UDACITY
FOR ENTERPRISE

THE SCHOOL OF PROGRAMMING AND DEVELOPMENT

Intermediate Javascript

NANODEGREE SYLLABUS

Overview

Intermediate Javascript Nanodegree Program

The goal of the Intermediate JavaScript Nanodegree program is to prepare students for roles in web development, server-side application development, and desktop development that require a more advanced set of JavaScript skills. This program will also prepare students with the skills required to use JavaScript frameworks like React, Angular, and Vue.

A graduate of this program will be able to:

- Use object-oriented JavaScript to build classes to construct objects that encapsulate data and functionality.
- Create private state with closures and immediately-invoked function expressions.
- Parse, organize and transform data in JavaScript using common methods for collections, arrays, and objects.
- Use the functional programming paradigm with immutable objects, pure functions, and common functional methods.
- Design functional programming pipelines using higher order wrapping functions and currying.
- Implement asynchronous programming with JavaScript including using named functions, handler functions, and JavaScript Promises.

Program Information

ESTIMATED TIME
3 months
Study 10 hours/week

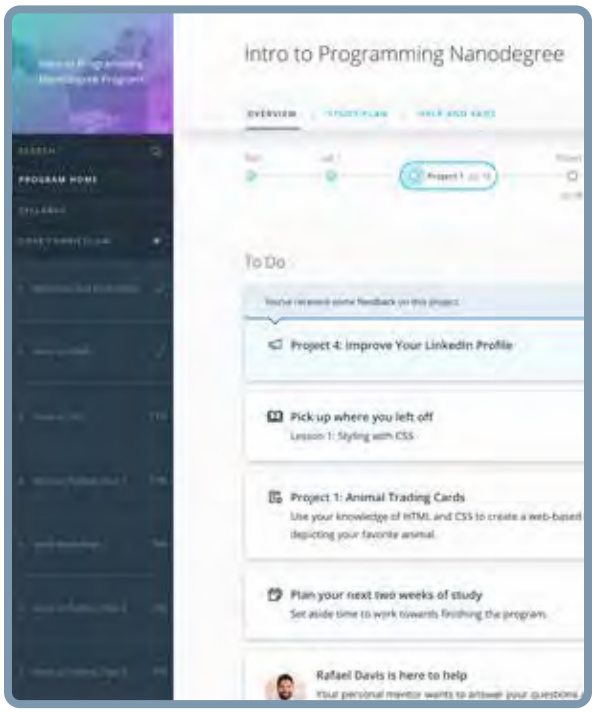
LEVEL
Practitioner

PREREQUISITES
A well-prepared student will be able to Explain and utilize JavaScript's primitive types, write conditions and loops, recognize object syntax and structure, declare functions, and navigate and use Chrome DevTools.

HARDWARE/SOFTWARE REQUIRED
Access to the internet and a 64-bit computer.

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

Andrew Wong

DEVELOPER ADVOCATE AT ADYEN

Andrew is a Course Developer who enjoys making the world a better place through code. He first discovered his passion for teaching as an instructor at App Academy, and continues to enjoy empowering students to advance their education.

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: Object Oriented JavaScript

In this course, you'll learn how to use the object oriented programming features of JavaScript to build applications with reusable and maintainable blocks of code. You'll build classes to construct objects that include both data and functionality, learn how to use prototypal inheritance to maintain DRY code, and how to keep data safe and secure with private properties.

Project: Create a User-generated Infographic

In this project, students will be presented with a real-world scenario of working with object-oriented JavaScript. Students will build an infographic creating and modifying objects from provided data and user input data. Students will also pull in information from a form and use it to complete an array of objects that will be appended back to the DOM.

LESSON TITLE	LEARNING OUTCOMES
OBJECTS IN DEPTH	• Create objects and add/remove properties to them. • Write methods to access and mutate an object's properties. • Learn how variables are properties on window.
FUNCTIONS AT RUNTIME	• Leverage functions as first-class functions. • Identify when a scope is created. • Utilize closures and IIFEs to build private state.
CLASSES AND OBJECTS	• Write a constructor function to instantiate objects. • Identify and manually set the value. • Identify and manually set the value of this.
OBJECT ORIENTED DESIGN PATTERNS	• Use Mixins to copy properties from one object to another object. • Create objects with private properties using module pattern and revealing module pattern.

Course 2: Functional Programming

Functional programming is a hot new topic in the world of JavaScript, but in this course you'll learn that the idea of Functional Programming has been around for a long time! This course will help you gain a better understanding of programming paradigms and why there is a trend towards the Functional paradigm right now. Beyond a high level understanding of Functional programming, you will also discover and practice the modern JavaScript syntax that will allow you to benefit from these concepts in your JavaScript programs.

