The digital revolution has transformed virtually every area of human activity—and you can be part of it as a web development professional. The Coding Boot Camp at UNC Charlotte is a 12-week Full Stack Flex course that gives you the knowledge and skills to build dynamic end-to-end web applications and become a full stack web developer.

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 on real projects under the guidance of area employers. Plus, you’ll have an impressive Professional Portfolio and the confidence to succeed as a web development professional.
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:

<table>
<thead>
<tr>
<th>Scenario</th>
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<tbody>
<tr>
<td>You’re considering a career change but not sure how to take the first step.</td>
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<tr>
<td>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.</td>
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<td>You want to engage more deeply with your current job—or boost your earnings and broaden your experience with freelance work.</td>
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<td>You have an entrepreneurial idea and need to acquire the skills to go “all in” on it and launch your business.</td>
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<tr>
<td>You’re looking to learn a lot of useful and valuable skills in a short amount of time.</td>
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The **Skills You’ll Gain**

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

### Browser Based Technologies
- HTML5
- CSS
- Responsive Design
- CSS Frameworks (Bootstrap, Materialize)
- JavaScript
- jQuery
- Handlebars
- Cookies, Local Storage
- React.js

### Databases
- MySQL

### Computer Science
- Data Structures
- Algorithms

### C#
- ASP.Net

### Quality Assurance
- Writing Tests

### Deployment
- Heroku
- Git
- Github Pages

### Node.js (Server Side Development)
- Express
- Security and Session Storage
- User Authentication
- MERN Stack (React.js, Express.js, MongoDB, Node.js)

* Note: These topics are subject to change based on local market demand and the input of hiring partners.
Building On The Basics

In web development as in sports, 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.
Our graduates will have the opportunity to be placed in many different roles, including:

<table>
<thead>
<tr>
<th>Full Stack Developer</th>
<th>Front End Web Developer</th>
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</thead>
<tbody>
<tr>
<td>Back End Web Developer</td>
<td>Product Manager</td>
</tr>
<tr>
<td>Technical Project Manager</td>
<td>QA and Test Engineer</td>
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<tr>
<td>Software Developer</td>
<td>Application Development Manager</td>
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<tr>
<td>Computer Programmer</td>
<td>Web Designer</td>
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<tr>
<td>Email Developer</td>
<td>Web Producer</td>
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### What You Will Learn

By the time you graduate, you can expect to be able to:

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

Over the course of 12 weeks, you’ll attend informative lectures and take part in a variety of individual and team exercises, working independently and in groups, in the classroom and at home. 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 so we model our program after real world corporate environments. This gives students 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 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.
We’re Here To Help

As you move up the learning curve, you’re likely to have questions around some of the concepts covered in class. We’re here to help—through in-person and virtual office hours, as well as a dedicated #slack channel where you can get assistance from instructors, support staff and your fellow students. All work is done via Github, so you can create issues directly on your own projects for instructors to assist you in a truly asynchronous fashion. In addition to learning to code, you will have access to career services that will help you prepare for technical roles after graduation such as:

- Career Content and 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
- Online Career Events With Industry Professionals
- Soft Skills Training
- One-on-One Career Coaching
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 backend 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
- Bootstrap
- Heroku
- Git

### Objectives
- Create a home on the web to showcase your skills
- Build a complete site from concept
- Commit code to a shared repository

Javascript Based Game

Building a game has many components, and seemingly simple ones such as keeping track of state or playing over the Internet, can be deceptively complex. This game involves components like interface design, state management, edge cases, determining win paths... and, of course, fun! Students also learn intangible skills, such as how to best tackle a difficult problem.

### Skills Needed
- HTML5/CSS
- JavaScript/jQuery
- Event and State Management
- Bootstrap

### Objectives
- Build a fully functional game
- Track winning and losing stats
- Apply logic skills to a real project
- Understand the basics of iteration

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 IMDb API.

### Skills Needed
- HTML5/CSS
- JavaScript/Query
- API Consumption
- Bootstrap
- Heroku
- Git

### Objectives
- Work in a group to build a project together
- Interact with third-party services
- Think in terms of mobile responsive design
- Read/write from/to a remote database
Portfolio continued...

