General Assembly Chicago
Course Curriculum

WEB DEVELOPMENT IMMERSIVE

GA.CO/WDI

Web Development Immersive
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OVERVIEW

THE FRAMEWORK

This 12-week course provides students with a breadth of web development skills, enabling them to build full stack web applications. Our course is built around the broader history of web development. This means that our students graduate with a solid base of fundamental programming knowledge, experience with specific languages and frameworks that are popular today, and a flexible outlook that is comfortable and eager to tackle new technologies in a fast-moving and ever-changing industry.

Because we're focused on preparing our students for a career in technology, we want each graduate to leave WDI with a body of work they can use in their job search to discuss and demonstrate what they are capable of contributing to a company.

By the end of this course, students should be able to:

- Design and lay out responsive web applications
- Build secure full-stack web applications according to common design patterns
- Safely model and store data in SQL (Postgres) and NoSQL (MongoDB) databases
- Develop web applications using both Ruby (Sinatra & Ruby on Rails) and JavaScript (Node & Express.js)
- Consume and integrate third-party APIs in an application
- Use modern JavaScript browser application frameworks such as Backbone.js and React.js
- Deploy applications to the web using cloud-based hosting
- Clearly document and present the projects they've built

STUDENTS

CAREER CHANGERS	For individuals looking to transition into a technical career, this course provides a supportive community and a set of skills necessary to turn your designs into web applications that will serve as a pillar of your job search.
LEVEL-UPPERS	For individuals looking for a discrete set of technical skills to complement existing knowledge, this course provides a set of skills that can help to either expand an existing freelance business, or move into a more technical role at an existing company.
UNDECLARED MAJORS	For those who've recently graduated high school or college, and are looking for an efficient pathway to a technical career, this course provides a set of skills that can serve as a foundation for a career in web development or other related technical disciplines.
ENTREPRENEURS	For those looking to launch a company or take an existing company online, this course provides the skills needed to plan for, design, build, and launch an MVP of a web application.

PROJECTS

PRE-WORK PROJECT FUNDAMENTALS

During the pre-work, you'll cover programming fundamentals and be asked to build a simple command-line game using JavaScript. This project will test your knowledge of key concepts like variables, objects, and functions. The objective of the project is to:

- Prepare you to enter WDI with a rudimentary understanding of JavaScript as a programming language
- Practice running code from the command line
- Apply troubleshooting and debugging techniques

UNIT 1: BUILD A GAME IN THE BROWSER

At the end of Unit 1, spend a few days building a front-end game using technologies like HTML, CSS, SCSS, JavaScript, and jQuery. The objective of the project is to:

- Create an interactive game in the browser
- Apply foundational programming skills to game logic
- Document your project workflow to kickstart your portfolio

PROJECT 2: YOUR FIRST FULL-STACK APP

For your mid-course project you'll spend 3-4 days building a secure, password-protected Ruby application that is able to create, read, update, and delete data from a SQL database. The objective of the project is to:

- Build a full-stack MVC web application in Ruby & Sinatra
- Implement basic sign up/log in of users with passwords
- Store application data in a SQL database
- Utilize an ORM to create a database table structure and interact with data stored in a relational database
- Deploy your application online so it's publicly accessible

PROJECTS

UNIT 3: BUILD A DISTRIBUTED APPLICATION (GROUP PROJECT)

At the end of Unit 3, you'll work with a group to build a full-stack JavaScript application. The objective in this project is to:

- Work in a simulated team project environment, managing team contributions through Github
- Craft thoughtful user stories together, as a team
- Implement CRUD functionality in a RESTful Node.js API
- Store application data in a NoSQL database
- Consume your API via AJAX in a front-end built with jQuery
- Layout and style your application with well-formatted CSS
- Allow users to login via third-party accounts using oAuth
- Deploy your application online so it's publicly accessible

UNIT 4: FINAL PROJECT

Your final project is likely the most important project in your portfolio. You will apply the things you've learned throughout the course, while exercising creativity in choosing the technologies and skills on which you want to focus. Most students will use a front-end JavaScript browser framework like Backbone.js or React.js, and some will incorporate other tools and technologies that they've learned on their own. The scope is flexible, but in general, the objective is to:

- Prioritize your user stories and build a usable product
- Choose an appropriate technology stack for your needs
- Apply skills you've learned in previous units
- Build an interactive front-end with a JavaScript framework
- Design a visually-impressive front-end to kick your portfolio up a notch
- Deploy your application online so it's publicly accessible

UNITS

UNIT 1: FRONT-END DEVELOPMENT

- How the Internet Works
- Using the Terminal & Navigating the Filesystem
- HTML5
- Chrome Developer Tools
- Text Editors
- CSS Styling
- CSS Box Model & Positioning
- Web Typography
- JavaScript Data Types, Objects, and Functions
- JavaScript Control Flow
- Debugging JavaScript
- DOM Manipulation & Events
- Git and Github
- Asynchronous JavaScript Callbacks
- jQuery
- JavaScript Scope
- Ajax
- CSS Pre-processors
- Responsive Web Design
- User Stories and Task Tracking

