GEORGETOWN UNIVERSITY
School of Continuing Studies
Journalism

MPJO-779-01/MPPR-779-01: WEB DEVELOPMENT FOR MEDIA

GEORGETOWN UNIVERSITY: MPS-JOURNALISM

Wednesdays, 8 p.m. to 10:30 p.m. | Fall 2015

Instructor: Jeremy Bowers
Location: Downtown campus, Mac lab (C226).
Office hours: By appointment.

COURSE OVERVIEW

Merely using the web and digital tools is no longer enough for today's media professionals. Journalists and communicators need to have a practical understanding of how websites and applications work. This class does not aim to make you a professional coder or require any previous web development experience. We want you to come away with enough coding skills that you can effectively collaborate with web developers and continue learning on your own.

You will learn about web development by diving into Git, Python, HTML, CSS and JavaScript. There will be readings and guest speakers, but the major basis for instruction will be hands-on learning activities. You'll learn how web developers work by identifying a project, breaking that project down into features and then building those features. By the end of the class, you won't just have a functional website; you'll be comfortable with the best practices of good development teams.

COURSE OBJECTIVES

By the end of the semester, you should be able to:

• Understand the fundamental concepts and technologies underpinning modern web development.
• Use lean UX and agile product development methodologies.
• Develop, deploy and maintain a model-view-controller-based web application.
• Learn how to learn and use technical documentation and to be self-supporting.
• Effectively communicate technical ideas to non-technical people and non-technical ideas to technical people.

REQUIRED READING

There is no required text for this course. Instead, I will assign readings throughout the semester. You will be expected to read materials before class, as there will be simple quizzes and some topical discussion. I expect you to post any questions to the class's GitHub project as an issue and flag it appropriately so it can be resolved in advance or discussed in class.

EQUIPMENT

You should have access to a computer, preferably a laptop, where you can install some free software tools. We'll do this together on the second week of class, so don't feel like you need to be familiar with anything in advance.

ATTENDANCE

As outlined by the university, missing more than two classes will result in a final grade reduction of one level by itself, beyond any other consequences for missed work. For example, if you miss three classes and make up all of the work, an A will **still** be converted to an A-.

Absences beyond the initial two will result in further reduction of the final grade. If you are absent for four or more classes, you cannot possibly expect to meet the course objectives and will thus be unlikely to receive a passing grade.

If you have to miss a class session, let me know as soon as possible. Many assignments cannot be completed late because they are indications of your progress. If you are going to miss a class and let me know in advance, we can attempt to reformat your milestones to avoid penalizing your absence unnecessarily.

CLASSROOM ETIQUETTE, CLASS PARTICIPATION AND LATE WORK

Respect: You should treat your classmates with respect. I'll expect this both in your verbal communication with them but also in your non-verbal communication. This means: Pay attention and be empathetic.

Participation: Classes are long. We'll have breaks for you to rest, but I expect you to be attentive while we're in session. This means: If we're having discussion, you're participating. If we're working on our projects, you're writing code or brainstorming. Also: Park your phone and messaging apps. I won't be talking for long stretches often, I promise. If I am talking, it's probably important.

Late work: In some cases, I will allow you to make up work. In most cases, we'll move a milestone and reassign or cut features to make your end-of-class deadline. But some of our assignments cannot be recreated if you miss scrum or if you miss both classes in a two-week cycle. Keep this in mind if you're considering missing a class.

Instructional continuity: In the event of a weather emergency (or any other widespread emergency) that would close the Georgetown Downtown building, we will plan to meet virtually through online videoconferencing tools. More information will be provided on how this will work later in the semester.

ASSIGNMENTS

This class will feature four different categories of assignments.

Weekly quizzes: Each quiz will consist of 5 to 10 multiple-choice questions concerning the main themes of your weekly readings. They will not be tricky. If you've done the reading, you will not have any trouble. Up to two of these may be made up without penalty if you happen to miss one. You must contact me for details.

Weekly scrum summaries: Each week, students will prepare a short summary about their progress in the class for the previous week. These summaries will follow a simple format: What you did last week, what you failed to do last week, what you will be doing this week and what is preventing you from doing things. These summaries should be about 15 seconds long and will be delivered verbally to the group in our weekly scrum. High grades will be given for reports combining brevity, accuracy and completeness. Low grades will be given for reports that are lengthy, inaccurate and/or incomplete. Scrum summaries are an in-class assignment that will not require out-of-class work. As such, scrum summaries **may not** be made up if you miss our weekly scrum, which takes place within the first 15 minutes of each class.

Bi-weekly progress assessments: Much of the class will be concerned with hands-on work on your project. Every two weeks, I will assess your project's progress against the milestones you have created. High grades will be assigned for following good developer hygiene (which we will discuss), well-documented features and steady progress. Low grades will be assigned for code that is not hygienic, features that you have not written documentation for and/or inconsistent progress. We'll be doing a lot of discussion about your progress, and there will be many opportunities to improve your progress before an assessment. These may be moved if you miss class but may not be made up if you fail to move it in advance or if you move it into the next two-week period. You must contact me for details.

