What is Software Engineering?

"The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software".
Waterfall

→ A sequential process.

→ Progress is seen as flowing steadily 'downwards' through phases.

→ Strict progression. Changes can cause a return to a earlier phase.
Waterfall

Requirements

Design

Implementation

Verification

Maintenance

Product requirements document

Software architecture

Software

Maintenance
Agile

→ An iterative and incremental process

→ Solutions evolve through collaboration in self-organizing, cross-functional teams

→ Encourages rapid and flexible response to change
Sprints

→ A "time-boxed" effort; 1 week in our case.

→ Begin and end on the same day every week.

→ For each sprint tasks are identified, estimated, completed and reviewed through a series of meetings.

→ Sprint teams are composed of different functional roles.

→ Each Sprint should have a 'vision' or a overall goal.
Sprint Meetings

→ **Review**: Review previous sprint stories.

→ **Planning**: Plan stories for next sprint.

→ **Demo**: Show the work product.

→ **Retrospective**: Review successes and failures of that sprint. Identify improvements.

→ **Scrum**: short daily status meetings (daily!!???)
Functional Team Roles

Scrum Master
→ Facilitates meetings
→ Remove impediments
→ Helps manages story 'backlog'
→ Keep team on track for Sprint

Product Owner
→ Works with company to set priority
→ Leads story development
→ Accepts product (is this story really done?)
→ Company 'high-touch' team member

Demonstrator (ITP-specific)
→ Conducts product demo and retrospective
→ Aware of stories and tasks in Sprint
Functional Team Roles

Development team
→ *All team members, all the time!*
→ Gets stuff done
→ Ask questions
→ Estimate tasks

Every two weeks the students shift between product owner, scrum master and primary demonstrator
Weekly Schedule

Mon / Tues - Sprint Ends

Sprint Review, Demo & Planning (with Client)

- Review - what was finished?
- Demo – what are you delivering?
- Planning - what is next?

This should be on-site with the client company
Weekly Schedule

Wed - Sprint Begins

Retrospective and Planning Summary (in Class)

- Bring up Pivotal Tracker
- Show User Stories and talk about success and failures
- What went right, what went wrong?
- **No fancy powerpoint.** You have only 10 minutes!
Weekly Schedule

All Other Days

- Daily asynchronous Scrum using 'idonethis'
  (Give the answers to the '3 questions'!)
- Utilize email lists to talk amongst team
- Complete tasks towards story completion
- 'Inspect and Adapt'!

This is not a 'work for 6 hours the night before' class
Sprint Cycle