

Lecture 1: August 31

Introduction to Senior Design (CS 4243W)

Agenda / Topics

Instructional Team Introductions

Course Review

Setting up Slack and Trello

Methodologies Topic

- Top Methodologies
- Our Application of Agile for the Course
- Industry Breakdown
- Team Role: Who is the Project Manager and Scrum Owner
- Project Management tooling

Instructor

Professor McNally

Professor Pless

Professor Narahari

Industry Mentors

Aaron Coplan	GWU '19	Facebook
Gregor Peach	GWU '20	Amazon
John Shepherd	GWU '18, '19	Toyota Institute
Josh Shapiro	GWU '17	Akasa
Kevin Deems	GWU 21	Meta
Lucas Chaufournier	GWU '15	Square
Megan Wood	USC '18	Ridgeline
Pat Cody	GWU '20	Facebook
Phil Lopeiato	GWU '17	Facebook
Rian Shambaugh	GWU '15	FINRA

Joining Slack

1. Download Slack app to Desktop or Phone ([Mac](#), [Windows](#), [iPhone](#), [Android](#))

Follow steps in email invite or continue on...

2. Choose Add a Workspace
3. Choose Sign in with URL
4. [Use this link:](#)
https://join.slack.com/t/gwu-seniordesign-2022/share_d_invite/zt-1crr3uwc1-JjdEs|rAPcj~TG6h5QUieA
5. Finish signing in
6. Confirm that you can see the GWU Senior Design 2022 Channels: #general, #random, and #senior-design-course-ay2022-23



Setting up Trello

1. Login to Trello Account at <https://trello.com/>
2. Open up Workspace - Lecture 1
3. Create first tasks for your board in Backlog



Methodologies

In Project Management

Project Management

Project management is the use of specific knowledge, skills, tools and techniques to deliver something of value to people.

Generally,

- No 2 projects are identical
- No 2 teams are identical

Therefore, methodologies must work to provide the best way to deliver on that value with the team at hand

Top Project Management Methodologies

1. Waterfall
2. Agile
3. Scrum
4. Kanban
5. Scrumban
6. eXtreme programming
7. Adaptive Project Framework
8. Lean

Waterfall

Traditional approach where tasks and phases are completed in a linear, sequential manner, and each stage of the project must be completed before the next begins

Works well if...

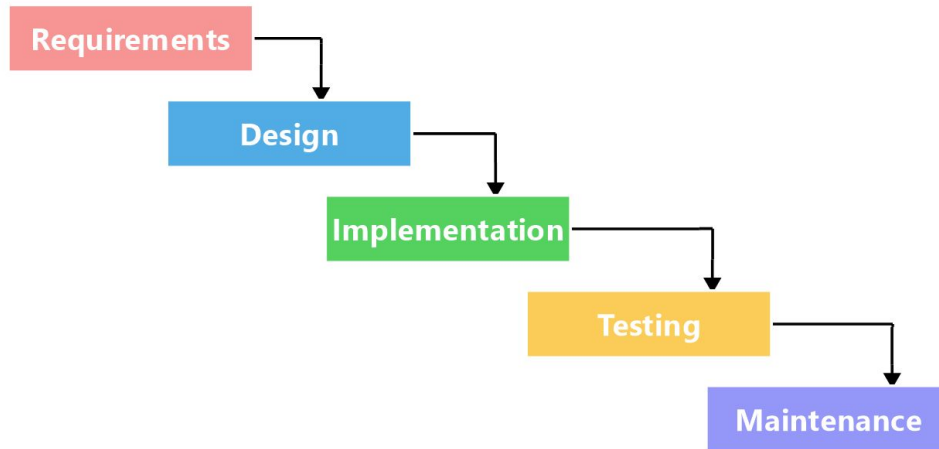
- End goal is clear
- Stakeholders know exact needs
- Project is consistent
- Working in well-regulated industry

Doesn't work well if...

- Project is liable to change
- You don't have full requirements
- You need continuous feedback

Waterfall Methods

- Kick off meeting to collect requirements
- No more customer touch points after this meeting
- Design, Implement, Verify, and Maintain to completion



Agile

The agile project management methodologies usually involve short phases of work with frequent testing, reassessment, and adaptation throughout

Works well if...

