



THE SCHOOL OF PROGRAMMING AND DEVELOPMENT

Front End Web Developer



NANODEGREE SYLLABUS

Overview

Front End Web Developer Nanodegree Program

The goal of the Front End Web Developer Nanodegree program is to equip learners with the unique skills they need to build and develop a variety of websites and applications.

A graduate of this Nanodegree program will be able to:

- Construct responsive websites using CSS, Flexbox and CSS Grid.
- Develop interactive websites and UI (User Interface) applications using JavaScript and HTML.
- Connect a web application to backend server data using JavaScript.
- Automate application build and deployment using Webpack.
- Improve offline performance of websites using Service Worker.

Program Information



ESTIMATED TIME

4 months
Study 10 hours/week



LEVEL

Practitioner



PREREQUISITES

- Lay out a simple webpage using HTML.
- Style a website element using CSS.
- Write and test software with JavaScript.
- Inspect websites using Developer Tools on a modern web browser (Chrome, Firefox, or Edge).
- Debug and troubleshoot errors and failures in JavaScript programs.



HARDWARE/SOFTWARE REQUIRED

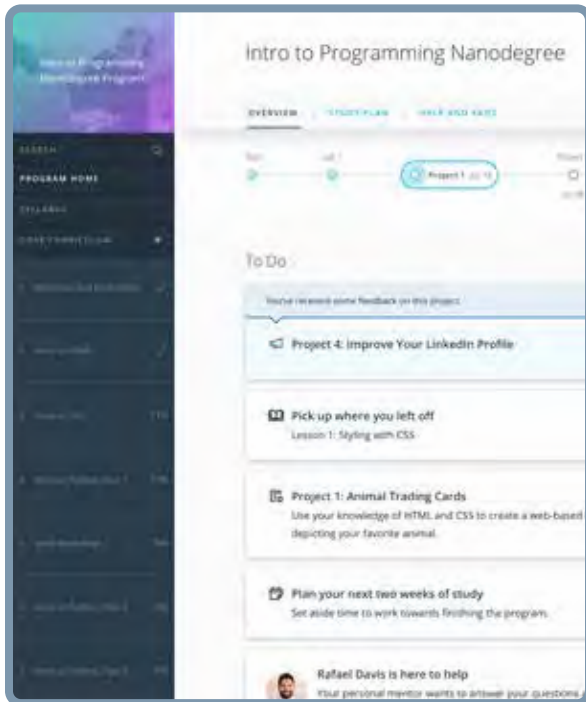
A computer with a broadband connection, on which you will install a professional code/text editor (e.g., Visual Studio Code, Atom, etc.).



LEARN MORE ABOUT THIS NANODEGREE

Contact us at enterpriseNDs@udacity.com.

Our Classroom Experience



REAL-WORLD PROJECTS

Learners build new skills through industry-relevant projects and receive personalized feedback from our network of 900+ project reviewers. Our simple user interface makes it easy to submit projects as often as needed and receive unlimited feedback.

KNOWLEDGE

Answers to most questions can be found with Knowledge, our proprietary wiki. Learners can search questions asked by others and discover in real-time how to solve challenges.

LEARNER HUB

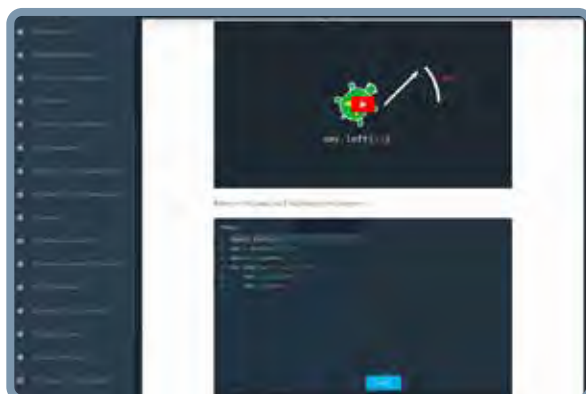
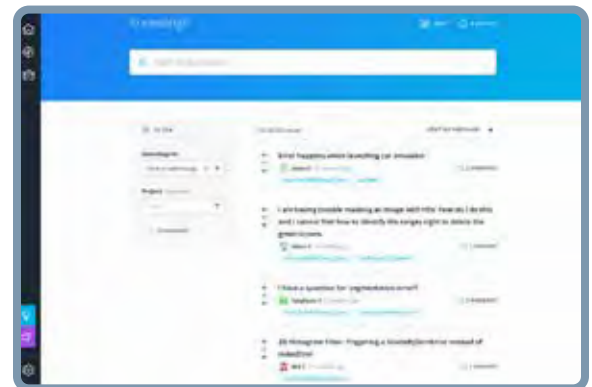
Learners leverage the power of community through a simple, yet powerful chat interface built within the classroom. Learner Hub connects learners with their technical mentor and fellow learners.

