



Web Programming II: CS-554-WS

Schaefer School of Engineering and Science

Fall 2020

Meeting Times: N/A

Classroom Location: Online

Instructor: Patrick Hill

Contact Info: Patrick.Hill@stevens.edu

Office Hours: By Appointment via Zoom

Prerequisite(s): CS-546

COURSE DESCRIPTION

This course focuses on teaching students the newest technologies available in Web Programming. Topics include advanced client side programming, responsive design, NoSQL databases, JQuery, AJAX, Web Site security, and the latest Frameworks. Students will be given the opportunity to suggest topics they would like to discover at the end of the semester. The course is a very hands-on course where everything taught will be practiced through in-class exercises.

LEARNING OBJECTIVES

- CSS3 - Implement style pages using advanced selectors and CSS3 features.
- JQuery - Implement client side functionality with JQuery.
- NoSQL - Implement pages that take advantage of the NoSQL concept.
- Framework - Use a framework to implement a web page.
- AJAX - Create pages with extensive use of AJAX.
- Security - Build a website that will be protected against common attacks (such as phishing, cross-site scripting, SQL injections, JS injections, etc.).

After successful completion of this course, students will be able to...

- Compose a semantically valid web page styled with CSS.
- Use JavaScript to make web pages interactive and make asynchronous requests.
- Work in a team to create a web application with complex backend and frontend components.

FORMAT AND STRUCTURE

Each lecture will be composed of:

- Review of previous week's material / open QA for previous material.
- Introduction of concepts for the week.
- Detailed explanation of each concept.
- Preparation information to prepare for following week's course.

COURSE MATERIALS

Textbook(s): No textbook is required for this class.

Other Required Readings: Online references will be provided from authoritative sources such as the MDN, MSDN, and the Node.js Manual.

COURSE REQUIREMENTS

Lectures: Lectures will be pre-recorded videos that will be posted every week.

Assignments: Assignments should be handed in on time. Multiple file assignments should be submitted in an archive with a readme file.

Late assignments will receive a 15-point penalty per day, there will be a 5-minute grace period. That means if the assignment is due at 11:59PM and you submit it at 12:04AM then you will get the points deducted for that day. NO EXCEPTIONS UNLESS EXCUSED BY THE GRADUATE ACADEMIC DEPARTMENT.

All assignments are required to be submitted to receive a passing grade in the class.

Project(s): For the final project, students will create a web application with multiple backend and frontend components working together, as well as present all aspects of the product to the class. Earlier in the term, students will submit a detailed technical implementation plan to be discussed and reviewed with the professor. **Failure to submit a portion of the final project on time will result in an automatic 0 for that portion of the project.**

GRADING PROCEDURES

Grades will be based on:

Assignments	(40%)
In-Class Exercises/Quizzes	(10%)
Final Project Implementation Plan	(5%)
Final Project Presentation	(5%)
Final Project Code	(40%)

Final Project Grade: This 40% will be split. 20% of the grade is for the project as a whole and the other 20% is for a group member's individual contribution to the project. The student's final project grade will be averaged between the individual contribution of the student and the project's overall grade. The individual portion of the grade will be determined by GitHub contributions (I will be monitoring them, so it's VERY important you contribute to the project via GitHub) as well as a peer feedback survey from your fellow group members. So for example, Say the group's project as a whole grade was 95% and you received an 80% on the individual contribution portion, then your final project grade would be 87.5%

GRADING SCALE

A	100%	to 94%
A-	< 94%	to 90%
B+	< 90%	to 87%
B	< 87%	to 84%
B-	< 84%	to 80%
C+	< 80%	to 77%
C	< 77%	to 70%
F	< 70%	to 0%

ACADEMIC INTEGRITY

Undergraduate Honor System

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the [Honor System Constitution](#). More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at <http://web.stevens.edu/honor/>

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes and exams) that is assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

“I pledge my honor that I have abided by the Stevens Honor System.”

Reporting Honor System Violations

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at www.stevens.edu/honor.

Graduate Student Code of Academic Integrity

All Stevens graduate students promise to be fully truthful and avoid dishonesty, fraud, misrepresentation, and deceit of any type in relation to their academic work. A student's submission of work for academic credit indicates that the work is the student's own. All outside assistance must be acknowledged. Any student who violates this code or who knowingly assists another student in violating this code shall be subject to discipline.

