

# COMP6080

# Web Front-End Programming

Admin

Course Overview

# Why COMP6080?

Web is exploding. Everyone wants web-based front-end developers.

- 28% of github code pushes are javascript
- In 2018, 1 in 4 job postings were for a javascript based framework (source: Hacker News Hiring Trends)

**Within 10 weeks I want to make you all confident in building your own simple web apps, to build them quickly, and to build it to look how you want it to look and behave.**

But first let's answer two questions:

1. What is a front-end developer?
2. Why is web exploding?

# What is a front-end developer?

Someone who writes code that is executed client-side, typically part of a end-user facing product.

**In most cases, they write code for web browsers. This is a course about helping you make web browsers do things.**

They largely use HTML to structure pages, CSS to style them, and Javascript to make them dynamic.

They build things for *people* to use.

# The progress in web

## 1. HTML Static Pages

Beginning of websites

### Toad Hall

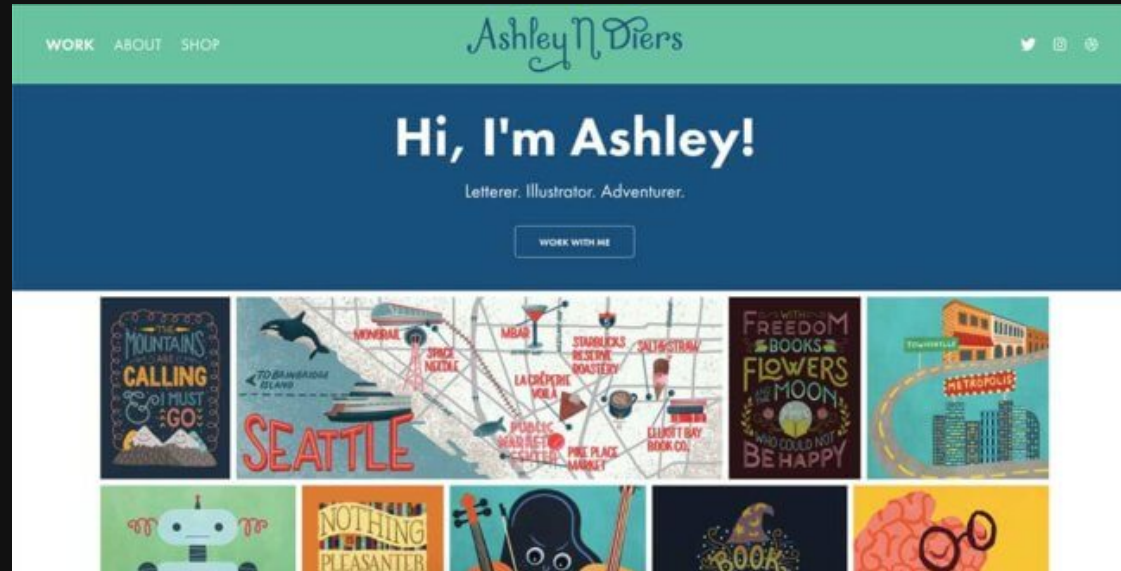
- [John Gilmore's home page](#)
- [John's Supreme Court petition against a secret law: the federal requirement that people show ID to travel. \(Gilmore v. Gonzales\).](#)
- [John's Court of Appeals lawsuit against the federal requirement that people show ID to travel inside the US \(Gilmore v. Ashcroft/Gonzales\).](#)
- [John's earlier District Court lawsuit against the same ID-or-no-travel requirement \(Gilmore v. Ashcroft\).](#)
- [Freedom of Speech in Software \(Phil Salin's Patent Office submission re software patents\)](#)
- [Freedom of Speech in Software \(ApacheCon speech by John\)](#)
- [1970s Recording of NSA/NBS/Stanford DES cracking meeting](#)
- [Paul Baran's 1964 papers on a design very very much like the Internet](#)
- [System Administration tips](#)
- [Sun User Group free software tape from 1987](#)
- [Sun User Group free software tape from 1989.](#) (The 1989 tape image also includes the 1985 and 1987 tapes.)
- [USENIX FaceSaver images - the early Unix community](#)
- [Drug Policy Reform resources](#)
- [A miserable failure of a President](#)
- [Early pictures from the Iraq war that the US tried to censor so that Americans could not see them.](#)
- [Linux FreeS/WAN Project to implement IP Security \(IPSEC\)](#)
- [Grokmail](#), a mail reader's prioritizer (and a long-term cure for spam).
- [Domain Name System Security](#)
- [Gzipped Binhex QuickTime movie of Frank Zappa in Prague \(2.5MB\)](#)
- [Digital photos from John and his friends](#)
- [Verio was censoring John Gilmore's email under anti-spam pressure \(until he got a new ISP\)](#)
- [NYC World Trade Center photos](#), mirrored from [Cryptome](#).
- [Gracenote/CDDB lawsuit filings](#)