- Your project is liable to change.
- You're not sure at the outset what the solution will look like.
- You need to work quickly, and it's more important that you see speedy progress than perfect results.
- Your stakeholders or client needs (or wants) to be involved at every stage.

Doesn't work well if...

- You need a predictable deliverable, and you need to be crystal clear about what that looks like from the outset.
- Your project can't afford to change during its course.

Agile

History Blurb: ["The Agile Manifesto"](#)

Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interactions over processes and tools

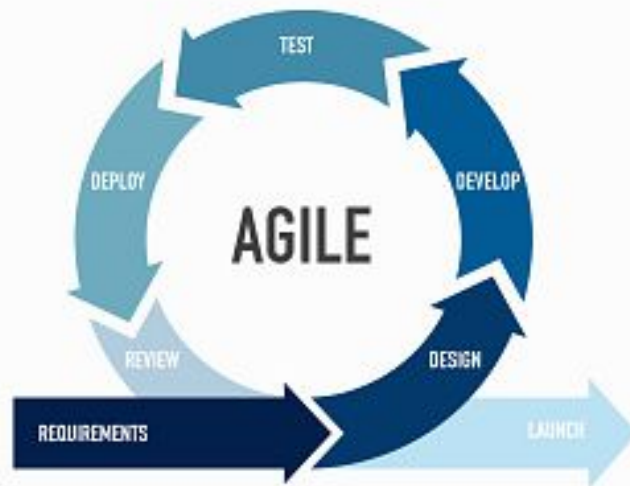
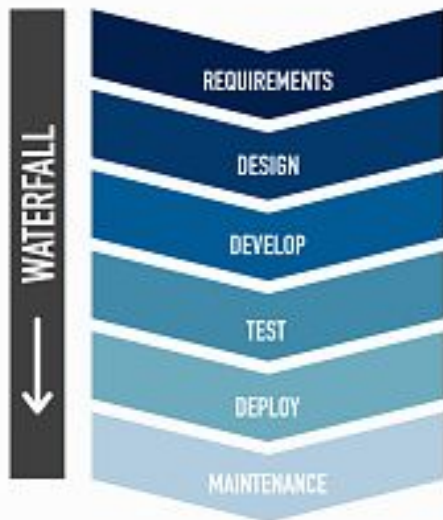
Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

AGILE vs WATERFALL



Agile Concepts

Sprint:

Short, repetitive period of time in which the team commits to a certain amount of work (in some cases points) to be completed in that time.

Backlog:

List of all tasks that are required for the project completion (project backlog) or other goals (eg. PQ Backlog, Tech Debt Backlog)

Sprint Board:

Place to track the tickets being worked on for the sprint

Agile Processes and Rituals

One 2-week Sprint Includes...

