



# Professional Certificate in Coding: Fullstack Development with MERN

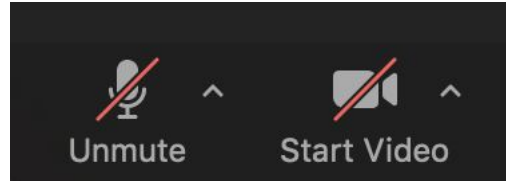
Welcome Webinar



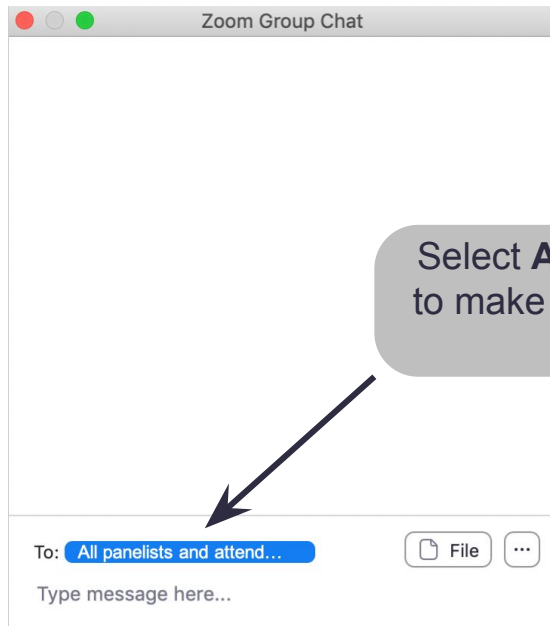
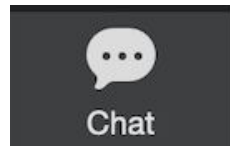
# Zoom Best Practices

## Audio & Video

- Keep your microphone muted
- Turn off your camera



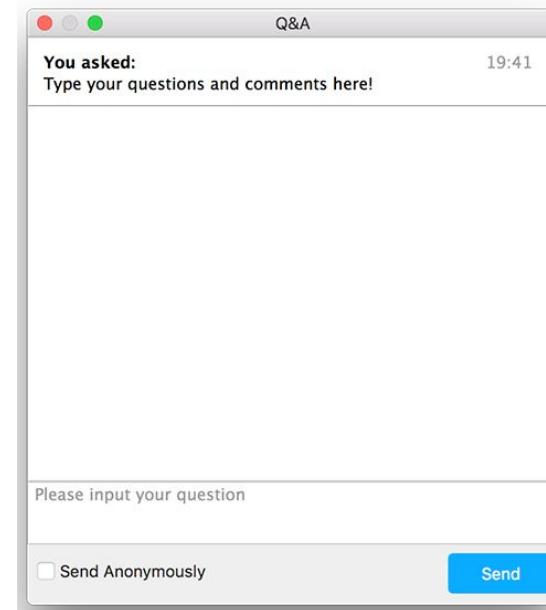
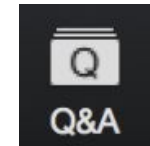
## Chat



*Use to participate in discussions*

Select **All panelists and attendees** to make sure everyone can see your comments

## Questions



*Use to ask questions of panelists*

# Agenda

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01

## **INTRODUCTIONS**

Learning Facilitators  
Live Chat Facilitators  
Faculty

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02

## **LEARNING JOURNEY**

Calendar  
Course Elements Overview  
Completion Requirements  
Office Hours

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03

## **STUDENT SUCCESS & CAREER SUPPORT**

Career Support Intro  
Student Success Support Intro  
Canvas Walkthrough

# 01 Introductions

# 01

## INTRODUCTIONS: Learning Facilitators



GREG  
LINDEMAN



ANTHONY  
BRIGLIA

### How we will interact with you:

- Answer your tickets and discussion board posts. We will respond within 24 hours Monday - Friday; 48 hours over the weekend
- Hold office hours every week
- 1:1 meetings the week of your Capstone

# 01

## INTRODUCTIONS: Live Chat Facilitators



CHRIS  
PAUL



LUKE  
NARKE



ILYA  
VLASOV

### You can find us on Slack:

- (#live-chat) we will answer your questions live, review live chat hours on Canvas

### Hours available:

- Mon. 5-9pm ET
- Tues. 6-8pm ET
- Wed. 8am-12pm, 5-9pm ET
- Thurs. 8am-12pm, 6-10pm ET
- Fri. 6-8pm ET

# 01

## INTRODUCTIONS: Faculty



**JOHN R. WILLIAMS**

Professor of Information  
Engineering in MIT Department of  
Civil and Environmental  
Engineering