HTML released 1993

# The progress in web

## 2. Basic CSS / Javascript

Now things don't like terrible

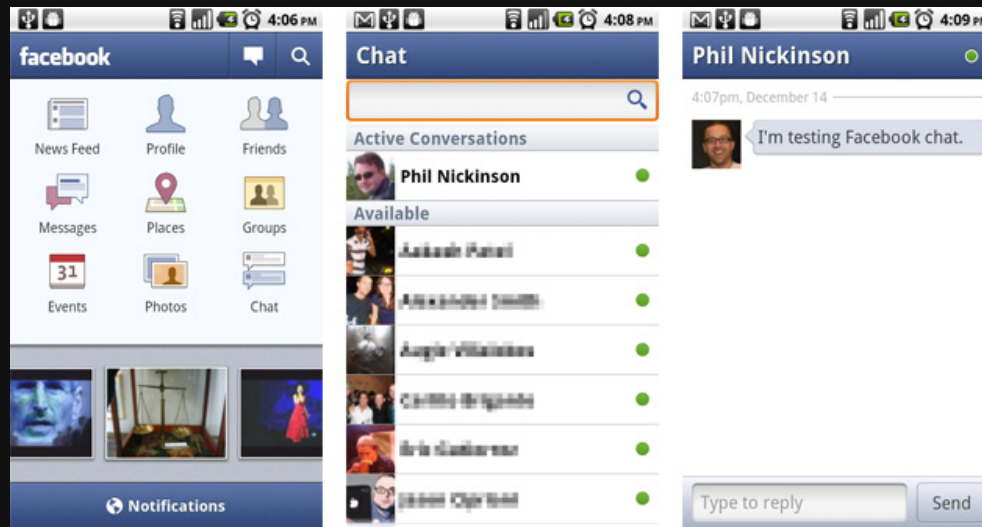


JS released 1995, CSS released 1996

# The progress in web

## 3. AJAX and background requests

A whole new class of websites, without the need to refresh



AJAX appeared 2000~

# The progress in web

## 4. NodeJS & Typescript

Type checking and common codebases -  
the beginning of heavy JS infrastructure



NodeJS released 2009, TS released 2012

# The progress in web

## 5. Hybrid Apps, Electron

Type checking and common codebases -  
the beginning of heavy JS infrastructure



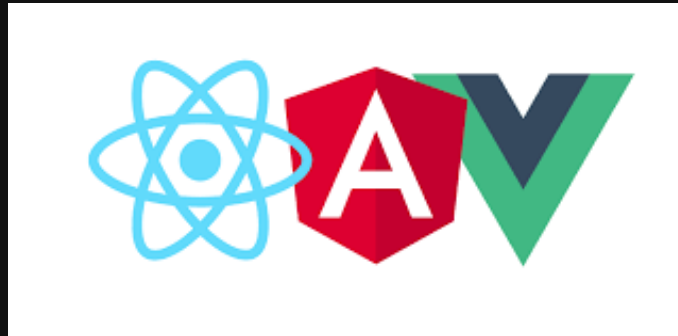
Electron, Apache Cordova



# The progress in web

## 6. Declarative Frameworks

Building of complex applications rapidly and in a scalable way. A web approach finally optimised for apps, rather than pages.



AngularJS released 2010, ReactJS released 2013, VueJS released 2014

# The progress in web

In the vast majority of cases, your native desktop applications, native mobile applications, and web-apps or websites, can be built on a web-based, javascript based stack.

# Assumed Knowledge

- Basics of GIT (checkout [git-basics](#))
- Basics of HTTP & Web Browsers
- High level understanding of scripting languages

This course has no other assumed knowledge.  
Experienced web developers will likely find this  
course slow.

# Learning Outcomes

## Summarised

1. Fundamentals of Javascript to design, construct, test, debug code
2. Understanding HTML, CSS, DOM, to construct web pages
3. Modern Javascript & CSS frameworks, to build componentised apps
4. Understanding of asynchronous programming in the context of JS
5. Basic knowledge of front-end security
6. Awareness of UI/UX design, including accessibility

# Approach to teaching

Firstly, this is a **challenging** level 6 course. It will be hard to perform in the HD bracket without hard work or natural intellect.

Secondly, learning front-end development will be a bit different from other languages you've learned:

- Front-end is a 'breadth' topic, which is unlike many other languages
- A lot less time is spent solving algorithmic or computational problems, and a lot more time is spent just trying to fine tune your visuals or find the right method/library/approach to get the expected behaviour
- You will still feel like you have a lot to learn by the end of the course

# Course Site

Our course site is a custom **content management system** called **Eckles**.  
Eckles was written by Hayden in January 2022.

