bluware

RICE
RICE UNIVERSITY
SCHOOL MATHEMATICS PROJECT

TEX²
Texas Teacher Externships

TEX² Externship Presentation
RUSMP Fall Networking Conference
The Rice School/La Escuela Rice
September 15, 2018

What is an externship?

An externship is a professional development opportunity connecting the classroom to the workplace.

What is TEX^2?

- TEX^2 is based at the Center for STEM Education at the University of Texas at Austin and funded by the Texas Education Agency.

- The RUSMP Externship program is one of twenty programs around the state.

What is RUSMP TEX^2?

Teachers in the RUSMP Tex^2 program interacted with industry leaders at **Bluware** and learned about trends and skills in this industry in order to enrich and strengthen their instruction and bring relevance to student learning.

What is Bluware?

Bluware delivers petrotechnical software solutions to oil and gas companies.

"The modern workforce will orchestrate and automate workflows that will break down lon standing technical barriers and literally change the face of the E&P (exploration and production) business. This is Platform-as-a-Service. This is true digital transformation. This is Bluware."

Blueware Development Teams

- Geophysical IO Toolkit
- Comprehensive Data Interpretation System
- Interactive Quantitative Interpretation Suite

RUSMP Tex^2 Program Timeline (2018)

- Orientation meeting in May
- On-site visits, online meetings, and other opportunities during June, July and August
- Retrospective meeting in August
- Presentation during Networking Conference
- Implementation of lessons learned in classroom during Fall (externship artifact)

Teachers spent 40 hours in externship activities including:

- on-site visits at Bluware
- online Blueware meetings
- written reflections
- online coursework
- group meetings

The Agile Process
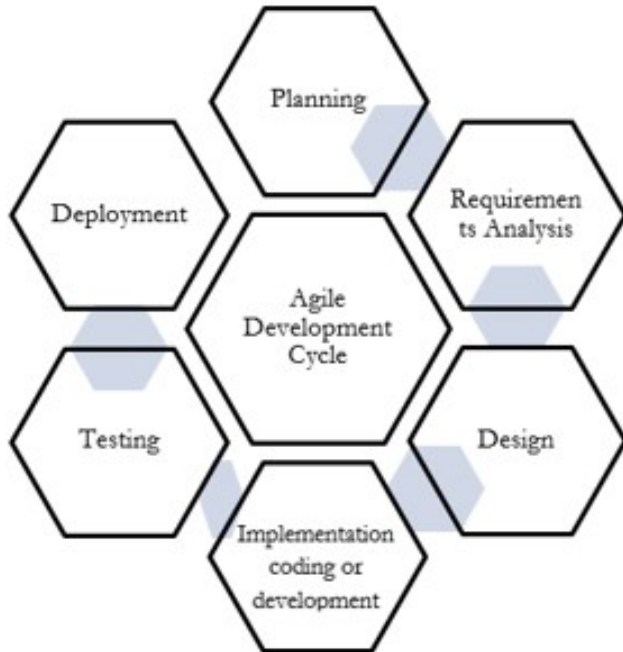
Michael Redmond, Rebecca Mondesir, Sanaa Hamdan

What is Agile?

Agile is an ideology in Project Management that is useful in managing critical projects that combine the following four characteristics:

1. Strict (usually short) deadlines
2. Consists of multiple tiers or independent sections
3. Involve the work of teams (versus one person)
4. The team expects change (uncertainty) and respond accordingly instead of following the old plans (adaptability)
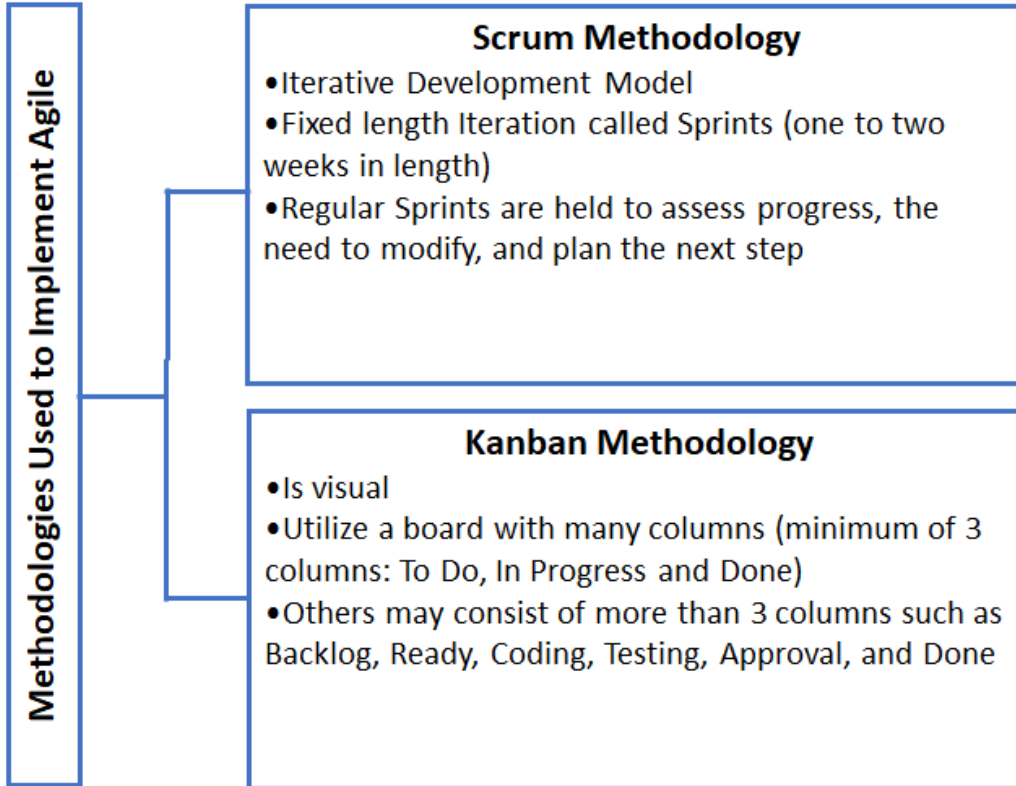
Agile Development Cycle

Methodologies Used to Implement Agile

Methodologies Used to Implement Agile

Scrum Methodology
- Iterative Development Model
- Fixed length Iteration called Sprints (one to two weeks in length)
- Regular Sprints are held to assess progress, the need to modify, and plan the next step

Kanban Methodology
- Is visual
- Utilize a board with many columns (minimum of 3 columns: To Do, In Progress and Done)
- Others may consist of more than 3 columns such as Backlog, Ready, Coding, Testing, Approval, and Done

NUTCACHE

Team up.
Work in teams, write comments and move things along faster

Get paid.
Quickly invoice your board's worked hours and expenses

Organize.
Create lists and cards, and organize your ideas any way you want

Track.
Get an overview of your board's important data and statistics

http://sheownsit.com/wp-content/uploads/2015/07/home_collab_highlight_EN4.jpg

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🖫 🖨 ↺ ↻   🏭 Card View ▾   ⅄ Filter   ≡ Level 1 ▾   ⊞ View by Status ▾   🎴

Uncategorized (1)	Backlog (0)	Planning (3)	In Progress (0)	⟻	Complete (0)
	+	**Mousetrap Vehicle** Teams design, build, and tes... Identify the needs and constr... 🅢 Student 2 📎 💬	+		+
		Boomilever In this event, competitors des... Identify the needs and constr... Student 1			
		Wright Stuff (Glider) The Wright Stuff category of ... Identify the needs and constr... 🅧 Student 3			

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File   Alerts & Actions   Forms

				Backlog	Description	Status	Mentors	Done	Meeting Dates	Agenda	Assigned 1	Assigned 2
1	▼			Mission Possible	Participants will be tested on their knowledge of classical mechanics and related topics as well as their ability to construct a self-propelled air-levitated vehicle that moves down a track.	Sprint Planning:	Redmond, Michael	☐	09/06/18	Identify the needs and constraints (2) schedule meeting times	Student 5	Student 2
2				Mousetrap Vehicle	Teams design, build, and test a vehicle using one or two snap mousetraps as its sole means of propulsion that can push a plastic cup forward, reverse direction, and come to a stop behind the start point.	Planning	Mondesir, Rebecca	☐	09/06/18	Identify the needs and constraints (2) schedule meeting times	Student 2	Student 1
3				Wright Stuff (Glider)	The Wright Stuff category of airplanes fits into a class of competition models known as Indoor Freeflight aircraft.	Planning	Sanaa Hamdan	☐	09/06/18	Identify the needs and constraints (2) schedule meeting times	Student 3	Student 5
4				Boomilever	In this event, competitors design and build a boomilever prior to the competition, with the intention of supporting the most load with a small weight (i.e. maximize efficiency).	Planning	Mondesir, Rebecca	☐	09/06/18	Identify the needs and constraints (2) schedule meeting times	Student 1	Student 5

