

# Course Outline

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# 1. Software Development Onsite Full-Time

## A. Program Description

In the Software Development Onsite Full-Time program, students master the fundamental building blocks of web and software development. Students learn the basics of how the web works, front-end development, back-end development, and database development; thus, making them highly valuable as an entry-level software developer. Beginning with an introduction to web fundamentals, students learn basic HTML, CSS, and JavaScript to design and manipulate user interfaces. Then, students explore a set of popular back-end languages and technologies to master the request-response cycle to manage and manipulate data. By the end of the program, students will have gained the necessary skills to become an entry-level developer.

## **B. Program Competencies**

The following are the competencies for each "stack" of the program.

#### OPTIONAL PREP COURSE

## **Programming Basics**

By the end of Programming basics, students should be able to

- Complete basic computer tasks, such as zipping a file, installing software, and joining an online meeting.
- Make outcome predictions that use the following programming concepts: conditionals, functions, loops.
- Use best practices for coding
- Explain the most common data concepts in programming, such as variables and arrays.
- Use the most common HTML elements such as tags, lists, divs, and forms.
- Explain the basic concepts of CSS, such as its relation to HTML, selectors, and properties.
- Apply learning skills to improve learning capabilities

#### **REQUIRED STACKS**

## Web Fundamentals:

By the end of the Web Fundamentals, students should be able to

- Manage files and folders using version control tools
- Create webpage content using HTML
- Create webpage layout and styling using HTML and CSS.
- Apply common programming concepts using JavaScript.

• Enable webpage interactivity using JavaScript

## **Python:**

By the end of the Python stack, students should be able to:

- Apply common programming concepts using Python
- Apply object-oriented programming concepts in Python.
- Create Back-End Flask applications w/o the use of a Database
- Analyze basic data requirements and construct Entity Relationship Diagrams (ERDs).
- Create and query a MySQL Database
- Create a Full-Stack Application using Flask + MySQL
- Build a Login/Registration system complete with validations

#### **MERN:**

By the end of the MERN stack, students should be able to:

- Apply common programming concepts using JavaScript.
- Create React Components using APIs and Routing
- Create Express applications with API integration
- Create MongoDB Databases accessible via the MongoDB's shell and Mongoose API
- Create full stack applications using React, Express and MongoDB
- Integrate Socket.io into Express, React applications.

BASED ON LOCATION, STUDENTS MAY TAKE JAVA OR C#/.NET CORE

## Java (San Jose, Burbank):

By the end of the Java stack, students should be able to

- Apply common programming concepts using Java
- Apply object-oriented programming concepts in Java
- Create server-side rendering applications w/ back-end logic
- Design and Manipulate a MySQL Database using JPA and Models
- Create full-stack MVC applications

## C#/.NET Core (Bellevue, Chicago, Boise):

By the end of the C# stack, students should be able to

- Apply common programming concepts using C#
- Apply object-oriented programming concepts in C#
- Create Back-End .NET Core applications w/o the use of a Database
- Create Basic Full-Stack Applications using .NET Core MVC Patterns

Create Advanced Full-Stack Applications using .NET Core MVC Patterns & ORM

## **Program Algorithms:**

Algorithms are taught during each class day throughout the program. Cadence may vary depending on the progress of the students. By the end of of the program, students should be able to

- Create, fetch, and manipulate values within Arrays
- Create, fetch characters, and manipulate Strings while learning immutability
- Create key-value pairs within Dictionaries and leverage their keys to store occurrences, use mapping, and solve word problems
- Use OOP fundamentals and the concept of references and pointers to build, traverse, and manipulate Singly Linked Lists
- Use OOP fundamentals to build, traverse (breadth and depth), manipulate, find and count nodes, etc. in Binary Trees + Binary Search Trees
- Sorting Arrays using Bubble, Insertion, Selection sort
- Sorting Arrays recursively with Quicksort and Mergesort
- Find a value within a large array using Binary Search

## C. Length

560 hrs (14 weeks, 40 hrs per week)

## **D. Course Hours**

Lecture: 210 hrs completed in live group meetings three times daily, approximately 1 hour each.

Lab: 350 hrs completed individually and/or in groups in the classroom. Instructional staff provide oversight, guidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student

#### E. Time

Lab Time: Monday - Friday, 8:30am - 5:30pm

Lecture Time: Monday - Friday, 9am - 11am and 2pm - 3pm

TA Availability: Monday - Friday, 2pm - 7pm

(Time Zone dependent on location)

## F. Admissions Prerequisites

- High School Diploma or equivalent
- Proficient in English Language

## G. Technology Requirements (not provided by Coding Dojo)

- Personal Laptop/Computer
  - o 30GB minimum, 40 recommended available HD space

- o 8GB RAM MINIMUM (16GB recommended)
- Stable High-Speed Internet Connection
- Modern web browser such as Firefox, Chrome, Edge or Safari
- Complete prep-work before day-1 of class
- Mic and Webcam (religious or personal objections may be discussed in enrollment)

## H. Required Materials and Textbook(s)

No textbook required. All learning materials provided by Coding Dojo via the Learn platform (LMS).

## I. Course Schedule

Optional Week 1 Programming Basics Algorithm Basics	Lecture:  Intro, Variables + Data Types Conditionals Loops Functions + Parameters Arrays  Labs:  Assignments covering the topics of Variables + Data Types, Conditionals, Loops, Functions, Parameters, and Arrays.
Optional Week 2 Programming Basics HTML and CSS Basics	Lecture:  • Intro to HTML  • HTML + Intro to CSS  Labs:  • Assignments covering the topics of HTML and CSS
Week 1 Web Fundamentals HTML and CSS	Lecture:
Week 2 Web Fundamentals Javascript	Lecture:

	Assignments covering the topics of Javascript DOM and exam reviews
	Exam: HTML/CSS/JS (recreating webpage using HTML/CSS/JS)
Week 3 Python Intro to Python and Flask	Lecture:  Intro to Python OOP Intro to Flask - Routing Flask Session & Post Labs:  Assignments covering the topics of intro to Python, OOP, and Flask
Week 4 <b>Python</b> MySQL Database	Lecture:
Week 5 <b>Python</b> Validations and Exam Review	Lecture:  • Flask + MySQL: Validations • Belt Review • Optional - AJAX • Projects / Exam Retakes  Labs: • Assignments covering the topics of validations and exam review  Exam: Python/Flask/MySQL (recreating functioning website wireframe using Python, Flask, and a MySQL Database)
Week 6 Python Retakes and Project Presentations	Lecture:     • Projects / Exam Retakes     • Project Presentations Labs:     • Wrapping up any pending assignments in stack, optional content, and project work.
Week 7 MERN Javascript and React	Lecture:  Intro to JS  JavaScript OOP  React Intro / Class Components  Functional Components / useState  Creating React / Lifting State

	<ul> <li>Labs:         <ul> <li>Assignments covering the topics of Javascript, OOP, and React</li> </ul> </li> </ul>
Week 8 MERN React, Express and MongoDB	Lecture:  • useEffect • React Routing • Express • MongoDB & Mongoose  Labs: • Assignments covering the topics of React Routing, Express, MongoDB and Mongoose
Week 9 MERN Fullstack and Exam Review	Lecture:  • Fullstack Part 1 • Fullstack Part 2 • Fullstack Part 3 • Exam Review  Labs: • Assignments covering the topics of Full Stack MERN builds and exam review  Exam: Node/Express/React/Mongo (recreating functioning website wireframe using Node, Express, React, and a Mongo Database)
Week 10 MERN Retakes and Project Presentations	Lecture:     • Projects / Exam Retakes     • Project Presentations Labs:     • Wrapping up any pending assignments in stack, optional content, and project work.
Week 11  Java Intro to Java and Spring	Lecture:  • Intro to Java • OOP + Access Mod • OOP Advanced • Intro to Spring Labs: • Assignments covering the topics of Intro to Java, OOP, and intro to Spring
Week 12 <b>Java</b> Spring, MySQL, and Java Fullstack	Lecture: <ul> <li>Forms, Session, DB Intro</li> <li>Spring Data API &amp; Rendering</li> <li>Full-Stack CRUD</li> <li>Relationships</li> <li>Login &amp; Reg + Full Spring</li> </ul>

	<ul> <li>Assignments covering the topics of Session and         Databases, Spring Data, CRUD, Relationships, and         Login/Registration with Spring     </li> </ul>
Week 13 <b>Java</b> Exam Review	Lecture:  • Many-to-Many • Belt Review • Advanced Queries + Projects & Re-takes Labs: • Assignments covering the topics of many-to-many relationships and exam review  Exam: Java/Spring/MySQL (recreating functioning website wireframe using Java, Spring, and a MySQL Database)
Week 14 Java Retakes and Project Presentations	Lecture:     • Projects / Exam Retakes     • Project Presentations Labs:     • Wrapping up any pending assignments in stack, optional content, and project work.
Alternate Week 11  C#/.NET Core Intro to C# and .NET Core	Lecture:  Intro, syntax OOP OOP Abstract & Interface ASP.NET Core MVC ASP.NET Core II - View Models Labs: Assignments covering the topics of intro to C#, OOP, and ASP.NET Core
Alternate Week 12 <b>C#/.NET Core</b> Intro to Entity Framework	Lecture:      Session     LINQ     Entity Framework ORM Intro     EF Log Reg     EF One to Many  Labs:      Assignments covering the topics of session, LINQ, and Entity Framework ORM
Alternate Week 13 <b>C#/.NET Core</b> Exam Review	Lecture:     • Full Stack     • Belt Review     • Deployment Labs:

	<ul> <li>Assignments covering the topics of Full Stack C# builds and exam review</li> <li>Exam: C#/.NET Core/Entity (recreating functioning website wireframe using C#, .NET COre, and an Entity Framework Database)</li> </ul>
Alternate Week 14 C#/.NET Core Retakes and Project Presentations	Lecture:     • Projects / Exam Retakes     • Project Presentations  Labs:     • Wrapping up any pending assignments in stack, optional content, and project work.

## J. Method(s) of Instruction

Instruction consists of Instructor-led lectures and the utilization of an online learning platform, group exercises, remote and onsite assistance, assignment feedback, belt exams and projects. Students access their learning materials through a web-based dashboard at login.codingdojo.com.

Instruction is synchronously provided in person. After hours TA support is provided via online assistance through the Discord application.

## K. Method(s) of Assessment

Assessments require students to demonstrate proficiency against the assigned competencies via a project-based deliverable. Instructors deliver exams to the class via the LMS based on Section I: Course Schedule. Students access exams via our LMS. Student submissions are evaluated using a proficiency-based rubric aligned to the stack's competencies, so that by the end of the program, students will be assessed on all program competencies.