1 Sprint Planning Meeting: Bring backlog items into sprint board

Daily Standups: Checkin everyday to unblock each other

1 Backlog Refinement: Clean up backlog to prep for next sprint(s)

1 Sprint Review “Demo”: Demo work done in the sprint

1 Sprint Retrospective: Honest conversation about what went right, wrong, and action items to improve

***this is not a perfect recipe, many teams will adjust to what works best*

A Typical Monthly Sprint Schedule

Week 1

Day 1

Sprint Planning Meeting

Days 2-7

Standup Meeting

Work on project: update cards, use slack to unblock and questions

Week 2

Days 1-7

Standup Meeting

Work on project: update cards, use slack to unblock and questions, etc

Week 3

Days 1-7

Standup Meeting

Work on project: update cards, use slack to unblock and questions, etc

Any day this week

Backlog Refinement

Week 4

Days 1-7

Standup Meeting

Work on project: update cards, use slack to unblock and questions, etc

Day 7

Demo, Retrospective

Using Agile for our Projects

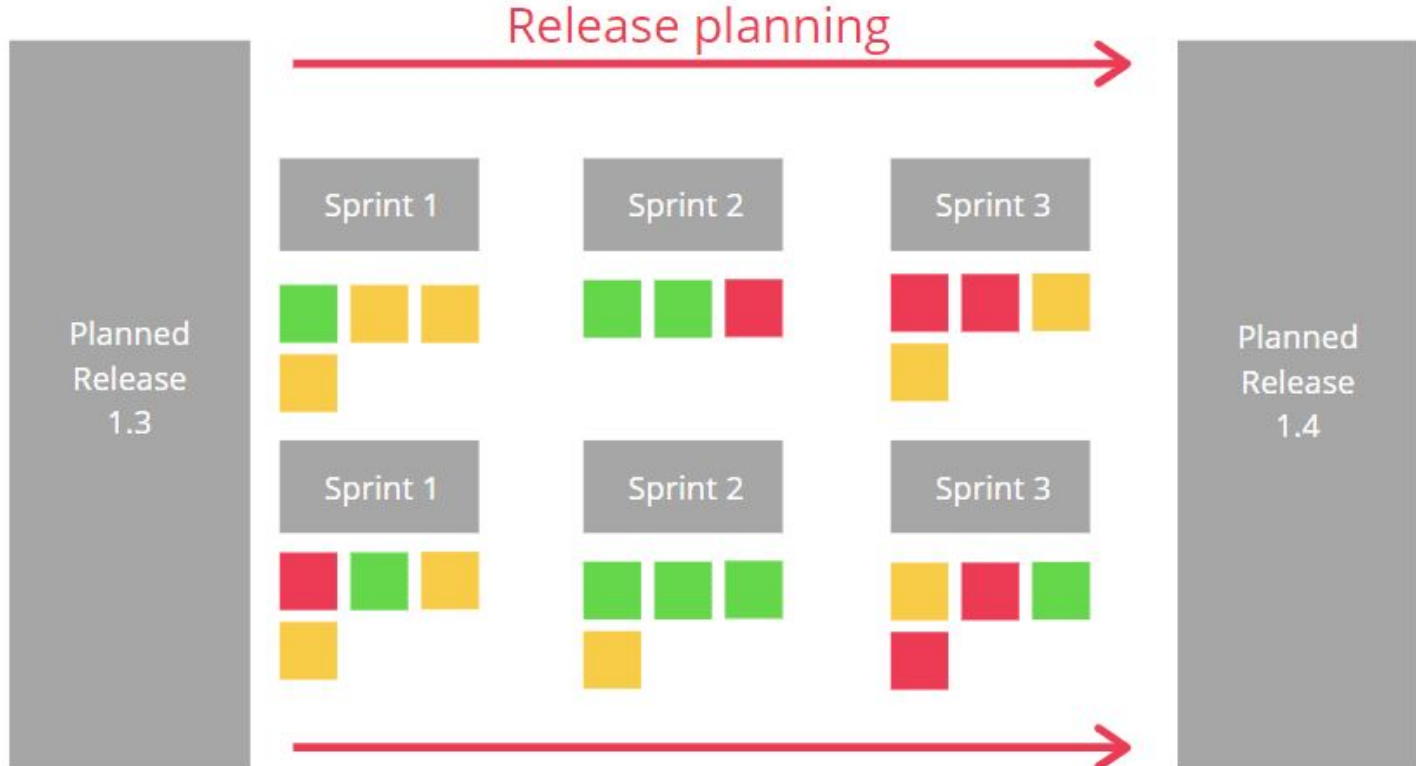
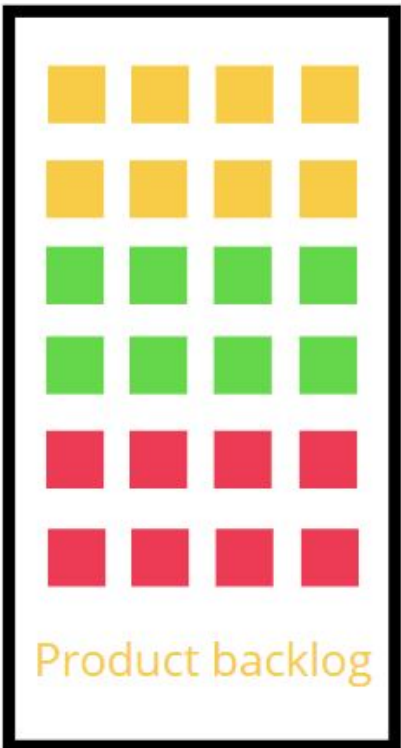
Why?

