Chat room: Please use the chat room to ask questions or add comments as we go along!

- If you would like to ask a question via video/audio, type 'Q' in the chat room
- If you would like to say a comment via video/audio, type 'C' in the chat room

Video: You can have video on if you want, or leave it off. If you are asking a question/saying a comment live, please turn your video on, if possible.

Audio: Please mute yourself unless you are asking a question or commenting on something.

Live transcript is available; check the settings to show the full transcript or to hide subtitles

ENGR 101

Kick-Off Meeting

Laura Alford
Laura Burdick

August 30, 2021

What is ENGR 101?

- ENGR 101 is all about solving engineering problems by using computers and computer programming.
- In today's world, the computer is your most powerful tool.
- It's a course for everyone:
  - We assume no prior programming experience!

What will you get out of ENGR 101?

- You will learn…
  - …how to "think like an engineer".
  - …how to design algorithms to solve engineering problems.
  - …how to implement your algorithms as MATLAB and C++ programs.

- You will have fun!

Diversity, Equity, and Inclusion

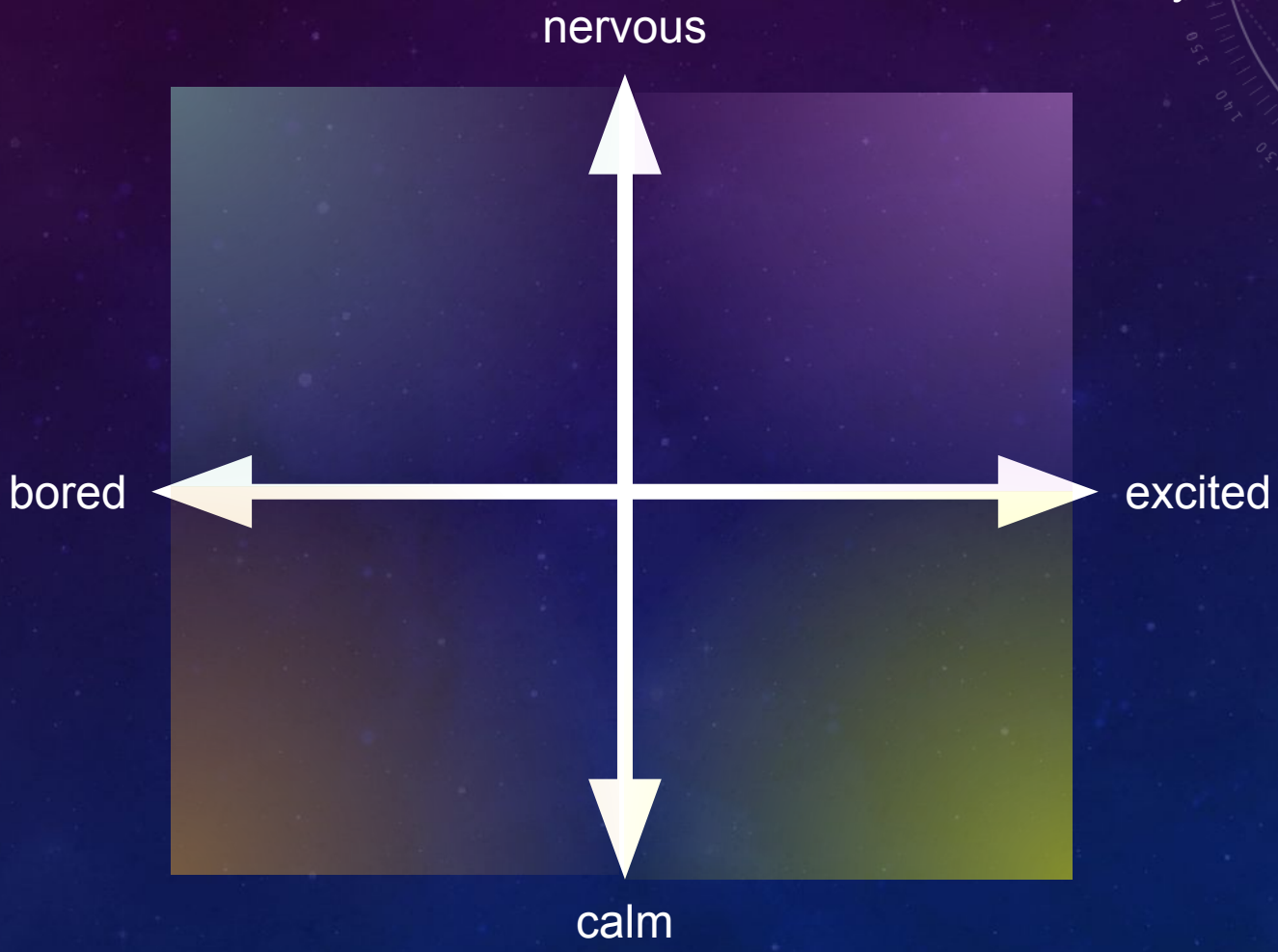
- More than just a class you take, we want 101 to be a **community** that…
  - …is accessible, safe, and inclusive.
  - …appreciates and learns from our similarities and differences.
  - …supports the success of all individuals.

- You all belong here.

- If you have any concerns, or if you feel like we're not living up to this commitment, please let us know.

How do you feel about ENGR 101 right now?

1. Click “View Options”
2. Click “Annotate”
3. In the annotate tools, click “Stamp”
4. Click the star icon
5. Put a star where you are on the chart



