

CS 4530: Fundamentals of Software Engineering

Module 1.1 Course Introduction

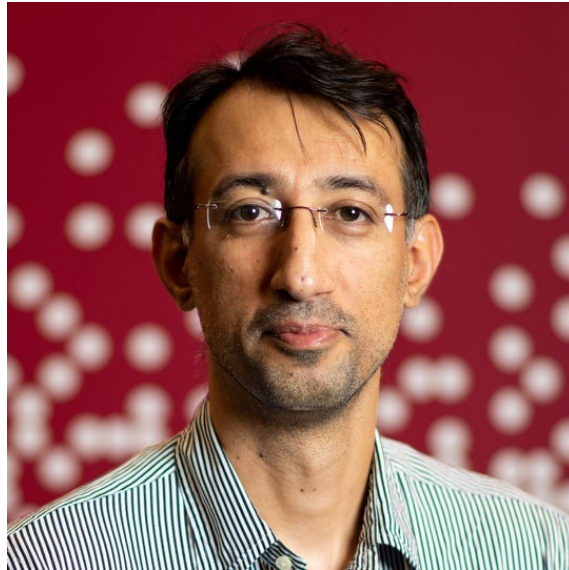
Jon Bell, Adeel Bhutta and Mitch Wand
Khoury College of Computer Sciences

Instructors



Jonathan Bell

Section 1



Adeel Bhutta

Section 2, 3 & 5



Mitch Wand

Section 4

Teaching Assistants

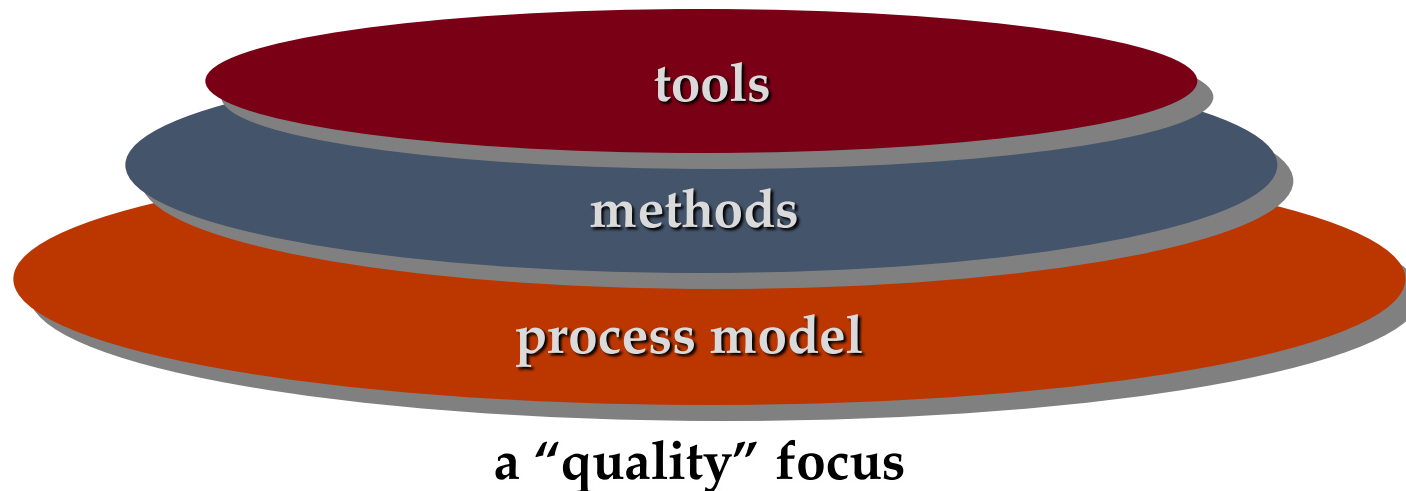
- We have around 250 students and 15 teaching assistants.
- Their contact info and pictures are on the website <https://neu-se.github.io/CS4530-Spring-2024/staff/>

Learning Objectives for this Lesson

- By the end of this lesson, you should be able to:
 - Explain in general terms what software engineering is
 - List your weekly obligations as a student
 - List the requirements for completing the course