#### Exam Grading Scale

Belt exams are used to assess a student's progress during the program. These exams are timed in order to assess if a student is able to build an application within the allotted time frame.

The Software Development Onsite Full-Time exams are given a five (5) hour time limit. Grades provided for belt exams are between 1-10. Grading system:

10.0 - Perfect (100%)

9.5 - Near Perfect (95%)

9.0 - Very Good (90%)

8.5 – Good (85%)

8.0 - Pretty Good (80%)

Below 8.0 - Fail

#### Exam Rubrics

Please see Appendix A for all Software Development exam rubrics.

## L. Attendance Policy

Daily attendance is taken by Coding Dojo instructional staff. Students are required to be present for a minimum of 80% of class course hours for each stack. Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation.

## M. Graduation Requirements

To qualify for graduation, students must meet the following criteria:

- Tuition paid in full or validated coverage by third party
- Meet the following Completion criteria:
  - Complete 90% or more of core assignments in each stack
  - At or greater than 80% attendance in each stack
    - Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation; a maximum of 10% excused absences is allotted.
- Receive a Yellow Belt in Web Fundamentals (Yellow = score of 8.0 or higher)
- Receive a Red Belt (or better) in Python (Red = score of 8.0 or higher)
- Receive a Red Belt (or better) in at least 1 additional stack (Red = score of 8.0 or higher) and meet completion requirements in the other stack.

# 2. Software Development Online Full-Time

## A. Program Description

In the Software Development Online Full-Time program, students master the fundamental building blocks of web and software development. Students learn the same skills as onsite they learn the basics of how the web works, front-end development, back-end development, and database development; thus, making them highly valuable as an entry-level software developer. Beginning with an introduction to web fundamentals, students learn basic HTML, CSS, and JavaScript to design and manipulate user interfaces. Then, students explore a set of popular back-end languages and technologies to master the request-response cycle to manage and manipulate data. By the end of the program, students will have gained the necessary skills to become an entry-level developer.

## **B. Program Competencies**

The following are the competencies for each "stack" of the program.

#### **OPTIONAL PREP COURSE**

## **Programming Basics**

By the end of Programming basics, students should be able to

- Complete basic computer tasks, such as zipping a file, installing software, and joining an online meeting.
- Make outcome predictions that use the following programming concepts: conditionals, functions, loops.
- Use best practices for coding
- Explain the most common data concepts in programming, such as variables and arrays.
- Use the most common HTML elements such as tags, lists, divs, and forms.
- Explain the basic concepts of CSS, such as its relation to HTML, selectors, and properties.
- Apply learning skills to improve learning capabilities

#### **REQUIRED STACKS**

## Web Fundamentals:

By the end of the Web Fundamentals, students should be able to

- Manage files and folders using version control tools
- Create webpage content using HTML
- Create webpage layout and styling using HTML and CSS.
- Apply common programming concepts using JavaScript.

• Enable webpage interactivity using JavaScript

## **Python:**

By the end of the Python stack, students should be able to:

- Apply common programming concepts using Python
- Apply object-oriented programming concepts in Python.
- Create Back-End Flask applications w/o the use of a Database
- Analyze basic data requirements and construct Entity Relationship Diagrams (ERDs).
- Create and query a MySQL Database
- Create a Full-Stack Application using Flask + MySQL
- Build a Login/Registration system complete with validations

#### **MERN:**

By the end of the MERN stack, students should be able to:

- Apply common programming concepts using JavaScript.
- Create React Components using APIs and Routing
- Create Express applications with API integration
- Create MongoDB Databases accessible via the MongoDB's shell and Mongoose API
- Create full stack applications using React, Express and MongoDB
- Integrate Socket.io into Express, React applications.

#### STUDENTS MAY TAKE JAVA OR C#/.NET CORE

#### Java:

By the end of the Java stack, students should be able to

- Apply common programming concepts using Java
- Apply object-oriented programming concepts in Java
- Create server-side rendering applications w/ back-end logic
- Design and Manipulate a MySQL Database using JPA and Models
- Create full-stack MVC applications

## C#/.NET Core:

By the end of the C# stack, students should be able to

- Apply common programming concepts using C#
- Apply object-oriented programming concepts in C#
- Create Back-End .NET Core applications w/o the use of a Database
- Create Basic Full-Stack Applications using .NET Core MVC Patterns

Create Advanced Full-Stack Applications using .NET Core MVC Patterns & ORM

## **Program Algorithms:**

Algorithms are taught during each class day throughout the program. Cadence may vary depending on the progress of the students. By the end of of the program, students should be able to

- Create, fetch, and manipulate values within Arrays
- Create, fetch characters, and manipulate Strings while learning immutability
- Create key-value pairs within Dictionaries and leverage their keys to store occurrences, use mapping, and solve word problems
- Use OOP fundamentals and the concept of references and pointers to build, traverse, and manipulate Singly Linked Lists
- Use OOP fundamentals to build, traverse (breadth and depth), manipulate, find and count nodes, etc. in Binary Trees + Binary Search Trees
- Sorting Arrays using Bubble, Insertion, Selection sort
- Sorting Arrays recursively with Quicksort and Mergesort
- Find a value within a large array using Binary Search

## C. Length

560 Hours (14 Weeks, 40 hours per week)

#### **D. Course Hours**

Lecture: 210 hrs completed in virtual group meeting via zoom three times daily, approximately 1 hour each.

Lab: 350 hrs completed individually or in groups. Instructional staff provide oversight, guidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student.

#### E. Time

Lab Time: Monday - Friday, 8:30am - 5:30pm

Lecture Time: Monday - Friday, 9am - 11am and 2pm - 3pm

TA Availability: Monday - Friday, 2pm - 7pm

(Time Zone dependent on location)

## F. Admissions Prerequisites

- High School Diploma or equivalent
- Proficient in English Language

## G. Technology Requirements (not provided by Coding Dojo)

- Personal Laptop/Computer
  - o 30GB minimum, 40 recommended available HD space

- o 8GB RAM MINIMUM (16GB recommended)
- Stable High-Speed Internet Connection
- Modern web browser such as Firefox, Chrome, Edge or Safari
- Complete prep-work before day-1 of class
- Mic and Webcam (religious or personal objections may be discussed in enrollment)

## H. Required Materials and Textbook(s)

No textbook required. All learning materials provided by Coding Dojo via the Learn platform (LMS).

## I. Course Schedule

Optional Week 1 Programming Basics Algorithm Basics	<ul> <li>Lecture: <ul> <li>Intro, Variables + Data Types</li> <li>Conditionals</li> <li>Loops</li> <li>Functions + Parameters</li> <li>Arrays</li> </ul> </li> <li>Labs: <ul> <li>Assignments covering the topics of Variables + Data Types, Conditionals, Loops, Functions, Parameters, and Arrays.</li> </ul> </li> </ul>
Optional Week 2 Programming Basics HTML and CSS Basics	Lecture:  • Intro to HTML  • HTML + Intro to CSS  Labs:  • Assignments covering the topics of HTML and CSS
Week 1 Web Fundamentals HTML and CSS	Lecture:
Week 2 Web Fundamentals Javascript	Lecture:

	Assignments covering the topics of Javascript DOM and exam reviews
	Exam: HTML/CSS/JS (recreating webpage using HTML/CSS/JS)
Week 3 Python Intro to Python and Flask	Lecture:  Intro to Python OOP Intro to Flask - Routing Flask Session & Post Labs:  Assignments covering the topics of intro to Python, OOP, and Flask
Week 4 <b>Python</b> MySQL Database	Lecture:
Week 5 <b>Python</b> Validations and Exam Review	Lecture:  • Flask + MySQL: Validations • Belt Review • Optional - AJAX • Projects / Exam Retakes  Labs: • Assignments covering the topics of validations and exam review  Exam: Python/Flask/MySQL (recreating functioning website wireframe using Python, Flask, and a MySQL Database)
Week 6 Python Retakes and Project Presentations	Lecture:     • Projects / Exam Retakes     • Project Presentations Labs:     • Wrapping up any pending assignments in stack, optional content, and project work.
Week 7 MERN Javascript and React	Lecture:  Intro to JS  JavaScript OOP  React Intro / Class Components  Functional Components / useState  Creating React / Lifting State

	<ul> <li>Labs:         <ul> <li>Assignments covering the topics of Javascript, OOP, and React</li> </ul> </li> </ul>
Week 8 MERN React, Express and MongoDB	Lecture:  • useEffect • React Routing • Express • MongoDB & Mongoose  Labs: • Assignments covering the topics of React Routing, Express, MongoDB and Mongoose
Week 9 MERN Fullstack and Exam Review	Lecture:  • Fullstack Part 1 • Fullstack Part 2 • Fullstack Part 3 • Exam Review  Labs: • Assignments covering the topics of Full Stack MERN builds and exam review  Exam: Node/Express/React/Mongo (recreating functioning website wireframe using Node, Express, React, and a Mongo Database)
Week 10 MERN Retakes and Project Presentations	Lecture:     • Projects / Exam Retakes     • Project Presentations Labs:     • Wrapping up any pending assignments in stack, optional content, and project work.
Week 11  Java Intro to Java and Spring	Lecture:  • Intro to Java • OOP + Access Mod • OOP Advanced • Intro to Spring  Labs:  • Assignments covering the topics of Intro to Java, OOP, and intro to Spring
Week 12 <b>Java</b> Spring, MySQL, and Java Fullstack	Lecture:     Forms, Session, DB Intro     Spring Data API & Rendering     Full-Stack CRUD     Relationships     Login & Reg + Full Spring

	<ul> <li>Assignments covering the topics of Session and Databases, Spring Data, CRUD, Relationships, and Login/Registration with Spring</li> </ul>
Week 13 <b>Java</b> Exam Review	Lecture:  • Many-to-Many • Belt Review • Advanced Queries + Projects & Re-takes Labs: • Assignments covering the topics of many-to-many relationships and exam review  Exam: Java/Spring/MySQL (recreating functioning website wireframe using Java, Spring, and a MySQL Database)
Week 14 Java Retakes and Project Presentations	Lecture:     • Projects / Exam Retakes     • Project Presentations Labs:     • Wrapping up any pending assignments in stack, optional content, and project work.
Alternate Week 11  C#/.NET Core Intro to C# and .NET Core	Lecture:  Intro, syntax OOP OOP Abstract & Interface ASP.NET Core MVC ASP.NET Core II - View Models Labs: Assignments covering the topics of intro to C#, OOP, and ASP.NET Core
Alternate Week 12 <b>C#/.NET Core</b> Intro to Entity Framework	Lecture:      Session     LINQ     Entity Framework ORM Intro     EF Log Reg     EF One to Many  Labs:      Assignments covering the topics of session, LINQ, and Entity Framework ORM
Alternate Week 13 <b>C#/.NET Core</b> Exam Review	Lecture:  • Full Stack • Belt Review • Deployment Labs:

	<ul> <li>Assignments covering the topics of Full Stack C# builds and exam review</li> <li>Exam: C#/.NET Core/Entity (recreating functioning website wireframe using C#, .NET COre, and an Entity Framework Database)</li> </ul>
Alternate Week 14 C#/.NET Core Retakes and Project Presentations	Lecture:     • Projects / Exam Retakes     • Project Presentations  Labs:     • Wrapping up any pending assignments in stack, optional content, and project work.