Solving Problems with Computing

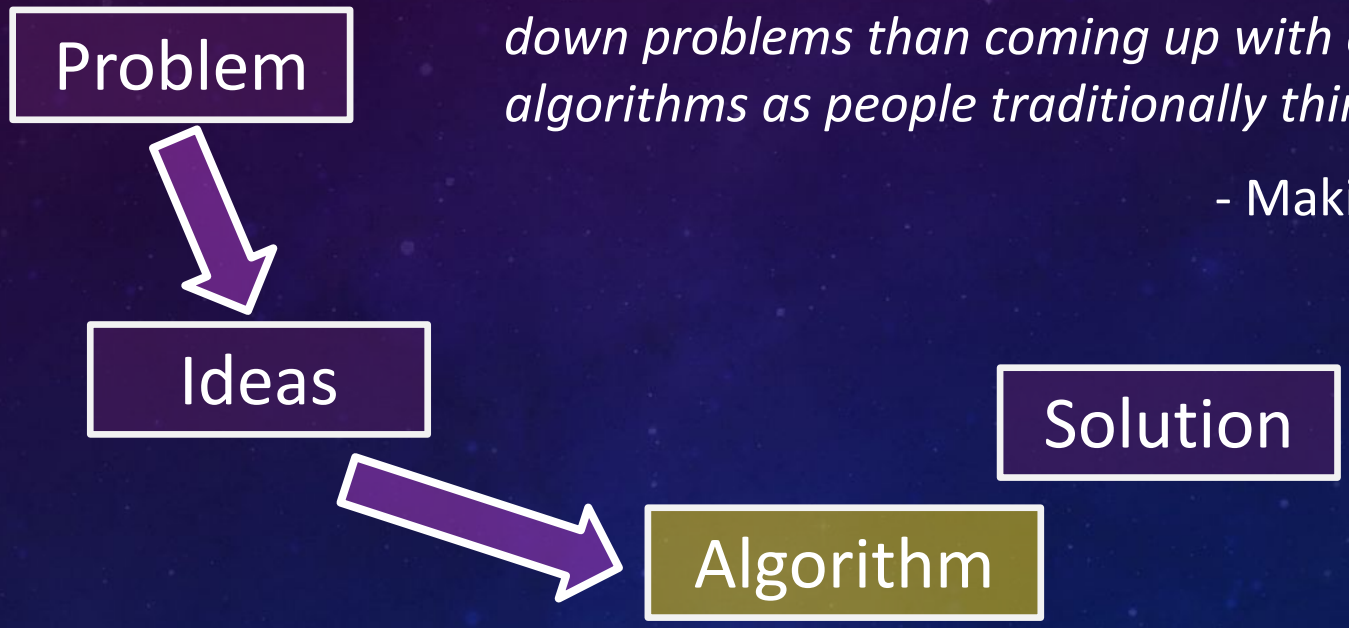
"It took me some time to realize that creating things with your hands or creating code, creating programs, is just a different way to express creativity."

- Elena Silenok

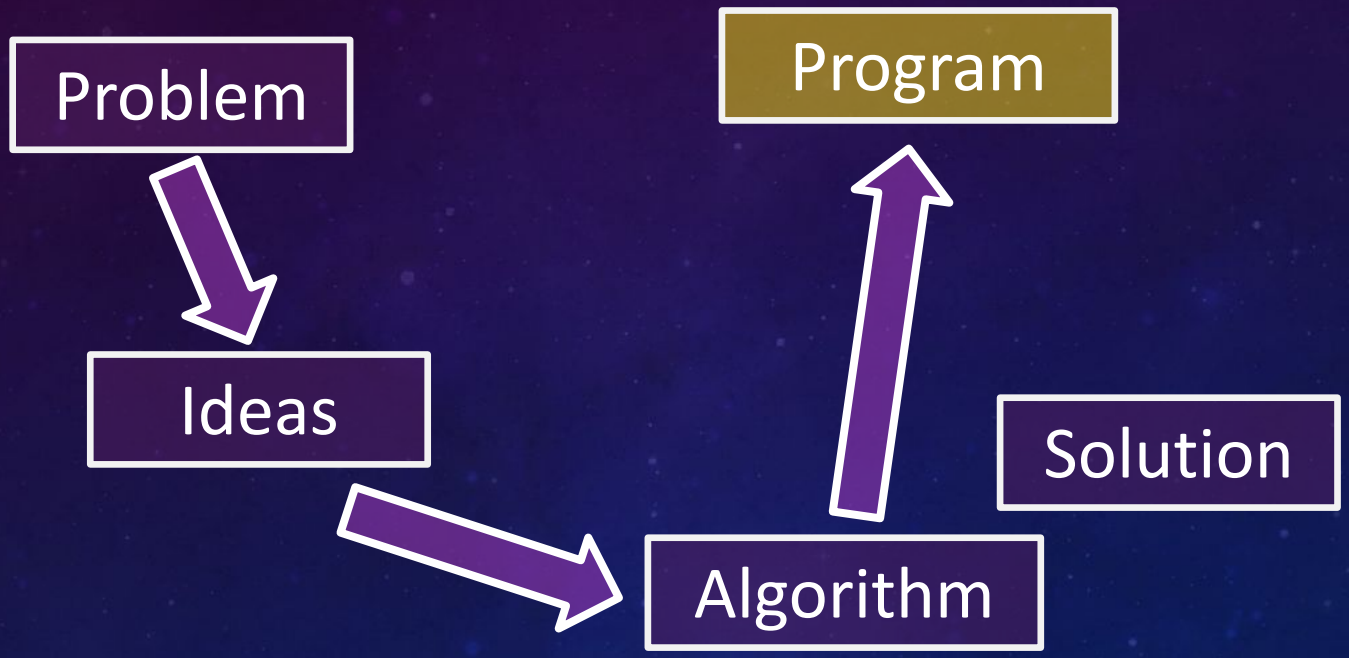
Solving Problems with Computing

"A lot of the coding that people do is actually fairly simple. It's more about the process of breaking down problems than coming up with complicated algorithms as people traditionally think about it."