WORKSPACES

Learners can check the output and quality of their code by testing it on interactive workspaces that are integrated into the classroom.

QUIZZES

Understanding concepts learned during lessons is made simple with auto-graded quizzes. Learners can easily go back and brush up on concepts at anytime during the course.



CUSTOM STUDY PLANS

Mentors create a custom study plan tailored to learners' needs. This plan keeps track of progress toward learner goals.

PROGRESS TRACKER

Personalized milestone reminders help learners stay on track and focused as they work to complete their Nanodegree program.

Learn with the Best



Daniel Silber-Baker

INSTRUCTOR

Daniel Silber-Baker is a programmer, poet, and educational design expert. He has a master's degree from NYU's Interactive Telecommunications Program, and his professional career has stretched across the non-profit, corporate, and academic spheres.



Rachel Manning

INSTRUCTOR

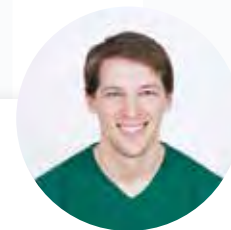
Rachel is a front end web developer at Acquia and spent 3 years as the curriculum developer for a Silicon Beach bootcamp. An advocate for continued learning, she is passionate about mentoring women and students in technology.



Alyssa Hope

INSTRUCTOR

Alyssa is a full stack developer who was previously the lead instructor at a coding bootcamp. With a degree in International Communications, her passion is to express thoughts well, whether in code or writing.



Richard Kalehoff

INSTRUCTOR

Richard is a Course Developer with a passion for teaching. He has a degree in computer science, and first worked for a nonprofit doing everything from front end web development, to backend programming, to database and server management.



Course 1: CSS & Website Layout

Learn how to effectively create the structure of a website using semantic HTML, and style websites with CSS and responsive layouts. Develop an understanding of different use cases for CSS Grid and Flexbox, and structure the layout of a web page using grid columns and rows.

Project

Styled Blog Website

For your first project, you'll create a multi-page blog website, using best practices for content and page styling with HTML and CSS. You'll practice using responsive layouts, Flexbox, and CSS Grid to create the structure and design for your own blog.

LESSON TITLE

LEARNING OUTCOMES

INTRODUCTION TO HTML

- Create a programming project with a code editor.
- Construct nested websites with HTML tags and elements
- Troubleshoot and debug HTML errors and bugs.

INTRODUCTION TO CSS

- Style website components by ID, class and type.
- Connect CSS to a website.
- Position and display website elements.
- Modify and control website typography.
- Troubleshoot and debug issues with stylesheets.

INTRODUCING FLEXBOX

- Control web elements orientation and layout with Flexbox.
- Control ordering of web elements with Flexbox.
- Align and justify web elements with Flexbox.
- Transform and resize web elements with Flexbox.

Nanodegree Program Overview

Course 1: CSS & Website Layout, cont.

LESSON TITLE	LEARNING OUTCOMES
CSS GRID	<ul style="list-style-type: none">• Compare and contrast the use cases for CSS Grid and Flexbox.• Structure the layout of a web page using grid columns and rows.
CREATING RESPONSIVE LAYOUTS	<ul style="list-style-type: none">• Define custom styles for different screen sizes using media queries.• Observe and create breakpoints in a website to change layout and styling as a page is resized.





Course 2: JavaScript and the DOM

Use JavaScript to control a webpage. Learn what the Document Object Model (DOM) is, and use JavaScript and the DOM to dictate page content and interactions. Gain experience working with Browser Events and managing website performance by controlling content creation efficiently.

Project

Dynamic Landing Page for Marketing Content

In this project, you will build a multi-section landing page. Often times, you won't know how much content will be added to a page through a Content Management System (CSM) or an API. To handle this problem, you will dynamically add content to a web page. You'll be building a landing page that combines your skills with JavaScript, HTML, and CSS to update and control the page and create a dynamic user experience.