## J. Method(s) of Instruction

Instruction consists of instructor-led lectures and the utilization of an online learning platform, group exercises, remote assistance, assignment feedback, belt exams and projects. Students access their learning materials through a web-based dashboard at login.codingdojo.com.

Instruction is fully online with a blend of synchronous lectures and asynchronous labs. Lectures are synchronously provided online and recorded for asynchronous access later. After hours TA support is provided via online assistance through the Discord application.

## K. Method(s) of Assessment

Assessments require students to demonstrate proficiency against the assigned competencies via a project-based deliverable. Instructors deliver exams to the class via the LMS based on Section I: Course Schedule. Students access exams via our LMS. Student submissions are evaluated using a proficiency-based rubric aligned to the stack's competencies, so that by the end of the program, students will be assessed on all program competencies.

## Exam Grading Scale

Belt exams are used to assess a student's progress during the program. These exams are timed in order to assess if a student is able to build an application within the allotted time frame.

The Software Development Online Full-Time exams are given a five (5) hour time limit. Grades provided for belt exams are between 1-10. Grading system:

10.0 - Perfect (100%) 9.5 - Near Perfect (95%) 9.0 - Very Good (90%) 8.5 – Good (85%) 8.0 - Pretty Good (80%) Below 8.0 – Fail

## **Exam Rubrics**

Please see Appendix A for all Software Development exam rubrics.

## L. Attendance Policy

Daily attendance is taken three times a day (sessions): once during morning algorithms, once following the main lecture, and once in the afternoon. Students are required to be present for a minimum of 80% of class course hours for each stack. Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation.

## M. Graduation Requirements

To qualify for graduation, students must meet the following criteria:

- Tuition paid in full or validated coverage by third party
- Meet the following Completion criteria:
  - o Complete 90% or more of core assignments in each stack
  - At or greater than 80% attendance in each stack
    - Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation; a maximum of 10% excused absences is allotted.
- Receive a Yellow Belt in Web Fundamentals
- Receive a Red Belt (or better) in Python
- Receive a Red Belt (or better) in at least 1 additional stack <u>and</u> meet completion requirements in the other stack.

# 3. Software Development Online Part-Time Accelerated

## A. Program Description

In the Software Development Online Part-Time Accelerated program, students master the fundamental building blocks of web and software development. Students learn the basics of how the web works, front-end development, back-end development, and database development; thus, making them highly valuable as an entry-level software developer. Students select either one, two, or three stack bundles as their program of study. Beginning with an introduction to web fundamentals, students learn basic HTML, CSS, and JavaScript to design and manipulate user interfaces. Then, based on the number of stacks they selected, students explore one, two, or three popular back-end languages and technologies to master the request-response cycle to manage and manipulate data. By the end of the program, students will have gained the necessary skills to become an entry-level developer.

This program is Ideal for students interested in web development who cannot attend the onsite program.

## **B. Program Competencies**

The following are the competencies for each "stack" of the program.

#### REQUIRED STACKS

## Web Fundamentals:

By the end of the Web Fundamentals, students should be able to

- Manage files and folders using version control tools
- Create webpage content using HTML
- Create webpage layout and styling using HTML and CSS.
- Apply common programming concepts using JavaScript.
- Enable webpage interactivity using JavaScript

## **Projects & Algorithms:**

By the end of Projects & Algorithms, students should be able to

- Create, fetch, and manipulate values within Arrays
- Create, fetch characters, and manipulate Strings while learning immutability
- Create key-value pairs within Dictionaries and leverage their keys to store occurrences, use mapping, and solve word problems
- Use OOP fundamentals and the concept of references and pointers to build, traverse, and manipulate Singly Linked Lists

- Use OOP fundamentals to build, traverse (breadth and depth), manipulate, find and count nodes, etc. in Binary Trees + Binary Search Trees
- Sorting Arrays using Bubble, Insertion, Selection sort
- Sorting Arrays recursively with Quicksort and Mergesort
- Find a value within a large array using Binary Search

#### STUDENTS MAY CHOOSE BETWEEN 1 AND 3 OF THE FOLLOWING STACKS

## **Python:**

By the end of the Python stack, students should be able to:

- Apply common programming concepts using Python
- Apply object-oriented programming concepts in Python.
- Create Back-End Flask applications w/o the use of a Database
- Analyze basic data requirements and construct Entity Relationship Diagrams (ERDs).
- Create and query a MySQL Database
- Create a Full-Stack Application using Flask + MySQL
- Build a Login/Registration system complete with validations

#### **MERN:**

By the end of the MERN stack, students should be able to:

- Apply common programming concepts using JavaScript.
- Create React Components using APIs and Routing
- Create Express applications with API integration
- Create MongoDB Databases accessible via the MongoDB's shell and Mongoose API
- Create full stack applications using React, Express and MongoDB
- Integrate Socket.io into Express, React applications.

#### Java:

By the end of the Java stack, students should be able to

- Apply common programming concepts using Java
- Apply object-oriented programming concepts in Java
- Create server-side rendering applications w/ back-end logic
- Design and Manipulate a MySQL Database using JPA and Models
- Create full-stack MVC applications

#### C. Length

Option 1: 320 hrs (16 weeks, 20hrs per week) (Web Fundamentals, One (1) Full Stack, Projects and Algorithms)

Option 2: 480 hrs (24 weeks, 20hrs per week) (Web Fundamentals, Two (2) Full Stacks, Projects and Algorithms)

Option 3: 640 hrs (32 weeks, 20hrs per week) (Web Fundamentals, Three (3) Full Stacks, Projects and Algorithms)

#### **D. Course Hours**

## Option 1:

Lecture: 32 hrs completed in virtual group meeting via zoom twice a week, approximately 1 hour each.

Lab: 288 hrs completed individually or in groups. Instructional staff provide oversight, quidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student.

## Option 2:

Lecture: 48 hrs completed in virtual group meeting via zoom twice a week, approximately 1 hour each.

Lab: 432 hrs completed individually or in groups. Instructional staff provide oversight, quidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student.

#### Option 3:

Lecture: 64 hrs completed in virtual group meeting via zoom twice a week, approximately 1 hour each.

Lab: 576 hrs completed individually or in groups. Instructional staff provide oversight, guidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student.

#### E. Time

Lab Time: Students are expected to complete 18 hrs of lab time each week. Open lab hours where TAs are available are Monday - Friday 11am - 8pm PT; Saturday - Sunday 8am - 6pm PT.

Lecture Time: Monday/Wednesday or Tuesday/Thursday 5pm - 6pm PT

## F. Admissions Prerequisites

- High School Diploma or equivalent
- Proficient in English Language

## G. Technology Requirements (not provided by Coding Dojo)

- Personal Laptop/Computer
  - o 30GB minimum, 40 recommended available HD space
  - 8GB RAM MINIMUM (16GB recommended)
- Stable High-Speed Internet Connection
- Modern web browser such as Firefox, Chrome, Edge or Safari
- Complete prep-work before day-1 of class

• Mic and Webcam (religious or personal objections may be discussed in enrollment)

# H. Required Materials and Textbook(s)

No textbook required. All learning materials provided by Coding Dojo via the Learn platform (LMS).

## I. Course Schedule

Week 1 Web Fundamentals HTML and CSS	Lecture:
Week 2 Web Fundamentals CSS and Javascript	Lecture:  • Layout and Flex • JS Basics and Events  Labs:  • Assignments covering the topics of CSS Layouts and Intro to JS
Week 3 Web Fundamentals Javascript and Exam Review	Lecture:      Loops and Conditionals     Belt Review  Labs:     Assignments covering the topics of intro to Javascript algorithms and exam reviews  Exam: HTML/CSS/JS (recreating webpage using HTML/CSS/JS)
Week 4 Web Fundamentals Full Stack Key Tools	Lecture:
Week 5 <b>Python</b> Intro to Python	Lecture:

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Week 6 Python Python OOP	Lecture:
Week 7 Python Intro to Flask	Lecture:
Week 8 <b>Python</b> Intro to MySQL Database	Lecture:
Week 9 Python Flask + DB	Lecture:
Week 10 Python Validations and Exam Review	Lecture:
Week 11  Python  Retakes and  Optionals	Lecture:  • Exam Retakes  • APIs & AJAX  • AJAX & Flask  Labs:  • Wrapping up any pending assignments in stack, optional content, and retakes
Week 12  Python  Retakes and Optionals	Lecture:  • Exam Retakes  • AJAX & Flask  • Next Stack Prep

	<ul> <li>Labs:</li> <li>Wrapping up any pending assignments in stack, optional content, and retakes</li> </ul>
Alternate Week 5 MERN Intro to Javascript	Lecture:
Alternate Week 6  MERN  React	Lecture:     • Intro to React     • Functional Components Labs:     • Assignments covering the topics intro to React and functional components
Alternate Week 7  MERN  React	Lecture:     • Functional Components     • APIs Labs:     • Assignments covering the topics of functional components and APIs
Alternate Week 8 MERN React Routing and Express	Lecture:
Alternate Week 9 MERN Mongo DB and Fullstack	Lecture:  • MongoDB  • Full Stack MERN  Labs:  • Assignments covering the topics of MongoDB and Full Stack MERN
Alternate Week 10 <b>MERN</b> Fullstack and Exam Review	Lecture:     • Full Stack MERN     • Exam Review Labs:     • Assignments covering the topics of Full stack MERN and exam reviews

	Exam: Node/Express/React/Mongo (recreating functioning website wireframe using Node, Express, React, and a Mongo Database)
Alternate Week 11  MERN  Retakes and  Optionals	Lecture: <ul> <li>Exam Retakes</li> <li>OOP - Classes</li> <li>OOP - Components and Conversion to Legacy React</li> </ul> <li>Labs:         <ul> <li>Wrapping up any pending assignments in stack, optional content, and retakes</li> </ul> </li>
Alternate Week 12 MERN Retakes and Optionals	Lecture:  • Exam Retakes • Login and Registration • Auth/Multiple Schemas/Local State/Socket.io  Labs: • Wrapping up any pending assignments in stack, optional content, and retakes
Alternate week 5  Java Intro to Java	Lecture:
Alternate week 6  Java  Java OOP	Lecture:
Alternate week 7  Java Intro to Spring	Lecture: <ul> <li>Intro to Spring Boot</li> <li>MVC and Requests/Routing</li> <li>Templating</li> <li>POST and Session</li> </ul> <li>Labs:         <ul> <li>Assignments covering the topics of Spring Boot, MVC, requests/routing, templating, POST, and Session</li> </ul> </li>
Alternate week 8  Java  Database Integration	Lecture:

	<ul> <li>Assignments covering the topics of database integration between MySQL and Java</li> </ul>
Alternate Week 9 <b>Java</b> Relationships	Lecture:
Alternate Week 10 <b>Java</b> Fullstack and Exam Review	Lecture:  • Many-to-Many • Login/Registration • Validations and Authentication • Belt Review  Labs: • Assignments covering the topics of relationships, login/registration, validation, and exam reviews  Exam: Java/Spring/MySQL (recreating functioning website wireframe using Java, Spring, and a MySQL Database)
Alternate Week 11  Java  Retakes and Optionals	Lecture:      Exam Retakes     JPQL Queries     Advanced SQL Queries     Deployment Labs:     Wrapping up any pending assignments in stack, optional content, and retakes
Alternate Week 12 <b>Java</b> Retakes and Optionals	Lecture: <ul> <li>Exam Retakes</li> <li>Intro to Algorithms</li> </ul> <li>Labs:         <ul> <li>Wrapping up any pending assignments in stack, optional content, and retakes</li> </ul> </li>
Week 13 Projects and Algorithms	Lecture:

Week 14 Projects and Algorithms	Lecture: <ul> <li>Singly Linked Lists</li> <li>Group Github</li> <li>Solo Project</li> </ul> <li>Labs:         <ul> <li>Assignments covering the topics of git/github and singly linked lists; solo project work and group formations</li> </ul> </li>
Week 15 Projects and Algorithms	Lecture:
Week 16 Projects and Algorithms	Lecture:

## J. Method(s) of Instruction

Instruction consists of Instructor-led lectures and the utilization of an online learning platform, group exercises, remote assistance, assignment feedback, belt exams and projects. Students access their learning materials through a web-based dashboard at login.codingdojo.com.

Instruction is a blend of synchronous lectures and asynchronous labs. Lectures are synchronously provided online as well as recorded for asynchronous access. After hours TA support is provided via online assistance through Discord.

## K. Method(s) of Assessment

Assessments require students to demonstrate proficiency against the assigned competencies via a project-based deliverable. Instructors deploy exams to the class via the LMS based on Section I: Course Schedule. Students access exams via our LMS. Student submissions are evaluated using a proficiency-based rubric aligned to the stack's competencies, so that by the end of the program, students will be assessed on all program competencies.

## Exam Grading Scale

Belt exams are used to assess a student's progress during the program. These exams are timed in order to assess if a student is able to build an application within the allotted time frame.

The Software Development Online Part-Time Accelerated exams are given a twenty-four (24) hour time limit. Grades provided for belt exams are between 1-10. Grading system:

10.0 - Perfect (100%) 9.5 - Near Perfect (95%) 9.0 - Very Good (90%) 8.5 - Good (85%) 8.0 - Pretty Good (80%) Below 8.0 - Fail

#### **Exam Rubrics**

Please see Appendix A for all Software Development exam rubrics.

## L. Attendance Policy

Every week, two discussion questions in the Part-Time Accelerated programs will be posted to the online forum. Students log in and post to the Online Learning Platform and contribute to the online forum question in order to receive attendance credit for that question. Questions are open for one (1) week from Monday 12:00am PST through Sunday 11:59pm based on the Pacific Time zone.

Students are required to maintain a minimum of 80% attendance for each stack, as measured by the discussion participation.

## M. Graduation Requirements

To qualify for graduation, students must meet the following criteria:

- Tuition paid in full or validated coverage by third party
- Meet the following Completion criteria:
  - o Complete 90% or more of core assignments in each stack
  - At or greater than 80% discussion guestions in each stack
  - Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation; a maximum of 10% excused absences is allotted.
- Receive a Yellow Belt in Web Fundamentals
- Receive a Orange Belt (or better) in First Full Stack
- Meet Completion criteria in any bundled stacks
- Completion of Projects & Algorithms

# 4. Software Development Online Part-Time Flex

## A. Program Description

The Software Development Online Part-Time Flex program is a flexible alternative that provides online access to Web Fundamentals, one full stack, and Projects and Algorithms.

In the Software Development Online Part-Time Flex program, students master the fundamental building blocks of web and software development. Students learn the basics of how the web works, front-end development, back-end development, and database development; thus, making them highly valuable as an entry-level software developer. Beginning with an introduction to web fundamentals, students learn basic HTML, CSS, and JavaScript to design and manipulate user interfaces. Then, students explore one popular back-end language and technology to master the request-response cycle to manage and manipulate data. By the end of the program, students will have gained the necessary skills to become an entry-level developer.

Ideal for students interested in web development who cannot attend the dedicated hours necessary for Full-Time or the Part-Time Accelerated.

## **B. Program Competencies**

The following are the competencies for each "stack" of the program.

## **REQUIRED STACKS**

#### Web Fundamentals:

By the end of the Web Fundamentals, students should be able to

- Manage files and folders using version control tools
- Create webpage content using HTML
- Create webpage layout and styling using HTML and CSS.
- Apply common programming concepts using JavaScript.
- Enable webpage interactivity using JavaScript

## **Python:**

By the end of the Python stack, students should be able to:

- Apply common programming concepts using Python
- Apply object-oriented programming concepts in Python.
- Create Back-End Flask applications w/o the use of a Database
- Analyze basic data requirements and construct Entity Relationship Diagrams (ERDs).

- Create and query a MySQL Database
- Create a Full-Stack Application using Flask + MySQL
- Build a Login/Registration system complete with validations

## **Projects & Algorithms:**

By the end of Projects & Algorithms, students should be able to

- Create, fetch, and manipulate values within Arrays
- Create, fetch characters, and manipulate Strings while learning immutability
- Create key-value pairs within Dictionaries and leverage their keys to store occurrences, use mapping, and solve word problems
- Use OOP fundamentals and the concept of references and pointers to build, traverse, and manipulate Singly Linked Lists
- Use OOP fundamentals to build, traverse (breadth and depth), manipulate, find and count nodes, etc. in Binary Trees + Binary Search Trees
- Sorting Arrays using Bubble, Insertion, Selection sort
- Sorting Arrays recursively with Quicksort and Mergesort
- Find a value within a large array using Binary Search

## C. Length

280 hrs (28 weeks, 10hrs per week)

#### **D. Course Hours**

Lecture: 28 hrs completed in virtual group meeting via zoom once a week, approximately 1 hour each.

Lab: 252 hrs completed individually or in groups. Instructional staff provide oversight, guidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student.

#### E. Time

Lab Time: Students are expected to complete 9 hrs of lab time each week. Open lab hours where TAs are available are Monday - Friday 11am - 8pm PT; Saturday - Sunday 8am - 6pm PT.

Lecture Time: Once per week (Monday - Thursday, day varies) 5pm - 6pm PT

## F. Admissions Prerequisites

- High School Diploma or equivalent
- Proficient in English Language

## G. Technology Requirements (not provided by Coding Dojo)

- Personal Laptop/Computer
  - o 30GB minimum, 40 recommended available HD space

- 8GB RAM MINIMUM (16GB recommended)
- Stable High-Speed Internet Connection
- Modern web browser such as Firefox, Chrome, Edge or Safari
- Complete prep-work before day-1 of class
- Mic and Webcam (religious or personal objections may be discussed in enrollment)

## H. Required Materials and Textbook(s)

No textbook required. All learning materials provided by Coding Dojo via the Learn platform (LMS).

## I. Course Schedule

Week 1 Web Fundamentals HTML	Lecture:  • HTML Labs:  • Assignments covering the topics of intro to HTML
Week 2 Web Fundamentals CSS	Lecture:
Week 3 Web Fundamentals CSS Con't	Lecture:
Week 4 Web Fundamentals CSS Con't	Lecture:     • Position Labs:     • Assignments covering the topics of CSS positioning
Week 5 Web Fundamentals Javascript and Exam Review	Lecture:      Javascript in Browser     Belt Reviewer  Labs:     Assignments covering the topics of intro to javascript and exam reviews
Week 6 Web Fundamentals Javascript and Exam Review	Lecture:  • Intro to DOM  • Belt Reviewer  Labs:

	Assignments covering the topics of intro to DOM and exam reviews  Exam: HTML/CSS/JS (recreating webpage using HTML/CSS/JS)
Week 7 Web Fundamentals Full Stack Key Tools	<ul> <li>Lecture: <ul> <li>Terminal and Git</li> <li>Exam Retakes</li> </ul> </li> <li>Labs: <ul> <li>Wrapping up any pending assignments in stack, optional content, and retakes</li> </ul> </li> </ul>
Week 8 Web Fundamentals Full Stack Key Tools	Lecture:
Week 9 Python Intro to Python	Lecture:     • Python Fundamentals Labs:     • Assignments covering the topics of intro to Python
Week 10 Python Intro to Python	Lecture:     • Functions and Dictionaries Labs:     • Assignments covering the topics of intro to Python
Week 11 Python Python OOP	Lecture:
Week 12 Python Python OOP	Lecture:
Week 13  Python  Intro to Flask	Lecture:  • Intro to Flask  Labs:  • Assignments covering the topics of intro to Flask
Week 14 Python	Lecture:  • Flask forms and session

Intro to Flask	<ul><li>Labs:</li><li>Assignments covering the topics of Flask forms and session</li></ul>
Week 15 <b>Python</b> Intro to MySQL Database	Lecture:
Week 16 Python Intro to MySQL Database	Lecture:  • MySQL Queries  Labs:  • Assignments covering the topics of MySQL Queries
Week 17 Python Flask + DB	Lecture:
Week 18 Python Flask + DB	Lecture:
Week 19 Python Validations	Lecture:
Week 20 <b>Python</b> Validations	Lecture:  • Login and Registration w/ Validations Labs:  • Assignments covering the topics of login/registration
Week 21 <b>Python</b> Exam Review	Lecture:
Week 22 <b>Python</b>	Lecture:  • Full Stack Flask (w/ Many-to-Many relationships)

Exam Review  Week 23 Python Retakes and Optionals	<ul> <li>Belt Review</li> <li>Labs:         <ul> <li>Assignments covering the topics of intro to full stack and exam reviews</li> </ul> </li> <li>Exam: Python/Flask/MySQL (recreating functioning website wireframe using Python, Flask, and a MySQL Database)</li> <li>Lecture:         <ul> <li>Exam Retakes</li> <li>APIs &amp; AJAX</li> </ul> </li> <li>Labs:         <ul> <li>Wrapping up any pending assignments in stack,</li> </ul> </li> </ul>
Week 24 <b>Python</b> Retakes and Optionals	optional content, and retakes  Lecture:  Exam Retakes AJAX & Flask Next Stack Prep Labs:  Wrapping up any pending assignments in stack, optional content, and retakes
Week 25 Projects and Algorithms	Lecture:
Week 26 Projects and Algorithms	Lecture: <ul> <li>Singly Linked Lists</li> <li>Solo Project</li> </ul> <li>Labs:         <ul> <li>Assignments covering the topics of singly linked lists; solo project work</li> </ul> </li>
Week 27 Projects and Algorithms	Lecture:
Week 28 Projects and Algorithms	Lecture:

<ul> <li>Assignments covering the topics of binary search trees; solo project work</li> </ul>
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### J. Method(s) of Instruction

Instruction consists of Instructor-led lectures and the utilization of an online learning platform, group exercises, remote assistance, assignment feedback, belt exams and projects. Students access their learning materials through a web-based dashboard at login.codingdojo.com.