Case Study: Motivating a team using Agile practices
by **Steven Thomas**

Some of these techniques overlap and are part of a typical
Agile Heartbeat:

- Face-to-face interaction
- Lead by example
- Customer interaction
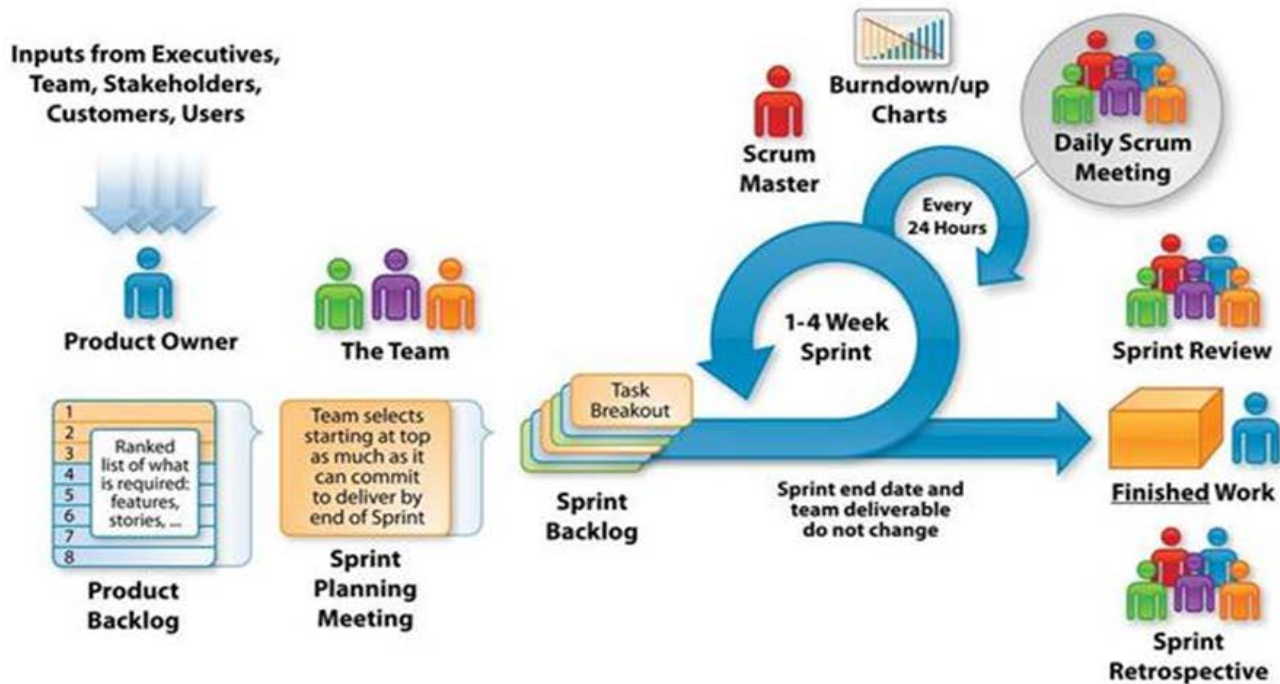- Deliver frequently
- Demonstrate progress
- Demonstrate support

Application of Agile in the Mathematics Classroom

Lan Wu, Alexander Mironychev, Warren Morales

The Agile - Scrum Framework

Agile Principles
Applied in the Mathematics Classroom

- Students must work together in groups by contributing their part to the project.
- Students will trust the team to get the job done.
- The most efficient and effective method of conveying information is face-to-face conversation.
- At regular intervals, the team reflects on how to become more effective, then adjusts its behavior accordingly.

