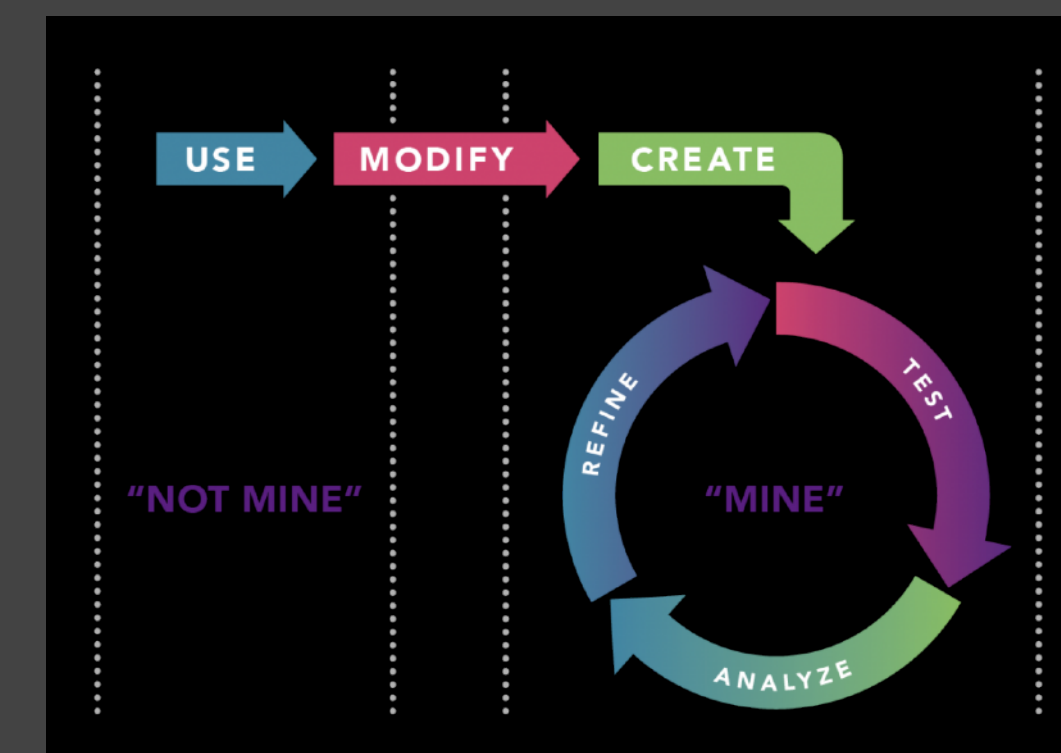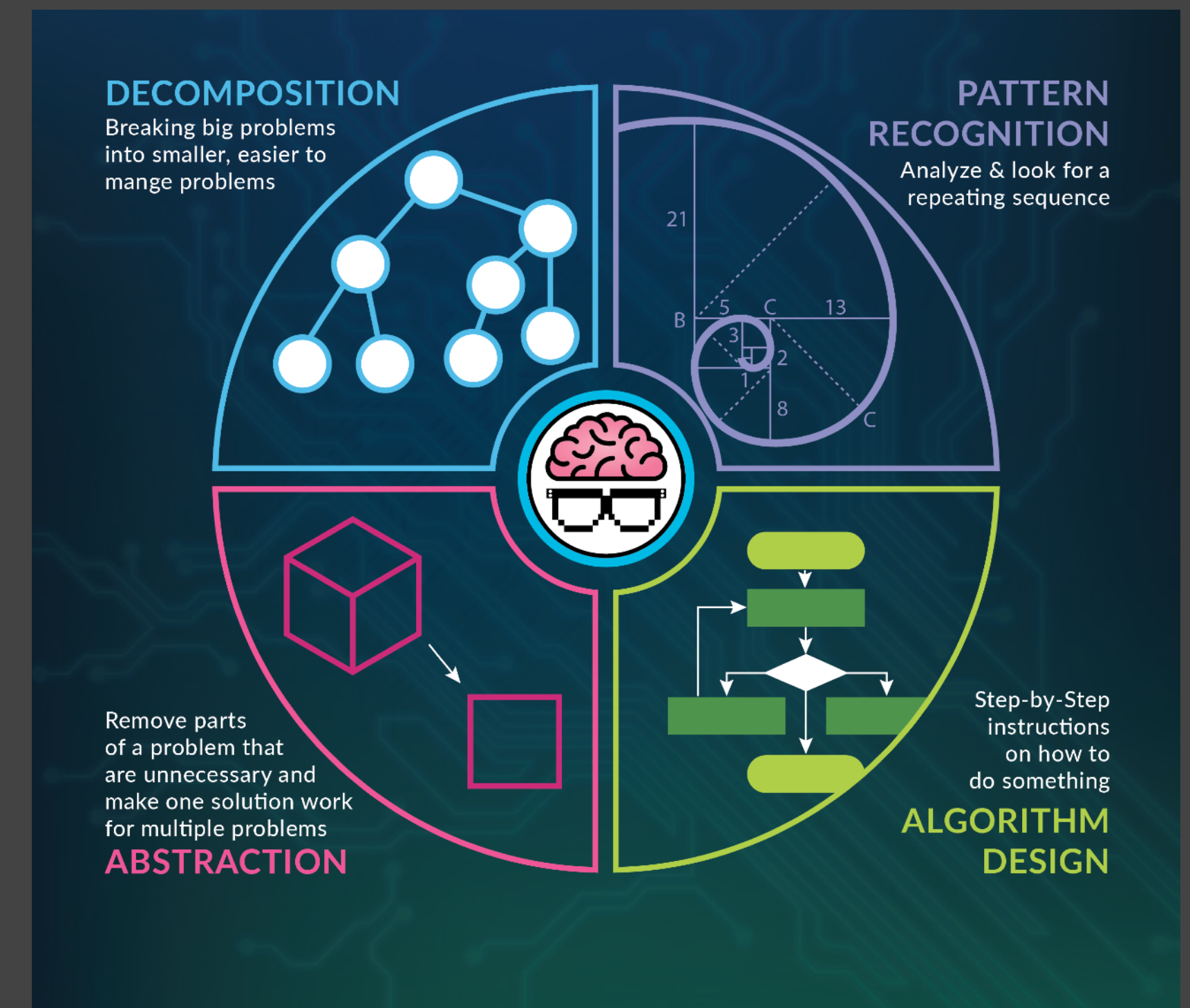# Computational Foundations 1

