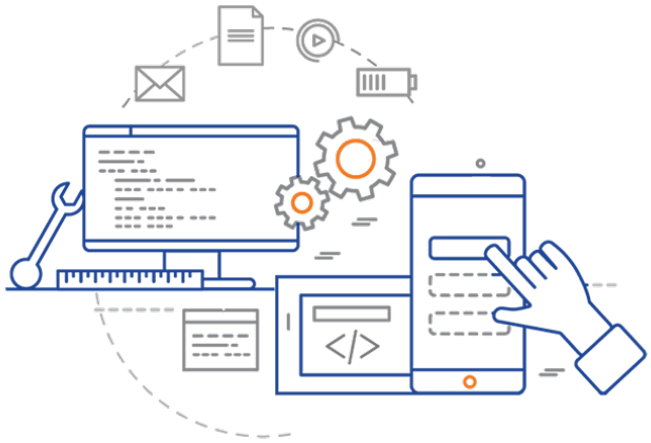


CS 398: Application Development

Week 01 Lecture: Introduction

Syllabus; Course structure

What is this course about?

Course Description

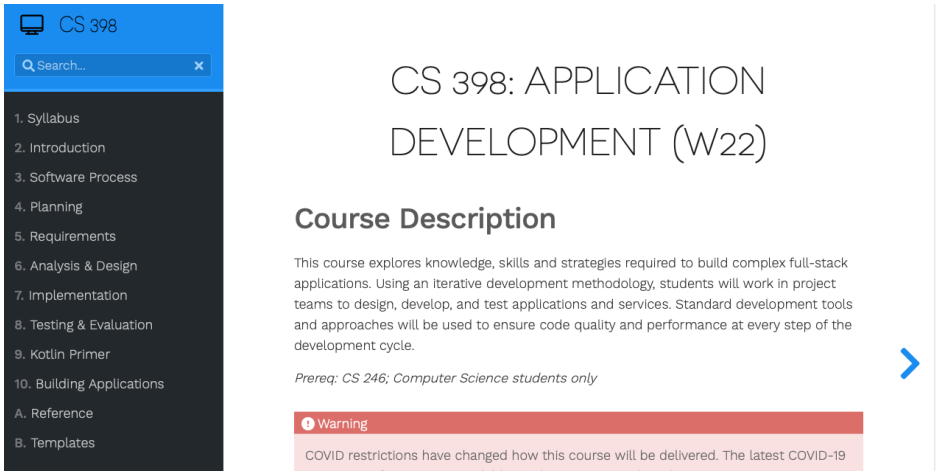
This course explores knowledge, skills and strategies required to build complex full-stack applications. Using an iterative development methodology, students will work in project teams to design, develop, and test applications and services. Standard development tools and approaches will be used to ensure code quality and performance at every step of the development cycle.

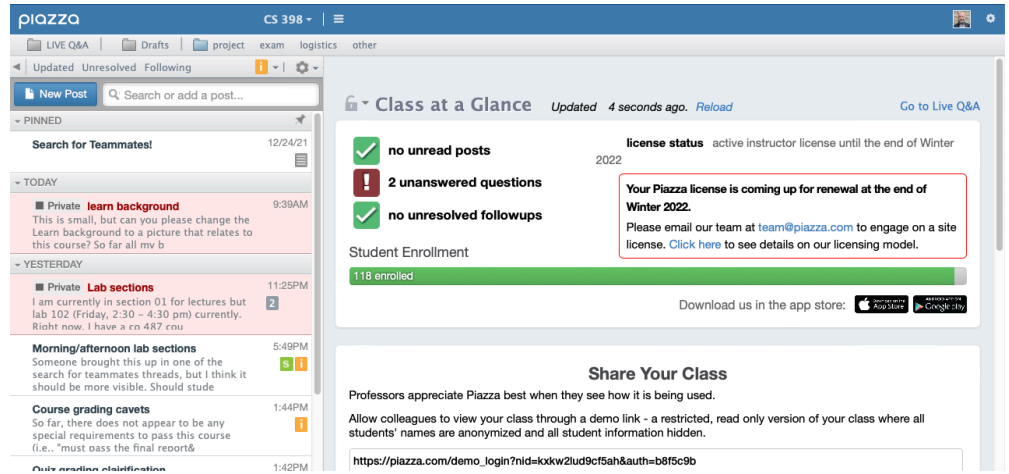
Learning Objectives

On successful completion of the course, students will be able to:

- Work effectively as a member of a software development team.
- Use an interactive process to manage the design, development and testing of software projects.
- Design and develop different styles of application software in Kotlin, using the appropriate architectural and design patterns.
- Design services that can provide remote capabilities to your application.
- Apply debugging and profiling techniques to address design and performance issues.
- Produce unit and integration tests as part of the development process.

The website is packed full of information…





https://student.cs.uwaterloo.ca/~cs398/

https://piazza.com/class/kxkw2lud9cf5ah

- We'll use Piazza for course announcements
- Learn for quizzes only!

This is a project course

Project Teams

As a member of a project team, you will implement a fully-featured application using technologies introduced in this course. The type of application and exact requirements will vary term-by-term, and will be provided in a separate document. This document outlines the common structure that will be used each term.

Warning

Course enrolment for this course is closed at the end of the first week. Anyone wishing to join in the second week of the term can only do so if they join as a team, with instructor consent.

Forming your team

Teams must consist of four people. You will not be assigned to a team; you are expected to self-select into teams in the first week of the course.

Note

Team members must all be enrolled in the same section, since you will be working your projects together during classtime. All team members are expected to attend class.

Project Team

- Teams are 4 people.
- Team members are in the same section.
- Everyone comes to class.
- Everyone participates.
- You fail or succeed together! *

Project Details

- All teams work on the same project.
- Third-party code (partially) allowed.
- Basic “spec” released in Week 02.

* I want you to **all** to excel and will try my best to help!

Assessment

Personal Component (15%)

Starting in the second week, there will be weekly quizzes on Learn. These must be done individually.

Item	Calculated	%
Participation in team meetings	5% - 1% for each missed meeting	5%
Weekly quizzes (weeks 3-12)	10 quizzes x 1% each	10%

Show up to lectures ready to work. You get marks for attending.

Quizzes are done on your own. They're based on videos and slides.

Team Component (85%)

In this course, you are assessed on the quality of your project, but also on your ability to work together as a team to reach milestones. Everyone on the team is expected to contribute to each project deliverable, and will receive the same grade for each component.

Item	Calculated	%
Design Review	Requirements; architecture diagrams; prototype	15%
Sprint 1 Demo	Application walkthrough; features	15%
Sprint 2 Demo	Application walkthrough; features	15%
Sprint 3 Demo	Service walkthrough; features	15%
Sprint 4 Demo	Final walkthrough	15%
Final submission	Final submission: PDF, source code, installer	10%

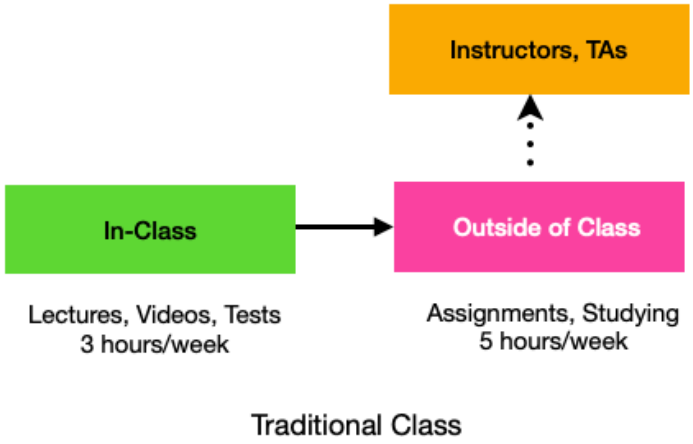
These are all the same format:

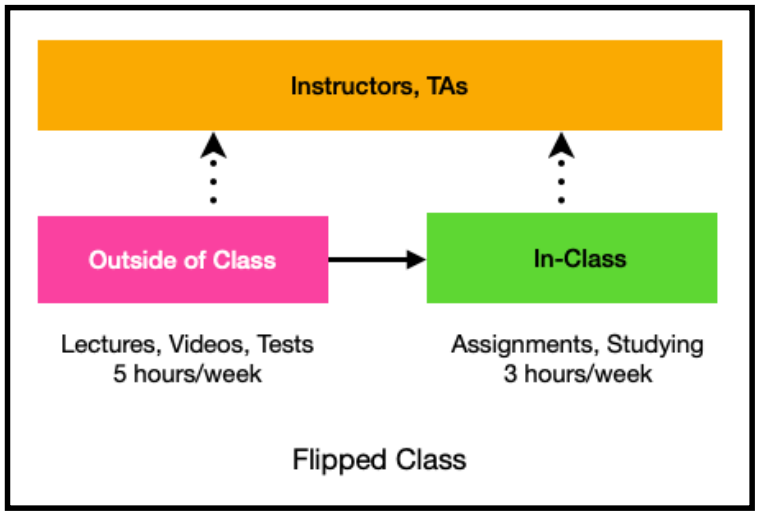
- You prepare a short presentation.
- Everyone talks for 2-3 mins each.
- Present what you've done since the last demo.
- Demo your product.
- Collect feedback.
- Grade is subjective.

Classes are working sessions

We're using a **flipped classroom** model, where class time is meant to be spent working on your project.

- **Before Class**: Watch posted videos, and read posted materials (course notes, articles).
- **During Class**: Work on specific activities with your team, and course staff will help you.





GOAL: I want the classroom to be fun, hands-on and very interactive.

We're also available outside of class…

Course Staff

- Dr. Jeff Avery (j2avery@), Instructor, responsible for course design and instruction.
- Caroline Kierstead (ctkierst@), Instructional Support Coordinator (ISC), handles academic integrity and course accomodations.
- Yuan (Constant) Chen (y2238che@), PhD Student, Teaching Assistant.
- Xiaoyan Xu (x439xu@), Masters Student, Teaching Assistant.
- Licheng Zhang (l345zhang@, Masters Student, Teaching Assistant.

Contact List: https://student.cs.uwaterloo.ca/~cs398/01-syllabus/5-contact-us/

Piazza: https://piazza.com/class/kxkw2lud9cf5ah

Class Structure

Standard class structure

- 15 mins: Jeff will spend 15-20 mins reviewing, and recommending next steps.
- 30 mins: you and your team will meet and work on your project.

Starting week 02

Online (now until Jan 27th)

- Lectures will be held as synchronous MS Teams calls. Join the “MS Teams - General” channel during your scheduled time slot.
- We will setup private channels for each project team, where you can meet online. Course staff can join you there as needed (and we will periodically check-in).

In-Person (after Jan 17)

- Lectures will be held in-person at the scheduled time/place.
- Your team will meet in-class and we will be physically present to help you!