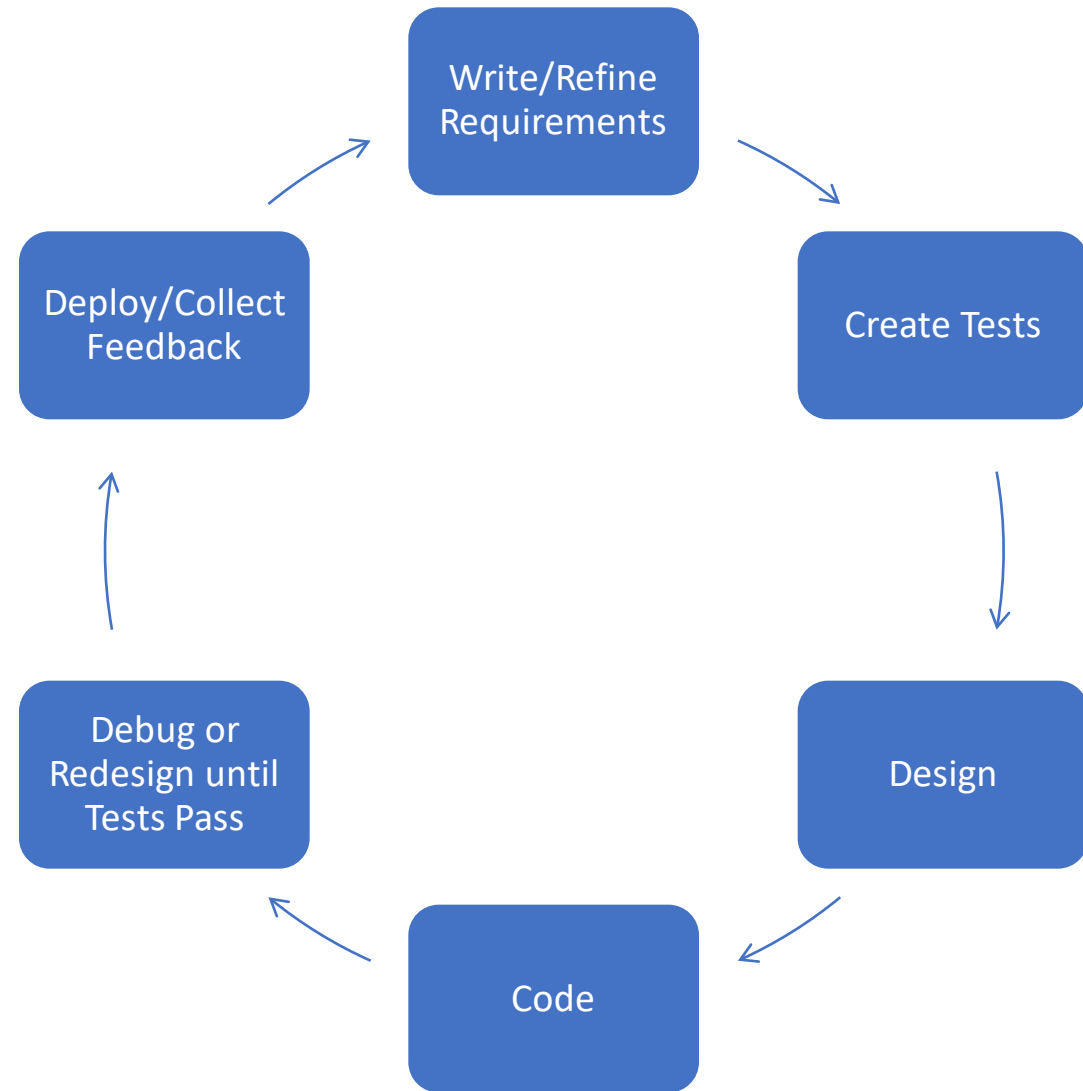
What is software engineering?

- Software Engineering refers to the tools and processes that we use to
 - design,
 - construct, and
 - maintain programs
 - over time.



Applying “engineering” to Software!

Software Engineering encompasses the entire software development life cycle



But this raises many questions

- How **{big}** is each cycle? When do you repeat it?
 - In terms of code to be written?
 - In terms of time?
 - In terms of person-power?
- Can you have multiple cycles going at once?
- What artifacts need to be produced at the end of each stage?
 - Need to prepare for the next time through the cycle.
 - Need to document what was done, so that others can build on your work.

The answers depend on many factors

- Depends on things like:
 - the size of the team (i.e., **p**eople)
 - the size of the **p**roduct
 - The type of the project
 - the longevity of the product
- There's no one "right" way; no universal **p**rocess or silver bullet; there are always tradeoffs.
- But there are best practices, which we will expect you to follow.

Software Engineering is about People

“Any fool can write code that a computer can understand. Good programmers write code that humans can understand”

- Martin Fowler



Learning Objectives for this course:

- By the end of this course, you will--
 - Be able to define and describe the phases of the software engineering lifecycle.
 - Be able to explain the role of key processes and technologies in modern software development.
 - Be able to productively apply instances of major tools used in elementary SE tasks.
 - Design and implement a portfolio-worthy software engineering project in a small team environment that can be showcased to recruiters.