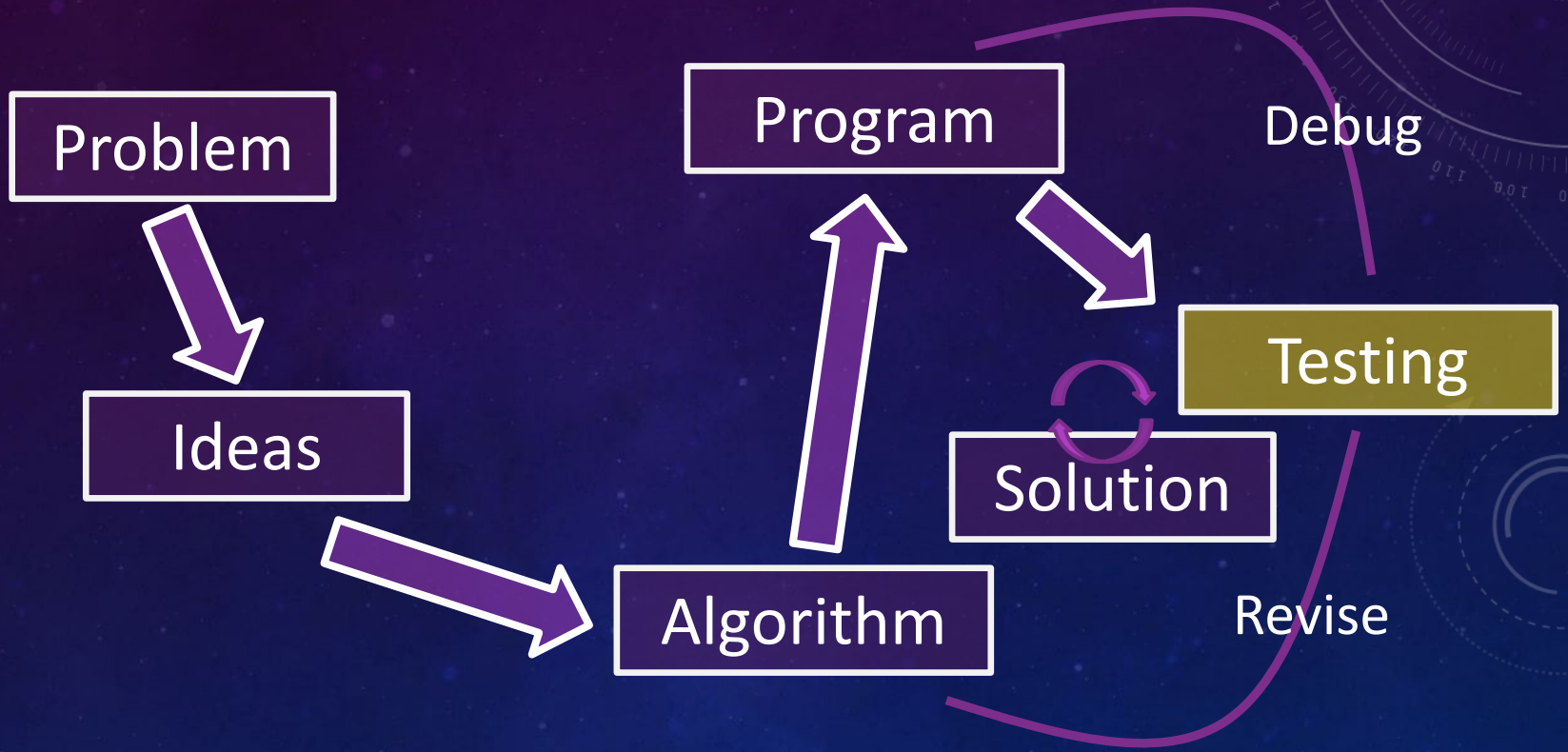
- Makinde Adeagbo



Solving Problems with Computing



Solving Problems with Computing



ENGR 101
700 Students

2 instructors
8 GSIs, 9 IAs

Lab Group 4 Students	Lab Group 4 Students	Lab Group 4 Students
Partnership 2 Students	Partnership 2 Students	Partnership 2 Students

ECoach

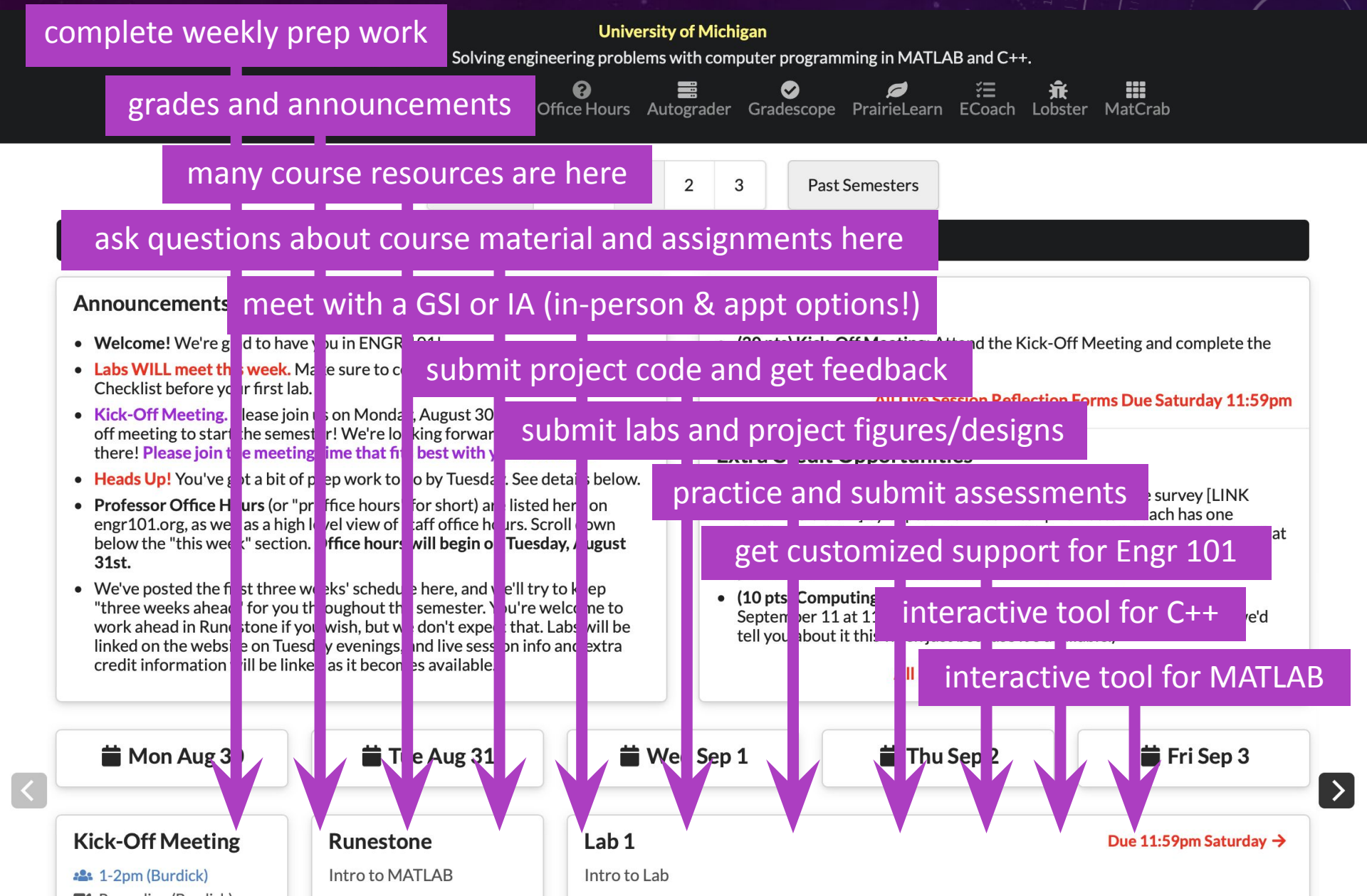
LET’S GET TO KNOW EACH OTHER

TIME FOR A POLL!