ATLS 1300
Tues, Jan 14th

Welcome!

- In this class we will:

  - Learn computational thinking

  - Learn comprehensive Python programming skills

  - Learn crucial coding practices

  - Create really dope digital art

Dr. Z, a neuroengineer

- Instructor, STEM Outreach Coordinator

- Informal, immersive STEM education

- PhD in Neuroscience

- Use engineered setups/programs to explore neuroscientific questions

- Flying snake VR

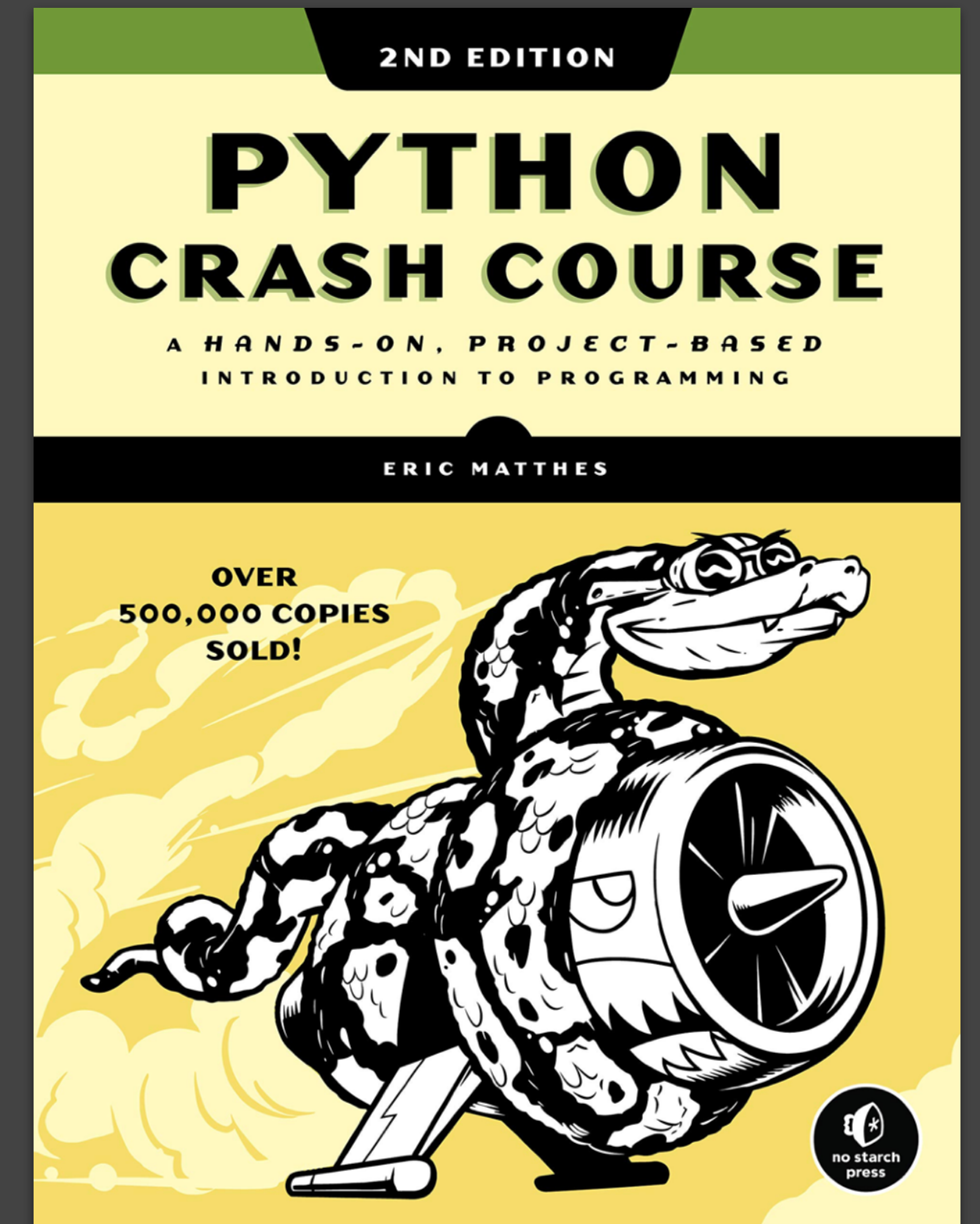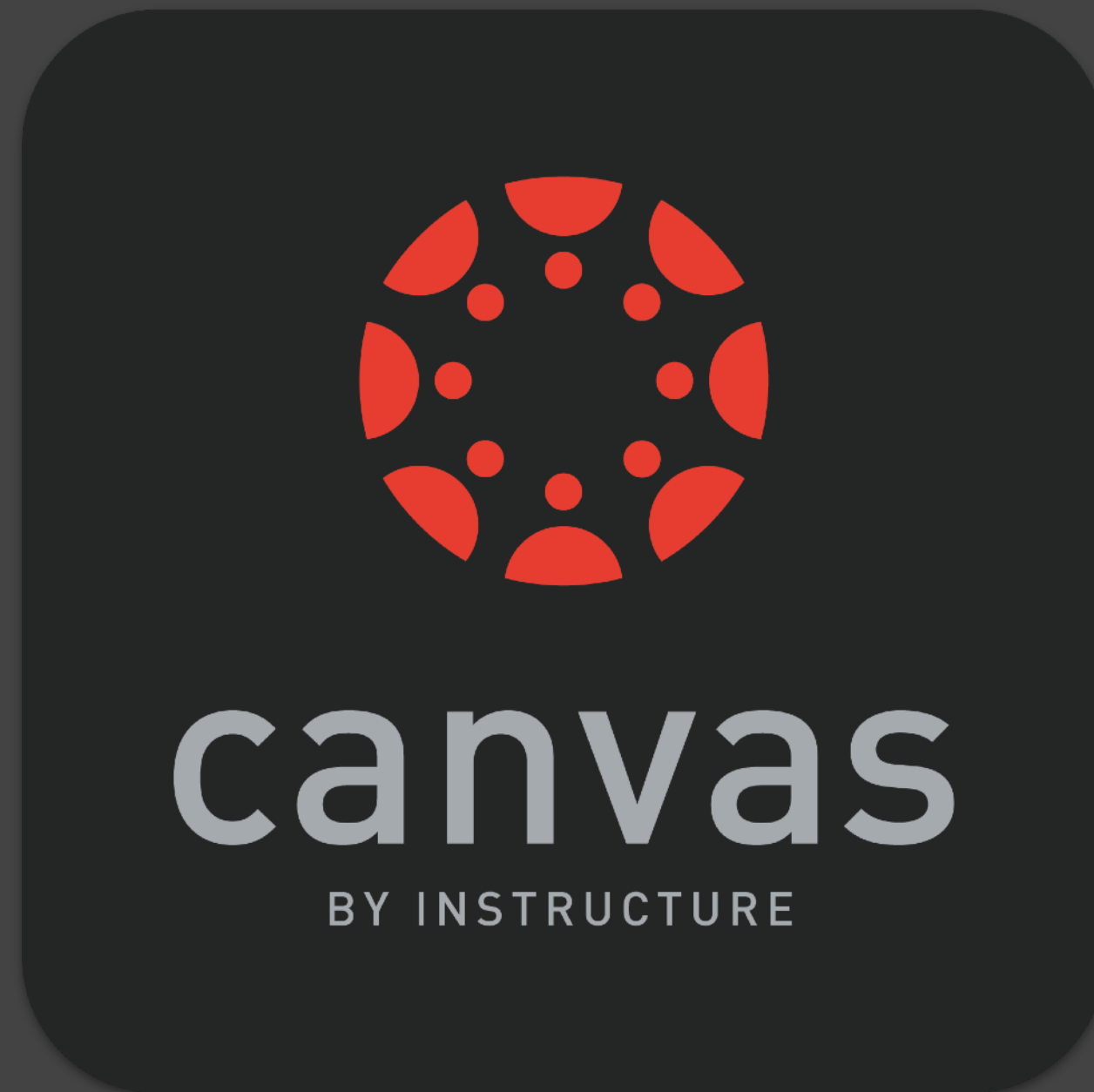- Languages: Python, C#, C++ (MATLAB, R)