**ABEL SANCHEZ**

Research Scientist and Executive Director of  
MIT's Geospatial Data Center

# 02 Learning Journey



# 02

## LEARNING JOURNEY: Overview

### Course Structure

This course has 3 components:

1. Web Development with Javascript
2. Front End with React
3. Back End

#### 1. Web Development with Javascript

Start Date: August 30, 2022  
End Date: November 28, 2022

# Modules: 10  
1 portfolio week

#### 2. Front End with React

Start Date: December 6, 2022  
End Date: March 13, 2023

# Modules: 10  
1 portfolio week

#### 3. Back End

Start Date: March 21, 2023  
End Date: June 20, 2023

# Modules: 10  
2 capstone weeks

# 02

## LEARNING JOURNEY: Overview

### Course Details

- Modules released: Every Tuesday
- Office Hours:
  - Tuesdays at 5 pm EST/9 pm UTC with Greg
  - Thursdays at 6:30 pm EST/10:30 pm UTC with Anthony
- Break Weeks
  - October 18 - October 24, 2022
  - November 29 - December 5, 2022
  - December 20 - December 26, 2022 (Holiday Break)
  - December 27 - January 2, 2023 (Holiday Break)
  - January 24 - January 30, 2023
  - March 14 - March 20, 2023
  - April 18 - April 24, 2023

# 02

## LEARNING JOURNEY: Outcomes

**Market-ready developer skills, from front to back.**

*Learning outcomes for this program include:*

- Build, test, and deploy a web application using the MERN stack
- Build, test, and deploy APIs
- Build, test, and deploy a front-end web application using React
- Setup Continuous Integration (CI) and Continuous Delivery (CD) pipelines to deploy a React application
- Present a GitHub portfolio of your work to potential employers

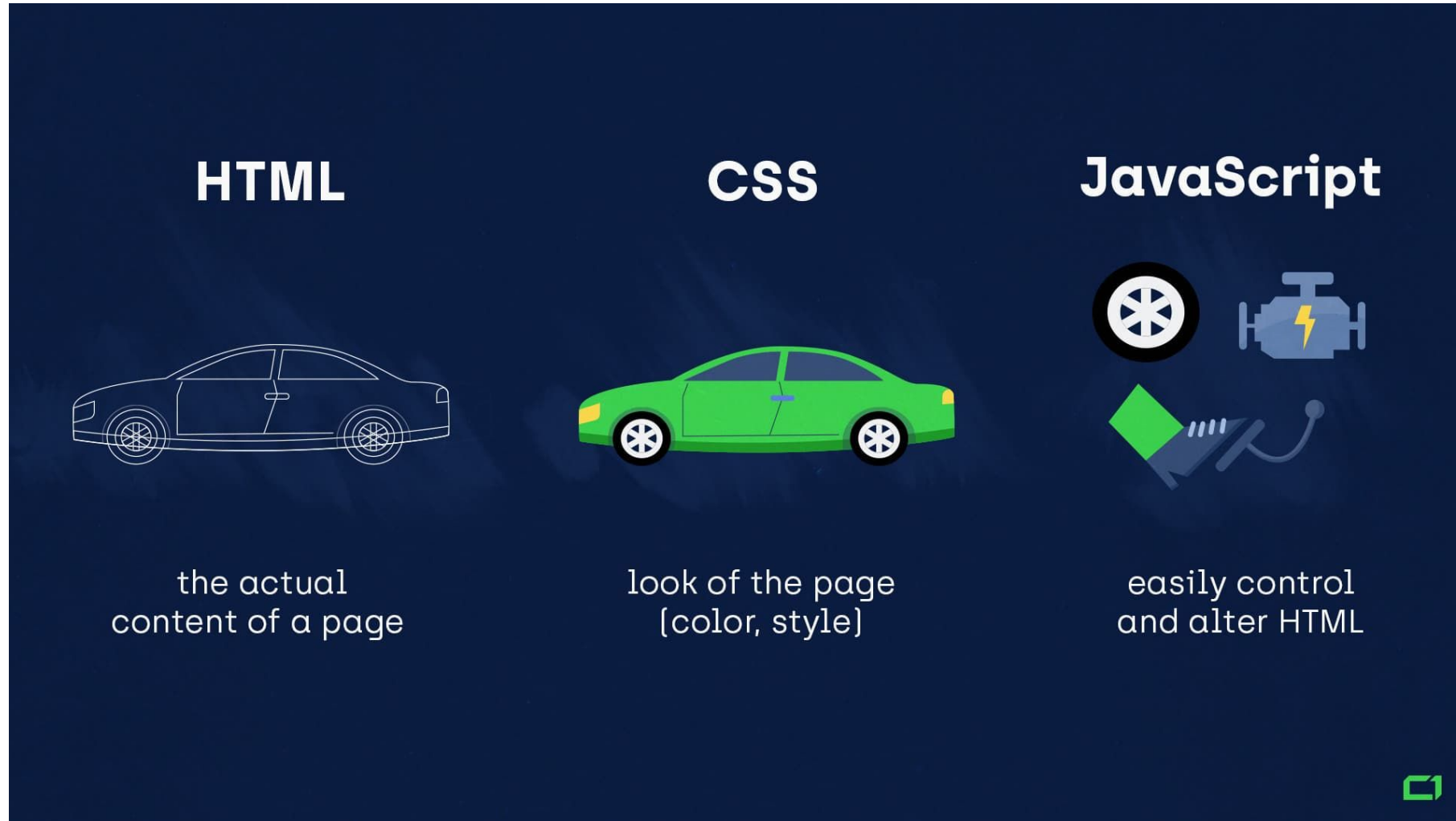
# 02 LEARNING JOURNEY: Web Development with Javascript

