

Course Syllabus

Description

CSSE 280 - INTRODUCTION TO WEB PROGRAMMING

- T, Th, F 1-3pm Olin 157

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Catalog Description

Introduction to the **client-side** and **server-side** mechanisms for creating dynamic web applications with persistent data storage. **Browser-server** interaction via HTTP. Static web page creation using current markup and styling languages. **Client-side programming** with modern scripting languages and the DOM. **Server-side programming** with emerging web programming languages and frameworks. Persistent data storage with a state-of-the-art database management system. **Asynchronous client-server communication** via HTTP requests. Development and consumption of **REST APIs**. **Deployment** of web applications to cloud platforms or platforms as a service provider. **Security considerations**. This course provides the breadth of knowledge of many tools/technologies rather than deep knowledge of any particular tool/technology. No previous experience with Web development is required.

This course will provide you with sufficient background in each topic so that you can later pick up the rest on your own. Class sessions will include many hands-on activities.

- Credit Hours: 3R-3L-4C
- Term Available: F, W
- Prerequisites: [CSSE 220 - Object-Oriented Software Development](#) or [CSSE 221 - Fundamentals of Software Development Honors](#)
- Corequisites: None

Instructor Information

Section 01 - Dr. Olga Scrivner
Office Location: CSSE F216
Email: scrivner@rose-hulman.edu
Office Hours: M, T, Th (9-11am) Contact via Teams to schedule additional meetings

Best Contact Method. Email or Teams. Every effort will be made to respond to student inquiries within 24-hours during regular working hours and days. Responses will often be sooner (and sometimes right away). Please plan accordingly.

Office Hours: M,T,Th - 9-11am.

When emailing, please add the course number and section to the Email Subject Header.

You are also welcome to arrange a meeting time by request and also attend Office Hours with TAs.

Course Details

Course assignments include:

- In-class quizzes (weekly)
- **Exams** (3)
- Take-home projects (by topics)
- In-class activities (weekly)
- Final Project [team] (5 Milestones)

Student projects will be web application that creates user value while showing proficiency with course topics and APIs.

Course Learning Objectives

Students who successfully complete this course should be able to:

1. Use the modern **Web standards model** (e.g., HTML, CSS, and JavaScript) to structure, present, and add behavior to a Web document.
2. Use a **client-side Web development framework** or library to build an interactive front-end Web application.
3. Create a **back-end Web server application** from the ground up using a modern runtime environment and an iterative development process.
4. Connect a **back-end Web server** application to a data back-end; write back-end code to create, read, update, and delete data from the data back-end.
5. Develop a **REST API** in a back-end Web server application that returns resources, e.g., in JSON format.
6. Include **asynchronous connections** in a front-end Web application to consume a REST API exposed by a Web server application.
7. Use best practice **JavaScript** patterns including callbacks, closures, promises, modular design, and asynchronous operations, in developing Web applications.
8. Deploy a Web application to a **cloud platform**.
9. Discuss risks to web application stability, security, and compatibility, relating modern approaches to minimize those risks.
10. Design a user experience using a modern Mocking tool (e.g. Figma)

Skills CheckList: JavaScript, HTML, CSS, React

Tools CheckList: [Firebase](#), VSCode, Postman

Required Course Materials:

JavaScript: Novice to Ninja is a fun, practical, and comprehensive guide to the modern usage of this deceptively powerful language. JavaScript is a must-have skill for all web developers. This step-by-step introduction will show you how to solve real-world problems, design eye-catching animations, build smarter forms, and develop richer applications.

Available online at Rose Hulman Library: [Link](#)

Full Stack Web Development MASTERY Course - Novice to Expert, published by Packt: [Link](#)

Essential Website Links

- [Bootstrap Guide](#)
- [Material Design for Bootstrap](#)
- [Firebase Console](#)
- [Firebase Guides](#)
- [Material Design Icons](#)
- [MDN Webdocs](#)
- [React Guide](#)
- [Postman Documentation](#)
- [NodeJS Guide](#)

- [Express Guide](#)

Grade Scale & Components

Your final overall course grade is based on the following weights. Letter grades are assigned according to the Institute's Grade Descriptions, <http://www.rose-hulman.edu/campus-life/student-services/registrar/rules-and-procedures/grades.html>.