Course Essentials – The Main Two Places To Go

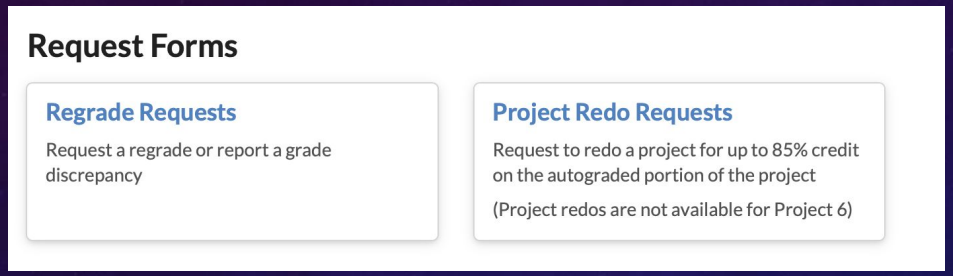
- Canvas – **canvas.umich.edu**
  - Make sure you are set up to receive course announcements!
  - Check your grades
- Course Website – **engr101.org**
  - Access everything you need to complete the course from here
  - Weekly Agenda of things to do
  - Schedule of Topics for the semester
  - ALL resources and online tools are linked from our course website!

Online Tools We Will Use



Contact Info

- Course Forms
  - On the website. Use these first!



- If you have other questions or concerns, send us an email:

  engr101staff@umich.edu

- Do not send technical questions about course material or assignments via email. Use Piazza instead.

Piazza

- Post questions about course material or assignments here.
  - You may post anonymously to other students.
  - You are never anonymous to instructors.
- Read the Welcome post and the Tips & Tricks post first!
- Update your display name on Piazza to include your uniqname, like this:

  Laura Burdick (lburdick)

  This will let us look you up on the autograder when you have questions
- If you post any project code or details of your solution to an assignment, make your post **private** (visible only to you and instructors).
- Otherwise, post publicly – other students may have the same question!
- Make sure to search before asking, in case it has been asked before.

Assignments and Grading

Assessments	30%
Projects	30%
Labs	20%
Weekly Prep Work	10%
Live Sessions	10%

- 1 assignment dropped
- 2 assignments dropped
- Attend 10 sessions

- Late work is not accepted.
- See the syllabus for our extension and regrade policies.
- There will be opportunities to earn up to 1% extra credit.

Regrades

- See the syllabus for our policy and how to submit regrades.
- What can I submit a regrade for?
  - Only submit a regrade if you believe there is a grading *mistake*.
- We will regrade the entire assignment. We will correct any grading mistakes - your score may go up or down.

Assessments

		Points	Types of Questions
MATLAB	1	80	Level 1 & Level 2
	2	100	some Level 1, mostly Level 2
C++	3	80	Level 1 & Level 2
	4	100	some Level 1, mostly Level 2

total points earned are worth 30% of your grade

- Level 1 Questions
  - ***Before*** you've practiced the skill on a project
  - Identify topics where you might need more practice
- Level 2 Questions
  - ***After*** you've practiced the skill on a project
  - Combine multiple concepts and skills

Assessments

- Assessments will be online using PrairieLearn.
- Each assessment will have a practice assessment.
  - You can take these as many times as you want!
- Assessments will be open note / open computer.
- If you earn <90% on an assessment, you can come to office hours and review your answers and re-take the assessment. Re-takes can earn up to 90% of the original points.

Projects

- There are 6 programming projects in 101

		Points	Main Topics/Concepts
MATLAB	1	60	Vectors, Matrices, Indexing, Functions
	2	80	Array Operations, Logical Indexing, Image Processing
	3	120	File I/O, Automating Data Analysis, Plotting
C++	4	120	Control Flow, Iteration, and Selection
	5	120	Streams, I/O, Strings, Functions and Parameters
	6	120	Common Data Structures and Algorithms

total points earned are worth 30% of your grade

Projects - Overall Theme

- We're exploring and building a settlement on another planet!
  - **Proxima b**: a recently discovered exoplanet that orbits the nearest star neighboring our own solar system.
  - If you're curious, check out this video: https://www.youtube.com/watch?v=lysJduOqads&t=52
- Why? We wanted a BIG problem to solve that would require computing applied in all sorts of engineering disciplines…

Projects – Engineering Applications

		Engineering Areas	Application
MATLAB	Practice	Chemical	Measure chemical composition of soil samples.
	1	Mechanical	Analyze the structure of a domed building.
	2	Climate and Space, Electrical, Biomedical	Produce heatmap images from radiation scans. Detect potential tumors in brain scan images.
	3	Naval Architecture and Marine Engineering	Evaluate sites for an off-shore wind farm. Create professional plots/graphics in MATLAB.
C++	4	Aerospace	Simulate the motion of a space shuttle.
	5	Data Science, Natural Language Processing	Identify deception in user-submitted reviews.
	6	Industrial and Operations	Solve a "Traveling Salesperson Problem" using the nearest neighbor heuristic.

Autograder

- We use a web-based autograder for the projects.
  - **autograder.io**

- See project specifications for submission instructions.

Project Remediation

- Sometimes stuff happens. Sometimes you get behind.
  - We get it. The most important thing is to get you back on track.

- If you score < 85% on the autograded portion of a project, you are eligible for a redo.
  - Fill out the form on the website to request a project redo.
  - Complete the project redo by the end of the last day of class.
  - Your score on the redo is capped at 85% of the autograded points.
  - You may only use this on one project.
  - No project 6 (no time – it's due on the last day of classes).

*This remediation policy is NOT intended to cover medical or personal emergencies. If you experience an emergency, please contact us as soon as you are able and we can work out accommodations and/or extensions as needed.

Weekly Prep Work

- No regular in-person lectures (except for “live sessions”)
- Lecture content will be delivered via the Runestone platform
- Usually 2 chapters per week
  - Due Tuesdays by 11:59pm
- Chapters will consist of:
  - Short embedded videos (slides will also be provided)
  - Interactive exercises
  - Questions to check for comprehension
- Graded based on completion

Labs

- Take what you learned in the weekly prep work and put it into practice!
- You will work in lab groups of 4 students to collaboratively complete a worksheet
- Labs meet in-person
- Your lab instructor (a GSI or IA) will be available to answer questions, help keep you on track, or just chat if you get done early

Labs

- Turn in lab worksheets on Gradescope
- Lab worksheets are due on Saturdays at 11:59pm
  - Graded for completion

- Attendance is required.
  - If you arrive after 30 minutes of the start of lab, you will be marked “late”.
  - The first time you are marked late, you will still get credit. After that, you will get a zero.
  - If you have a legitimate reason to miss lab, email your lab instructor at least 24 hours before lab!

