

01/25: Schedule and Teamwork

The Capstone Experience

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*From Students...
...to Professionals*

Schedule and Teamwork

➤ Schedule

➤ Teamwork



Capstone Work Requirements

- Every team member should be working all the time.
- Work on all parts in parallel.
 - Hardware / Software
 - Front End / Back End
 - Web / iOS / Android
- Work in advance.
 - Mitigate risks.
 - Get systems working.
 - Hardware
 - Software



Schedules

- Schedules > Weekly Schedule
- Schedules > Major Milestones
 - 01/23: Status Report Presentations
 - 01/30: Project Plan Presentations
 - 02/20: Alpha Presentations
 - 03/28: Beta Presentations
 - 04/16: Project Videos
 - 04/17: All Deliverables
 - 04/19: Design Day
 - 04/25: Capstone Wrap Up
(5:45 p.m. – 7:45 p.m.)

Are there fixed milestones in the “real” world?



Project Parts

- Break Down Project
 - Main Parts
 - Sub-Parts
 - Sub-Sub-Parts
 - Etc...
- Categorize
 - Risks
 - Dependencies
 - Particularly Risk Dependencies
 - Determines Schedule Order
 - Priorities
- Worry About
 - Interfaces Between Parts
 - Integration of Parts



Building A Project Schedule

- Start With Fixed Course Milestones
 - See [Schedules > Major Milestones](#)
 - Read About Each
- Estimate Times for Tasks for Parts
 - Building
 - Integrating
 - Testing
- Assign Tasks to Team Members
- Must Keep Everyone Busy All the Time
- Use “Short” Deadlines (E.g., 2-3 Days) Why?
- Document and Track
 - Microsoft Project?
 - Collaboration Tool?



Estimating Time for Tasks

- Rough Estimate
 - Intuition
 - Experience
- Refined Estimate
 - Prototype or Partial Build
 - Extrapolation
 - E.g., 2 Days to Build 1 → 6 Days to Build 3
- Keys
 - Be Realistic
 - Include Buffer Time if Unsure
- Adjust Schedule Accordingly



Typical Build Cycle

Until Project Done Do

1. Divide Next Big Task Into Little Tasks
2. Assign Little Tasks to Team Members
3. Complete Little Tasks
 - a. Implement
 - b. Test

4. Integrate Little Tasks Into Big Task

5. Test Big Task

} Very
Important

High Priority Risks Get High Priority Scheduling



Version Control

- Versioning
 - Discrete “Internal” Versions (States)
 - May Correspond to Builds
- Version Control Systems
 - Check Code In and Out
 - Mark Specific States as Versions
- Motivation
 - Build Breaks System
 - Revert to Earlier Build
 - Avoid Bridge Burning
- Every team must use MSU’s GitLab.
 - Manage All Project Code
 - Instructors must have access.
 - Project sponsors may be granted access.

Can Be
Serious
Problem



Living Schedule

- Schedule Is Dynamic
 - Unforeseen Problems
 - Added Features (Avoid Feature Creep)
 - Etc..
- Track Your Progress
 - Microsoft Project?
 - Collaboration Tool?
- Revisit Schedule Often
 - Weekly Team Meetings
 - Weekly Triage Meetings with TMs
 - Identify Slippage
 - Hold Each Other Accountable (or Contact TMs)
 - Set Corrective Action
 - Adjust Schedule



Schedule and Teamwork

✓ Schedule

➤ Teamwork



Team Organization

- Up to Each Team
- Organize into Roles
 - Sponsor/Client Contact
 - Program Manager
 - Developer Roles
 - Web
 - Mobile
 - Back End
 - Front End
 - Etc.
 - Tester
 - Systems Administrator
 - Etc...
- Everyone must make significant technical contributions, including significant software contributions. ← **Fair Warning**



Team Dynamics

- Key to Success
- Significant Component of Course Grade
- Potential Teammate Problems
 - Not Attending Team Meetings
 - Not Being Involved
 - Not Responding
 - Not Completing Tasks On Time
 - Submitting Poor Work
 - Leaving Your Work for Others
 - Lying to Teammates about Task Status
 - Etc...
- Address Problems Immediately
 - Within Team
 - With Dr. D., James, Luke, Griffin, Sam
- Be Ready to Discuss During Interviews



Grading

[1 of 10]

- Team (70%)
 - Project Plan Document & Presentation 10
 - Alpha Presentation 10
 - Beta Presentation 10
 - Project Video 10
 - Project Software & Documentation 30
 - Total 70
- Individual (30%)
 - Technical Contribution 10
 - Team Contribution 10
 - Team Evaluation 05
 - Meeting Attendance, Preparation & Participation 05 ← Can Be Negative
 - Total 30



Grading

[2 of 10]

- Final Grade Sum Of...
 - Individual Total
 - % of Team Total Based on Team Contribution
- Grand Total =
(Individual Total)
+
(Team Total) * (Team Contribution) / 10.0
- *Nota Bene*: Your Team Contribution will have a very significant effect on your final grade.