Final project: You'll be defining a project, breaking it down into sets of features and milestones and then building that project in Python, HTML, CSS and JavaScript. All the while, you'll be committing your code to a version control system with Git. This grade represents the ultimate evaluation of your project rather than merely the sum of your weekly progress reports. High grades will be given to projects that are well defined, projects that have appropriately-sized feature groups and milestones, projects that work, and projects that are deployed to the public Internet. Low grades will be give to projects that are poorly defined, projects that include too many or too few features, projects that have improperly defined milestones, projects that do not work and/or are not deployed to the public Internet. Students must pitch their project topic ideas in writing. The pitches are due at the beginning of class on Oct. 7. I will begin evaluating final projects on the last day of class, and I will finish evaluating them at the end of class. I will not evaluate a project after 10:30 p.m. on the last class day.

GRADING

Each of the four assignment types will represent 25 percent of your final grade.

Average of 15 weekly quizzes:	25 percent
Average of 15 weekly scrum summaries:	25 percent
Average of 6 bi-weekly progress assessments:	25 percent
Total score out of 100 for final project:	25 percent
Total:	**100 percent**

Graduate course grades include A, A-, B+, B, B-, C and F. **There are no grades of C+, C- or D.**

A	100.00 – 93.00	B-	82.99 – 80.00
A-	92.99 – 90.00	C	79.99 – 70.00
B+	89.99 – 88.00	F	69.99 – 0.00
B	87.99 – 83.00		

This class is designed to operate transparently. I will provide you with multiple warnings during the semester if you are trending toward a failing grade.

UNIVERSITY RESOURCES

Georgetown offers a variety of support system that can be accessed on main campus or at the downtown location:

- MPS Writing Resource Program
  202-687-4246
  http://writingcenter.georgetown.edu/

- Academic Resource Center
  202-687-8354 | arc@georgetown.edu
  http://ldss.georgetown.edu/

- Counseling and Psychiatric Services
  202-687-6985
  http://caps.georgetown.edu/

STUDENTS WITH DISABILITIES POLICY

If you have documented disabilities, you have the right to specific accommodations that do not fundamentally alter the nature of the course. You should contact the Academic Resource Center at 202-687-8354 or arc@georgetown.edu or visit their Web site at http://ldss.georgetown.edu/index.cfm before the start of classes to allow time to review the documentation and make recommendations for appropriate accommodations. If accommodations are recommended, you will be given a letter from ARC to share with me.

You are personally responsible for completing this process officially and in a timely manner. Neither accommodations nor exceptions to policies can be permitted if you have not completed this process in advance.

GEORGETOWN HONOR SYSTEM

All students are expected to maintain the highest standards of academic and personal integrity in pursuit of their education at Georgetown. Academic dishonesty in any form is a serious offense, and students found in violation are subject to academic penalties that include, but are not limited to, failure of the course, termination from the program, and revocation of degrees already conferred.

All students are held to the Honor Code. The Honor Code pledge follows:

> *In the pursuit of the high ideals and rigorous standards of academic life, I commit myself to respect and uphold the Georgetown University Honor System: To be honest in any academic endeavor, and To conduct myself honorably, as a responsible member of the Georgetown community, as we live and work together.*

PLAGIARISM

Stealing someone else's work is a terminal offense in journalism, and it will wreck your career in academia, too. You are expected to work with integrity and honesty in all assignments.

The Georgetown University Honor System defines plagiarism as "the act of passing off as one's own the ideas or writings of another." More guidance is available through the Gervase Programs at http://gervaseprograms.georgetown.edu/honor/system/53377.html. If you have any doubts about plagiarism, paraphrasing or the need to credit, see http://www.plagiarism.org for more information.

SYLLABUS MODIFICATION

The syllabus may change to accommodate discussion of emerging topics. Additionally, the schedules of guest speakers may require some shifting of the agenda. I will make every effort to provide as much advance notice as possible for any alterations.

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CLASS SCHEDULE

Note: The following readings should be done prior to the first class to prepare you for the first weekly quiz:

- What Is a Hacker: http://www.catb.org/esr/faqs/hacker-howto.html#what_is
- The Virtues of a Programmer: http://www.hhhh.org/wiml/virtues.html
- Mother Earth Mother Board: http://archive.wired.com/wired/archive/4.12/ffglass_pr.html
- In the Beginning Was the Command Line: https://gist.github.com/jeremyjbowers/fd6c171f17023df91307

WEEK 1 (WEDNESDAY, SEPT. 9)
Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week01.md

Topics

- How the Internet works
- What a web browser does

Readings due next week

All platforms

- http://www.sublimetext.com/3
- https://www.digitalocean.com/features/technology/

Macintosh

- http://blog.apps.npr.org/2013/06/06/how-to-setup-a-developers-environment.html
- http://www.iterm2.com/#/section/home