- Not all requirements are known
- Stakeholders are flexible on product-specific requirements
- Project duration requires iterative sprints of work
- Enabling a wide variety of projects against the same course goals

How?

- Trello as the source of truth
- Mentors as Scrum Owners and “Technical Consultants”

Agile Mapping



Scrum, Kanban, and Scrumban

Scrum

Work is split into short cycles known as “sprints”, which usually last about 1-2 weeks.

Work is taken from the backlog for each sprint iteration

Kanban

Tasks are visually represented as they progress through columns on a kanban board.

Work is pulled from the predefined backlog on a continuous basis as the team has capacity and moved through the columns on the board, with each column representing a stage of the process.

Scrumban

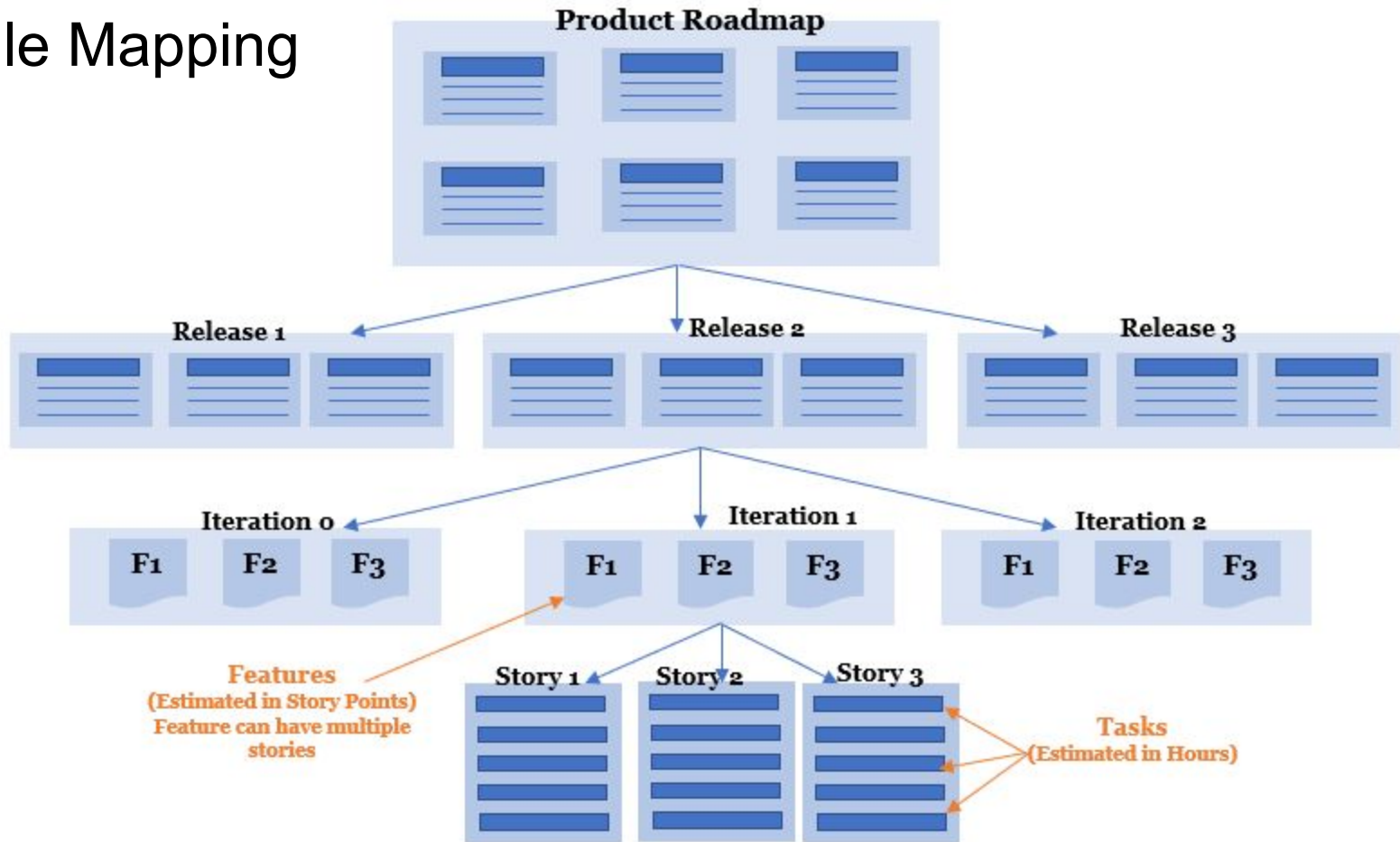
Work is split into short cycles known as “sprints”, which usually last about 1-2 weeks.

