web programming medp 34100
hunter college film + media
mondays 4:10pm - 6:50pm
lecturer: agnes cameron
class website: www.webdevelopm.net
office hour: mondays 2pm-3pm HN 515

syllabus

what is web programming?

If a computer is a tool for thinking with, then the web is a place to share your thoughts with others. In this class we'll think about web programming as a means of representation, speculation, and communication. We'll also think about our computers, and use them to have new kinds of thoughts.

This class seeks to give a broad, nuanced and critical understanding of what it means to make work for the web today. It is structured around a series of open-ended projects that inform different approaches towards web programming, and programming more generally, and together will stretch and challenge your existing skills. These projects are contextualised by readings and lectures that give a theoretical and technical basis to the material covered, and discussed in class during structured critiques.

In order to take this class, you must have already taken Web Production II and Creative Code (MEDP 234 and 331), and be comfortable programming in Javascript, HTML, and CSS.

class outcomes

- develop fluency in Javascript and JQuery
- have an understanding of common web development workflows
- understand how the web is structured, and use this to realise more advanced projects
- become familiar with the command line and the console
- understand how and where to include libraries and modules in your code
- through readings and exercises, develop and realise your own ideas about what the web should look like
- learn about simulation techniques, and how they can be used to model complex systems
- be aware of the history and politics of the web, and how this is changing

course overview

Date	Theme	Assignment	Reading
01/27	**hello, world!** this class is about getting to know each other, the syllabus, and to give you some tools that will help you get set up for the rest of the semester. come with thoughts about what you're interested in, what you'd like to get out of your time in the class, and some websites you think are special.	Use the console editing tools we explored to re-imagine some websites that you use regularly. *due: 02/03*	Laurel Schwulst, *my website is a shifting house next to a river of knowledge, what could yours be?* JR Carpenter, *A Handmade Web* JODI *JODI.org*
02/03	**the vanilla web** you've been there! you've seen it! you've done that! (or have you?). here we'll revisit the basic tools that we use to make work for the web, and talk about some higher level concepts and tools to improve the quality of code. We'll discuss web standards, net art, and the power of pure html.	make a website that shuffles a deck of cards using (at least) 2 different approaches *due: 02/10*	Alex Galloway, *Jodi's Infrastructure* Ted Nelson (in *Software* p16), *The Crafting of Media*

Date	Theme	Assignment	Reading
02/10	**any requests?** this week we'll talk about requests and APIs, and some moments in internet history. We'll learn to use some command line tools, and talk about some interesting uses of data.	make an interface to a remote API. *due: 02/24*	Ingrid Burrington, *An Internet of Wars – Military Networks and Network Mobilisation*
02/17	**no class! (but you still have homework)** be sure to update your site with progress this week		Everest Pipkin, *It was raining in the data center* Louise Drulhe, *Critical Atlas of Internet*
02/24	**what's the internet??** So i sent you a http request… but where did it go?? welcome to the weird and wonderful world of the OSI protocol. in this class we'll unpeel some layers of abstraction that keep the internet looking like it's working great all the time (it's actually a big big mess), learn about media archaeology and network forensics.	Using some of the tools and techniques we've discussed in class, discover something about your own local internet system. *due: 03/02*	Ethan Zuckerman, *The Cute Cat Theory of Digital Activism* Paul Ford, *i had a couple of drinks and woke up with 1000 nerds*
03/02	**servers** This week we'll learn about servers. What are they? How do you make one? Is everything really just a file?	Write a server that serves some information about your computer. Define an endpoint where we can find this information, which we'll talk to next class. *due: 03/09*	Karly Wildenhaus, *Towards a Library Without Walls* Os Keyes, *The Body Instrumental* TKDL, *Bio-Piracy*
03/09	**seeking arrangements** A class about structuring knowledge. We'll talk about objects, data, libraries, scraping and the politics of taxonomy.	Curate a data-set, and come up with some diverse ways to sort it. *due: 03/16*	Emily Scott, *Climate Change and Representational Breakdown* Clayton Aldern, *Cartographers Without Borders*
03/16	**graphs of desire** This class is about the use and misuse of maps, charts, and graphs as tools of representing ideas. We will use JQuery and other libraries to arrange the data we gathered last week, thinking about different approaches to representation.	using jQuery (and anything else you choose), display and explore the data set you collected last week (or one that we looked at) in a few different ways. *due: 03/23*	Marvin Minsky, *Why programming is a good medium for expressing poorly understood and sloppily-formulated ideas* Brandur *Learning from Terminals to Design the Future of User Interfaces*

