said, lectures are asynchronous online. The 4-7pm lecture slot is reserved for working periods, guest lectures, discussion, etc.

I don't like something about this course

There's always room for improvement and I'm happy to take any feedback.

Please submit an issue on this repo, or preferably make a pull request changing or adding something you don't like.

That said, remember that your changes or concerns aren't guaranteed to be addressed how you want. I (the instructor) have the final say.

If you prefer to speak privately, please email me or message me on Slack.

Class Schedule

This is a class schedule indicating what we aim to do each week and the recommended lectures to watch each week. This is broken down by weeks and aims to provide you a general outline of the progress you should make throughout this course.

#	Date	Assignments	Lecture Time	Recommended Async Lectures

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1	Thursday, January 14 2021	-	First day of class, Introductions & Course Overview	Story Telling
2	Thursday, January 21 2021	❗A1 Due	AI Tutorial	Various Diversity & Inclusion
3	Thursday, January 28 2021	❗A2 Due	Discussions around Diversity	Various Diversity & Inclusion // start Different Kinds of Tests / Best Practices - Languages / Best Pracitces - Linting, Semantic Analysis, etc
4	Thursday, February 4 2021	-	Guest Speaker	Different Kinds of Tests / Best Practices - Languages / Best Pracitces - Linting, Semantic Analysis, etc
5	Thursday, February 11 2021	❗A3 Due ❗A6 Demo	Work in Class	UX Reasearch + Data Bias
6	Thursday, February 18 2021	-	NO CLASS - Reading Week	-
7	Thursday, February 25 2021	❗A4 Due ❗A6 Demo	Work in Class	Infrastructure, Prod Eng, Production, etc
8	Thursday, March 4 2021	-	❗A5 Due Discussions around Infrastructure	Ethics and Accessibility
9	Thursday, March 11 2021	Work in Class	Guest Speaker	-
10	Thursday, March 18 2021	-	Work in Class	-
11	Thursday, March 25 2021	- ❗A6 Demo	Work in Class	-
12	Thursday, April 1 2021	-	Work in Class	-
13	Thursday, April 8 2021	❗A7 Due ❗A6 Demo	Software Due - Demos of your Software	-
N/A	Friday, April 9 2021	-	Bonus Assignment Due	-

Notes

- *Lectures subject to change.*
- Zoom link will be provided in the LearnSoftware App. You will be given access via email close to the start of the course.
- Not all lectures listed here have a corresponding entry in the presentations page on this site. Some exist as videos only on the LearnSoftware App.

Summary

- Lectures are Asynchrous via the Learn Software application
- 2+ Guest Speakers
- 1 AI + Data Tutorial
- 2 discussions (1 includes short demos)
- 5 Work in Class periods (2 include short demos)
- 1 Intro
- 1 Demo period

Your software

To help you keep on track, here are some general recommendations and guidelines on milestones and goals you should aim for throughout the term. While most of these aren't mandatory (unless enforced by assignments), following these will help ensure your success and avoid stress and chaos in the last 2 weeks of the course.

- You should start a skeleton hello world application as soon as you choose your base tech (Flask, Rails, iOS, etc)
- You should start building out a developer environment, CI setup, test infra, and production setup by the end of January
- You should start building out functionality no later than reading week
- Your models should also be started no later than reading week
- You should have demoable content by the first week of March
- You should have significant demoable content by March 11 (Assignment 6 deadline)
- You should be at the point of adding no new major features in the last week of March. This should be reserved for polish and bug fixes

Demos

Here is an example of the progress I would expect for each demo slot:

- Demo 1: Decisions and Tech Stack, at minimum a Hello World application in your chosen language/platform
- Demo 2: Your application running on CI, which means some basic tests (at minimum). It should also be launched onto the web / mobile
- Demo 3: Minimal front end, mobile, and back end (as applicable). Starting code for any data models. Some functionality
- Demo 4: Full software, general functionality, note any shortcomings or areas to improve. Identify all main use cases implemented

Assignments

Please see the assignments section.

Class Policies

These are the policies for this course.

- Attendance
- Communications
- Late Policy

Video + Audio Recording

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session.

Course videos and materials belong to your instructor, the University, and/or other source depending on the specific facts of each situation, and are protected by copyright. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without the explicit permission of the instructor.

For questions about recording and use of videos in which you appear please contact your instructor.

Student Recording

Students may create audio-recordings of the lectures for their personal use. Recordings are intended to permit lecture content review so as to enhance understanding of the topics presented. Audio-recordings are not substitutes for attending class.

Students should note that since audio recordings are to be permitted, their voice may be recorded by others during the class. Please speak to the instructor if this is a concern for you.

In accordance with the Accessibility for Ontarians with Disabilities Act, 2005, persons who have special needs will be accommodated.

Students agree to the following terms when creating audio recordings of lectures:

- Recordings are not to be distributed without the permission of the instructor via the Internet, using social media such as Facebook, peer-to-peer file sharing such as One Drive or Dropbox, or other distribution channels.
- Recordings are not to be shared with other classmates unless they are to be used in collaborative assignments, or if the instructor permits for other reasons.

Non-compliance with these terms violates an instructor's intellectual property rights and the Canadian Copyright Act. Students violating this agreement will be subject to disciplinary actions under the Code of Student Conduct.