Continuously “pull” from the backlog based on their capacity during a sprint period

eXtreme, Adaptive, and Lean

1. eXtreme programming
2. Adaptive Project Framework
3. Lean

Agile Mapping



Project Manager

Who?

- A Project Manager is responsible for the planning, procurement, execution and completion of a project
- In charge of the entire project and handles everything involved, such as the project scope, managing the project team, as well as the resources assigned to the project.

Roles and Responsibilities?

- Responsible for Success or Failure of project
- Trello as the source of truth
- Mentors as Scrum Owners and “Technical Consultants”

Scrum Owner

Who?

- Lead for the duration of the sprint, after which they review their performance in a “sprint retrospective” and make any necessary changes before starting the next sprint.

Roles and Responsibilities?

- Trello as the source of truth
- Mentors as Scrum Owners and “Technical Consultants”

“Agile-ish. We have daily stand ups and weekly planning meetings and we iterate over requirements, but we don't work in sprints.”

Rian, FINRA

“We do planning every 2 weeks but don't really follow any methodology besides that”

Aaron, Meta

“We use agile with two week sprints, and quarterly planning based around OKR's”

Lucas, Square

Quick Poll:

“It's complicated (ranges from sprintish planning, to 6 month roadmaps, to nothing at all)”

Phil, Meta

@Mentors, what method does your team use?

“Agile-ish. We do stand ups and weekly planning but don't have clearly defined sprints”

Josh, Akasa

“Strictly Agile, more specifically scrum flavored: biweekly sprint planning coupled with demo-able "stuff" we completed the past sprint. "If it goes into the sprint it should be completed, otherwise, you've overestimated”

John, Toyota

“For my team specifically, we don't really have any structure beyond a 6 month roadmap, it's up to the individual and how they want to break up the work.”

Pat, Meta

Project Management: Basic Tools

Project Management Tools

For tracking tasks...

- Trello (very small teams)
- Clickup (small-medium size teams)
- Jira (established, large teams)

For collaborating on documents...

- Confluence
- Notion
- Google Drive Suite: Docs, Sheets, Slides, etc.

“Jira and confluence”
Rian, FINRA

“We use google docs/sheets”
Aaron, Meta

“Jira for story management and coda for docs/wikis/planning”
Lucas, Square

Quick Poll:

“Custom tasks tool (works like jira, but better) and gdocs for most of it”
Phil, Meta

@Mentors, what project management tool does your team use?

“When we were small we used Asana & google suite. Now we’re using Jira + confluence”
Josh, Akasa

“Jira for all project tracking and logistics. Confluence for any docs (although in research docs are a rare luxury)”
John, Toyota

“Custom task tools plus GDocs (RIP quip)”
Pat, Meta

Major Takeaways

- Two most common methods: Waterfall and Agile
- Software mainly uses Agile
- Methodologies are not mutually exclusive (eg. you can be “agile” in a waterfall process)
- A Project Manager, Scrum Owner, or Product Manager owns this process
- Trello, Jira, Confluence, and other “Atlassian” projects are industry standard for tooling in this space
- We will be using a “flavor” of Agile and Scrum for our projects