Live Sessions

- Throughout the semester, we will have 15 “live sessions” in the evenings.
  - Technical demo sessions with the professors
  - Student life sessions with the GSIs
  - Talks from people in industry

- Sessions will be recorded.
- You must attend (or watch) 10 sessions.
- Complete a google form reflection to receive credit.

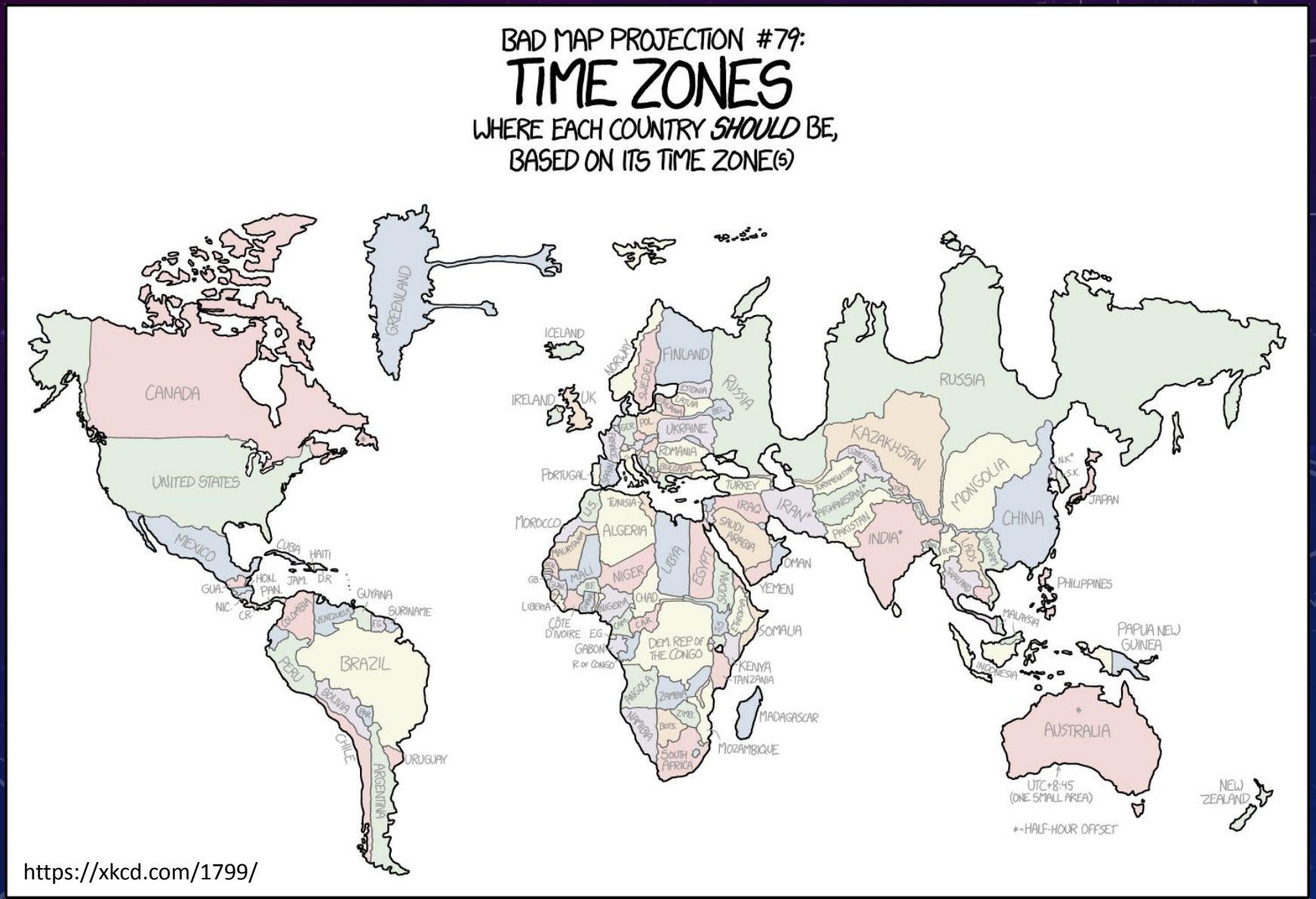
Course Expectations

- Respect the opinions of others.
- Create an environment where everyone can share their thoughts and experiences without fear of being judged in or outside of class.
  - Don’t grandstand/show-off in questions.
- Take active learning opportunities seriously.
- Engage in lab group meetings
  - Turn off notifications to help you focus on the task.
- Read the Course Norms document on the website for more detail on our course expectations

ACTIVE LEARNING PRACTICE!

Where are you at right now?