Project: Create a Mars Rover Dashboard

The functional JavaScript course project will be to build a dashboard for the past and current NASA Mars rovers, information about each mission and images from their excursions. You will be tasked with using all the ES6 syntax and functional programming concepts from the course to interact with a real NASA API and build the front end logic to create the dashboard.

LESSON TITLE	LEARNING OUTCOMES
COURSE INTRODUCTION – FUNCTIONAL PROGRAMMING	• Introduction to the course and concepts. • Requirements, pre-requisites, and resources. • Introduction to Functional Programming. • A brief history of Functional Programming.
INTRODUCTION TO FUNCTIONAL PROGRAMMING	• Introduction to Programming Paradigms. • Benefits of understanding programming paradigms. • Comparing Paradigms. • Benefits of Functional Programming.
FUNCTIONAL JS SYNTAX	• ES6 Array methods. • ES6 Variables. • Object Methods.

Course 2: Functional Programming, cont.

LESSON TITLE	LEARNING OUTCOMES
FUNCTIONAL PROGRAMMING IN JS	• Writing Functional Programs in JavaScript. • Higher Order Functions. • Functional data manipulation. • Functional DOM manipulations.
GOING FURTHER WITH FUNCTIONAL JS	• Persistent Data Structures. • Immutable.JS (vanilla JS). • RxJs (primarily AngularJS). • Redux (primarily ReactJS).

Course 3: Asynchronous Programming in JavaScript

The focus of this course is to get you comfortable reading, writing, and thinking in asynchronous patterns. Understanding asynchronous programming is not only a vital JavaScript skill to master, but is also an important step in your progress as a web developer. This course will cover the original and modern ways to handle asynchronous events in JavaScript, from callbacks, to Promises, and Async/ await. Alongside these topics will come important conceptual lessons, real life applications, and lots of hands on practice.

Project: Build a UdaciRacer Simulation Game

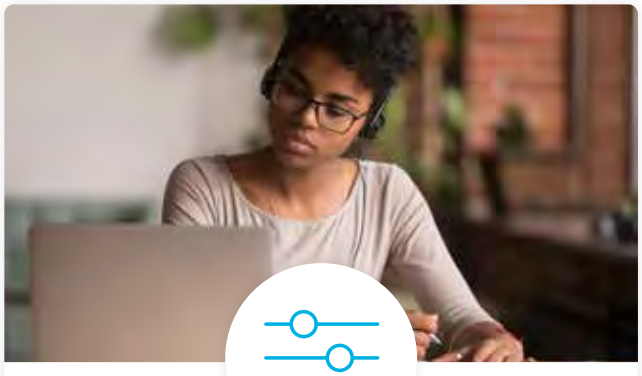
In this project, you will complete a partially built single player racing game. Using the skills and concepts you learned in the course, you will combine callbacks, Promises and Async/await syntax to complete TODOs marked in the code. The TODO's will range from creating API requests to completing asynchronous logic flows. You will also be able to create a theme for your race, like Nascar, horse racing, or spaceship racing! By the end, you will be able to play through a racing game of your very own creation.

LESSON TITLE	LEARNING OUTCOMES
STACK VS. HEAP	• Introduction to the course and concepts. • Requirements, pre-requisites, and resources. • Introduction to asynchronous thinking. • Benefits of learning asynchronous programming.
POINTERS AND REFERENCES	• Threads and single threaded programming. • Blocking and Non-Blocking code. • Helpful terms for single and multi threaded programming. • Callbacks for asynchronous functionality.

Course 3: Asynchronous Programming in JavaScript, cont.

LESSON TITLE	LEARNING OUTCOMES
NEW, DELETE, MEMSET AND MALLO	• Basic syntax and Promise chaining. • How Promises relieved the pain points of callbacks. • Implementations of Promises with Fetch. • Error handling and best practices for Promises. • Advanced Promise methods.
SMART POINTERS	• Synchronous Try/catch syntax. • Basic syntax of Async/await. • Async/await with Promise chains. • Error handling with Async/await. • When and When not to use Async/await.

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.**

900+
Expert Project Reviewers
Are hand-picked to provide detailed feedback on your project submissions.

1.8M
Projects Reviewed
Our reviewers have extensive experience in guiding learners through their course projects.

3
Hours Average Turnaround
You can resubmit your project on the same day for additional feedback.

4.85 /5
Average Reviewer Rating
Our learners love the quality of the feedback they receive from our experienced reviewers.

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For more information visit: **www.udacity.com/enterprise**