Date	Theme	Assignment	Reading
03/23	**your friend the shell** This week we're going to get really into programming for the command line! A chance to get up close and personal with your filesystem! Abandon the need for UI!	write a command line tool for yourself, using either NodeJS or bash. This tool should address some need you have from your computer which it does not currently address. *due: 04/06*	Jonah Weiner, *Where do dwarf-eating carp come from* Elvia Wilk with Jenna Sutela, *Slime Intelligence* Shannon Mattern, *Mapping's Intelligent Agents*
03/30	**what's the matter? automata!** this class introduces some of the themes we'll be exploring in the final project, looking at self-organising systems, agent-based modelling and cellular automata as ways of exploring complex systems and dynamics.		Ian Bogost, *The Rhetoric of Video Games* Bret Victor, *stop drawing dead fish*
04/06	**simulation and games** We review the CLI projects, the and introduce the final project. The lecture will look at games and simulations as tools for critique, political statements, and modes of artistic enquiry. We will think about interface metaphors and feedback systems, and talk about some of the history of cybernetics.	play a couple of games and write simulated environment you will make for your final project. *due: 04/20*	Nicky Case, *how to simulate the universe in 134 easy steps* Ava Kofman, *les simerables*
04/13	**spring break! (you gotta play a video game)** have a nice holiday xx		Keller Easterling, *An internet of things* Shannon Mattern, *A City is Not a Computer*
04/20	**environments of computation** We talk *more* about the history of cybernetics, particularly in its relationship to space and architecture. This class should expand your ideas about environments and systems, and hopefully give you new inspiration and perspective from which to explore your final project.	start developing your final project in earnest, and document your progress as you go along. start by thinking about the basic infrastructure. do you need a server? What requests will you make? Can you build a minimal prototype that performs most of these tasks? *due: 04/27*	Hito Steyerl, *Is the Internet dead?* Zeynep Tufecki, *Twitter and Tear Gas (preface)*

Date	Theme	Assignment	Reading
04/27	**decentralisation for fun and profit** this is a class that (hopefully) ties together some of the themes we've been talking about in a contemporary techno-political context. we'll talk about the present and future of the internet, and think about the web that *we* want. we'll also do some sweet p2p file sharing, so come prepared with some files you like! (tunes, videos, pics)	continue work on final project – by now you will have a functioning prototype, and be thinking about the interface in greater depth. Have a think on any topics you'd like to explore more, or revisit, and add them to the google sheet for next class. *due: 05/04*	
05/04	**circling back** this class is an opportunity to revisit and expand upon parts of the syllabus. What would you like to know more about? Is there anything you'd like to hear again?	prepare a penultimate draft of your final project. We'll critique these next class, so they should be fully-functional. *due: 05/11*	
05/11	**penultimate crit** We'll look at everyone's final projects in class, and critique one anothers' work. The rest of the class will be working time. Come with bugs, questions, problems, and thoughts. Leave with new ideas and inspiration to improve your project over the final week.	using feedback from the class discussion, put the final touches to your project *due: 05/18*	
05/18	**crit /// party!** We'll have guests in to critique the projects, and finish the semester with a celebration.		

structure of the course

This course is entirely project-based. this means no exams – but also this does mean that almost all of your grade is dependent on consistent, imaginative and thoughtful work on the weekly assignments. Considered together, these will give you a broad portfolio that demonstrates a range of skills and techniques. The assignments for this course consist of six 1-week assignments, two 2-week assignments, and a final project. Each of these will address a different form and set of ideas, though there are links between all of them, and you are welcome to use these to explore one continual theme.

This class is not about having perfect code each week, and I would not expect you to. Publish and document whatever you have as you go along, so I can see your thoughts evolving as you go. That said, consistently incomplete, poor-quality or overly-simple solutions will definitely affect your grade. If you're struggling, email me before saturday night at the latest, and turn up to office hours on Monday / make alternative arrangements, and we can work on getting you back on track. Don't leave everything till the night before!

Each week, I expect you to write a short paragraph or two (100-250 words) on what you struggled with, what you enjoyed, your thoughts on the readings and notes for yourself, as part of an ongoing 'blog' on your site. This will be valuable to you as you revisit your work, and try and remember what you did and how you did it.

I want you to make this class useful to you, so feel free to adapt assignments to suit your interests (though talk to me about it first). These tasks are deliberately open ended, but if you're struggling for inspiration you are

more than welcome to use one of the example problems that I've set. If you'd like to look further afield, the are.na channel an idea for a website is a great start.

presenting work

All classwork is presented through personal websites, that you will use to document your progress. come to each class with the assignment finished, on your website, and prepared to talk about it. I will randomise you each week, and if picked you'll have a 5 min slot to talk about your week and what you found out, and people can ask you questions (we'll talk to ~4 people a week, more for larger projects).