Weight	Description
15%	Moodle Follow-along
15%	Coding Practice/ Quizzes
15%	Homework
30%	Team Project
25%	Exams

Your overall course grade will be assigned by:

Grade	if less than	but greater or equal to
A	---	90.0
B+	90.0	85.0
B	85.0	80.0
C+	80.0	75.0
C	75.0	70.0
D+	70.0	65.0
D	65.0	60.0
F	60.0	---

Access to Grades

All assignment grades will be available on the course Moodle site.

Course Schedule

This schedule may change. Specific learning objectives will be provided as the course progresses.

Topics	Weeks	Deliverables
<u>HTML Concepts</u> <u>CSS and Bootstrap</u>	Week 0 - 2	
<u>JS Concepts</u> <u>Firebase</u>	Week 3 - 4	
Frameworks	Week 5 - 9	
<u>Exam 1 Part 1</u> Part 2		09/26 In Class Take Home Due 10/01
<u>Final Project Milestones:</u> M0 Proposal M1 Design M2 Frontend M3 Deployment M4 Demo	Week 4 Week 6 Week 7 Week 8 Week 10	

I reserve the right to modify the course content, schedule, topics, policies, etc. outlined in this syllabus.

Essential Links

- [Bootstrap Guide](#)
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- [React Guide](#)
- [Postman Documentation](#)
- [NodeJS Guide](#)
- [Express Guide](#)

Course Policies

Grading Scale:

Grade Components and Weighting:

Access to Grades:

Late Assignment/Incomplete Assignment Policy:

Attendance Policy:

Course Participation Policy:

Technology and Communication Policy: (suggested text; feel free to use your own)

Rose-Hulman expects its students to be responsible adults and to behave at all times with honor and integrity. Therefore, please keep in mind:

- Images need to be professionally appropriate. As noted in the Student Handbook, the display of sexually suggestive objects or pictures constitutes harassment of others who can see the images. Others will see our laptop background pictures, avatars, etc., so we need to choose appropriate images.
- Electronic messages, forum postings, questions, etc. need to be truthful, respectful, and polite. Rose-Hulman's policy for responsible use of computing facilities notes that sending fraudulent, harassing, or obscene messages and/or materials electronically is unethical and may be illegal. Please review the core rules of Netiquette ('Network etiquette,' or rules for polite interactions online) in preparation for this course.
- Humor doesn't always translate well into electronic communications. Something that was intended as funny or sarcastic can be interpreted literally, causing misunderstandings. "Humor" that belittles or calls into question the competencies of others a) isn't actually funny, and b) translates especially badly into electronic form, where it can easily be interpreted as harassment or bullying.
- Nearly everything that we do in Moodle, the Institute's Learning Management System, is automatically logged and easily trackable. Through Moodle, instructors can see exactly when a student submitted an assignment, whether or not a student watched an instructional video, and whether or not a student looked at course materials posted online.
- If you are a recipient of or a witness to any kind of harassment or bullying, either online or in person, please tell your instructor immediately.

Institutional Policies

Students with Accessibility Needs:

Rose-Hulman is committed to working with students who have special needs or disabilities. Visit [the Accessibility Services website](#) for more information. Requests for academic accommodations must be documented with and approved by the Accessibility Services office before they can be implemented in this course.

Student Counseling:

The [Student Counseling Center](#) helps students identify barriers to success, build personal awareness, and develop life skills. Counseling appointments are free and confidential.

Academic Integrity:

The [Student Handbook](#) and Rose-Hulman's [Academic Rules and Procedures](#) describe penalties and processes invoked as a consequence if academic misconduct (such as cheating, plagiarizing, or interfering with the academic progress of other students) takes place. It is the responsibility of each student to know and follow Rose-Hulman's rules about academic integrity.

Diversity Statement:

Rose-Hulman Institute of Technology is [committed to being an inclusive community](#) in which the multiplicity of values, beliefs, intellectual viewpoints, and cultural perspectives enrich learning and inform scholarship.

Online Access Requirements:

Rose-Hulman welcomes students from around the world, and encourages faculty, staff and students to travel around the world. However, geopolitical conditions and compliance with export law and regulations prevent us from delivering certain kinds of educational experiences and/or using certain kinds of Institute technologies in some locations. For example, students in locations with limited access to the internet in general, or with restricted access to portions of the internet, or which are embargoed by the U.S. Directorate of Defense Trade, may not be able to successfully complete Rose-Hulman courses.

Emergency Information:

To receive email or text messages regarding emergency situations that may impact campus and, possibly, the delivery of classes, [register for RAVE alerts](#) and/or follow [@Rose-HulmanAlert on Twitter](#). Any announcements about the Institute's ability to offer classes will be shared on [Rose-Hulman's website](#).