Team Grades

When working in teams, students are expected to divide workload equitably. The nature of the division is up to the team members, and does not require that all members work the same hours or produce identical volumes of work. By default all team members receive an identical grade on team assignments.

During your first assignment you will create a "team expectations" document that all team members must agree on. This will help us set expectations for workload and expectations of all members.

Students should report any difficulties in their teams to a member of the Teaching Team as early as possible so that the difficulties can be addressed in a positive way.

Students should also maintain as complete a record of team interactions as possible.

Based on solicited, confidential feedback, or at the instructors discretion based on participation in the course - the Course Instructor may adjust the grade distribution within a team.

Class Attendance

While class attendance is mandatory, we will not be taking attendance.
This is a senior computer science class with a highly competitive application process.
As such, you are trusted to make the best choice for yourself and your team.

However, as stated in the team grade policy, team members all receive the same grade unless
there is an obvious discrepency in the output of work, then as per policy we will be forced to give you a different grade.
Attendance may be taken into account.

You must also remember that you are in a team. Your team members are counting on you to do your part. Don't let them down.

I am sick or injured, have an emergency, or family issue

Life happens. I am not going to penalize you for things that are outside of your control.
Instead, I ask that you be open and communicate your needs with me whether that is
lenience on an assignment deadline or that you may not attend class.

If you are sick and would like to participate in class still, then we can set up a Zoom call for your to join in remotely.
Please do not come to class if you are sick. I *will not* penalize you for not attending class due to an illness. Be open and
communicate your needs so we can accommodate.

All my classes are online and I do not live in a timezone that can align with EST

Please talk to the instructor by email or Slack.

How to ask for help

- A ping on Slack is a decent option
- An email leaves a better paper trail for both of us
- In some cases, meeting in person may be a good option (we'll discuss this beforehand)

While I do not need to know the exact details of what happened, just let me know what the issue is and
how long you need to recover/return to normal work.

However, for extended absences or issues that persist past the end of the semester we may need to ask the University's
administration for input.
We can work through that one together.

Plagiarism

The University of Toronto treats plagiarism as a violation of the Code of Behavior on Academic Matters.
Plagiarism is a serious form of cheating in which a student makes use of someone else's ideas or words
without giving appropriate attribution. In your academic work, plagiarism usually occurs in one of three
ways:

- You cut and paste a piece of someone else's text or code or figure but do not clearly show what the
  source is for that material.
- You hand in work done by others (e.g. teammates) without putting their names on the work.
- You re-phrase someone else's idea into your own words, but do not give credit to the source of the
  idea.

The University takes cheating very seriously. Penalties can include zero on the assignment, zero in the course, annotations on your transcript (which would be seen by a potential graduate school or employer), or in extreme cases expulsion from the University. If you are concerned about your use of sources, discuss your concerns with your Course Instructor before submitting a document for assessment.

Midterms & Exams

There are none. This is a project-based course.

Late Policy

Students are expected to work diligently to pass their assignments in on time. This course is intended to partially model a startup, however it is still a university course. Assignments also take time to mark and lecturers/TAs schedule their time according to the course calendar. We ask that you be respectful of their time by not passing assignments in late.

Assignments will be accepted up to 5 days past the due date at -10% per day.

Days Late	Percent Lost
1	-10%
2	-20%
3	-30%
4	-40%
5	-50%
6+	-100%

Accomodations can be made by talking to the instructor. They are not guaranteed, however, but we do like to model a startup :)

Compounding assignments

These assignments are, generally, made to compound one another. While assignments may be late and you may lose 100% of the marks, you must still complete them to work on the following assignments.

Support and Accomodations

Students with diverse learning styles and needs are welcome in this course. Students who have a disability or health consideration that may require accommodations are both encouraged and welcome to approach the Course Instructors as soon as possible. Should accommodations be necessary, by University of Toronto policy students are required to contact the Accessibility Services Office.

Communication

There are, just as you will find in a startup, various methods of communication. Please hold group online discussions on Quercus, Slack or another tool of your choosing. You will receive invites during the first week of the course. Likewise, Zoom will be used at points during this course. Please ensure you have it installed and signed into an account.

Communication, as we will discuss in the course, is vital to the success of any business. As your startup gains traction and becomes successful, you will find that communication methods and culture become a bottleneck within your company. As such,

we will ensure students are exposed to different means of communication and include the following table to help you understand the various mediums.

Medium	When to use
LearnSoftware App	Creating teams. Lessons. Creating Repos. Managing Repos. Assignment feedback, surveys, etc for CSC491/2600
Slack	General discussions and questions. The instructor for CSC491/2600 (Julian Nadeau) also prefers this communication method.
Email	Private matters. The instructor for CSC454/2527 (Mario Grech) also prefers this communication method.
Quercus	CSC454/4527 uses Quercus
In Person	Hallway conversations. If you decide anything here, write it down somewhere else on your Team's GitHub Repo
Video Chat via Zoom	All classes will happen over Zoom
Issues and tracking boards	Team: Use this heavily as a decision record on most topics. Making use of GitHub Issues shows participation from all users (including non-technical) and will be a part of your grade in CSC454/2527 CSC491/2600: When you have a problem that needs to be fixed and are comfortable talking about it in the open
GitHub Releases	For your team repository, use this as a method to record assignment submission for CSC491/2600
Internal Wikis	You can keep team docs in your team repo on GitHub. I ask that you avoid using the wiki feature as it makes grading more difficult