Instruction is a blend of synchronous lectures and asynchronous labs. Lectures are synchronously provided online as well as recorded for asynchronous access. After hours TA support is provided via online assistance through Discord.

# K. Method(s) of Assessment

Assessments require students to demonstrate proficiency against the assigned competencies via a project-based deliverable. Instructors deploy exams to the class via the LMS based on Section I: Course Schedule. Students access exams via our LMS. Student submissions are evaluated using a proficiency-based rubric aligned to the stack's competencies, so that by the end of the program, students will be assessed on all program competencies.

#### Exam Grading Scale

Belt exams are used to assess a student's progress during the program. These exams are timed in order to assess if a student is able to build an application within the allotted time frame.

The Software Development Online Part-Time Flex exams are given a twenty-four (24) hour time limit. Grades provided for belt exams are between 1-10. Grading system:

10.0 - Perfect (100%)

9.5 - Near Perfect (95%)

9.0 - Very Good (90%)

8.5 – Good (85%)

8.0 - Pretty Good (80%)

Below 8.0 - Fail

#### **Exam Rubrics**

Please see Appendix A for all Software Development exam rubrics.

#### L. Attendance Policy

Every week, one discussion question in the Part-Time Flex program will be posted to the online forum. Students log in and post to the Online Learning Platform and contribute to the online forum question in order to receive attendance credit for that question. Questions are open for one (1) week from Monday 12:00am PST through Sunday 11:59pm based on the Pacific Time zone.

Students are required to maintain a minimum of 80% attendance for each stack, as measured by the discussion participation.

### M. Graduation Requirements

To qualify for graduation, students must meet the following criteria:

- Tuition paid in full or validated coverage by third party
- Meet the following Completion criteria:
  - Complete 90% or more of core assignments in each stack
  - At or greater than 80% discussion questions in each stack
  - Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation; a maximum of 10% excused absences is allotted.
- Receive a Yellow Belt in Web Fundamentals
- Receive a Orange Belt (or better) in Python
- Completion of Projects & Algorithms

# 5. Data Science Online Part-Time

# A. Program Description

The Data Science Online Part-Time program helps to turn data beginners into data pros by teaching a job-applicable balance between practice and theory. Coding Dojo's "Learn by Doing" training will give students hands-on experience in today's most in-demand Data Science technologies and methodologies, from data cleaning all the way to advanced machine learning concepts. Students may extend their program duration by 4 weeks through participation in Data Enrichment.

# **B. Program Competencies**

The following are the competencies for each "stack" of the program.

#### OPTIONAL PREP COURSE

### **Python Basics**

By the end of Python Basics, students should be able to

- Apply algorithm fundamentals such as data types, conditionals, and loops in Python.
- Apply function building concepts in Python
- Apply object-oriented programming concepts in Python.

### **REQUIRED STACKS**

#### **Data Science Fundamentals:**

By the end of the Data Science Fundamentals stack, students should be able to

- Apply common programming concepts using Python
- Manipulate, clean, and explore data using industry library tools, such as Pandas.
- Create basic data visualizations using Python
- Use basic statistical concepts
- Optional: learn about other tools for creating data visualizations

### **Machine Learning:**

By the end of the Machine Learning stack, students should be able to:

- Evaluate a situation and identify the best basic machine learning concepts to apply.
- Apply supervised learning techniques using an industry language, such as Python
- Apply unsupervised learning techniques using an industry language, such as

### Python

# **Advanced Machine Learning:**

By the end of th Advanced Machine Learning stack, students should be able to

- Implement advanced concepts of supervised machine learning, such as boosting
- Implement advanced concepts of unsupervised machine learning, such as dimensionality reduction technique and PCA
- Write gueries to access data using SQL
- Apply basic deep learning techniques using an industry language, such as Python

#### STUDENTS MAY CHOOSE TO ADD THE FOLLOWING CONTENT TO THE PROGRAM

#### **Data Enrichment:**

By the end of the Data Enrichment stack, students should be able to

- Use tools for statistical analysis, such as Numpy and Pandas.
- Select model assumptions appropriate for data sets and how to test those models.
- Analyze basic data requirements and construct Entity Relationship Diagrams (ERDs).
- Query in SQL to access and aggregate information.
- Apply the process of extracting, transforming, and loading data.

### C. Length

Option 1: 240 hrs (12 weeks, 20hrs per week)

Option 2: 320 hrs (16 weeks, 20hrs per week) (with Data Enrichment stack)

#### **D. Course Hours**

### Option 1:

Lecture: 24 hrs completed in virtual group meeting via zoom twice a week, approximately 1 hour each.

Lab: 216 hrs completed individually or in groups. Instructional staff provide oversight, guidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student

#### Option 2:

Lecture: 32 hrs completed in virtual group meeting via zoom twice a week, approximately 1 hour each.

Lab: 288 hrs completed individually or in groups. Instructional staff provide oversight, guidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student

#### E. Time

Lab Time: Students are expected to complete 18 hrs of lab time each week. Open lab hours where TAs are available are Monday - Friday 3pm - 8pm PT; Saturday 11am - 2pm PT; Sunday 3pm - 7pm PT

Lecture Time: Monday/Wednesday or Tuesday/Thursday 5pm - 6pm PT

## F. Admissions Prerequisites

- High School Diploma or equivalent
- Proficient in English Language

### G. Technology Requirements (not provided by Coding Dojo)

- Personal Laptop/Computer
  - o 30GB minimum, 40 recommended available HD space
  - o 8GB RAM MINIMUM (16GB recommended)
- Stable High-Speed Internet Connection
- Modern web browser such as Firefox, Chrome, Edge or Safari
- Complete prep-work before day-1 of class
- Mic and Webcam (religious or personal objections may be discussed in enrollment)

# H. Required Materials and Textbook(s)

No textbook required. All learning materials provided by Coding Dojo via the Learn platform (LMS).

## I. Course Schedule

Optional Week 1  Python Basics Intro to Coding	<ul> <li>Lecture:         <ul> <li>Coding Basics - Learn the first steps of writing and understanding code. Explore data types, conditionals, and loops.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of coding basics</li> </ul> </li> </ul>
Optional Week 2 <b>Python Basics</b> Object Oriented  Programming	<ul> <li>Lecture:         <ul> <li>Python Basics - Build a foundation for learning object oriented programming and writing functions in Python.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of python basics</li> </ul> </li> </ul>
Week 1 Data Science Fundamentals	Lecture:  • Foundations in Python - Learn the Python fundamentals needed for data science.

Python for Data Science	<ul> <li>Assignments covering the topics of Python fundamentals in Data Science</li> </ul>
Week 2 <b>Data Science Fundamentals</b> Pandas for Data  Manipulation	<ul> <li>Manipulating and Understanding Data - Learn how to load, clean, and manipulate data using the Python library Pandas. Additionally, learn the strengths and weaknesses of using Python to manipulate data.</li> <li>Labs:         <ul> <li>Assignments covering the topics of manipulating and understanding data</li> </ul> </li> </ul>
Week 3  Data Science Fundamentals  Exploratory Visualizations	<ul> <li>Lecture:         <ul> <li>Univariate and Multivariate Data Exploration - Build visualizations to support exploratory data analysis (EDA).</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of data exploration and EDA</li> </ul> </li> </ul>
Week 4 Data Science Fundamentals Explanatory Visualizations	<ul> <li>Creating Visualizations for Reporting - Use Python to create high quality graphs to share with stakeholders and communicate key findings.</li> <li>Exam Review and completion</li> <li>Labs:         <ul> <li>Assignments covering the topics of reporting visualizations and exam review</li> </ul> </li> </ul>
	Exam: Data Science Fundamentals (Use PANDAS to explore and clean data and create visualizations)
Week 5 Machine Learning Introduction to Machine Learning	<ul> <li>Lecture:         <ul> <li>Introduction to Machine Learning - What is machine learning and why use Scikit-Learn for Machine Learning? Topics include types of machine learning, preprocessing data for machine learning, and linear regression.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of intro to machine learning</li> </ul> </li> </ul>
Week 6 Machine Learning Tree Models for Regression	<ul> <li>Lecture:         <ul> <li>Decision Trees and Random Forests - Learn about tree based machine learning algorithms, how to tune them to maximize their performance, and the strengths and weaknesses of each algorithm.</li> </ul> </li> <li>Labs:</li> </ul>

	<ul> <li>Assignments covering the topics of tree models for regression</li> </ul>
Week 7 Machine Learning Classification Models	<ul> <li>Lecture:         <ul> <li>Logistic Regression, KNN, and Pipelines - Learn about classification metrics and building pipelines. Learn additional algorithms including logistic regression and KNN.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of classification models</li> </ul> </li> </ul>
Week 8 Machine Learning Gradient Boosting Machines	<ul> <li>Lecture:         <ul> <li>Gradient Boosting Algorithms and Kaggle Competitions - Learn what gradient boosting algorithms are, why they are so performant, and how to get started with Kaggle competitions.</li> <li>Exam review and completion</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of gradient boosting machines and exam reviews</li> </ul> </li> <li>Exam: Machine Learning (Pre-process data for machine learning, implement and evaluate a machine learning model)</li> </ul>
Week 9 Advanced Machine Learning Clustering Algorithms	<ul> <li>KMeans, Hierarchical Clustering, and DBSCAN - Learn about unsupervised learning and its applications. Learn about clustering algorithms, how to tune them, and the strengths and weaknesses of each.</li> <li>Labs:         <ul> <li>Assignments covering the topics of clustering algorithms</li> </ul> </li> </ul>
Week 10 Advanced Machine Learning Dimensionality Reduction	<ul> <li>Uses of Dimensionality Reduction - What is dimensionality reduction? Learn how to use it for data visualization, speed up machine learning algorithms, and understand data better. Algorithms covered include Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA).</li> <li>Labs:         <ul> <li>Assignments covering the topics of dimensionality reduction</li> </ul> </li> </ul>
Week 11	Lecture:  • Deep Learning Frameworks - Learn about why deep learning has transformed industries, various deep