**Web Development:** You will develop foundational skills in web development using Javascript, HTML, and CSS. You'll also create your own personal portfolio in GitHub, which you will add to as you progress through the program.

## *Key Takeaways:*

- Explain key web programming concepts
- Build web applications using Javascript, HTML, and CSS
- Design and code user interactions on web pages
- Design and implement UI components for web applications
- Define and breakdown modern software development lifecycle processes
- Set-up code management tools such as Github

# 02 LEARNING JOURNEY: Web Development with Javascript



<https://www.onely.com/blog/ultimate-guide-javascript-seo>

# 02 LEARNING JOURNEY: Web Development with Javascript

Module	Topic
0	Introductory Week
1	Setting up Your System
2	Computational Thinking
3	Mental Model of Computing Operations
4	Introduction to Javascript
5	Functions: Array Manipulation and Scope
6	Callback Functions
Break Week	
7	Introduction to Testing, Github, and the DOM
8	Styles and Bootstrap
9	Asynchronous Code
10	Introduction to Cybersecurity and Recursion
Portfolio Week	
Break Week	

# 02

## LEARNING JOURNEY: Front End with React

**Front-End Development and React:** You will dive deep into front-end development using one of the most popular frameworks, React. You will write clean, concise code with Javascript ES6 and use these skills to work with web components in React. You will learn how to build React applications and how to test and deploy them.

### *Key Takeaways:*

- Build, test, and deploy a React application
- Explain key React concepts such as JSX and Hooks
- Design and build UI components using the React framework

# 02

## LEARNING JOURNEY: Front End with React

Module	Topic
11	Introduction to JavaScript ES6
12	Introduction to React
Holiday Break	
Holiday Break	
13	Introduction to JSX
14	Working with Lists in React
15	Working with Simple Components
Break Week	
16	Tic-Tac-Toe Exercise with React
17	Working with React Components
18	Bad Bank Exercise
19	Shopping Cart Exercise
20	Testing
Portfolio Week	
Break Week	



# 02

## LEARNING JOURNEY: Back End

**Back-End Development:** You will work with MongoDB, ExpressJS, and NodeJS to become confident in the MERN stack. You will learn the essentials for working in the cloud, automated testing, and deployment for a solid foundation in DevOps.