LESSON TITLE	LEARNING OUTCOMES
SYNTAX	<ul style="list-style-type: none">• Declare block-scoped variables using let and const.• Format JavaScript strings using template literals.• Manage arrays and objects using JavaScript destructuring syntax.• Iterate over arrays and objects using JavaScript for...of syntax.
THE DOCUMENT OBJECT MODEL	<ul style="list-style-type: none">• Describe and explain the Document Object Model for web browsers.• Access page elements by ID, class, and type using JavaScript.
CREATING CONTENT WITH JAVASCRIPT	<ul style="list-style-type: none">• Modify HTML content with JavaScript.• Create HTML content and elements with JavaScript.• Remove HTML content with JavaScript.• Style HTML content with JavaScript and CSS.
WORKING WITH BROWSER EVENTS	<ul style="list-style-type: none">• Describe and explain the phases of browser events.• Create event listeners that handle browser events by writing code that runs when an event is triggered.• Describe and explain the events that are fired as a web page loads.

Nanodegree Program Overview

Course 2: JavaScript and the DOM, cont.

LESSON TITLE

LEARNING OUTCOMES

PERFORMANCE

- Manage website performance by controlling content creation efficiently.
- Describe what happens when a webpage has to be redrawn.
- Describe and explain the JavaScript call stack.
- Describe and explain the JavaScript event loop.
- Write efficient code by analyzing the call stack and event loop.
- Delay code execution with `setTimeout`.





Course 3: Web APIs and Asynchronous Applications

Set up a Node and Express environment so you can develop web applications on your local machine, and learn to handle HTTP Requests & Routes. Update and modify website elements dynamically using asynchronously retrieved data.

Project

Weather Journal

In this project, you'll apply your new skills to combine data from the OpenWeatherMap API and client side (browser) HTML forms to create a web app that records a weather journal for users. This project requires you to create an asynchronous web app that uses Web API and user data to dynamically update the UI for a Weather Journal App.

LESSON TITLE

LEARNING OUTCOMES

NODE & EXPRESS ENVIRONMENT

- Set up a Node and Express environment to develop a web application on your local machine.
- Install JavaScript packages using npm (Node Package Manager).
- Setup and run a local development server.
- Manage web application file structure and website assets using Express.

HTTP REQUESTS & ROUTES

- Handle requests to an Express with routes.
- Describe and explain the differences between GET and POST requests.
- Build a web server and use it to serve data and responses to web requests.

ASYNCHRONOUS JAVASCRIPT

- Manage asynchronous JavaScript control flow with Promises.
- Request data from a server using JavaScript Fetch.
- Update and modify website elements dynamically using asynchronously retrieved data.

Nanodegree Program Overview

Course 4: Build Tools, Webpack, and Service Worker

Develop an understanding of how to use build tools, such as Webpack, for automating build tasks. Create CSS variables with Sass and configure Webpack to use Sass controlled stylesheets. Learn how to cache server data and website functionality using Service Worker.

Project

Article Analysis Website

In this project, you'll get a taste of some common production environments and tools that you will likely come across in a front end developer role. You will be building a web tool that allows users to run Natural Language Processing (NLP) on articles or blogs found on other websites. Using an exciting new API called Aylien, you can build a simple web interface to interact with their NLP system. This tool will give back pertinent information about the article: whether the content is subjective (opinion) or objective (fact-based) and whether it is positive, neutral, or negative in tone.

For this project, you will use:

- Node
- Express
- Aylien API
- Webpack
- Service Worker

Project

Front End Web Developer Nanodegree Program Capstone

In the final project, you'll combine all of the skills you've developed throughout the Nanodegree program to build an online travel app. You'll work with data sources from multiple APIs to create a dynamic travel weather planning application that helps people plan trips by generating weather forecasts for the places they're visiting.

