



## **Web Programming: CS-546**

*Schaefer School of Engineering and Science*  
Spring 2019

Meeting Times: N/A  
Classroom Location: Online  
Instructor: Philip Barresi  
Contact Info: pbarresi@stevens.edu  
Office Hours: Tuesdays at 2:00pm (Blackboard Collaborate); otherwise, appointment  
Prerequisite(s): CS-442 or CS-561 and CS-146 or SOC-611

### **COURSE DESCRIPTION**

This course will provide students with a first strong approach of internet programming. It will give the basic knowledge on how the Internet works and how to create advanced web sites by the use of script languages, after learning the basics of HTML. The course will teach the students how to create a complex global site through the creation of individual working modules, giving them the skills required in any business such as proper team work and coordination between groups.

### **LEARNING OBJECTIVES**

- Programming Environment - Install and configure a modern web programming environment that includes a web server, a modern backend programming language, and a modern database.
- Server-side: Write programs in the chosen programming language that use most of the features of the language and its standard libraries.
- Database: Use a modern database in order to create database-driven applications.
- Client-Side: Create HTML pages and use basic JavaScript code to enhance the pages.
- Web accessibility: Evaluate the accessibility level of web pages and create web pages designed to work for all people, regardless of their hardware, culture, location, physical or mental ability.
- Advanced Client-side: Use client side techniques (such as AJAX) and frameworks that allow for the creation of dynamic web pages.
- Security: Identify major vulnerabilities in web development and use defensive tactics to reduce their likelihood.
- Project: Create a complete market-ready database-driven web application in a team that goes through the entire software life cycle, with technical and non-technical presentations.

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

## COURSE REQUIREMENTS

**Attendance** Attendance is not mandatory, and will not be factored into your final grade.

**Labs** Labs should be handed in on time. Multiple file assignments should be submitted in an archive with a readme file. **Late labs will receive a 10-point penalty per day. All labs 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 proposal of their application, a database proposal, and a presentation before the submission of the final project demonstrating their product to a non-technical user. **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:

Labs	(40 %)
Project Proposal	(5 %)
Database Proposal	(5 %)
Final Project Presentation	(10 %)
Final Project Result & Code	(40 %)

## 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](http://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](http://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](mailto: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

### **TENTATIVE 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.

Week	Topic(s)	Assignment
1	Course Introduction Setting up Node.js Intro to JavaScript syntax	Lab #1 due Lecture 2

2	Modules and NPM Creating a Simple Node Application	Lab #2 due Lecture 3
3	Asynchronous Code Promises Reading and Writing to Files	Lab #3 due Lecture 4
4	Introduction to MongoDB Interacting with MongoDB in Node.js	Lab #4 due Lecture 5
5	Introduction to Git Programming in a Group Environment Basic HTML and CSS	Project Groups due Lecture 6 Lab #5 due Lecture 6
6	Fundamentals of Web Development Running a Node.js server Node.js as an API (GET)	Project Proposals due Lecture 7 Lab #6 due Lecture 7
7	Intermediate MongoDB Node.js as an API (PUT POST DELETE) Server-Side Error Checking	Project DB Proposal due Lecture 8 Lab #7 due Lecture 8
8	Templating with Node.js HTML Forms	Lab #8 due Lecture 9
9	Introduction to Frontend JavaScript Client-Side Form Validation	Lab #9 due Lecture 10
10	Middleware Cookies and Authentication	Lab #10 due Lecture 11 Project Update 1 due Lecture 11
11	Introduction to AJAX via jQuery Basic Security	Lab #11 due Lecture 12
12	Introduction to jQuery Browser based JS APIs Fundamentals of Web Accessibility	Lab #12 due Lecture 13
13	CSS Media Queries Bootstrap	Lab #13 due Lecture 14 Project Update 2 due Lecture 13
14	Final Project In-Class Review	Final Project Presentation and Final Project Code due May 12th