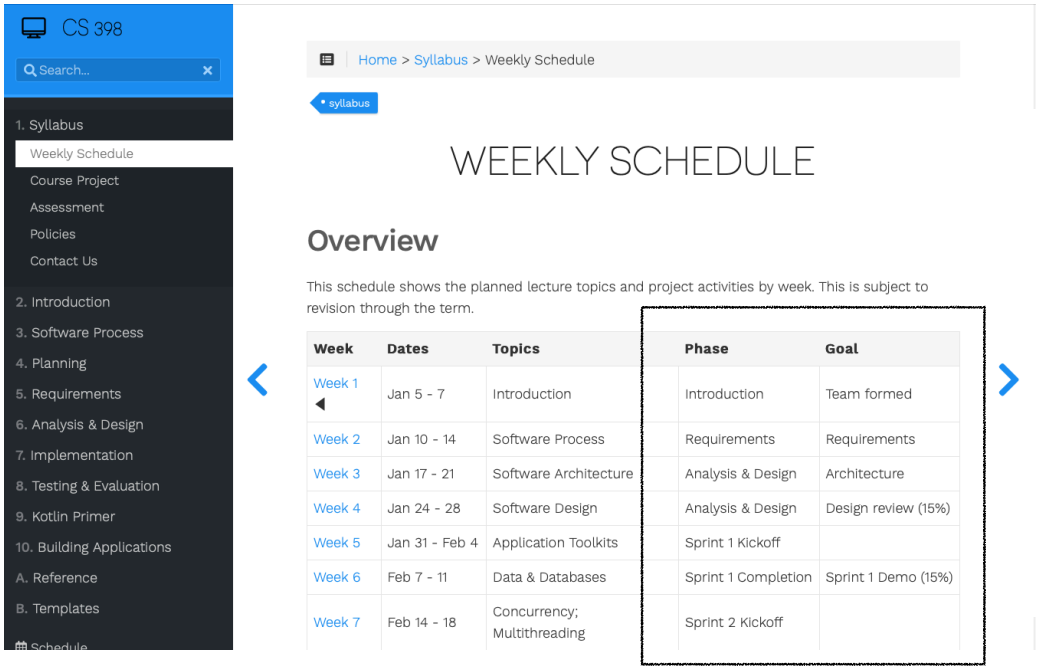
LEC/LAB Mixup

	Morning Section	Afternoon Section
Mon	10:30 - 11:20 (MC 4063) - LEC 001	2:30 - 3:20 (MC 4060) - LEC 002
Wed	10:30 - 11:20 (MC 4063) - LEC 001	2:30 - 3:20 (MC 4060) - LEC 002
Fri	10:30 - 12:20 (MC 4058) - LAB 001	2:30 - 4:30 (MC 4058) - LAB 002

- You need to register in the LEC and LAB sections at the same time.
- The LAB isn't really a lab, it's an extended lecture section.
- Typically we'll just use the first hour on Fridays, but on Demo days we will extend into the second hour.

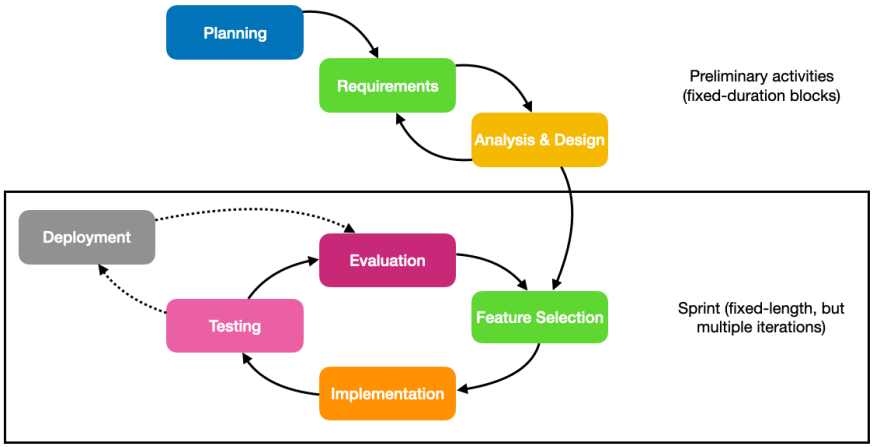
- Quest was SUPPOSED to force you to pick the matching lab but it wasn't setup properly.
- If you're in mix-matched sections please let me know (email me).

There is a plan. Really.



Lectures to watch, related to where you are in your project.

What you should be working on during class.



Software Development Lifecycle (SDLC)

Week 01

Lectures

Schedule

course website

Wed

- Watch the **Introduction** video.
- Skim the notes.

Fri

- Watch the **Software Process** video
- Skim the notes.

Goals

- Form a project team!
- Create an empty project in GitLab
- Email Jeff the details (see next slide).

Week 1: Introduction

Goal: Form project teams. See notes for details.