UNITS

UNIT 2: RUBY, MVC, AND SINATRA

- Ruby Data Types, Objects, and Methods
- Ruby Control Flow
- Ruby Collections
- Classes and Inheritance
- MVC Design Patterns
- Relational Data Modeling
- Introduction to SQL
- Object-Relational Mapping in ActiveRecord
- Building & Submitting Forms
- Controllers and Routes
- Layouts, Partials, & Views
- Introduction to Sinatra
- Encrypted Passwords and Authentication
- Bootstrap
- Heroku Deployment
- Introduction to Testing and TDD
- Accessing Third-party APIs

UNITS

UNIT 3: APIS WITH NODE.JS

- Team Workflow using Git and Github
- Introduction to Node.js
- RESTful Routing with Express.js
- Advanced JavaScript OOP & Prototypal Inheritance
- Debugging and Logging in Node
- NoSQL Data Modeling
- NoSQL with MongoDB
- Mongo-backed Models with Mongoose
- Underscore and Underscore Templates
- Express Views and EJS
- AJAX
- Encrypted Passwords and Authentication
- Token-based Authentication
- OAuth and Third-party APIs
- Social Network / Third-party Application Login
- Introduction to Testing with Jasmine
- Connecting and Syncing with a REST API with Backbone.js

UNITS

UNIT 4: ADVANCED FRAMEWORKS

- Building full stack applications with Ruby on Rails
- Introduction to React.js
- Extending DOM Elements with Custom Behaviors
- Client-side Models and Data Binding
- Views and Templates
- Client-side Form Validation
- Managing Authentication State
- Computer Science Interview Fundamentals
- Optional Advanced Topics
- Review Sessions

FAQS

WHY IS THIS COURSE RELEVANT TODAY?

There's never been a better time to start a career as a web developer. From startups to Fortune 100 companies, there is a consistent demand for developers who both write high-quality code and experienced problem solvers who can design creative solutions. The web and the applications built for it have transformed the way we do business globally, and is disrupting industries from music to manufacturing.

WHAT PRACTICAL SKILL SETS CAN I EXPECT TO HAVE UPON COMPLETION OF THE COURSE?

By the end of the course, you will have gained practice in two web-based programming languages, have built several full-stack applications of varying complexity, and have experience working with a team in a development environment. You'll gain confidence in tackling new technologies in an ever-changing field. You'll have gained foundational skill in many disciplines that touch web development – managing complex data sets, securing your applications with encrypted passwords, and testing and deploying your applications to prepare them to scale.

WHO WILL I BE SITTING NEXT TO IN THIS COURSE?

Our students are engineers, artists, journalists, entrepreneurs, financial analysts, folks just out of college, your new best friend – individuals who are looking to start a new career in web development, and, most importantly, just as passionate about building things as you are.

WILL THERE BE ANY PRE-WORK?

Yes, and you should plan to dedicate around 40 hours to complete it. Your admissions representative will send you the assignment after you've enrolled in the program.

SHOULD I COME EQUIPPED WITH ANYTHING?

Yes, a Mac laptop is required. We are unable to support Windows computers in WDI. On a case-by-case basis, local instructional teams may be able to support Linux users who already have experience in that environment. Linux can be installed on most Windows computers.

FAQS

WHAT CAN I EXPECT TO ACCOMPLISH BY THE END OF THE COURSE?

By the end of the course, you will have:

- Completed several individual and group projects
- Learned about web development from experienced web developers
- Networked with some of the best developers, companies, and entrepreneurs in your local community
- Prepared yourself with the foundational knowledge you need to begin a technical career that embraces continuous learning

CONTACT

COURSE APPLICATION

NEW YORK
nyc_admissions@ga.co
1 (877) 348-5665

BOSTON
boston_admissions@ga.co
1 (877) 348-5665

WASHINGTON, DC
dc_admissions@ga.co
1 (877) 348-5665

CHICAGO
chicago_admissions@ga.co
1 (877) 348-5665

ATLANTA
atlanta_admissions@ga.co
1 (877) 348-5665

SEATTLE
seattle_admissions@ga.co
1 (877) 348-5665

AUSTIN
austin_admissions@ga.co
1 (877) 348-5665

SAN FRANCISCO
sf_admissions@ga.co
1 (877) 348-5665

LOS ANGELES
la_admissions@ga.co
1 (877) 348-5665

LONDON
london_admissions@ga.co
+44 (0) 7703 002 046

SYDNEY
sydney_admissions@ga.co
+61 2 0420 438 649

HONG KONG
hk_admissions@ga.co
+852 9473 3608

MELBOURNE
melbourne_admissions@ga.co
+61 1300 779 650

SINGAPORE
singapore_admissions@ga.co