Approach

- The course will mirror the steps of the software engineering life cycle
 - starting with requirements, through testing and deployment
 - Essentially you will be working on a **team project** that combines all aspects of SE.
- We will move some material forward to make sure that you have the learning you need when you need it

Course Mechanics

- Our goal is to provide a productive learning environment to both remote and on-the-ground students
- 100% attendance is expected for both on-the-ground and remote sections
- Classes will include both lectures and in-class activities.
- Be sure to bring your laptop
- Weekly slides will be posted in advance, so be prepared to ask and answer questions about the material.

Course Mechanics: In-Class Exercises and Tutorials

- There will often be in-class exercises to give you practice with the technologies we will use.
- Typically, will consist of structured steps that will guide you through a typical task
- Each instructor will use **individual approach** to grade in-class activities.
- In addition, there will be **tutorials** posted on the web.
- These will extend the in-class materials.

Course Requirements

- We will start with an individual project, divided into 2 deliverables. This is to be done **individually**
- Then a group project, done in teams of about 4 people
- There will be an exam on Mar 11-13 (Week 10 – Week after Spring break). There will not be a final exam.
- The overall grading breakdown is:
 - 30% Individual Assignments (Individual Projects 1 and 2)
 - 40% Team Project
 - 10% Participation & In-class activities
 - 20% Week 10 Exam

Technology

- We will use:
 - TypeScript as implementation language
 - Jest as Testing Framework
 - Visual Studio Code as our IDE
 - React for webapps
 - GitHub Projects for Project Management
 - GitHub Actions / Netlify / Heroku / Render for CI/CD
 - Also, other miscellaneous tools

We will use Covey.Town as the *running* codebase for the course

- Covey.Town is a virtual meeting space.
- Different groups of people can have simultaneous video calls, allowing participants to drift between different conversations, just like in real life.
- Inspired by existing products like [Gather.Town](#), [Sococo](#), and [Gatherly.IO](#)
- But it is an open-source effort
- The features will be proposed and implemented by you!
- All implementation will take place in the TypeScript programming language, using React for the user interface.



Covey.Town and you

- The individual projects will help you become familiar with the codebase.
- The team project will be a new feature that you will propose.
 - Instructors form the teams **with** your input.
- Further breakdown of team project grade (i.e., 40%) is:
 - Planning (20%)
 - Process (20%)
 - Product (40%)
 - Reports (20%)
- Peer evaluations (surveys) may be utilized, and individual contributions **WILL** impact your project grade (between 0-100%).

Grade Appeal Policy

- If you have concerns regarding the grading of your work, please let us know right away.
 - We provide mechanism for you to request regrades for all work submitted on Autograder (google form)
 - Do **not** post on Piazza or email your TA or instructor
 - All regrade requests must be submitted within **7 days** from your receipt of the graded work.
 - If your regrade request is closed and you feel that the response was not satisfactory, you may appeal to the instructor via email within 48 hours

Late Policy

- Your work is **late** if it is not turned in by the deadline.
 - 10% will be deducted for late HW (individual assignments) turned in within 24 hours after the due date
 - Individual assignments submitted more than 24 hours late will receive a zero.
 - If you're worried about being busy around the time of a HW submission, please plan ahead and get started early.
 - No late submissions allowed for any **group work**
 - If you have an accommodation from Disability Resource Center, you must request it from the instructors separately for each assignment or exam.
 - DRC Accommodations are usually NOT available for Group Assignments (please work with instructor)

Academic Integrity (1)

- Students must work individually on all homework assignments.
- We encourage you to have high-level discussions with other students in the class about the assignments, however, we require that when you turn in an assignment, it is only your work. That is, copying any part of another student's assignment is strictly prohibited.
- If you steal someone else's work, you **fail** the class.
- You are responsible for protecting your work. If someone uses your work, with or without your permission, you **fail** the class.

Academic Integrity (2)

- You are free to reuse small snippets of example code found on the Internet (e.g., via StackOverflow) provided that it is attributed.
 - Use of co-pilot is **permitted**
- If you are concerned that by reusing and attributing that copied code it may appear that you didn't complete the assignment yourself, then please raise a discussion with the instructor.
- If you are in doubt whether using others' work is allowed, you should assume that it is NOT allowed unless the instructors confirm otherwise.

Communication

- Canvas
- Course web page (<https://neu-se.github.io/CS4530-Spring-2024>)
 - Canvas will mirror the course web site.
 - Assignments, important notices, etc., will appear in both places.
- Piazza (see Canvas for link)
 - for questions about assignments, projects, etc.
- Office Hours
 - Schedule is available at (<https://neu-se.github.io/CS4530-Spring-2024/staff/>)
 - TA Office Hours are held via **Khoury Office Hours App**

Review

- Now that you've studied this lesson, you should be able to:
 - Explain in general terms what software engineering is
 - List your weekly obligations as a student
 - List the requirements for completing the course