Grading

[3 of 10]

Effect of Team Contribution					
Technical Contribution	Team Contribution	Team Evaluation	Meeting Attendance	Team Total	Grand Total
10	10	5	5	70	100
10	9	5	5	70	92
10	8	5	5	70	84
10	7	5	5	70	76
10	6	5	5	70	68
10	5	5	5	70	60
10	4	5	5	70	52
10	3	5	5	70	44
10	2	5	5	70	36
10	1	5	5	70	28
10	0	5	5	70	20

Nota Bene: Assumes Perfect Score In Every Other Category



Grading

[4 of 10]

- Every student must earn the following required minimal grades in each grading category.
- Failure to earn the required minimal grades in any of the grading categories is grounds for receiving a final grade of 0.0 for the course.
- Minimal Team Grade Requirements
 - Project Plan Document & Presentation 5.0 / 10.0
 - Alpha Presentation 5.0 / 10.0
 - Beta Presentation 5.0 / 10.0
 - Project Video 5.0 / 10.0
 - Project Software & Documentation 15.0 / 30.0
- Minimal Individual Grade Requirements
 - Technical Contribution 5.0 / 10.0
 - Team Contribution 5.0 / 10.0
 - Team Evaluation 2.5 / 05.0
 - Meeting Attendance, Preparation & Participation 0.0 / 05.0



Grading

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- In the capstone course, absence does not make your teammates' hearts grow fonder.
 - Nonresponsive
 - Email
 - Slack
 - Microsoft Teams Messages
 - Miss Meetings
 - All-Hands
 - Triage
 - Client
 - Team
 - Miss Work ← **Key**
 - In Lab and/or Online with Teammates
 - During Sprints
 - Before Major Milestones
 - Miss Deadlines
 - Other team members may be forced to do your work.
 - We may tell other team members they no longer need to assign you work.
- NB: Your teammates will be evaluating you weekly and at the end of the semester.



- 100% In Person Meetings
 - All-Hands & Split-Hands
 - Triage
 - Team Meetings with Sponsors
 - Team Meetings
- Accommodating Student Schedules
 - Only Reasonably
 - Not for Students
 - Working \geq 20 Hours Per Week
 - Commuting Long Distance to Campus



Unacceptable Excuses for Not Contributing

- My teammates...
 - ...never asked me to do anything.
 - ...never let me do anything.
 - ...mistreated me.
- My features were...
 - ...not included in the project.
 - ...deleted by our client
- I wrote lots of code, but it wasn't included in the project.
- I work 20 hours per week at my job.
- I live 60 minutes from MSU.
- I didn't want to work on this project team.
- I did a lot of research about stuff we never used.
- I was busy interviewing.
- Etc...



Grading

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- We reserve the right to make changes with sufficient notice.
- No special consideration will be given for final grades, including but not limited to
 - status in any academic program at MSU including CSE,
 - the need to be graduated this semester,
 - the ability to enroll in CSE498 next semester,
 - financial aid,
 - hours worked in a job while a student at MSU,
 - distance commuting to MSU,
 - anticipated graduation from MSU,
 - acceptance of a job in anticipation of graduation,
 - rank in the armed forces,
 - mortgage on a property,
 - Rental lease on a property,
 - upcoming wedding,
 - visa status,
 - or anything else.