	<del>,</del>
Advanced Machine Learning Introduction to Deep Learning	learning frameworks, and when to use deep learning techniques. Topics include recurrent neural networks (RNN), Convolutional Neural Networks (CNN), and deep learning regularization.  Labs:  Assignments covering the topics of deep learning frameworks
Week 12 Advanced Machine Learning Introduction to SQL for Data Science	<ul> <li>Lecture         <ul> <li>Using SQL with Python - Learn how to perform SQL queries.</li> <li>Exam review and completion</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of SQL for Data Science and exam reviews</li> </ul> </li> <li>Exam: Advanced Machine Learning (apply SQL queries, create an unsupervised model and implement/evaluate a neural network)</li> </ul>
Optional Week 13  Data Enrichment Statistical Analysis	<ul> <li>Lecture:         <ul> <li>Introduction to Statistics - Learn tools for statistical analysis including measures of central tendency, variance and standard deviation and comparing means.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of statistical analysis</li> </ul> </li> </ul>
Optional Week 14  Data  Enrichment  Model  Assumptions	<ul> <li>Lecture:         <ul> <li>Model Assumptions - Explore model assumptions and how to test for them. Apply this knowledge to choose the appropriate model for a data set.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of model assumptions</li> </ul> </li> </ul>
Optional Week 15  Data Enrichment Introduction to Databases	Databases Architecture -Become familiar with entity relationship diagrams (ERD) and learn the advantages of using a relational database. Learn intermediate SQL queries to access and aggregate information.  Labs:      Assignments covering the topics of database architecture
Optional Week 16  Data  Enrichment	Lecture:  • Intro to ETL - Develop an understanding of the process of extracting, transforming, and loading data.  • Exam review and completion Labs:

Intro to ETL (Extract Transform Load) Assignments covering the topics of ETL and exam reviews

Exam: Data Enrichment (apply advanced SQL queries, application of data pipelines, statistical analysis for model selection)

### J. Method(s) of Instruction

Instruction consists of Instructor-led lectures and the utilization of an online learning platform, group exercises, remote assistance, assignment feedback, belt exams and projects. Students access their learning materials through a web-based dashboard at login.codingdojo.com.

Instruction is a blend of synchronous lectures and asynchronous labs. Lectures are synchronously provided online as well as recorded for asynchronous access. After hours TA support is provided via online assistance through Discord.

### K. Method(s) of Assessment

Assessments require students to demonstrate proficiency against the assigned competencies via a project-based deliverable. Instructors deploy exams to the class via the LMS based on Section I: Course Schedule. Students access exams via our LMS. Student submissions are evaluated using a proficiency-based rubric aligned to the stack's competencies, so that by the end of the program, students will be assessed on all program competencies.

#### Exam Grading Scale

Belt exams are used to assess a student's progress during the program. These exams are timed in order to assess if a student is able to apply data science techniques to a dataframe within the allotted time frame.

The Data Science Online Part-Time exams are given a twenty-four (24) hour time limit. Grades provided for belt exams are between 1-10. Grading system:

10.0 - Perfect (100%)

9.5 - Near Perfect (95%)

9.0 - Very Good (90%)

8.5 – Good (85%)

8.0 - Pretty Good (80%)

Below 8.0 – Fail

#### **Exam Rubrics**

Please see Appendix A for all Data Science exam rubrics.

### L. Attendance Policy

Attendance is taken by Coding Dojo instructional staff, based on attendance to the live online lectures. Students are required to be present for a minimum of 80% of class course hours for each stack. Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation.

### M. Graduation Requirements

To qualify for graduation, students must meet the following criteria:

- Tuition paid in full or validated coverage by third party
- Meet the following Completion criteria:
  - Complete 90% or more of core assignments in each stack
  - At or greater than 80% attendance in each stack
  - Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation; a maximum of 10% excused absences is allotted.
- Grade of 8.0 or higher on all program exams or projects

# 6. Cybersecurity Online Part-Time

### A. Program Description

Within the Cybersecurity Online Part-Time program, students learn the skills necessary to assist in the identification, assessment, and reporting of technology and information security risks. The program also provides students with the knowledge necessary to determine information system vulnerabilities and residual risks based on the analysis of technical artifacts, interviews, and evaluations of IT systems.

The course covers the leading approaches to managing cybersecurity, including 'defense in depth' and the National Institute of Standards and Technology (NIST) Cybersecurity Framework. The Cybersecurity program includes instruction towards CompTIA Security+ and CySA+ certifications. Through labs with sandboxed virtual machines, the course provides hands-on training in CEH type scenarios, defensive and offensive cybersecurity, networking, systems, web technologies, and databases. Assignments span PC and server software, application, and code with a solid technical background in computer vulnerabilities, attack vectors, exploits, and mitigation controls.

To round out the program, students conduct event and incident investigations to include computer intrusions, infections, and unauthorized access or usage and provide reports to management and recommend sound remediation and mitigation.

Graduates will receive vouchers for two CompTIA certification exams, CompTIA Security+ + and CompTIA CySA+.

### **B. Program Competencies**

The following are the competencies for each "stack" of the program.

#### **REQUIRED STACKS**

### **Cybersecurity Core:**

By the end of the Cybersecurity Core stack, students should be able to

- Create a VM sandbox and enable virtualization
- Scan networks
- Install Nessus
- Crack passwords
- Manage certificates
- Create and manage access control lists (ACLs)
- Install and configure a firewall
- Analyze a network topology
- Use Snort for network traffic scanning
- Use secure shell (SSH)

- Apply endpoint protection
- Analyze malicious code
- Implement Powershell security
- Write an incident response report
- Use digital forensics best practices
- Create and restore backups
- Perform a tabletop exercise

## **Cybersecurity Intermediate:**

By the end of the Cybersecurity Intermediate stack, students should be able to:

- Perform an Indicator of Compromise (IoC) investigation
- Use Wireshark to analyze network traffic
- Analyze security logs
- Use a SIEM to aggragate logs from other network hosts
- Collect digital evidence using Autopsy
- Write an incident response report with screen captures.
- Write a risk assessment report on a real-world business
- Use nmap to scan for open ports
- Analyze Wireshark alerts in plaintext
- Perform a Linux audit using Command Line Interface (CLI)
- Configure and analyse share permissions
- Write a report on identified vulnerabilities
- Analyze a website using Nikto

### **Cybersecurity Professional:**

By the end of the Cybersecurity Professional stack, students should be able to

- Use the Cyber Kill Chain model
- Explore career paths in ethical hacking
- Use the Metasploit framework to attack a machine
- Perform footprinting
- Perform active reconnaissance using nmap, dirbuster / gobuster, and nikto
- Perform SMB enumeration
- Perform vulnerability hunting
- Use BurpSuite to test and analyze applications
- Perform an SQL Injection attack
- Perform a cross-site scripting attack
- Perform an attack on an Android device
- Perform a buffer overflow attack on a Windows machine
- Perform a buffer overflow attack on a Linux machine

### C. Length

480 hrs (24 weeks, 20hrs per week)

#### **D. Course Hours**

Lecture: 96 hrs hrs completed in virtual group meeting via zoom twice a week, approximately 2 hours each.

Lab: 384 hrs completed individually or in groups. Instructional staff provide oversight, guidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student

#### E. Time

Lab Time: Students are expected to complete 18 hrs of lab time each week. Open lab hours where TAs are available are Monday - Friday 3pm - 8pm PT; Saturday 11am - 2pm PT; Sunday 3pm - 7pm PT

Lecture Time: Monday/Wednesday or Tuesday/Thursday 5pm - 7pm PT

# F. Admissions Prerequisites

- High School Diploma or equivalent
- Proficient in English Language

### G. Technology Requirements (not provided by Coding Dojo)

- Personal Laptop/Computer
  - o 30GB minimum, 40 recommended available HD space
  - o 8GB RAM MINIMUM (16GB recommended)
- Stable High-Speed Internet Connection
- Modern web browser such as Firefox, Chrome, Edge or Safari
- Complete prep-work before day-1 of class
- Mic and Webcam (religious or personal objections may be discussed in enrollment)

### H. Required Materials and Textbook(s)

No textbook required. All learning materials provided by Coding Dojo via the Learn platform (LMS).

#### I. Course Schedule

Week 1	Lecture:
Cybersecurity	<ul> <li>Controls, Frameworks, Benchmarks, Virtual Machines,</li> </ul>
Core	Threats, Vulnerabilities, Defenses, Secure Software,
Fundamentals of	Testing, Cryptography
Hardware,	Labs:

Operating Systems	<ul> <li>VM Setup</li> <li>Windows Directions</li> <li>Mac Directions</li> <li>Network Settings</li> <li>Scanning Networks</li> <li>Packet Sniffing</li> </ul>
Week 2 Cybersecurity Core Core Tools and Concepts	<ul> <li>Lecture         <ul> <li>Attacks, Physical Security, Vulnerability Scanning, Risk Management, PKI, IAM, Password Cracking, Analysis Tools, SSL</li> </ul> </li> <li>Labs:         <ul> <li>Nessus installation</li> <li>Password Cracking</li> </ul> </li> </ul>
Week 3 Cybersecurity Core Core Tools and Concepts	Lecture:
Week 4 Cybersecurity Core Core Tools and Concepts	Lecture:  • Malware, Intrusion Detection, Tools, Control Systems, Secure Shell, Mobile and Endpoint Security  Labs:  • Snort Installation • SSH • Endpoint Protection
Week 5 Cybersecurity Core Core Tools and Concepts	Lecture:  • More Virtual Machines, Malicious Code, Disaster Recovery and Business Continuity, Powershell  Labs:  • Malicious Code  • Powershell Security
Week 6 Cybersecurity Core Incident Responses and Forensics	Lecture:  • Learn Incident Response and Forensics Labs:  • Configuring an Intrusion Detection System • Incident Response • Digital Forensics
Week 7 Cybersecurity Core	Lecture:  • Learn how resiliency, automation, and backups provide essential and fundamental protection