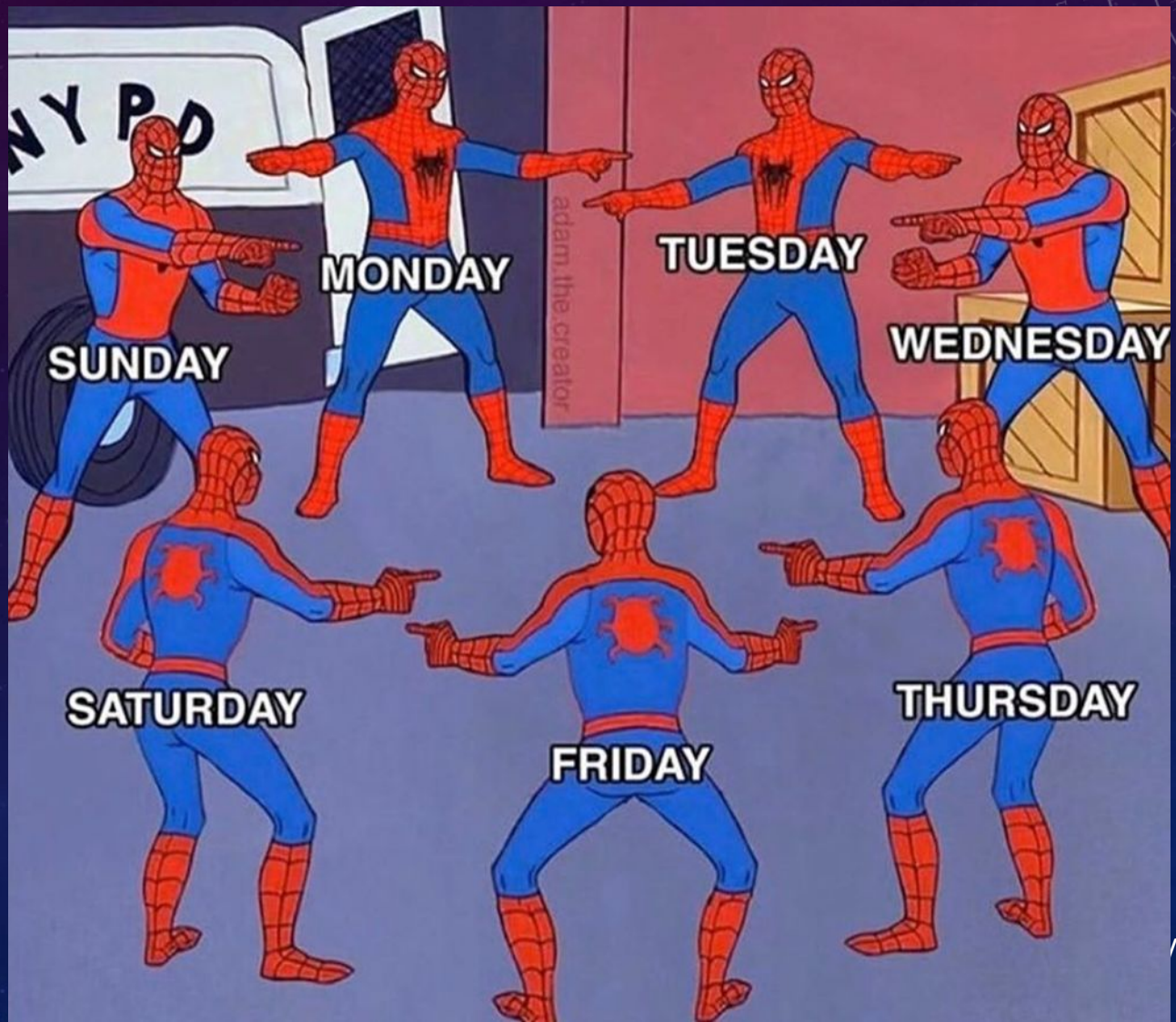
1. In the annotate toolbar, click “Stamp”
2. Click the arrow icon
3. Click where you are!



https://xkcd.com/1799/

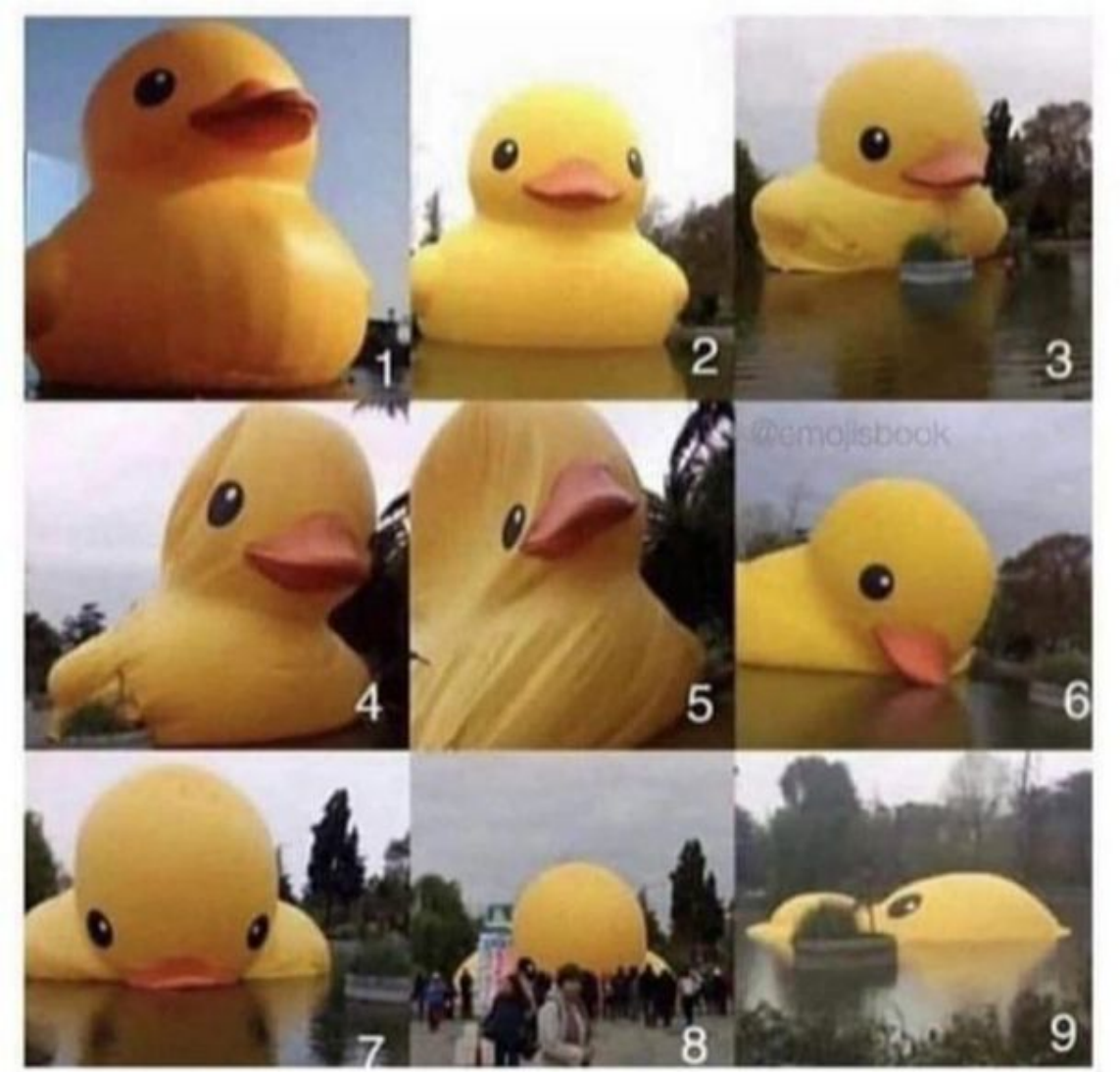
What day is it?

1. In the annotate toolbar, click “Format”
2. Choose a color
3. Click “Draw” and choose the ~ option
4. Circle what day it is (what even is a day??)