*Key Takeaways:*

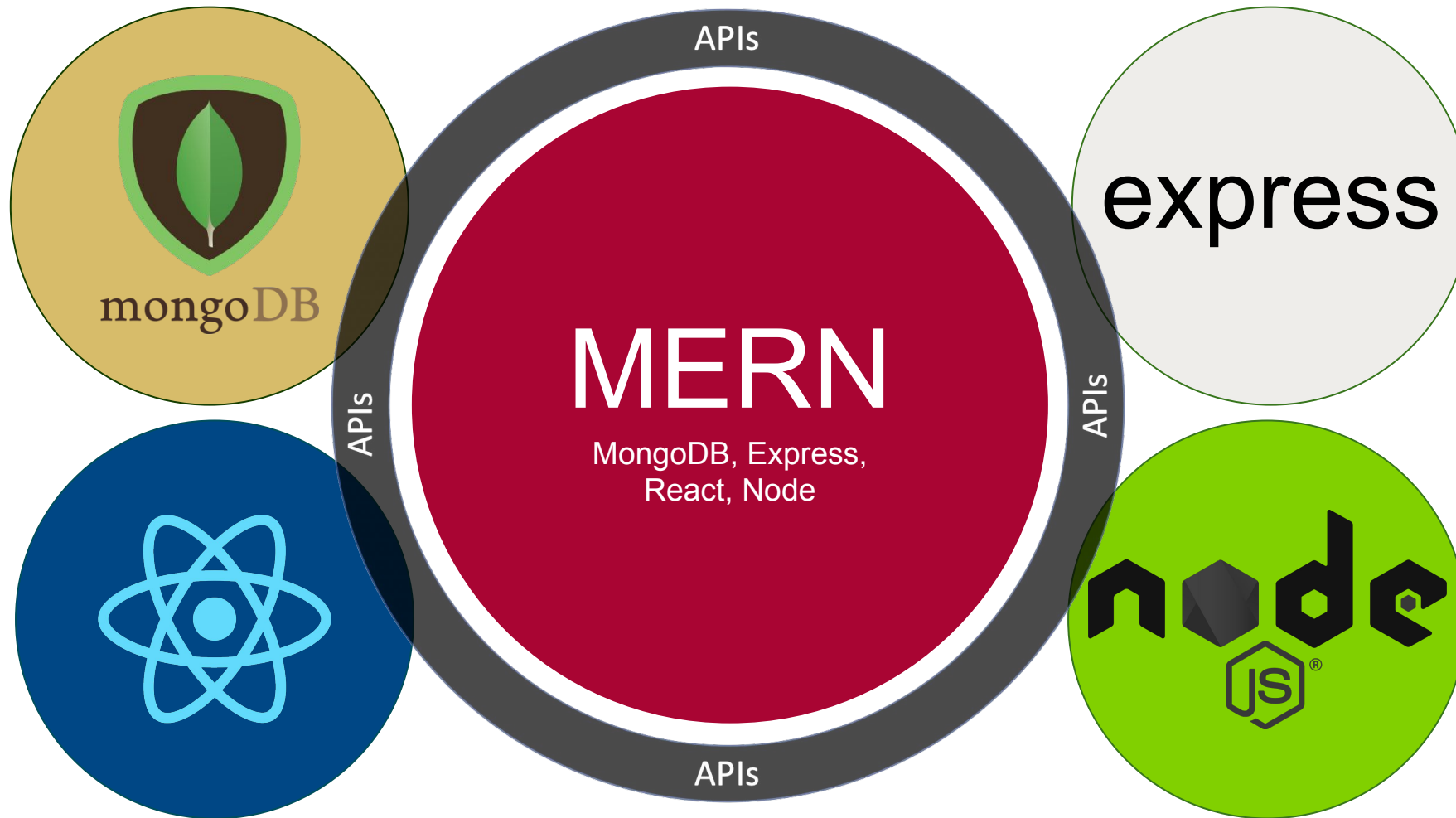
- Build a secure full-stack web application using the MERN stack
- Create a backend API with Express
- Integrate React with a backend Express API
- Explain the interactions between the different components of the MERN stack
- Explain key cloud concepts related to modern web application development
- Deploy a full stack solution using DevOps pipelines
- Explain key DevOps concepts for Continuous Integration (CI) and Continuous Delivery (CD)

# 02

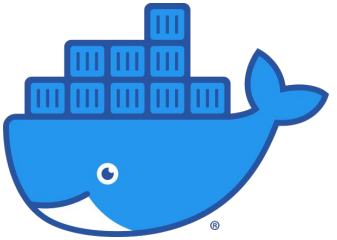
## LEARNING JOURNEY: Back End

Module	Topic
21	Introduction to Tiered Applications
22	Three Tiered Applications
23	Introduction to Docker Containers
24	Express and GraphQL
Break Week	
25	API Documentation and Introduction to Database
26	Serverless Computing
27	Tiered Bad Bank
28	Full Stack Restaurant App
29	Full Stack Restaurant App
30	Testing & DevOps
Capstone Week	
Capstone Week	