There is no point in taking this class if you don't do the homework: this is how you develop the skills you need to work on the web! Missing one of these unannounced will bring your grade down by a half point each time. (you can make it back up (once) if you publish within the week).

group work

You may choose to work on any of the weekly projects in a group of not more than two students – and it's encouraged you try this at least once in the semester. Do bear in mind that group projects will not just be marked on the quality of the work (which should exceed the scope of a solo attempt), but on how well you have worked together (to be recorded in the git commit history).

on the readings

Readings for this class come in two types: preparational, and inspirational. The preparational ones will set the tone for the start of the next class, and you should come having read and thought about them, as we'll use them as the basis for the initial discussion. The inspirational readings are there to provide different perspectives on the previous class, or the assignment you're doing. They might be particularly helpful if you find yourself getting bogged down in something, or lacking ideas. Sometimes, readings will be websites to click through and think about, that will introduce new ideas.

In both cases, notes on the readings should feature in your blog posts as you think about each week's assignment. As we go along you might want to swap the 'inspirational' readings with something else you find inspiring – that's fine, but do also write about what you read. Readings are always 'due' the next scheduled class.

on grades

Grades for this class are assigned accordingly:

40% homework assignments (including documentation)
30% contributions in class (readings, critiques, questions, in class assignments etc.)
30% final project

on frameworks

Personally, I find that web development frameworks like React, Angular and others take some of the joy out of programming for the net, in the sense that they require a lot more infrastructure than just throwing some HTML and Javascript up and seeing what sticks. They are also extremely useful for certain tasks, and widely used in industry. We'll go through some popular frameworks in class so you know what they are, and where they're used.

If you'd like to use one such framework for any or all of your projects, I am happy to talk through it with you, though I would expect you to be reasonably self sufficient and confident with the material already being covered. I would encourage you to try it for a homework or two before deciding to use for final project. I am most familiar with React, but more than happy to help you with other frameworks if you give me fair warning.

on computers

You can use any computer to do this class! However: you will benefit from using the same device consistently (to maintain installed software). If you can bring your own laptop to class, it's a good idea. If using Hunter's computers, it'll make your life easier if you can keep to the same operating system.

structure of each class

This will vary, but roughly:

- 1 hour class discussion. show+critique due or in-progress assignments, talk about the readings, reflect on learnings/challenges from the past week.
- 10min break (get a snack?)
- 45min lecture
- 45min in-class exercise/activity
- 10min wrap up and discussion
- 10min homework for this week.

on asking questions

We'll talk in class about how to ask good questions about your code.

At some point during the semester you might use a platform like Stack Overflow to ask a question about some code you're struggling with. Take a screenshot of the question and replies, and write a short discussion of how you think it went: whether the interaction was helpful, whether you had to follow up etc etc.

attendance

The success of this class involves your presence and participation. As such, it is important that you are here, and on time. **You will not be penalised for one absence**, so long as you notify me in advance. Two absences will reduce your grade one step (A -> A-), three absences reduce two steps. More than that will have a serious impact on your grade.

policies

academic integrity

Academic integrity is a guiding principle of the Hunter College learning community because all students should have the opportunity to learn and perform on a level playing field. Academic dishonesty includes, but is not limited to, cheating, plagiarism, obtaining an unfair advantage, and falsifying records or documents (see examples) whether intentional or not.

Hunter College upholds the right to promote academic integrity on its campus as an educational institution of the City University of New York. The College has the responsibility to review all charges of academic dishonesty and implement sanctions, including, but not limited to, failing the course, official transcript notation, suspension or expulsion from the College when it has been determined that academic dishonesty did occur. Please click here to see a full list of disciplinary sanctions.

accessibility

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of Accessibility located in Room E1124 to secure necessary academic accommodations. For further information and assistance, please call (212) 772-4857/TTY (212) 650-3230. If you have registered with the Office of Accessibility, please let me know at the start of the term.

Hunter College policy on Sexual Misconduct:

In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment, retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims

Division Hotline (646-610-7272) or their local police precinct or contacting the College's Public Safety Office (212-772-4444). All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123. CUNY Policy on Sexual Misconduct. Link: http://www.hunter.cuny.edu/diversityandcompliance/repository/files/cuny-policy-on-sexual-misconduct.pdf