All graduate students are bound to the Graduate Student Code of Academic Integrity by enrollment in graduate coursework at Stevens. It is the responsibility of each graduate student to understand and adhere to the Graduate Student Code of Academic Integrity. More information including types of violations, the process for handling perceived violations, and types of sanctions can be found at www.stevens.edu/provost/graduate-academics.

Special Provisions for Undergraduate Students in 500-level Courses

The general provisions of the Stevens Honor System do not apply fully to graduate courses, 500 level or otherwise. Any student who wishes to report an undergraduate for a violation in a 500-level course shall submit the report to the Honor Board following the protocol for undergraduate courses, and an investigation will be conducted following the same process for an appeal on false accusation described in Section 8.04 of the Bylaws of the Honor System. Any student who wishes to report a graduate student may submit the report to the Dean of Graduate Academics or to the Honor Board, who will refer the report to the Dean. The Honor Board Chairman will give the Dean of Graduate Academics weekly updates on the progress of any casework relating to 500-level courses. For more information about the scope, penalties, and procedures pertaining to undergraduate students in 500-level courses, see Section 9 of the [Bylaws of the Honor System](#) document, located on the Honor Board website.

LEARNING ACCOMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. Student Counseling and Disability Services works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, and psychiatric disorders in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from SCDS staff. The SCDS staff will facilitate the provision of accommodations on a case-by-case basis. These academic accommodations are provided at no cost to the student.

Disability Services Confidentiality Policy

Student Disability Files are kept separate from academic files and are stored in a secure location within the office of Student Counseling, Psychological & Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability

documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

For more information about Disability Services and the process to receive accommodations, visit

<https://www.stevens.edu/sit/counseling/disability-services>. If you have any questions please contact:

Lauren Poleyeff, Psy.M., LCSW - Disability Services Coordinator and Staff Clinician in Student Counseling and Disability Services at Stevens Institute of Technology at lpoleyef@stevens.edu or by phone (201) 216-8728.

INCLUSIVITY STATEMENT

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in education and innovation. Our community represents a rich variety of backgrounds, experiences, demographics and perspectives and Stevens is committed to fostering a learning environment where every individual is respected and engaged. To facilitate a dynamic and inclusive educational experience, we ask all members of the community to:

- be open to the perspectives of others
- appreciate the uniqueness their colleagues
- take advantage of the opportunity to learn from each other
- exchange experiences, values and beliefs
- communicate in a respectful manner
- be aware of individuals who are marginalized and involve them
- keep confidential discussions private

COURSE SCHEDULE

- This is a tentative schedule of the order of topics and how they will be addressed; the order of topics may vary based on feedback from the students.
- Major changes to this schedule will be announced over Canvas.
- All assignments will be posted to Canvas.
- Suggested readings to prepare for the following week will be posted at the end of each week's lecture slide.
- It is recommended to read through the lecture before the class begins

Lecture	Topic(s)	Assignment
1	Course Introduction Recapping the Fundamentals of Web Development	Assignment #1 due Lecture 2
2	Advanced CSS Topics	Assignment #2 due Lecture 3
3	Gulp, SASS, Optimizations, and Bootstrap 4	Assignment #3 due Lecture 4
4	JQuery -- Events, DOM, AJAX Component based Web Development	Assignment #4 due Lecture 5
5	Fundamentals of a Single Page Application React Router and SPA	Assignment #5 due Lecture 6
6	Using Redux for Application State Using Webpack for React Development	Assignment #6 due Lecture 7

7	Server Side Caching Techniques Intro to Redis	Assignment #7 due Lecture 8
8	Intro to Multi-Process Web Development Redis Message Queue	Technical Implementation plan due Lecture 9
9	WebSockets with Socket.io Socket.io Group Management Redis and Socket.Io	Assignment #8 due Lecture 10
10	Developing Custom Technology Stacks	Assignment #9 due Lecture 11
11	Security Concerns and Defenses	Assignment #10 due Lecture 12
12	Web Apps Outside your Browser	
13	Hybrid Mobile Applications	
14	Other Technologies in Web Development	