Meet your LAs!

- **Yilin Gong**

  - Section 11, 8-9:15a

- **Mallory Benna**

  - Section 12, 9:30-10:45a

- **Megan Felsch (Head LA)**

  - Section 13, 11a-12:15p

- **Caileigh Hudson**

  - Section 14, 12:30-1:45p

What to expect this class

- Heavy use of Canvas for assignments, quizzes, projects, resources, and more

- Weekly projects

  - Drawing, animation, sound manipulation, user interaction, games, data visualization

- As challenging as it is fun!

Tools

BY INSTRUCTURE

iClicker

2ND EDITION
PYTHON
CRASH COURSE
A HANDS-ON, PROJECT-BASED
INTRODUCTION TO PROGRAMMING
ERIC MATTHES
OVER
500,000 COPIES
SOLD!

eBook available

Course breakdown

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

Course breakdown

Bootcamp															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

New concept weekly
Practice concept with Programming Challenge

Course breakdown

Bootcamp								Spring break WOO							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Course breakdown

Bootcamp								Spring break WOO	Practice/ Final Project						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Expansion on concepts
Practice concept with Programming Challenge
Do your own thing with final project

Major course events

- **Creative Coder Presentations** - Feb 28th

  - 5 min presentation on a creative coder of your choice

- **Benchmark exam** - Apr 10th (plus retakes)

