CS 352
Introduction to Usability Engineering

What is Usability Engineering?

The Plan

- Course Design:
  - Mix of lectures, activities, readings, quizzes, and assignments
  - Expected of you:
    - Keep up with the work!
    - Be good to your team!
- Much of the work is done collaboratively
  - Quality of collaboration is a factor in your grade
- Collectively choose a topic of interest for the project.

What is Usability Engineering?

- It is the process of **methodically** designing systems which are
  - Useful
  - Usable
- Which includes
  - Determining **what is useful**
  - Determining **what is usable**
  - **Evaluating** those factors **empirically**

Where is Usability Engineering?

Names that mean usability engineering:

- Usability engineering
- Human-computer interaction
- Ergonomics
- Interaction design
- User-interface design
- User-centered desgin

In these fields:

- Computer science
- Informatics
- Information/systems/library science
- Psychology/cognitive science
- Ergonomics
- Industrial engineering/design
- Art
- Social sciences

Why Bother?

- Most software is supposed to help people be more productive
- Build better software
- Help people like it enough to buy it (job security!)

- Avoid fatal flaws, such as Norman's 2 gulfs:
  - Gulf of execution and gulf of evaluation

Goals

- Effectiveness at task
- Safety and privacy
- Utility
- Learnability
- Memorability
- Efficiency

See Ch. 1

Design Principles

- Visibility of user's options/actions
- Feedback
- Constrain
  - Make certain errors impossible
  - e.g. menus versus typing (spelling and syntax)
- (Internal) consistency
- Affordance
  - Makes clear what I can do with an object

How to Design Usability

- Identify needs/requirements of the user experience
- Developing many alternative design ideas that meet the requirements
- Building interactive versions of the designs to communicate and assess
- Evaluating throughout the process

Déjà Vu?

- Does this sound familiar?

- The software development lifecycle?
  - Requirements development
  - Design the system
  - Implement the system
  - Evaluate in all stages (testing)

When Is It Done?

- Beginning of a software project
  - Establish correct needs/requirements early
- During design/implementation
  - Ensure the interaction is not modified
- During testing
  - Ensures the system does what was requested

Changes

- New technologies bring new modes of use
- Examples of new paradigms
  - Mobile computing
  - Wearable computing
  - Tangible computing
    - Think kinesthetic learning
  - Ubiquitous computing
  - Many more, some not even thought of yet!