**Code 401 Course Desc - JavaScript**

Overview

Build full-stack web applications with server-side Node.js and modern, client-side, front-end libraries and frameworks, including React. Throughout this intensive course, you will study data structures and algorithms, professional software development techniques, and established industry best practices as you advance your skills in full-stack JavaScript.

This course includes career development curriculum to get you ready for your job search, plus job search assistance after graduation. Daytime and Nights & Weekend tracks are each 400 hours total. Course hours include lecture, lab, and coworking.

Outcomes

By the end of this course, you will:

* Build and contribute to a server-side and client-side application, each using an architecture/framework that promotes maintainability, scalability, and collaboration. These skills will be fully demonstrated during project week during their team development of a prototype, adhering to industry best practices and patterns.
* Apply Computer Science fundamentals in analyzing the trade-offs between competing solutions when choosing algorithms; JavaScript coding patterns and practices; and byte formats that do not degrade the performance or Node browser functionality of their applications.
* Be given a series of career development workshops and the web development knowledge, experience, habits, and practices learned in this course, students will create an online brand, network, and resume; and will demonstrate aptitude in personal and technical interviews of varying formats, in order to conduct a successful job search and obtain a job as a Full-Stack JavaScript or Front-End Web Developer.

Prerequisites

* [Code 301](https://www.codefellows.org/courses/code-301/intermediate-software-development)
  + *Students with previous experience can test out of this requirement in their application. If you'd like to test straight into this course, please make sure you have experience with all of the topics listed on the Code 201 and Code 301 course pages.*
* All students are expected to complete the [prework](https://github.com/codefellows/code-401-JS-prework/blob/master/README.md" \l "code-401-advanced-software-development-in-full-stack-javascript" \t "_blank) for this course before the first day of class.

Topics

Concepts

* Structural Design Patterns
* Async Design Patterns
* Client / Server architecture
* TCP and HTTP
* NoSQL Databases
* RESTful API
* Authentication / Authorization
* Data Modeling
* Test-Driven Development
* Behavior-Driven Development
* Unit, Integration, and End-to-End Testing
* Object-Oriented Programming
* Functional Programming
* Code Readability and Maintainability
* Version Control
* Continuous Integration
* Debugging

Data Structures and Algorithms

* Linked Lists
* Stacks/Queues
* Trees
* Binary Search Trees
* Sorting Algorithms
* Hash Maps
* Daily Whiteboard Interview Practice

Languages

* Advanced Server-Side and Client-Side JavaScript
* Advanced HTML5, CSS, and Sass

Environments and Tools

* Unix
* Git
* GitHub
* Node
* gulp
* ESLint
* Mocha
* Chai
* MongoDB
* Heroku
* Travis CI
* ES6
* CommonJS
* React
* webpack
* Jasmine
* Karma
* Sass

Career Development Curriculum

Two full days of Code 401 are dedicated to workshops and presentations that teach students the skills they'll need for their job search, such as personal branding techniques, effective networking practices, how to create an attractive resume, mastering personal and technical interviews, job search best practices, and more. An additional one-day job search strategy workshop is held in the week after graduation.

Additionally, during each Project Week, students present projects that will go into their professional portfolio. [Learn More »](https://www.codefellows.org/get-a-software-development-job)

Learn with Stacked Modules

Concepts in each of our courses are taught using stacked modules, where a new concept is introduced in each class session, building upon what came before it. This is a challenging style that requires persistence, practice, and collaboration, but allows more concepts to be introduced over the length of the course. This method helps students learn and retain more information in a short period of time. [Learn more about stacked modules »](https://www.codefellows.org/blog/how-to-accelerate-your-learning-with-stacked-modules)

## Homework Policy

In order to pass the class, students must attain at least 90% of available points.

## Professionalism

Punctuality, participation in discussions, completion of assignments, and demonstration of professional courtesy to others are required, in accordance with our [Code of Conduct](https://github.com/codefellows/code-of-conduct). Attendance will be taken at the beginning of every class. Passing requires at least 90% attendance. Students should always contact the instructors ahead of time if they are unable to attend all or part of published class / lab hours.

*If bringing your own computer:*

Windows users will need a Linux environment, recommend setting up a VirtualBox (<https://www.virtualbox.org/wiki/Downloads>) and Ubuntu (<http://www.ubuntu.com/download/desktop>). Text Editor, recommend using Atom (<https://atom.io/>)