EEC 521/421: Software Engineering

Introduction

Before We Begin...

Does this look familiar to anyone?

To prevent illness, the content of this course will be taught using active learning strategies.

You should expect to write and speak almost every class period.
What this course is NOT!

- This is **not** a course on programming
- This is **not** a course on software development
- This is **not** a course on software technology
- This is **not** a course where you can go through the whole semester without participating in class

Course Format

- Lecture-based
- Reading-intensive
- Discussion-intensive
- Emphasis on group work
  - Ability to demonstrate individual contribution in a group
Syllabus

A Note on Plagiarism

- We are taking plagiarism very seriously
- Department will have a policy starting this week
- Don’t do it, it’s not worth it!
- Citation vs. Quotation
What is Software Engineering?

- Software engineering is the application of engineering principles to the software development process
  - software processes
  - management techniques
  - technical methods
  - tools
- What's the point?
  - To produce quality software, on-time, and on-budget.

Why Software Engineering?

- Software engineering principles are focused on resolving "software's chronic crisis"
- Some facts:
  - Software defects cost the U.S. economy approximately $60 billion per year
  - Only 16% of commercial software projects are completed on-time and on-budget
  - On average, about half of all commercial software projects exceed their original cost estimates by about 189%
  - On average, approximately 80% of a software project's total cost is incurred due to maintenance activities.
Why is it important?

- Software is everywhere!
  - We rely on software to enable global communication.
  - We rely on software to drive our cars and to fly our planes.
  - We rely on software to monitor our health, and to administer the appropriate medications when we are sick.
  - We rely on software to manage our banking infrastructure.
  - Other uses of software?
- Software affects almost every aspect of our daily lives

Why is it difficult?

- Software systems are increasingly complex, doubling in size by an order of magnitude every ten years – in some industries, every five years.
- The size of the average development team continues to increase to keep pace with this growth.
- Software is fundamentally different than other manufactured products
Thought Assignment

Come back to the next class armed with your thoughts on why software is different from other engineering disciplines