# Tools and Resources in Program



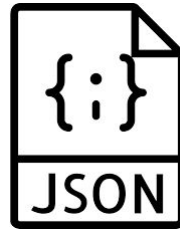
# Tools and Resources in Program



Docker Containers



NodeJS



JSON



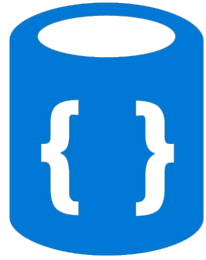
Security



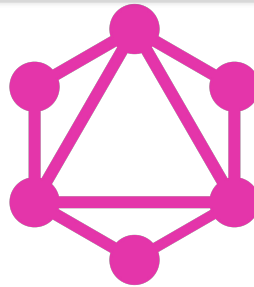
VSCode



SQL Databases



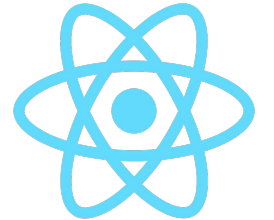
NoSQL Databases



GraphQL



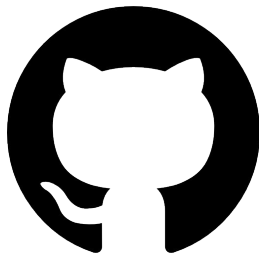
CSS



React



NPM



Github



Postman



MongoDB



Git

# 03 Student Success & Career Support

# 03

## INTRODUCTIONS: Career Coach



Maureen Cathey

<https://calendly.com/maureencathey>

- Maureen is a career coach with 20+ years of experience in career services and other student development roles in higher education
- Maureen strives to help learners take their experiences, learning, and strengths and translate those into a full story to share with potential employers
- As a Gallop Certified Clifton Strengths Coach, Maureen truly believes in the power of what is strong with each individual and the full potential that can be unleashed when strengths are invested in

# 03

## LEARNING JOURNEY: CAREER SUPPORT

Some of the topics  
we can cover during  
Career Coaching sessions:

### Resumes & Cover Letters

Templates, samples, editing

### Networking

Creating target lists, how to, follow-up

### Interviewing

Practice, practice, practice!

### Negotiating

Know your worth and ask for it

# 03

## LEARNING JOURNEY: RECOMMENDATIONS

### CAREERS-SPECIFIC RECOMMENDATIONS

General tips and strategies:

- Have your resume and LinkedIn ready to go
- Create a target list of companies
- Network, network, network!
- Practice interviewing BEFORE you have to interview
- Connect with your career coach



# 03

## INTRODUCTIONS: Student Success Coach

### Meet with me to discuss:

- Time management and task prioritization
- Study recommendations and course resources
- Imposter syndrome and general wellness

I look forward to working with you -  
[lindsey.jacquier@emeritus.org](mailto:lindsey.jacquier@emeritus.org)








Lindsey Jacquier

<https://calendly.com/lindsey-jacquier/student-success-coach-check-in>

# 03

## LEARNING JOURNEY: Elements

	 Knowledge Checks	 Coding Activity	 Coding Assignment	 Portfolio Projects	 Capstone Project
Objective	Practice and assess your understanding of the content learnt during the week	Practice foundational coding skills before completing the end-of-the-week coding assignment	Demonstrate coding skills learnt throughout the week	Showcase web applications you have coded	Build a web application to showcase your front end and backend skills
How many?	Multiple per week	4-10 per week	4-8 per week	2	1
Graded	Yes	Yes	Yes	Yes	Yes

## 03

## LEARNING JOURNEY: Completion Requirements

Categories	Weight
Knowledge Checks	10%
Coding Activities	20%
Coding Assignments	20%
Portfolio Projects	20%
Capstone Project	30%

score at least

**75%**across graded  
assignments

Calculate your score as:

$$\frac{\text{Earned points}}{\text{Available points}} \times \text{Proportional weighting}$$

# 03

## LEARNING JOURNEY: RECOMMENDATIONS

### SUCCESS-SPECIFIC RECOMMENDATIONS

General tips and strategies:

- Join Slack.
- Know coding is difficult, and that you will be frustrated (at times).
- This is largely self-directed learning. What you put in will impact what you get out of the course.
- Know when to reach out for help.
- You will need to seek out assistance from external resources. Yes, that means Googling topics.
- Use a calendar and commit, at a minimum, 15 hours per week to this course.
- Take notes using pen and paper.

# 03

## TOOL DEMOS: Canvas

Home

Announcements

Modules




Live Sessions

Grades

People

Support

### Recent Announcements

-  **Office Hour Reschedule - Week 2**  
Hi Everyone, The office hour scheduled on Mo...  
**Posted on:**  
Sep 29, 2021 at 10:02pm
-  **Office Hour Recording Available**  
Dear Participant, The recording for the Offic...  
**Posted on:**  
Sep 28, 2021 at 6:37am
-  **Office Hour Recording Available**  
Dear Participant, The recording for the Offic...  
**Posted on:**  
Sep 24, 2021 at 11:16am

### Professional Certificate in Coding: Full Stack Development with MERN - September 2021

Course Outline

Completion Requirements

Meet the Faculty



# Questions?