The Three Parts of the Agile Application Process

Step 1:
Sprint Planning Meeting

Step 2:
Weekly Scrum Meetings (check-points and face-to-face communications)

Step 3:
Presentation of Project

Step 1: Sprint Planning (45 minutes)

- Break down the project into smaller pieces distributed among specific team members.
- Discuss specific topics together so that students can communicate more information and gather suggestions from other members.
- Listen to others and ask clarifying questions.
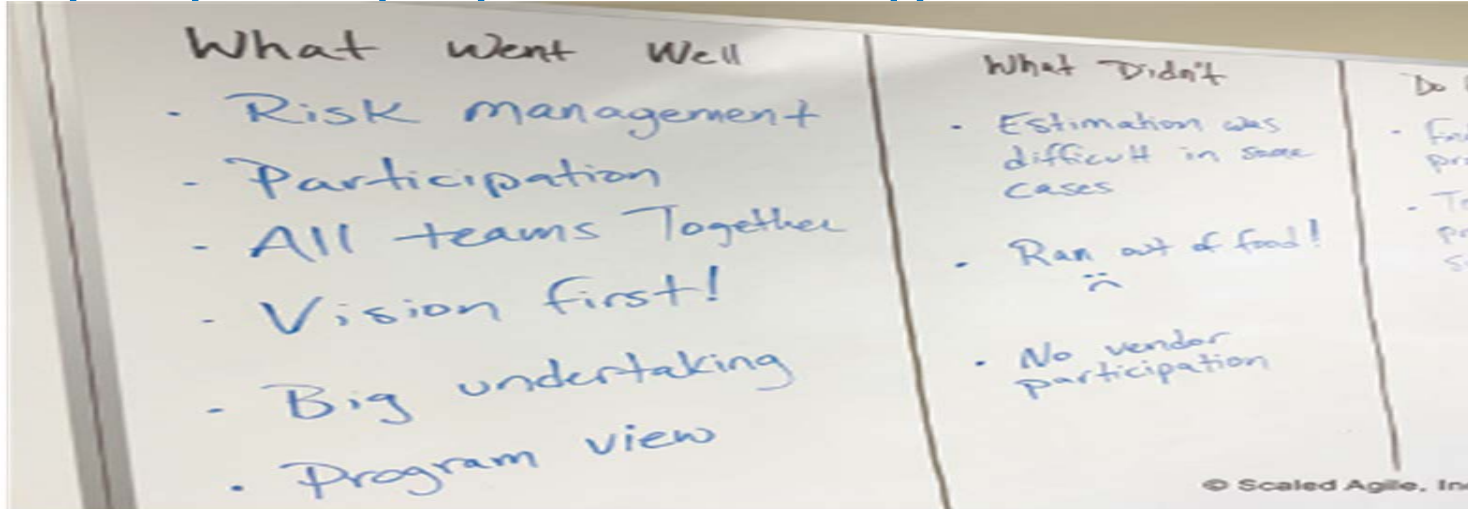- Explore multiple strategies and emphasize communication.

Step 1 (cont.): Sprint Planning (45 minutes)

According to the project due-date, students will create committed objectives (must be done) and stretch objectives (may be done if time permits).

Time Range	Committed Objective	Stretch Objective
First week (9/3-9/7)		
Second week (9/10-9/15)		

Step 1 (cont.): Sprint Planning Reflection

What went Well
- Risk management
- Participation
- All teams Together
- Vision first!
- Big undertaking
- Program view

What Didn't
- Estimation was difficult in some cases
- Ran out of food! ☺
- No vendor participation

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Forms Needed for Sprint Planning Meeting

Sprint Planning Sheet   Group Observation Rubric

Step 2: Scrum Meeting (15 min weekly)

- What did you accomplish so far towards your committed objective?

- What do you plan to accomplish this week?

- What is getting in the way of achieving the team sprint goal?

- What is your latest estimate of how much time is left on your current task?

Step 2: Scrum Meeting (15 min weekly)

Task Name	The person who is working on	Status (In progress, done, to do)	When you will Complete the task

Forms Needed for Scrum Meeting

Weekly Scrum Meeting Sheet   **Group Observation Rubric**

Step 3: Student Presentation of Project

Forms Needed for Presentation

Presentation Rubric

Evaluation Form For the Team

Reflection Form

Step 3 (cont.): Project Reflection

What went well?	What did not go well?	Appreciation	Some Ideas?

Agile Application Projects

- [Trig Book Project](#)
- [Geometry/Calculus Interactive Notebook](#)