

CS193C: Client-Side Internet Technology

Dr. Patrick Young

Summer 2024

Welcome to CS193C. This class will focus on client-side Internet technology including HTML, Cascading Style Sheets, JavaScript, and Ajax. We will also briefly discuss website design and use of graphics and multimedia on the web and take a brief look at some popular JavaScript related packages such as jQuery, React, and Node.js.

Expectations

This class will be an introduction to client-side Internet technology. While students should have prior programming experience (more on that below), we have no expectation of prior web development experience.

The only prerequisite for the class is CS106A and I will focus the material for an audience who only have a quarter or two of programming under their belt and no web programming experience. If you're coming in with Beginning or Beginning-Intermediate levels of JavaScript programming, you'll probably still get a lot out of the class. However, if you're looking for a class to push your Intermediate-Advanced level abilities to the Advanced level, this isn't the right class for you. There is a more advanced class on the books, CS193X, but unfortunately it is not offered very frequently.

You should expect to come out of this class with a solid foundation in HTML, CSS, DOM, and JavaScript. This class will put you in very good position if you get an internship using client-side programming. It will also put you in good position to go off and learn more advanced technologies such as React, Angular, or Node.js.

While we will briefly touch on React, Node, and MongoDB, I discussed the curriculum with various members of Stanford's industrial affiliates groups back when jQuery became popular and asked if I should switch the class to focus on it. They urged me to focus on the fundamentals of vanilla JavaScript, rather than going off and teaching the current hot new framework. We're going to stay with their advice on sticking to the fundamentals in the era of React.

The prerequisite for this class is either Stanford CS106A, a quarter of college-level programming from another university, or a year of high-school-level programming. If you've only had the minimum prerequisite and you did well in that class, you'll probably be fine. If you've only had the minimum prereq and did only okay in that class, or if you did poorly, this class may be a bit too much of a stretch for you.

Course Staff & Office Hours

Lecturer: Dr. Patrick Young
Office Hours: check Canvas
E-Mail: patrick.young @

Please do **not** leave me voice mail—use e-mail or post on Ed Discussion instead.

Teaching Assistants: Andreea Jitaru (andreeaj)
Gray Wong (mayannw)

All email addresses are at stanford.edu. However, using the Ed Discussion Message Board should be the fastest way to get a hold of any of the teaching staff – more on this below.

TA Office Hours will start second week of the quarter and will be posted on Canvas (Stanford's Course and Learning Management System). They may change from week to week, so do check Canvas regularly for updates. My Office Hours will be held on Zoom. Check individual TA office hours for locations.

About Getting Help via Email and Ed Discussion

Please note that we will not debug code via Ed Discussion or email. Learning to debug is a critical skill for software programmers, and email and Ed Discussion requests for help with code usually end up with us giving you the answer rather than you learning how to find the answer. Therefore, we will not look at code longer than a few lines via Ed Discussion or email. If you're having trouble finding errors in your code, you need to come into office hours where we can teach you how to debug. Check the office hours ahead of time and plan accordingly. These rules hold whether or not any additional office hours are available before the assignment is due.

If you are having problems figuring out where an error is, any requests for any assistance must include:

- 1) A detailed description of the problem
- 2) A description of three different conjectures as to what might cause that problem
- 3) A list of concrete steps taken to try to confirm or eliminate the conjectures.

If we believe that you did not spend time in a careful analysis of the problem or have come up with a list of nonsensical conjectures simply to fill out your list, we may tell you to come up with additional conjectures.

If you're having trouble coming up with conjectures, think about what the symptom you are seeing is, then consider what parts of the code are related to the issue you are seeing. Think about what might be going wrong that might result in your symptoms. Try to get more detailed information on the error. Go into the debugger or put in some print statements. Try to isolate the problem.

You really need to learn to dig in and wrestle with the code and your bugs. This is the only way you will strengthen your debugging skills and become strong programmers.

Grading

Midterm	30%
Final Quiz	10%
5 Homework Assignments	60% (at 12% each)

Course Assignments

Late Policy

Assignments turned in late will be penalized 10% for each day that has passed since the original due date. *No assignment may be turned in more than a week after its original due date and no assignments will be accepted after 11:59pm the evening of Friday August 16th*, as we'll need the time to get grading completed before Stanford's final grading deadline.

I realize that you do have other classes and other responsibilities. Therefore, you will be given a late allowance of three late days that can be used to excuse late assignments. simply submit your assignment late on Canvas, no need to notify us. *You are expected to use these for any problems that come up, including getting sick, or other emergencies.*

This allowance may be used for a single assignment, or it may be divided for use on multiple assignments. For example, if you turn in one assignment three days late, you've just used up your entire late allowance. However, if instead you turn in the assignment two days late you still have an additional late day which you can use for another assignment. You don't need to notify us if you're taking a late day, just submit your assignment late.

Be careful using all your late days on one assignment, particularly early on. If you turn in HW1 three days late, you won't get penalized for it, but you will have three fewer days to work on HW2.

Please remember that you are working under the Stanford Honor Code. If you are working on a late assignment you must not discuss the assignment with other students until after the assignment is turned in.

Collaboration

All of the assignments should be done alone. The official policy on how much collaboration is allowed on the assignments is specified in a separate handout entitled "Computer Science and the Stanford Honor Code". Please make sure you read it.

Editors

A number of editors exist for editing HTML, CSS, and JavaScript source code. You should be using a Text Editor and may not use a WYSIWYG (What You See is What You Get) editor such as Dreamweaver.