  - Tech practical that MUST be passed t pass the class

- **Final project** - Apr 28th, 30th

Course breakdown
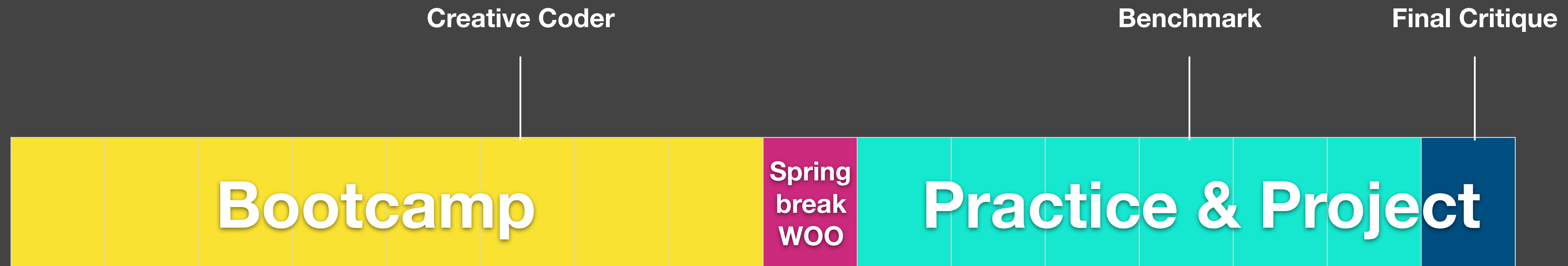
Creative Coder

Benchmark

Final Critique

Bootcamp

Spring break WOO

Practice & Project

Expansion on concepts
Practice concept with Programming Challenge
Do your own thing with final project

Programming Challenges

- Starting this week, 1 PC per week

- Exercise new concepts, practice programming

- 4 points each (toward final grade)

  - Up to 0.5 pts extra credit.

- Most likely to give out B's

  - A's are exceptional

  - C's are status quo

Recitations

- Weekly Programming Challenge

- Work in with "lab partner" to create code that meets criteria

- Aim to complete in recitation

  - Turn in no later than **WEDNESDAYS AT 5 PM**

- Grading rubric posted with assignment

Coursework

- **Readings -** before class begins

- **Clicker questions**

  - Attendance

  - How I know how you are doing

  - Focus on reading, programming concepts

- **"Quizzes"**

  - Online canvas quiz every 2 weeks (5 total)

  - 5 questions, similar to clicker questions

Grading & Attendance

Category	Points
Programming Challenges	~45*
Final Project	25
Quizzes & Clicker Questions	15
Creative Coding Presentation	10
Online Portfolio	5
Technical Benchmark	0**

- 3 absences per semester

- 3 lates = 1 absence

- Applies to lectures AND labs

Boundaries

- No late work is accepted

- You must post your own work! (Even though we work in pairs)

- If you use code you find online you **MUST**

  - Describe what it does

  - cite where it came from

  - indicate if it was modified

Code is art and
intellectual property

Accommodations

- Provide a letter to me BEFORE exam/assignment/need

- eBook available

- Taking notes on phone/laptop, OK

- Unsure? Come talk to me.

- New event/issue? Come talk to me.

Tips for Success

- Check Canvas regularly

  - Lecture slides, videos

  - Discussions, Announcements

  - Calendar

  - Practice problemsets, quizzes, external resources

- Do the readings

  - You're not going to read much, so do it. It'll help you. I promise.

- Complete the assignments

Tips for Success

- Ask for help, ask for help, ask for help!

  - Canvas Discussions, Walk in hours, LAs, Dr. Z

- Take creative risks!

- Don't plagiarize!

- Create a folder for this class, and another folder for each PC

Upgrade your OS today!

**MAC: Anaconda has some issues with High Sierra (10.14).
Upgrade to Catalina (10.15) if you can.**

Install Anaconda 3

https://www.anaconda.com/distribution/