It is a ReactJS application with a lightweight NodeJS server. The source code is public for all all students, and we **encourage you to contribute**.

Why was this built?

1. COMP6080 is trying to pioneer a new style of learning in CSE, and all previous software was not considered appropriate for this style
2. We want to give you a real example to reference throughout the course and something we can all have fun with together.

# The Team

We have a team of staff from UNSW who support you through your teaching. We also have a helping hand with some pre-recorded lectures from Canva.

# The Team

## UNSW Team

- Hayden Smith
- Clarence Feng
- Emily Luxa
- Kaiqi Liang
- Soorria Saruva
- Lavanya Sood
- Aditi Chandra
- Angeni Bai
- Anushka Menon
- Bryan Hutagalung
- Edwina Adisusila
- Eric Pullukaran
- Jason Dam
- Nikhil Ahuja
- Sean Smith



# The Team

## Creators & Presenters



**Mark**  
Canva Pro Team



**Anna**  
Presentations Team  
UNSW Alum ('18)



**Denis**  
App Store Extensions Team



**Sam**  
Content Team



**Jess**  
University Liaison



**Michael**  
Brand Designer



**Christian**  
Frontend Infrastructure



**Nic**  
Print Product Team



**Sparky**  
Design Automation



**Fahad**  
Onboarding Team



**Tom**  
Ingredients Studio  
UNSW Alum ('17)



**Muriel**  
Brand Designer



**Peter**  
Video Download Team  
UNSW Alum ('13)

# Assessment Structure

There is no direct assessment associated with  
Lectures or Tutorials

| Item        | Due                | Weighting |
|-------------|--------------------|-----------|
| Assignments | Due weeks 4, 7, 10 | 80%       |
| Exam        | Exam Period        | 20%       |

Start assignment 2 early.

# Teaching Methods

## Lectures:

- Avg 2 hours of pre-recorded per week (tightly broken up)
- Avg 2 hours live lectures (Mon 6pm-8pm) (ideally no new content, all demos)

## Tutorials:

- There are 6 tutorial times a week, covering 3 streams of content (available on the schedule page)
- All tutorials are online
- You can attend none, any, or all tutorials
- We will record tutorials and snip them up later
- Tutorials are also your self-learning exercises

# Teaching Methods

## Help Sessions:

- Chance to talk to tutors and get help on matters to do with tutorial exercises and assignments
- Help sessions will contain 1-5 tutors who will be split between assisting students with questions, and marking labs off
- Please pay attention to how many tutors are in a given help session - we do our best to predict demand and adjust but **please attend help sessions being prepared to wait**

## Assignments:

- A chance to practice skills in depth
- Ass1: Static HTML/CSS + Intro to DOM
- Ass2: Building an app with HTML/CSS/VanillaJS
- Ass3: Building and testing an app with ReactJS

# Getting Help

If you need help with something, go here:

1. EdStem (sidebar on Webcms3)
2. Help Sessions
3. [cs6080@cse.unsw.edu.au](mailto:cs6080@cse.unsw.edu.au)

# Getting Setup

## Running your code:

- In this course you'll need to use: NodeJS, NPM, Web Browser, HTML, CSS, ReactJS, and more.
- All of these tools can be easily run on your local machine (recommended) for OSX, Linux, or Windows.
- If you aren't comfortable with local installs, you can complete the course using gitlab (we have installed all relevant programs there).

## Gitlab

- gitlab is the online tool we're using to manage our git repositories.
- We will provide a demo of it's usage.
- [There are git resources on Eckles.](#)

# Resources

- Web is a very well-resourced set of tools on the internet. Self-guided research will generally be adequate.
- The biggest issue will be finding the *appropriate* resources.
- Lectures may include resources on slides, and we also have a course-wide [resources page here](#).

# Style Guide

Information about style guides for particular languages can be found on various parts of our [resources](#) pages.



# Feedback

Throughout term, you can leave anonymous feedback by clicking on the link in the Eckles sidebar "Feedback"

# Getting Along

- Understand the expectations around **student conduct**.
- Create an inclusive learning environment.
- Let's all treat each other with respect and understanding.

# A taste: "Making web browsers do things"

- Most things we do in this course are various combinations of:
  - **HTML**: Page structure
  - **CSS**: Page aesthetics
  - **Javascript**: Page dynamics
- Other topics we discuss are not about technology, but rather how to use it effectively:
  - Accessibility, product design, UI/UX, testing
- Let's do a short demo to explore what is coming up in the first weeks

# Feedback