Resiliency, Automation, and Backups	Assignments covering the topics network architecture and design
Week 8 Cybersecurity Core Tabletop Exercises and Career Prep	Lecture:  • Tabletop exercises are effective for learning, preparing, and solving problems before they happen • Exam review and completion Labs: • Tabletop Exercise • Career Preparation  Exam: Cybersecurity Core (consists of multiple choice and analytical exercise in preparation for the CompTIA Security+certification)
Week 9 Cybersecurity Intermediate Roles and Responsibilities, Controls, Threat Assessments	Lecture:  • Understanding roles and responsibilities, security controls, indicators of compromise, understanding threats, attack tools, monitoring networks  Labs:  • IoC Investigation • Network Group Assignment
Week 10 Cybersecurity Intermediate Network Protection	<ul> <li>Lecture:         <ul> <li>Protecting networks, monitoring and analyzing various services for signs of compromise, running scripts, understanding and using SIEM (Security Information and Event Management)</li> </ul> </li> <li>Labs:         <ul> <li>Wireshark Analysis</li> <li>Log Analysis</li> <li>Windows Security Logs</li> <li>Analyzing Email Headers</li> <li>SIEM Group Assignment</li> </ul> </li> </ul>
Week 11 Cybersecurity Intermediate Cybersecurity Forensics	<ul> <li>Examining forensic tools and techniques, digging into indicators of compromise, understanding detection and containment, learning digital evidence collection, understanding frameworks, policies and procedures, exploring attacker lateral movement and pivoting.</li> <li>Labs:         <ul> <li>Digital Evidence Collection (2 day lab)</li> </ul> </li> </ul>
Week 12 Cybersecurity Intermediate	Lecture:

Incident Response and Recovery	<ul> <li>Review of the phases of IR for further in depth work, participate in extended lab exercise, as well as understand the critical importance of effective recovery</li> <li>Labs:         <ul> <li>IR Writing Assignment (2 day lab)</li> </ul> </li> </ul>
Week 13 Cybersecurity Intermediate Risk Analysis and Management	<ul> <li>Understanding and managing risk is a key to security professional and program success; enumeration, credential security, and vulnerability assessment are operational keys to technical effectiveness of security professionals and programs.</li> <li>Labs:         <ul> <li>Risk Management</li> <li>Nmap Formatting</li> <li>Credential Security</li> </ul> </li> </ul>
Week 14  Cybersecurity Intermediate Network Packet Analysis, Regulation, and Solutions	Lecture:  • Use of Wireshark for network packet analysis, understanding the role of regulations, managing Identity and Access,exploring secure network architectures, auditing Linux file permissions, understanding and using hardware assurance and specialized technologies  Labs:  • Another Wireshark • Research Assignment (Regulations) • Linux Audit
Week 15 Cybersecurity Intermediate Controls, Share Permissions, Attack Mitigation	<ul> <li>Learn technical and non-technical controls, various related regulations, the relationship of security and privacy, how to configure and analyze share permissions, and mitigate attacks</li> <li>Labs:         <ul> <li>Configuring and Analyzing Share Permission</li> </ul> </li> </ul>
Week 16 Cybersecurity Intermediate OWASP, CompTIA CySA+ Review + belt exam	Lecture:  OWASP, Application Assessment, Cloud and Automation Security Solutions, Web Assessment, Cloud Assessment Analysis and Automation Exam review and completion  Labs: OWASP Research Web Assessment

	Exam: Cybersecurity Intermediate (consists of multiple choice and analytical exercise in preparation for the CompTIA CySA+ certification)
Week 17 Cybersecurity Professional Ethical Hacking and Exploitation	Lecture:  • Ethical Hacking, Metasploitable3, Penetration Testing, Exploitation, Eternal Blue, Post Exploitation  Labs:  • Metasploitable3 & Good Gone Bad • Eternal Blue
Week 18 Cybersecurity Professional Footprinting, Reconnaissance, Scanners, Enumeration	<ul> <li>Lecture         <ul> <li>Foot- (or finger-) printing to identify specific services, connecting and exploring that which is identified, specialized scanning, SMB (Server Message Block) Enumeration</li> </ul> </li> <li>Labs:         <ul> <li>Footprinting Assignment</li> <li>Specialized Scanners</li> <li>SMB Enumeration</li> </ul> </li> </ul>
Week 19 Cybersecurity Professional Vulnerability Hunting	Lecture:  • Vulnerability Hunting and Scanning, Web Exploits, Security Assessments  Labs:  • Vulnerability Scanning 1 of 2  • Vulnerability Scanning 2 of 2  • BurpSuite Setup
Week 20 Cybersecurity Professional File Inclusion and SQL Injection	Lecture:  • Learning Local File Inclusion and Remote File Inclusion, SQL injection techniques and defences, hacking and testing mobile devices.  Labs:  • LFI/RFI • SQL Injection
Week 21 Cybersecurity Professional Buffer Overflows	<ul> <li>Lecture:         <ul> <li>Buffer overflows are common, technologically sophisticated attacks that exploit the so-called "von Neumann architecture" that uses the same memory for data and instruction storage.</li> </ul> </li> <li>Labs:         <ul> <li>Windows BOF</li> <li>Analyzing Output from Web Application Assessment Tools</li> </ul> </li> </ul>
Week 22	Lecture:

Cybersecurity Professional Malware and Tools	<ul> <li>Malware comes in many forms with common principles among the varieties. It is important to become familiar and learn the detection and eradication tools.</li> <li>Labs:         <ul> <li>Malware Analysis</li> </ul> </li> </ul>
Week 23 Cybersecurity Professional File Transfers, Privilege Escalation	<ul> <li>Once an attacker has access they usually want to copy files back to their systems. Also, when the compromised account lacks sufficient privilege, which it often does, the attacker needs to elevate privilege to fully exploit the platform, monitor the network, or access other systems.</li> <li>Labs:         <ul> <li>Linux Privesc</li> <li>Windows Privesc</li> </ul> </li> </ul>
Week 24 Cybersecurity Professional Exploits, Using Shells, Password Attacks	<ul> <li>Lecture: <ul> <li>Learn various sources for exploits and how to use them, the use of Shells, password attacks. Care is required since exploits can turn against the user or tester.</li> <li>Exam review and completion</li> </ul> </li> <li>Labs: <ul> <li>How Many Shells?</li> <li>Password Attacks</li> </ul> </li> <li>Exam: Cybersecurity Professional (consists of multiple choice and analytical exercise on the topics of ethical hacking and penetration testing)</li> </ul>

### J. Method(s) of Instruction

Instruction consists of Instructor-led lectures and the utilization of an online learning platform, group exercises, remote assistance, assignment feedback, belt exams and projects. Students access their learning materials through a web-based dashboard at login.codingdojo.com.

Instruction is a blend of synchronous lectures and asynchronous labs. Lectures are synchronously provided online as well as recorded for asynchronous access. After hours TA support is provided via online assistance through Discord.

#### K. Method(s) of Assessment

Assessments require students to demonstrate proficiency against the assigned competencies via a project-based deliverable. Instructors deploy exams to the class via Typeform based on Section I: Course Schedule. Students access exams via Typeform. Student submissions are evaluated using a proficiency-based rubric

aligned to the stack's competencies, so that by the end of the program, students will be assessed on all program competencies.

#### Exam Grading Scale

Belt exams are used to assess a student's progress during the program. These exams are timed in order to assess if a student is sufficiently prepared for CompTIA certifications within the allotted time frame.

The Cybersecurity Part-Time Online exams have no set time limit, but any exam attempts must be completed before Friday of the last day in the stack. Grades provided for belt exams are between 1-10. Grading system:

10.0 - Perfect (100%) 9.5 - Near Perfect (95%) 9.0 - Very Good (90%) 8.5 - Good (85%) 8.0 - Pretty Good (80%) Below 8.0 - Fail

#### **Exam Rubrics**

Please see Appendix A for all Cybersecurity exam rubrics.

### L. Attendance Policy

Attendance is taken by Coding Dojo instructional staff, based on attendance to the live online lectures. Students are required to be present for a minimum of 80% of class course hours for each stack. Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation.

#### M. Graduation Requirements

To qualify for graduation, students must meet the following criteria:

- Tuition paid in full or validated coverage by third party
- Meet the following Completion criteria:
  - o Complete 90% or more of core assignments in each stack
  - At or greater than 80% attendance in each stack
  - Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation; a maximum of 10% excused absences is allotted.
- Grade of 8.0 or higher on all program exams or projects

# 7. UI/UX Design Online Part-Time

### A. Program Description

The UI/UX Design Online Part-Time program is a flexible, part-time program designed for working professionals who are looking to gain design skills to level up or change their career. The coursework is structured so students get comprehensive experience in both UX and UI design processes. Instruction emphasizes research and synthesis techniques for gathering and evaluating quantitative/qualitative data, creating concepts, wireframes and prototypes for live user testing, and crafting high fidelity screens and prototypes for final evaluative tests that are portfolio ready.

Students will graduate from the program with 2 solid portfolio pieces, including a live client project, which are what recruiters and hiring managers look for in new hires.

### **B. Program Competencies**

The following are the competencies for each "stack" of the program.

### **REQUIRED STACKS**

### **Design Proficiency:**

By the end of the Design Proficiency stack, students should be able to

- Participate in a Project Kickoff
- Team formation and working dynamic
- Lead exploratory research to define objectives
- Evaluate business landscape and market conditions
- Lead in person research
- Synthesize data from research
- Creation of Research Deliverables Persona
- Definition of the primary user problem
- Ideation and Concepting of ideas
- Concept Testing
- Information Architecture and Site Mapping
- Prototypes and Convergence
- Conducting Usability Testing
- Presenting out User Experience, Behavioral user models
- Formatting, packaging, evaluating, and delivering final UX deliverables
- Conduct Visual research prior to UI development
- Create low-risk visual explorations for testing
- Translate visual styles to Design Assets and Style Tiles to High Fidelity screens
- Iteration of High Fidelity designs
- High Fidelity Prototype creation and usability testing
- Communicate UI development process
- Develop Design Systems

Career Development and Design Roles

#### **Client Phase:**

By the end of the Client Phase stack, students should be able to:

- Evaluate and setup for Client interactions
- Interview SMEs and Stakeholders
- Evaluate Client Assets
- Develop Research Project Plans
- Conduct User Research w/Client Users
- Synthesis of data to define Client project Problems, Personas
- Present UX findings to Clients
- Develop Client Concepts
- Create Wireframes/Prototypes for Client Project Testing
- Usability Testing Client Products
- Iterate and Annotate final Wireframes
- Organize UX assets for handoff
- Present UX Product to Clients
- Visual Comp Analysis Client Project
- Create Divergent Moodboard and Style Tile Concepts
- Create High Fidelity screens & prototypes
- Usability/Desirability Testing UI Prototypes
- Design System development
- Client Deliverables Handoff

#### **Career Phase:**

By the end of the Career Phase stack, students should be able to

- Develop Personal Branding
- Create & Design Resumes
- Develop Personal Statements, Linkedin Profiles
- Write Client Case studies (draft, assets, and final)
- Write Phase 1 Case studies (draft, assets, and final)
- UI/UX Interview process Design Challenges
- Portfolio creation URLs, platforming

#### C. Length

480 hrs (24 weeks, 20hrs per week)

#### **D. Course Hours**

Lecture: 96 hrs hrs completed in virtual group meeting via zoom twice a week, approximately 2 hours each.