Wed: Syllabus & Introduction

- Lectures: notes, video (slides).
- Activities: Find a team!!
  - See the Piazza post on forming a team.
- Resources: n/a

Fri: Software Process

- Lectures: notes, video (slides).
- Activities: Create a project
  - Create **one** project in GitLab that your team can share.
    - Create under one person's account, and then add everyone else on the team as Owners/Developers.
    - Add the instructor and the course staff so that they can view your work! They don't need developer access, just the ability to view content. Refer to the list of course staff for email addresses.
  - Email the instructor with a list of team members and link to the project.
- Resources
  - GitLab: https://docs.gitlab.com/ee/user/project/working_with_projects.html
  - (Optional). Miro Collaborative Whiteboard. https://miro.com/online-whiteboard/

https://student.cs.uwaterloo.ca/~cs398/01-syllabus/1-weekly-schedule/

Week 01

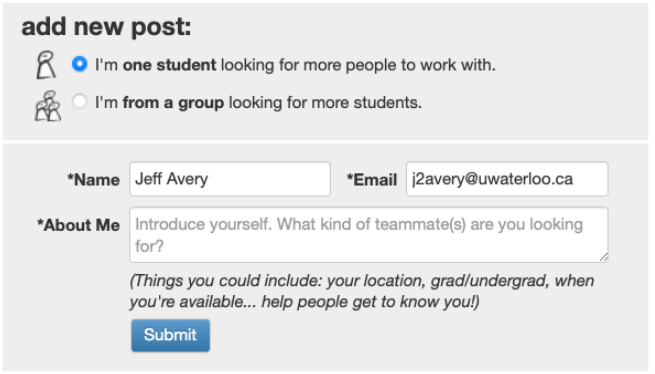
@5

Goal: Find a Team!

1. Find teammates

- Ask your friends in-class, people you've worked with before.
- Use the Piazza thread to search for teammates.
- Convince your friends to join the class?

Today



2. One of you should create a repository under git.uwaterloo.ca.

* Name it something reasonable (e.g. "cs398 project")
* Add your teammates as Maintainers.
* Add all of the course staff as Developers.

Friday

3. Email me (Jeff):

Name and email of everyone in your team

The URL of your repo.

Also Friday

Q&A

TEAM FORMATION

Do I need to be in the same LEC and LAB sessions as my teammates?

—> Yes

Are you sure?

—> Yes, I'm quite sure.

Do I need to attend lectures?

—> Yes you do.

Can I just call in and work with my team remotely?

—> No. If we're in person, you need to attend in person.

Can I register in this course when I'm not returning to Waterloo and hope that it works out?

—> Please don't do this. I can sympathize, but you risk putting your teammates in a bad position when we return to in-person.

Can I work alone?

—> No. That goes against the purpose of the course, which is to learn to work as a team. This course is more about the journey than the destination (*gets all philosophical*).

Q&A

PROJECT

Can I pick my own project?

—> No, you'll all be assigned a project at the start of week 2.

Why didn't you hand out the project details until week 2?

—> If I handed out the project details, some of you would be halfway done building the wrong thing.

Can we at least be assigned different projects?

—> No. The idea is that if everyone does the same project, then I can target the material towards all of you.
—> I can lecture on what's relevant and provide (hopefully) contextual examples.

What if your idea is terrible?

—> I live with that fear every day.

Can we build a desktop app or mobile app?

—> Yes

Can we build a web app?

—> The words "web" and "app" don't go together very well.

Q&A

LECTURES

So, are you really going to make us watch pre-recorded lectures?

—> Yes, yes I am.

Isn't that *so much easier* than just lecturing in-person?

—> You'd *think* so, but it's actually 2-3x more work to record (and re-record, and edit) videos.

—> I also end up recording lectures and then preparing for class *anyway*. This is sort-of a bad deal for me.

Why do you do it then?

—> I think it's better for *you*. After teaching remotely for almost 2 years, I've learned this at least :)

Do I need to read the notes AND watch the lecture videos?

—> Well…. The notes were written first and the videos are a subset (basically a review). You definitely want to watch the videos. Treat the notes as a resource, or a book - use it for reference when you want more information.

Will I be quizzed on (fill-in-the-blank)?

—> Yes, definitely.