Berkeley Extension

BERKELEY CODING BOOT CAMP

FULL STACK FLEX PROGRAM

CURRICULUM OVERVIEW

The digital revolution has transformed virtually every area of human activity—and you can be part of it as a web development professional. Berkeley Coding Boot Camp is a live, online full stack web development course with a part-time schedule that gives you the knowledge and skills to build dynamic end-to-end web applications and become a full stack web developer in 24 weeks.

Designed to fit into the lives of busy adults and working professionals, the program features convenient online classes in real time, with evening and weekend sessions. We pair live classes with in-depth, curated resources to reinforce knowledge and supplement those days you can't make the live session.

The program is rigorous and fast-paced and covers both the theory and application of web development. As you gain proficiency, you'll use what you learn to build complex projects under the guidance of professional web developers. Along the way, you will develop an impressive professional portfolio, receive career guidance on your next steps after the boot camp and gain the confidence to succeed as a web development professional.

Is This Program Right For You?

Are you creative, curious and looking to reinvent yourself professionally? If so—or if any of the following describes your situation—enrolling in our coding boot camp could be a smart career move:

- You're considering a career change but not sure how to take the first step.
- You're happy in your current field, but want to move to another company—or stay put but shift from a non-technical into a technical position.
- You want to engage more deeply with your current job—or boost your earnings and broaden your experience with freelance work.
- You have an entrepreneurial idea and need to acquire the skills to go "all in" on it and launch your business.
- You're a full-time student but hungry to learn more and expand your skill set.

The Skills You'll Gain

You will graduate with full stack web development skills*, including:

Computer Science applied to JavaScript

- Algorithms (Searches, Sorts)
- Performance
- Time Complexity
- Big O Notation
- Data Structures

Browser-Based Technologies

- HTML
- CSS
- JavaScript
- jQuery
- Responsive Design
- Bootstrap
- Progressive Web Applications (PWAs)
- Local Storage, Session Storage, IndexedDB
- React.js

API Design

- Client-Server Model
- API
- REST
- JSON
- AJAX (Fetch API)
- HTTP Request Methods
- GraphQL

Databases

- MySQL
- MongoDB

Server-Side Development

- Node.js
- Express.js
- User Authentication
- Template Engines
- MERN Stack (MongoDB, Express.js, React.js, Node.js)

Deployment and Delivery

- Heroku
- Git
- GitHub Pages
- Shell Scripting
- Unit Testing
- Linting
- Continuous Integration

Supplemental Self-Study Topics

In addition to learning these critical skills, you will have access to online learning that builds foundational knowledge on in-demand languages:

- Python
- Java
- C#
- Amazon Web Services

*The materials covered in this course are subject to change due to market demand.

Building On The Basics

In web development, you can't succeed without a solid grounding in the fundamentals. That's why our curriculum begins with a deep dive into the basics of coding and data structure. That said, we recognize that the surest way to impress prospective employers and get job offers is to demonstrate your skills on real-world projects. You'll have ample opportunity for hands-on involvement in outside projects, which will make up your Professional Portfolio.