Lab: 384 hrs completed individually or in groups. Instructional staff provide oversight, guidance, and assistance as required or requested.

Outside Work Hours: Varies depending on the student.

#### E. Time

Lab Time: Students are expected to complete 18 hrs of lab time each week. Open lab hours where TAs are available are Monday - Friday 3pm - 8pm PT; Saturday 11am - 2pm PT; Sunday 3pm - 7pm PT

Lecture Time: Tuesday and Thursday 5pm - 7pm PT

## F. Admissions Prerequisites

- High School Diploma or equivalent
- Proficient in English Language

### G. Technology Requirements (not provided by Coding Dojo)

- Personal Laptop/Computer
  - o 30GB minimum, 40 recommended available HD space
  - 8GB RAM MINIMUM (16GB recommended)
- Stable High-Speed Internet Connection
- Modern web browser such as Firefox, Chrome, Edge or Safari
- Complete prep-work before day-1 of class
- Mic and Webcam (religious or personal objections may be discussed in enrollment)

### H. Required Materials and Textbook(s)

No textbook required. All learning materials provided by Coding Dojo via the Learn platform (LMS).

#### I. Course Schedule

Week 1 Design Proficiency Project Kick-off, Discovery and Strategy	<ul> <li>Lecture:         <ul> <li>Learn about the inception point of all good design: Research. Kickoff a mobile/web application project.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of project design and strategy</li> </ul> </li> </ul>
Week 2 Design Proficiency	<ul> <li>Lecture:         <ul> <li>Define application direction and research. Plan and define research methods, timeline and expected outcomes</li> </ul> </li> <li>Labs:</li> </ul>

Research Planning & Implementation	Assignments covering the topics of research planning and implementation
Week 3 Design Proficiency Conducting User Interviews	<ul> <li>Lecture:         <ul> <li>Source, schedule and interview users. Collect and transcribe data points virtually.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of user interviews</li> </ul> </li> </ul>
Week 4 Design Proficiency Research Data Synthesis	<ul> <li>Lecture:         <ul> <li>Synthesize user data points to surface deeper insights.</li> <li>Create personas, journey maps, problem statements and design principles</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of research data synthesis</li> </ul> </li> </ul>
Week 5 Design Proficiency Concepting & Prototyping	Lecture:      Ideate through many solutions     Sketch and develop concepts to solve for user problems     Develop basic flows and prototypes  Labs:     Assignments covering the topics of solution conception and prototyping
Week 6 Design Proficiency Testing, Iterating & Converging	<ul> <li>Lecture:         <ul> <li>Conduct usability tests to narrow design directions</li> <li>Iterate through better solutions and converge into MVP product</li> <li>Set up final usability test to validate results</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of usability testing</li> </ul> </li> </ul>
Week 7 Design Proficiency Product Definition & Communicating Designs	<ul> <li>Lecture:         <ul> <li>Create final specifications for tested designs. Develop a Design System to hand off to developers.</li> <li>Present final designs and learn to communicate design decisions.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of product definition and communication</li> </ul> </li> </ul>
Week 8 Design Proficiency Developing Your User Interface	Lecture:  • Learn the basics of visual User Interface development. • Explore the user's aesthetic preference through Moodboard and Style Tile creation  Labs:

	Assignments covering the topics of user interface development
Week 9 Design Proficiency Translating Designs to High Fidelity	Lecture:
Week 10 Design Proficiency High Fidelity Prototyping and Testing	<ul> <li>Lecture:         <ul> <li>Produce a high fidelity prototype for testing</li> <li>Set up testing environment for desirability/usability testing</li> <li>Evaluate and iterate screens for final product deliverable</li> <li>Labs:</li></ul></li></ul>
Week 11 Design Proficiency Handoff & Design Systems	<ul> <li>Lecture:         <ul> <li>Gather, organize, document and finalize all design assets</li> <li>Produce a high quality visual Design System</li> <li>Project review and completion</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of visual design system production and project reviews</li> </ul> </li> <li>Project: Design Proficiency (Evaluation of UI/UX design processes as it pertains to responsive web design projects)</li> </ul>
Week 12 Client Phase Working with Clients & Project Kickoff	<ul> <li>Lecture:         <ul> <li>Begin Client Project planning and research</li> <li>Develop an Interview plan for Stakeholders and Clients</li> <li>Develop personalized project requirements</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of intro to client project work</li> </ul> </li> </ul>
Week 13 Client Phase Project Specifications, Scope and Strategy	<ul> <li>Lecture:         <ul> <li>Scope out expected deliverables and communicate with the Client on the work plan</li> <li>Present to Clients and instructors Product roadmap</li> <li>Competitive and Domain research</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of project specifications, scope, and strategy</li> </ul> </li> </ul>
Week 14	Lecture:  • Evaluate Users for Research & testing

Client Phase User & Stakeholder Interviews  Week 15 Client Phase Research Synthesis & Insights	<ul> <li>Interview stakeholders, SMEs and users to develop product requirements.</li> <li>Labs:         <ul> <li>Assignments covering the topics of user and stakeholder interviews</li> </ul> </li> <li>Lecture:         <ul> <li>Synthesize SME, Client and user data to develop UX assets</li> <li>Choose which communication methods to convey user data: Personas, Journey Maps, Empathy maps etc.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of research synthesis</li> </ul> </li> </ul>
Week 16 Client Phase Ideation & Concepting	Lecture:  • Ideate through multiple creative techniques • Rapidly develop many Client Product concepts Labs:  • Assignments covering the topics of ideation and concepting
Week 17 Client Phase Wireframing & Prototyping	Lecture:
Week 18 Client Phase Testing & Communicating insights	<ul> <li>Lecture: <ul> <li>Test and iterate through final product specifications</li> <li>Annotate and document final Client MVP product</li> <li>Present out to Clients UX findings and product direction</li> </ul> </li> <li>Labs: <ul> <li>Assignments covering the topics of testing and communicating insights</li> </ul> </li> </ul>
Week 19 Client Phase Developing Visual Styles	<ul> <li>Visual development of Client project</li> <li>Create Moodboards and Style Tiles.</li> <li>Create testing criteria and recruit users for Desirability testing</li> <li>Labs:         <ul> <li>Assignments covering the topics of developing visual styles</li> </ul> </li> </ul>
Week 20 Client Phase	Lecture:

High Fidelity Designs	<ul> <li>Test with users, define directions and create high fidelity screens and prototypes.</li> <li>Create key screens and final visual product</li> <li>Labs:</li> <li>Assignments covering the topics of high fidelity designs</li> </ul>
Week 21 Client Phase Final Presentations & Handoff	<ul> <li>Create the final tested specifications for the Client project</li> <li>Develop a Design System to reflect final UI specs</li> <li>Organize and deliver all UX and UI assets for final handoff</li> <li>Project review and completion</li> <li>Labs:         <ul> <li>Assignments covering the topics of project presentations and reviews</li> </ul> </li> </ul>
	Project: Client Phase (Evaluation of all applicable UI/UX processes as it pertains to a real-life client project)
Week 22 Career Phase Profile Building	<ul> <li>Lecture:         <ul> <li>Define personal values, learn to build personal brand, and begin prepping career assets for case studies and portfolios.</li> </ul> </li> <li>Labs:         <ul> <li>Assignments covering the topics of profile building</li> </ul> </li> </ul>
Week 23 Career Phase Case Studies	<ul> <li>Lecture: <ul> <li>Define and create the case studies to explain design processes.</li> <li>Write, edit and rewrite in formats that hiring managers demand.</li> </ul> </li> <li>Labs: <ul> <li>Assignments covering the topics of case studies</li> </ul> </li> </ul>
Week 24 Career Phase Portfolio Building	<ul> <li>Lecture: <ul> <li>Prepare assets and case studies for inclusion in Design Portfolios.</li> <li>Define the visual and aesthetic direction for a personal brand.</li> </ul> </li> <li>Labs: <ul> <li>Assignments covering the topics of portfolio building</li> </ul> </li> </ul>

# J. Method(s) of Instruction

Instruction consists of Instructor-led lectures and the utilization of an online learning platform, group exercises, remote assistance, assignment feedback, belt exams and

projects. Students access their learning materials through a web-based dashboard at login.codingdojo.com.

Instruction is a blend of synchronous lectures and asynchronous labs. Lectures are synchronously provided online as well as recorded for asynchronous access. After hours TA support is provided via online assistance through Discord.

### K. Method(s) of Assessment

Assessments require students to demonstrate proficiency against the assigned competencies via a project-based deliverable. Instructors evaluate student projects via presentations in lecture time based on Section I: Course Schedule. Students access project instructions and rubrics via our LMS. Student projects and presentations are evaluated using a proficiency-based rubric aligned to the stack's competencies, so that by the end of the program, students will be assessed on all program competencies.

#### Project Grading Scale

Projects are used to assess a student's progress during the program. These project presentations are timed in order to assess if a student is able to communicate the effective insights and design deliverables in the allotted time frame.

The UI/UX Design Part-Time Online projects must be completed before Friday of the last day in the stack. Grades provided for projects are between 1-10. Grading system:

10.0 - Perfect (100%) 9.5 - Near Perfect (95%) 9.0 - Very Good (90%) 8.5 - Good (85%) 8.0 - Pretty Good (80%) Below 8.0 - Fail

#### **Project Rubrics**

Please see Appendix A for all UI/UX Design project rubrics.

## L. Attendance Policy

Attendance is taken by Coding Dojo instructional staff, based on attendance to the live online lectures. Students are required to be present for a minimum of 80% of class course hours for each stack. Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation.

#### M. Graduation Requirements

To qualify for graduation, students must meet the following criteria:

• Tuition paid in full or validated coverage by third party

- Meet the following Completion criteria:
  - Complete 90% or more of core assignments in each stack
  - At or greater than 80% attendance in each stack
  - Excused absences are not counted against a student's attendance percentage, with prior approval and relevant documentation; a maximum of 10% excused absences is allotted.
- Grade of 8.0 or higher on all program exams or projects

# **Appendix A: Program Exam and Project Rubrics**

Noted for the Appendix are the following rubrics:

- Software Development Web Fundamentals (2021)
- Software Development Python v21.1
- Software Development Java
- Software Development C#/.NET Core
- Software Development MERN
- Data Science Data Science Fundamentals
- Data Science Machine Learning
- Data Science Advanced Machine Learning
- Data Science Data Enrichment
- Cybersecurity Cybersecurity Core
- Cybersecurity Cybersecurity Intermediate
- Cybersecurity Cybersecurity Professional
- UI/UX Design Design Proficiency
- UI/UX Design Client Phase