MongoDB Web Scraper
Create a website that dynamically aggregates articles from your favorite news outlet while letting your users leave comments on each story. You’ll save and retrieve these articles and comments by using the Mongoose ORM to query a remote MongoDB database.

**Skills Needed**
- HTML5/CSS
- Interactivity (AJAX)
- JavaScript/jQuery
- Bootstrap
- Node.js
- Express.js
- MongoDB
- Mongoose ORM
- Cheerio

**Objectives**
- Combine your knowledge of back-end and frontend technologies to build a full stack application.
- Read/write from/to a remote database
- Constantly update your collection of articles with a script that scrapes the latest stories whenever someone visits your site.

Full Stack Project
In your first full stack web application you’ll create an intuitive frontend/robust backend and scalable database.

**Skills Needed**
- HTML5/CSS
- JavaScript/jQuery
- State Management
- Sessions
- Bootstrap
- Interactivity (AJAX)
- MySQL
- Node.js
- Express.js
- ORM

**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

ReactJS Site
Facebook's ReactJS library allows developers to combine the layout and logic of HTML and JavaScript into a cleaner and more cohesive approach to coding. It’s abounding complexities and strict demands make the learning curve steep, but grasping the React paradigm will help you keep your code maintainable while at the same time impressing potential employers.

**Skills Needed**
- ReactJS
- React Router
- JSX
- Babel
- HTML/CSS
- Bootstrap
- MongoDB
- Git

**Objectives**
- Building an app powered by the MERN stack: MongoDB, Express, ReactJS and Node
- Creating data-rich React components that you can mix and match throughout your app’s pages.
- Incorporating pre-programmed Node packages from the NPM community
**ASP.Net Application**

Exposure with Microsoft’s versatile .NET ecosystem is highly sought after by employers. Familiarity with web development using C# and ASP.NET is a sure way to earn their attention.

### Skills Needed
- HTML/CSS
- Git
- ASP.NET
- SQL & NoSQL Databases
- C#

### Objectives
- Create an ASP.NET Project
- Use databases to build dynamic web applications
- Build cloud-based web apps and services
- Implement robust and flexible APIs

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**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 Module

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
<th>What You’ll Learn</th>
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</thead>
<tbody>
<tr>
<td>Module 1:</td>
<td>Mastering The Browser</td>
<td>▪ Creating a web page from scratch&lt;br&gt;▪ Mastering terminal commands&lt;br&gt;▪ JavaScript and it’s most beloved child, jQuery</td>
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<td>(Weeks 1-2)</td>
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<tr>
<td>Module 2:</td>
<td>API and JSON</td>
<td>▪ Consuming RESTful APIs&lt;br&gt;▪ Parsing JSON to extract meaningful data&lt;br&gt;▪ Using AJAX to update data on a website without having to hit that “refresh” button in the browser</td>
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<td>(Weeks 3-4)</td>
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<tr>
<td>Module 3:</td>
<td>Server Side</td>
<td>▪ Writing Node.js server code to serve static web pages&lt;br&gt;▪ Querying large amounts of data and answering questions from MySQL and MongoDB Databases&lt;br&gt;▪ Incorporating the Express framework to combine these server-side technologies with client-facing web pages—the full stack begins here</td>
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<td>(Weeks 5-7)</td>
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<tr>
<td>Module 4:</td>
<td>Learn to MERN</td>
<td>▪ Grasping the intricacies of building data-bound user interfaces with the ReactJS library&lt;br&gt;▪ Applying this knowledge with your experience with Node, MongoDB and Express to create REMN applications</td>
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<tr>
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<td>(Weeks 8-9)</td>
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<tr>
<td>Module 5:</td>
<td>C#, ASP.Net</td>
<td>▪ Create web apps and APIs&lt;br&gt;▪ Take a deep dive into C# and ASP.NET&lt;br&gt;▪ Build safe applications for large numbers of users</td>
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<td>(Week 10)</td>
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</table>
| **Module 6:** | **Computer Science Fundamentals**  
(Week 11)                                                                                       | - Applying computer science to JavaScript  
- Studying which data structures to use for specific problems  
- Understanding which searching and sorting algorithms are most efficient for particular use cases |
| **Module 7:** | **Final Project**  
(Week 12)                                                                                       | - Dreaming up something fantastic and understanding the bounds of reasonable and achievable         |