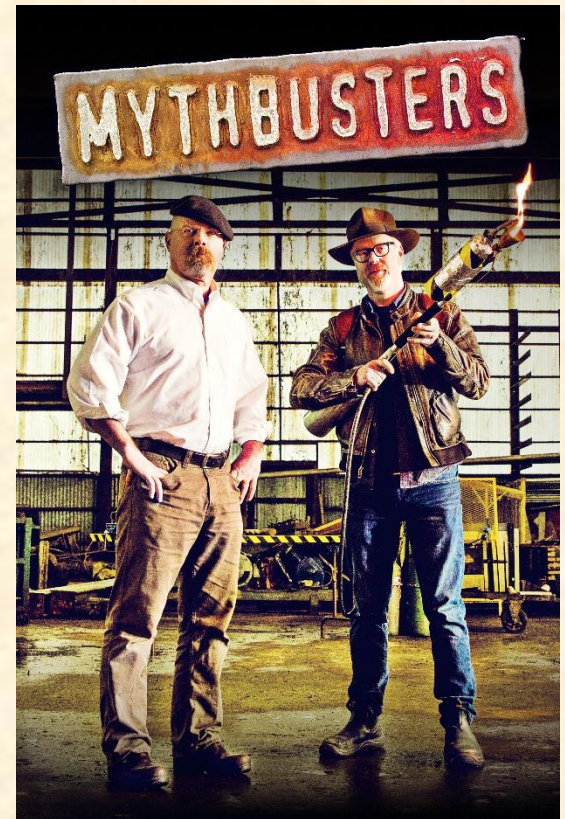


Grading

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- Fall 2022 Grade Distribution

▪ 4.0	120	72.3%
▪ 3.5	19	11.5%
▪ 3.0	11	6.6%
▪ 2.5	5	3.0%
▪ 1.5	0	0.0%
▪ 1.0	1	0.6%
▪ 0.0	8	4.8%



- Do students fail capstone? Yes

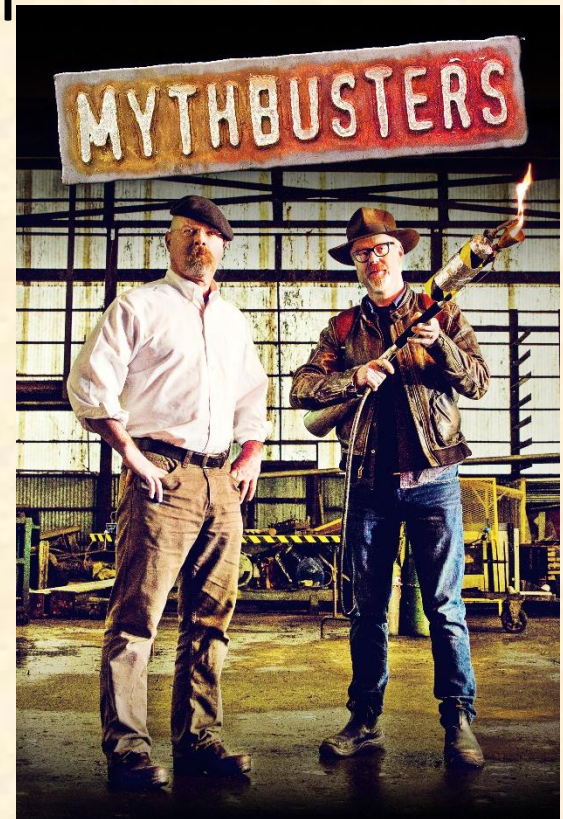
Grading

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- Spring 2023 Grade Distribution

▪ 4.0	119	68.0%
▪ 3.5	15	8.6%
▪ 3.0	9	5.1%
▪ 2.5	4	2.3%
▪ 2.0	5	2.9%
▪ 1.5	4	2.3%
▪ 1.0	7	4.0%
▪ 0.0	12	6.9%

- Do students fail capstone? Yes



GitLab

- Every team must use MSU's GitLab.
 - Manage All Project Code
 - Instructors must have access.
- Access by External Project Sponsors
 - Can Accommodate
 - Contact James
- To Receive Credit for Code, Student Must
 - Commit Code
 - Using Student's GitLab Account
- Read the syllabus.



Team Contribution

- Based on Variety of Factors Including But Not Limited to...
 - Attendance and Participation
 - Team Meetings
 - Project Sponsor Meetings
 - All-Hands/Split-Hands Meetings
 - Completion of Tasks
 - Correctly
 - On Time
 - Willingness to Take on New Tasks
 - Making Significant Technical Contribution
- Read the syllabus.



Technical Contribution

[1 of 3]

- Required of Everyone
- Significant Work and Code
- Does Not Include Code...
 - Committed to GitLab by Someone Else
 - That Does Not Work
 - That Was Copied from the Internet
 - Not Included In The Project
 - For CheckInCount = 1 to 100 {Modify Code Slightly; Checked Code In Again}
 - Etc...
- Necessary, but Not Sufficient
 - Doing Research
 - Creating UI/UX Designs
 - Creating Documents
 - Giving Presentations
- Read the syllabus.