Real Projects, Real Jobs

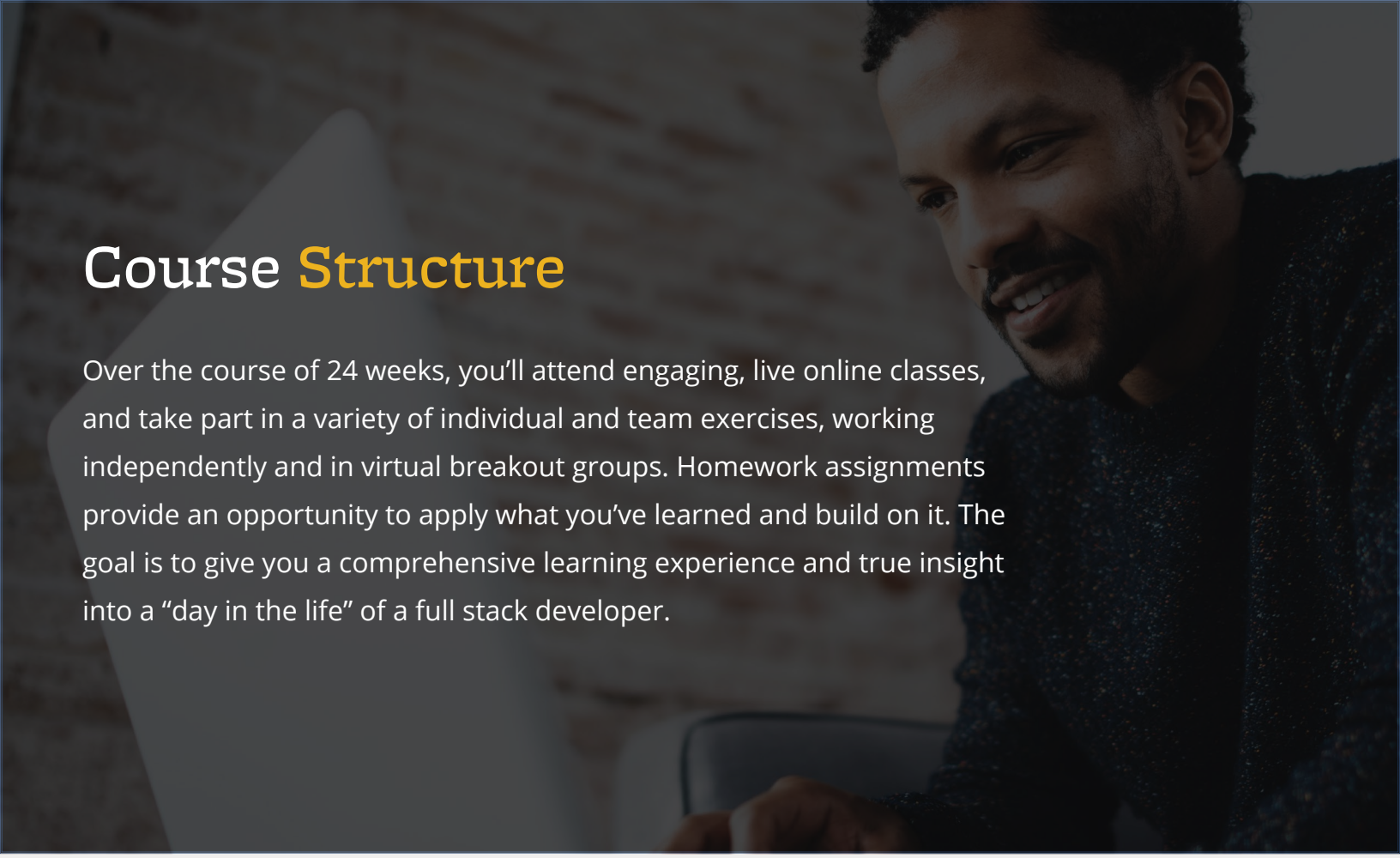
Those who complete the boot camp will be qualified for many different roles, including:

- Full Stack Developer
- Back End Web Developer
- Technical Project Manager
- Software Developer
- Web Designer
- Web Producer
- Front End Web Developer
- Product Manager
- QA and Test Engineer
- Application Development Manager
- Technical Business Analyst

What You Will Learn

By the time you complete the boot camp, you can expect to be able to:

- Apply “social coding” accepted and best practices (including source control, issue tracking, functional feedback, etc.)
- Build a front end website either from scratch or by utilizing a front end framework (such as Bootstrap)
- Deploy static and dynamic websites to the cloud
- Implement complex logical conditions to meet an objective
- Write SQL commands to perform Create, Read, Update and Delete commands
- Create a full stack Single Page Application with AJAX communication
- Develop your vision for a website—and then build it!
- Expertly navigate the file system and terminal basics
- Work independently or in a group on complex projects throughout the entire development life cycle
- Understand the basics of troubleshooting and enhancing legacy code
- Communicate the basics of serving a web page and how the browser renders code
- Create RESTful APIs utilizing JSON as a data format
- Consume RESTful APIs properly utilizing REST verbs
- Create session-based applications utilizing user authentication schemes that are well-known and widely used



Course Structure

Over the course of 24 weeks, you'll attend engaging, live online classes, and take part in a variety of individual and team exercises, working independently and in virtual breakout groups. Homework assignments provide an opportunity to apply what you've learned and build on it. The goal is to give you a comprehensive learning experience and true insight into a "day in the life" of a full stack developer.

DISCUSSION

Instructor-led discussions cover the background, history and use of a new technology or concept.

LAB WORK

You'll put classroom teaching into practice individually and with a team in virtual break-out rooms to work on timed, in-class exercises and projects.

PORTFOLIO PROJECTS

Your portfolio signals to employers that you are ready for primetime! You'll build a substantial portfolio of projects that demonstrate your abilities across a wide variety of technologies.

Dynamic Online Experience

We believe in the power of real time learning and peer-to-peer collaboration. That's why our program offers live online classes, in real time, so that you can take advantage of the benefits of a classroom experience—from any location. We also offer a range of resources so if you can't make it to class, you can catch up on your own schedule. In order to foster teamwork, students will routinely separate into virtual breakout rooms during class, where they will work together on exercises and projects with the guidance of dedicated instructors and teaching assistants. In addition, you will also benefit from:

- One-on-one mentorship
- Expert guidance
- Real time collaboration with classmates
- Screen-sharing capabilities for on-demand help
- Individual support from instructional staff

We're Here To Help

As you progress, you're likely to have questions around some of the concepts covered in class. We're here to help—through group tutoring sessions, email and virtual office hours, as well as a dedicated Slack channel where you can get assistance from instructors, support staff and your fellow classmates.