Recommended Text Editors:

- Visual Studio Code
- Sublime
- Atom

these are all available for Windows, Macintosh, and Linux. *My personal preference is Visual Studio Code.*

Exams

The midterm will be Tuesday, August 6th during our regular class time. The midterm will focus on programming and the actual practice of getting a JavaScript-enhanced webpage working. In place of a final we will have a final quiz worth 10% of your final grade. This quiz is scheduled for Friday, August 16th at 3:30pm. The final quiz will focus on theory and terminology as well as material not covered on the midterm.

Students taking the course Pass/No Pass may skip the final and I will ignore the final when determining whether or not they pass the course. This is option is only available for Pass/No Pass students.

We'll be contacting SCPD students on details for their own exams. The rules below are for regular Summer Session students, not SCPD student.

The final exam will be given during our official final exam slot. During summer session, I am aware that some students may simply not be able to remain on campus for the final exam. Here are your options:

- 1) Take the class P/NC. As noted above, students taking the class P/NC do not need to take the exam.
- 2) Request a remote exam, you will need a good reason for a remote exam so check in before the add/drop deadline and make sure we approve you for this. You will need a exam monitor, the monitor needs to have a professional (not a personal) relationship with the student – for example, teachers and work supervisors may act as exam monitors, whereas family members, friends, and colleagues are not eligible.

Stanford policy strongly discourages instructors from giving early exams due to Honor Code issues. Therefore, we will not give any early finals.

Incomplete Policy

If you have a serious medical or family emergency and cannot complete the work in this course, you may contact me to request an incomplete. I reserve incompletes only for emergencies, so I do not grant incomplete grades for poor performance on the assignments or exams, nor do I offer incompletes for busy work schedules.

In order to be eligible for an incomplete, you must have completed all of the assignments (with the possible exception of the most-recently-due assignment) and must have shown satisfactory academic progress in the class.

Software

Unfortunately different World Wide Web browsers treat both HTML and JavaScript differently. In order to get you used to testing on and supporting multiple web browsers, we will have you use **both** Chrome and Firefox. This means your assignments should be tested and running in both these web browsers and you may be penalized if issues occur in one web browser, but not the other. Please get the latest (non-beta) versions of these browsers.

Course Materials

Web references will generally be sufficient to learn Client-Side Programming. I will be providing links to relevant resources using Canvas's Pages feature.

If you're looking for more extensive material, in general, I recommend the O'Reilly Media books. Stanford has a license providing access to online-versions of O'Reilly books. For computers on the campus network, they can be accessed from:

<https://go.oreilly.com/stanford-university>

Please note that our license only provides for an extremely limited number of users who can access these online books from Stanford simultaneously. It is very possible to try to access these books and get a message that there are already too many users simultaneously accessing them and that your access will be blocked until one of the other users stops using the website.

Information on off-campus access can be found here:

<https://library.stanford.edu/using/connecting-campus>

The Class Web Site

We will be using Stanford's Canvas system in place of a traditional website:

<https://canvas.stanford.edu/>

Ed Discussion System

We will be using the Ed Discussion system as a message board. Ed Discussion can be found as a tab on our Canvas website.

Class Schedule

This is the *tentative* class schedule.

Lecture 1: Introduction & HTML (Week 1, June 25)

Lecture 2: HTML & CSS (June 27)

Lecture 3: Webpage Layout (July 2)

July 4th Holiday – No Lecture (Week 2, July 4)

Lecture 4: Advanced HTML & CSS (Week 3, July 9)

Lecture 5: Intro to JavaScript & Basic Use of the DOM (July 11) *Assignment 1 Due*

Lecture 6: JavaScript Events (Week 4, July 16)

Lecture 7: Advanced Use of the DOM (July 18) *Assignment 2 Due*

Lecture 8: The JavaScript Object Model (Week 5, July 23)

Lecture 9: JavaScript and Functional Programming, Asynchronous Programming and the Event Loop (July 25) *Assignment 3 Due*

Lecture 10: Homework 4 Background, Closures, JavaScript Strings, Local Storage and Session Storage, Cookies (Week 6, July 30)

Lecture 11: Ajax, JSON, Error Handling, Promises, High-Performance Websites (August 1)

Midterm (Week 7, August 6) during lecture time, location TBD, *Assignment 4 Due*

Lecture 12: Node.js and MongoDB (August 8)

Lecture 13: JavaScript Frameworks and Libraries (Week 8, August 13)

Lecture 15: Study Day (August 15) *Assignment 5 Due*

No lecture.

Final Exam (Friday, August 16, 3:30pm)

Classroom Recording

Video cameras located in the back of the room will capture the instructor presentations in this course. For your convenience, you can access these recordings by logging into the course Canvas site. These recordings might be reused in other Stanford courses, viewed by other Stanford students, faculty, or staff, or used for other education and research purposes. Note that while the cameras are positioned with the intention of recording only the instructor, occasionally a part of your image or voice might be incidentally captured. If you have questions, please contact a member of the teaching team.

Students with Documented Disabilities

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Student Disability Resource Center (SDRC) located within the Office of Accessible Education (OAE). SDRC staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Students should contact the SDRC as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk (phone: 650-723-1066)

The Stanford Honor Code

The Honor Code is an undertaking of the Stanford academic community, individually and collectively. Its purpose is to uphold a culture of academic honesty.

Students will support this culture of academic honesty by neither giving nor accepting unpermitted academic aid in any work that serves as a component of grading or evaluation, including assignments, examinations, and research.

Instructors will support this culture of academic honesty by providing clear guidance, both in their course syllabi and in response to student questions, on what constitutes permitted and unpermitted aid. Instructors will also not take unusual or unreasonable precautions to prevent academic dishonesty.

Students and instructors will also cultivate an environment conducive to academic integrity. While instructors alone set academic requirements, the Honor Code is a community undertaking that requires students and instructors to work together to ensure conditions that support academic integrity.