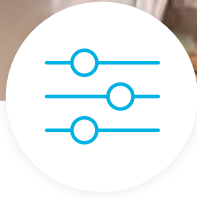
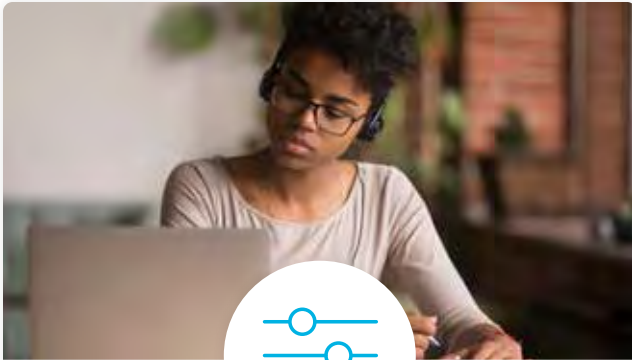
You'll pull together all of the JavaScript, HTML, CSS, and build tool skills and knowledge you've gained to create this application. The design is up to you, and you'll have the flexibility to include and combine other APIs (even your own!) to build this final project.



Course 4: Build Tools, Webpack, and Service Worker, cont.

LESSON TITLE	LEARNING OUTCOMES
INTRO TO BUILD TOOLS	<ul style="list-style-type: none">• Describe and explain the problems solved by using automated build tools.• Inspect and analyze the activity that occurs when loading a web page in a browser.• Describe and explain what Webpack is and how it can be used.
BASICS OF WEBPACK	<ul style="list-style-type: none">• Install Webpack to a computer.• Configure webpack for automating build tasks.• Define an entry point for a webpack bundle.• Install and configure middleware for building an application.• Extend Webpack functionality by installing plugins.
SASS AND WEBPACK	<ul style="list-style-type: none">• Describe and explain the benefits and use cases for Sass.• Create CSS variables with Sass.• Extend and nest CSS sheets and classes with Sass.• Configure Webpack to use Sass controlled stylesheets.
FINAL TOUCHES	<ul style="list-style-type: none">• Control variable and function scope with JavaScript IIFEs. (Immediately Invoked Function Expressions).• Optimize an application build pipeline with Webpack.• Cache server data and websites functionality using Service Worker.

Our Nanodegree Programs Include:



Pre-Assessments

Our in-depth workforce assessments identify your team's current level of knowledge in key areas. Results are used to generate custom learning paths designed to equip your workforce with the most applicable skill sets.



Dashboard & Progress Reports

Our interactive dashboard (enterprise management console) allows administrators to manage employee onboarding, track course progress, perform bulk enrollments and more.



Industry Validation & Reviews

Learners' progress and subject knowledge is tested and validated by industry experts and leaders from our advisory board. These in-depth reviews ensure your teams have achieved competency.



Real World Hands-on Projects


Through a series of rigorous, real-world projects, your employees learn and apply new techniques, analyze results, and produce actionable insights. Project portfolios demonstrate learners' growing proficiency and subject mastery.

Our Review Process



Real-life Reviewers for Real-life Projects

Real-world projects are at the core of our Nanodegree programs because hands-on learning is the best way to master a new skill. Receiving relevant feedback from an industry expert is a critical part of that learning process, and infinitely more useful than that from peers or automated grading systems. Udacity has a network of over 900 experienced project reviewers who provide personalized and timely feedback to help all learners succeed.



Vaibhav
UDACITY LEARNER


"I never felt overwhelmed while pursuing the Nanodegree program due to the valuable support of the reviewers, and now I am more confident in converting my ideas to reality."

_____ now at _____
CODING VISIONS INFOTECH


All Learners Benefit From:




Line-by-line feedback for coding projects



Industry tips and best practices



Advice on additional resources to research



Unlimited submissions and feedback loops


How it Works

Real-world projects are integrated within the classroom experience, making for a seamless review process flow.

- Go through the lessons and work on the projects that follow
- Get help from your technical mentor, if needed
- Submit your project work
- Receive personalized feedback from the reviewer
- If the submission is not satisfactory, resubmit your project
- Continue submitting and receiving feedback from the reviewer until you successfully complete your project


About our Project Reviewers

Our expert project reviewers are evaluated against the highest standards and graded based on learners' progress. Here's how they measure up to ensure your success.




Expert Project Reviewers

Are hand-picked to provide detailed feedback on your project submissions.



Projects Reviewed

Our reviewers have extensive experience in guiding learners through their course projects.



Hours Average Turnaround

You can resubmit your project on the same day for additional feedback.



Average Reviewer Rating

Our learners love the quality of the feedback they receive from our experienced reviewers.



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