In addition to learning to code, you will have access to career services that will help you prepare for technical roles after the program. Career services offers a number of benefits, including:

- Career Content and Interview Practice Sessions
- Database of Customizable Tools and Templates
  - Multiple Technical Resume Templates
  - Github Best Practices
  - Guidelines to Building a Portfolio
  - Creating an Elevator Pitch
  - Developing a Bio
- Resume and Profile Development Coaching
- Online Career Events With Industry Professionals
- Soft Skills Training
- One-on-One Career Coaching

After completing the program, you'll have additional access to resources, events and networks that support the next part of your journey. This includes:

- Access to an alumni Slack group shared by all full stack flex boot camp alumni
- Technical and behavioral interview prep material
- Curated open-source projects and activities to help you demonstrate a commitment to continuous learning
- Lists of networking groups and nonprofits seeking web development volunteers
- Supplemental online learning material that leverages your new web development skills to pick up additional languages: Python, Java, C# and PHP

Building Your Portfolio

It's a fact: Companies care about what you can do, not what you say you can do. For that reason, our curriculum teaches you how to put what you've learned to work on actual portfolio projects, ranging from simple HTML and CSS code samples to sophisticated Single Page Applications with back end databases.

Building Your Portfolio

Your Full Stack Portfolio Page

Once you complete our program, your portfolio page will help you showcase your work with links and descriptions to the projects you've created, code samples and personal information that employers want to see. Think of your portfolio page as your new home on the web.

Skills Needed

- HTML5
- CSS
- JavaScript
- Heroku
- Git

Objectives

- Create a home on the web to showcase your skills
- Design and build a complete site from concept

Business-Oriented Homework Projects

Our homework assignments are designed to emulate two real-world scenarios: 1) on-the-job tickets and 2) job-seeking coding challenges. In both cases, the assignment is framed as a user story. In addition to user stories, ticket-based homework assignments follow the agile project management conventions of framing the issue in terms of business context and acceptance criteria.

Skills Needed

All homework:

- HTML
- CSS
- JavaScript
- Git

Select homework:

- jQuery
- Bootstrap
- MySQL
- Node.js
- Express.js
- ORM
- APIs Heroku
- MongoDB
- React
- GraphQL

Objectives

- Each assignment focuses on a specific layer of the tech stack; objectives will vary based on the tech stack focus

Building Your Portfolio

Self-Selected Front End Project

This is a group project that forces you to think outside your comfort zone. You and your group will decide what to build and then build it—a front end application that interacts with real-world services like Google Maps, Twitter or The Library of CongressAPI.

Skills Needed

- HTML5/CSS
- JavaScript/jQuery
- API Consumption
- Bootstrap
- Git

Objectives

- Work in a group to build a project together
- Interact with third-party services
- Think in terms of mobile responsive design

Full Stack Project

In your first full stack web application, you'll create an intuitive front end, robust back end and scalable database.

Skills Needed

- HTML5/CSS
- Heroku
- JavaScript
- Template Engines
- Authentication
- Node.js
- Express.js
- ORM
- MySQL

Objectives

- Track issue progress with industry-standard tools
- Communicate with team members asynchronously
- Design a MySQL Database Schema
- Create a full stack application
- Write project documentation
- Understand database relationships

Portfolio continued...

Final Project

You will work independently or break out into groups to collaborate on a final project. You will come up with your own project and actually build it. The skills you learn during this project will truly help you to prepare for your first interviews and jobs!

Skills Needed

- Everything you've learned!

Objectives

- Define project scope
- Quality assurance testing
- Responsive design
- Deployment
- Code organization

Course Curriculum By Phase

Phase	Description	What You'll Learn
Phase 1: Foundation (Weeks 1-8)	The first phase, Foundation, equips you with the fundamental concepts of web development, covering HTML, CSS and JavaScript, as well as command line fundamentals and API consumption.	• HTML, CSS and JavaScript • Creating a web page from scratch • Mastering terminal commands • DOM manipulation • Integrating third-party libraries (jQuery, Bootstrap) • Consuming RESTful APIs • Parsing JSON to extract meaningful data • Using AJAX to update data on a website
Phase 2: Technical (Weeks 9-16)	In the second phase, Technical, you learn the skills necessary to engineer a full stack web application, working with servers, databases and other back end technologies and connecting them to the front end.	• Writing Node.js server code to serve static web pages • Querying large amounts of data and answering questions from a MySQL database • Understanding and using Joins, Wheres and Counts strategically
Phase 3: Performance (Weeks 17-24)	The last phase, Performance, has a dual meaning in that you acquire skills to optimize your web applications for speed and efficiency as well as prepare yourself for the transition to a career in web development.	• Utilizing NoSQL databases, such as MongoDB, as an alternative to MySQL • Improving the performance of applications • Converting traditional applications into progressive web applications (PWAs) • Creating single-page applications with React • Computer Science applied to JavaScript (data structures, algorithms)
Optional Phase: Online Continuation Courses (Supplemental Learning)	Continue building your professional portfolio of projects after you complete the boot camp. As an alumni of the program, you'll have access to additional learning, projects and networking opportunities that never expire. Build your fluency in additional technologies and further increase your competitiveness in the market with hands-on learning that's supported by a global network of alumni.	Take crash courses in: • Python • Java • Amazon Web Services • C#