Which duck are you today?

1. In the annotate toolbar, click “Stamp”
2. Click the heart icon
3. Click on the duck you are to add a heart stamp



"All great things are built in teams."

- Ruchi Sanghvi

Collaboration

- We encourage students to…
  - …Work together with their lab group to complete lab worksheets.
  - … Give or receive help in understanding course concepts covered in lecture or lab.
  - … Practice and study with other students to prepare for assessments or exams.
  - … Consult with other students to better understand project specifications.
  - … Discuss general design principles or ideas as they relate to projects.
  - … Help others understand compiler errors or how to debug parts of their code. (You may NOT give/receive help with the process of writing the code originally. You may look at another student's code to help them understand what is going on.)

- You must NOT collaborate…
  - …in constructing solutions to homeworks and projects (except partners).
  - …on assessments.

Rules for Partnerships

- You may (optionally) work with one partner for each project.
- Your partner must be taking the course this term.
- You MUST register your partnership on the autograder AT LEAST ONE WEEK PRIOR to the deadline for the project.
- Partners are linked on the autograder – either partner may submit.
- Write both partners' uniqnames in comments at the top of any submitted files.
- You cannot change partners in the middle of a project.
  If partnership problems arise, please contact course staff.
- You may change partners between projects.
- DO NOT collaborate on projects outside of your partnership.

- Read the syllabus carefully for full details about partnerships!

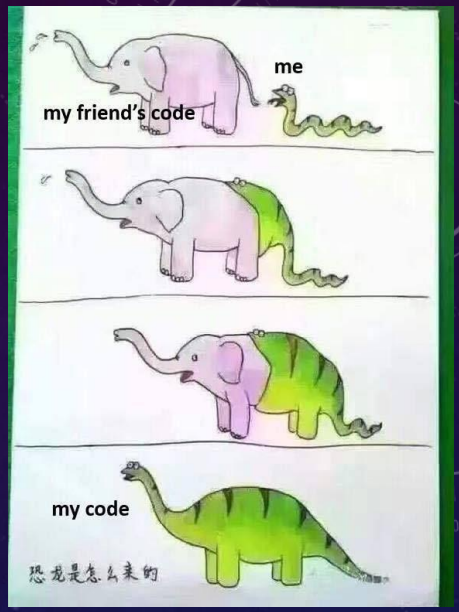
Tips for Partnerships

- Pick your partner carefully.
  - Make sure you have an understanding of when you'll work on it.
  - Make sure your attitudes toward the course are compatible.

- Work on every part of the project together.
- Don't just split the work down the middle!

Academic Integrity

READ THE SYLLABUS



- Engineering Honor Code
  - We report honor code violations to the CoE Honor Council
- Projects: We use automated software and manual review.
  - We can still catch it even if the code is *significantly* obfuscated (e.g. renaming, rearranging, etc.)
  - We DO NOT report code that is similar just because you had the same ideas
  - We DO NOT report unless there is clear evidence cheating (i.e. copying) occurred
- Assessments: We use randomized assessments to prevent sharing answers
- Usual penalty if found responsible for a violation:
  - `0` on the reported assignment, -1/3 letter grade overall

HC Remediation

- Honor code violations usually occur when a student is:
  - Struggling with the course
  - Dealing with external challenges

- Our #1 goal is to help you get back on track and provide support.
- If we report you to the HC, we will also follow up to meet with you
  - We want to understand your situation, identify obstacles, and make a plan to move forward
  - The meeting is NOT to get you to “admit it” or dig up additional evidence
  - In some cases, applying the Project Remediation policy may be appropriate

READ THE SYLLABUS

Office Hours

- Office hours aren't "remedial"
- Office hours are a great opportunity to:
  - Talk with instructors and meet other students
  - Get one-on-one help from an instructor
  - Talk with an IA or GSI about your classes, life at U-M, and anything you want to talk about. They are a great resource!
- In-person and virtual office hours available
  - In-person: group “drop-in” style office hours
  - Virtual: one-on-one appointment style office hours
  - Come early! Office hours get much busier as deadlines near.

Engineering Center for Academic Success (ECAS)

- Supplementary Instruction sessions will be offered for ENGR 101 through ECAS
  - These sessions are NOT required! But you may find them helpful
- The ENGR 101 staff will be helping to coordinate the content of these sessions
- We'll post information on when the sessions are as soon as we finalize the time and format
- For more information about ECAS: https://ecas.engin.umich.edu

Tips for Success

- Do your weekly prep work and attend lab meetings regularly
- Engage with the class on Piazza
- Make use of office hours
- Start projects early!
- Use ECoach