Technical Contribution

[2 of 3]

- Pair Programming
 - Writing Code Together
 - Not Watching Someone Else Write Code
 - Must Decide When Committing Who Gets Credit for What
 - Receive Credit Only for Code Checked Under Your Account
- Demonstrating and Explaining Software
 - By Author
 - Any Time
 - In-Person
 - Lab iMacs
 - Person Laptop
 - If Not Able, Assume Not Working



Technical Contribution

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- Significant Effect on Team Contribution
- Project Software == 43% Team Grade
- No Significant Technical Contribution
 - No Credit for Project Software
 - Maximum of 57% of Team Grade
 - Maximum Team Contribution of 5.7/10.0
 - Most Likely Will Not Pass CSE498
- Read the syllabus.



Team Problems

- Can Be
 - Really Hard
 - Awkward
 - Frustrating
- Addressing Problems
 - ASAP
 - Directly
 - Respectfully
 - Maturely
- Resolving Problems
 - Internally First
 - TMs
 - Dr. D. and James
- “Bad” Team Not an Acceptable Excuse
- Managers
 - Can Help
 - Have Limited Experience with Time Travel



We don't have one of these.



Schedule and Teamwork

✓ Schedule

✓ Teamwork



Office 365 on Windows

- Optimal
 - Download Template
 - Edit Template Using Only Office 365 On Windows
 - The version of Office on the VM will work
- Possible
 - Download Template
 - Make Copy of Template
 - Edit Copy of Template Using Teams PowerPoint Editor
 - Edit Original Template Using Office 365 On Windows
 - Copy-and-Paste From Copy to Original Template
- Don't
 - Use Web Version of Office
 - Use Mac Version of Office
 - Use Mac Version of Office and Export to Windows Version



What's ahead?

[1 of 5]

- Upcoming Meetings

- ~~01/25, Th: Schedule and Teamwork~~

- 01/26, Fr: Team Photos (10:00 a.m. – 3:30 p.m.)

- 01/30, Tu: Team Project Plan Presentations

- 02/01, Th: Team Project Plan Presentations

- 02/20, Tu: Team Alpha Presentations

- 02/22, Th: Team Alpha Presentations

} 10% of
Team Grade



What's ahead?

[2 of 5]

Time	Team
10:00	Ludus
10:10	Auto-Owners
10:20	TechSmith
10:30	DRIVEN-4
10:40	HAP
10:50	WK Kellogg's Co
11:00	MillerKnoll
11:10	United Airlines Training
11:20	Vectra
11:30	Meijer
11:40	BREAK
11:50	Michigan State University CSE
12:00	GM
12:10	Ford
12:20	Michigan State University Enviroweather
12:30	Urban Science
12:40	Google
12:50	Anthropocene Institute
13:00	Evolutio
13:10	Ally
13:20	BREAK
13:30	BREAK
13:40	BREAK
13:50	RPM
14:00	Union Pacific
14:10	Roosevel Innovations Knowledge Science
14:20	Amazon
14:30	Whirlpool
14:40	Stryker
14:50	MSUFCU
15:00	UWM
15:10	Elektrobit
15:20	Magna
15:30	Lockheed Martin Space

- Capstone Team Photos
 - Arrive 10 Minutes Before Your Time
 - Dress is Business or Business Casual
 - Photos Taken Outside of EB 3105

What's ahead?

[3 of 5]

- 01/25 11:59pm: Check Capstone Website for Typos
 - Review Name and Hometown Spelling
 - Let us Know by Midnight Tonight if Any Typos
 - This is Your Only Chance to Fix These

What's ahead?

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- Split-Hands Meetings
 - Used On Presentation Days
 - 01/30, 02/01: Team Project Plan Presentations
 - 02/20, 02/22: Team Alpha Presentations
 - Three Locations
 - Luke: Natural Resources 152
 - Griffin: Engineering 2250
 - Sam: Natural Resources 158
 - Find the rooms in advance.
 - Attendance Taken As Usual Including Lateness



What's ahead?

[5 of 5]

- Major Milestones
 - 01/30: Team Project Plan Presentations
 - 02/20: Team Alpha Presentations
 - 03/28: Team Beta Presentations
 - 04/16: Project Videos
 - 04/17: All Deliverables



- Talk With your TM About Adapters for Presentations
 - We Will Order Any Adapters That You Might Need
- Please Remember That Photos Will Be Posted On The Capstone Website and in the Design Day Booklet

- Do NOT Contact Dr. D About Absences
 - He will Ignore Your Email and You Will be Marked Absent
 - Contact Myself and CC Your TM

Questions?

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