- Sleep/eat regularly
- Be patient and persistent

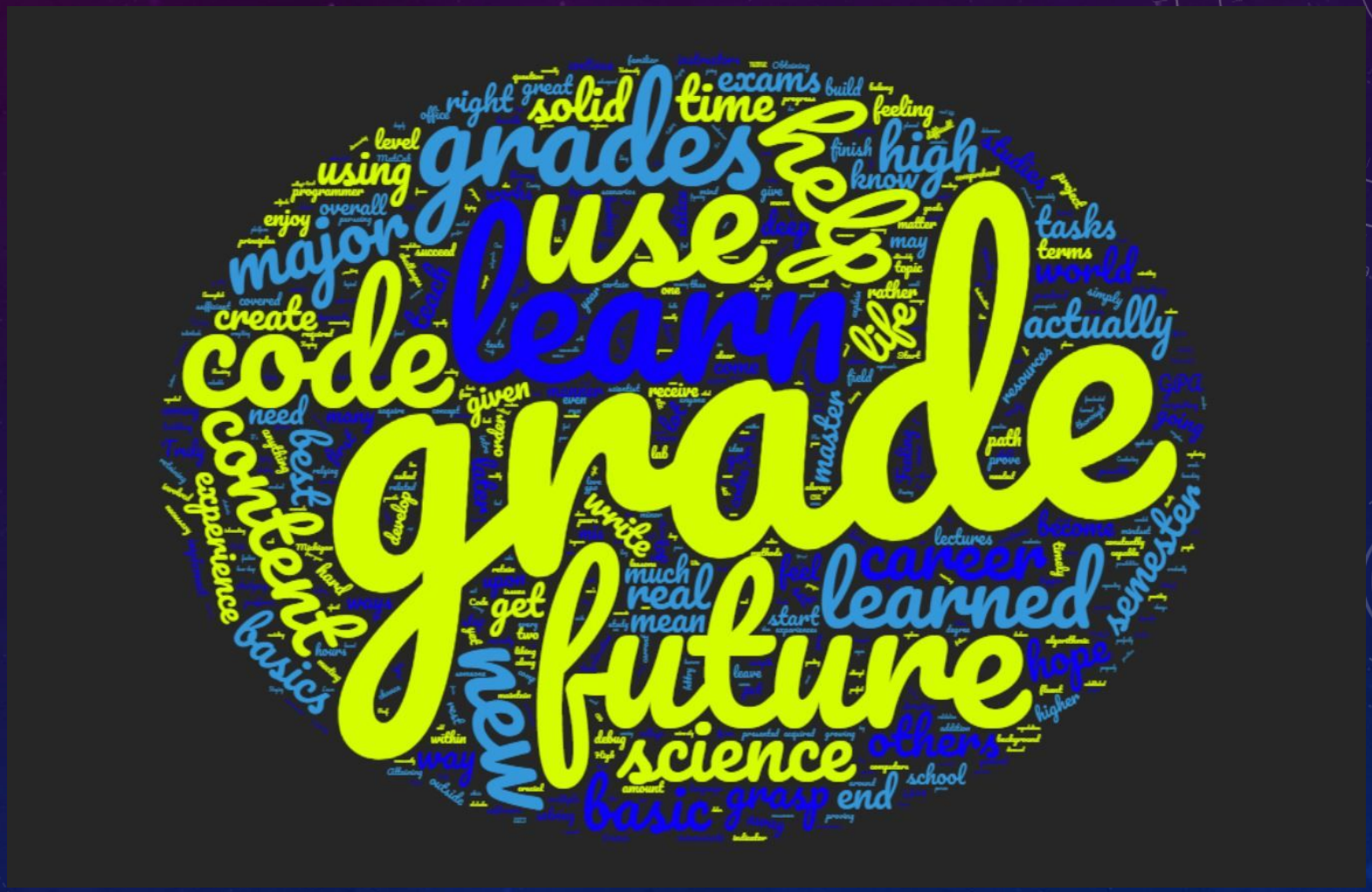
*"Coding isn't hard because it's so difficult, it's hard because it's **so different**."*

- A UMich CS Student

"It's a lot like learning a new language, so doing a bit each day is a lot more helpful…"

- A Former ENGR 101 Student

We asked students "How do you define success in ENGR 101?"



How do you feel about ENGR 101 now?

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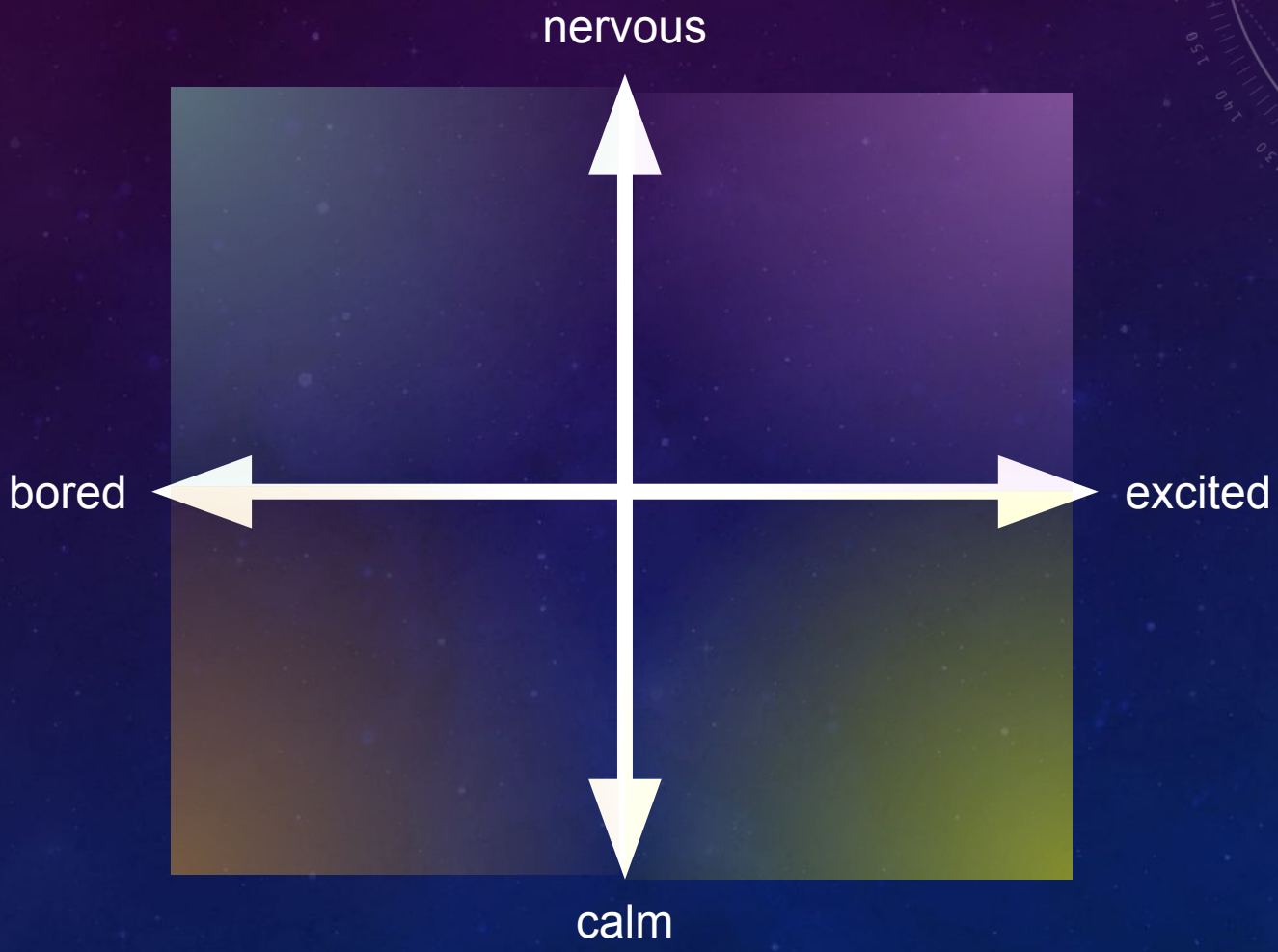

Welcome to ENGR 101!

Reminders:

- Check out the course website at engr101.org
- Read the syllabus, course norms, and FAQ
- Do the weekly prep work (due tomorrow!)
- Complete the start of term checklist