Windows

- http://www.chiark.greenend.org.uk/~sgtatham/putty/

In-class assignments

- Quiz 1
- Scrum 1

WEEK 2 (WEDNESDAY, SEPT. 16)
Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week02.md

Topics

- Installing software on your computer
- Introduction to web development norms

Readings due next week

- Understanding Food Establishment Inspections: http://doh.dc.gov/service/understanding-food-establishment-inspections
- Thai X-Ing: http://washington.dc.gegov.com/webadmin/dhd_431/web/index.cfm?a=inspections&permitID=3468
- The Agile Manifesto: http://agilemanifesto.org/principles.html
- Fix Deadlines, Flex Scope: http://gettingreal.37signals.com/ch02_Fix_Time_and_Budget_Flex_Scope.php
- Build Less: http://gettingreal.37signals.com/ch02_Build_Less.php
- Start With No: http://gettingreal.37signals.com/ch05_Start_With_No.php
- How we made Lobbying Missouri: https://source.opennews.org/en-US/articles/how-we-made-lobbying-missouri/

In-class assignments

- Quiz 2
- Scrum 2

WEEK 3 (WEDNESDAY, SEPT. 23)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week03.md

Topics

- Product development: Lean UX and user-centered design
- Product development: Modified agile and scrum
- "The Exercise"
- Product development: Translating needs to features
- Product development: Milestones

Readings due next week

- Git - the simple guide: http://rogerdudler.github.io/git-guide/
- Git Flow: http://nvie.com/posts/a-successful-git-branching-model/
- NPR Visuals' Best Practices: https://github.com/nprapps/bestpractices
- Good habits: http://hackerjournalist.net/2010/03/13/nicar-2010-talk-good-habits/

In-class assignments

- Quiz 3
- Scrum 3
- Progress 1

WEEK 4 (WEDNESDAY, SEPT. 30)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week04.md

Topics

- Code: Introduction to Python and Virtualenv
- Code: Screen scraping with BeautifulSoup
- Code: Data structures including dictionaries and lists

Readings due next week

- Finding stories in the structure of data: https://source.opennews.org/en-US/learning/finding-stories-structure-data/
- Sane data updates are harder than you think, part 1: https://source.opennews.org/en-US/learning/sane-data-updates-are-harder-you-think/

In-class assignments

- Quiz 4
- Scrum 4

Prepare for next class:

- Write a pitch on the topic for your final project. Be ready to turn this in at the beginning of class, Oct. 7.

WEEK 5 (WEDNESDAY, OCT. 7)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week05.md

Topics

- Code: Screen scraping with BeautifulSoup
- Code: Data structures including dictionaries and lists

Readings due next week

- Sane data updates are harder than you think, part 2: https://source.opennews.org/en-US/learning/sane-data-updates-are-harder-you-think-part-2/
- Sane data updates are harder than you think, part 3: https://source.opennews.org/en-US/learning/sane-data-updates-are-harder-you-think-part-3/
- Bulletproofing your data: https://github.com/propublica/guides/blob/master/data-bulletproofing.md

In-class assignments

- Quiz 5

- Scrum 5
- Progress 2

WEEK 6 (WEDNESDAY, OCT. 14)
Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week06.md

Topics
- Code: Modeling list pages with Peewee and SQLite
- Code: Importing list pages with Fabric

Readings due next week
- What's the Big Idea: http://gettingreal.37signals.com/ch04_Whats_the_Big_Idea.php
- The design and structure of a news application: https://github.com/propublica/guides/blob/master/design-structure.md

In-class assignments
- Quiz 6
- Scrum 6

WEEK 7 (WEDNESDAY, OCT. 21)
Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week07.md

Topics
- Product development: The structure of a news application
- Code: Scraping detail pages
- Code: Sanity checking data with the iPython shell

Readings due next week
- The ProPublica news apps style guide: https://github.com/propublica/guides/blob/master/news-apps.md
- Half, Not Half-Assed: http://gettingreal.37signals.com/ch05_Half_Not_Half_Assed.php

In-class assignments
- Quiz 7
- Scrum 7
- Progress 3

WEEK 8 (WEDNESDAY, OCT. 28)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week08.md

Topics

- Code: Modeling detail pages with Peewee and SQLite
- Code: Importing detail pages with Fabric

Readings due next week

- Rinse and Repeat: https://gettingreal.37signals.com/ch06_Rinse_and_Repeat.php
- A Fundamental Way Newspaper Websites Need to Change: http://www.holovaty.com/writing/fundamental-change/

In-class assignments

- Quiz 8
- Scrum 8

WEEK 9 (WEDNESDAY, NOV. 4)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week09.md

Topics

- Code: Introduction to HTML
- Code: Building the frame of templates

Readings due next week

- Bootstrap Documentation: http://getbootstrap.com/
- Relative Readability: http://webcache.googleusercontent.com/search?q=cache:s2hdUbC1qWMJ:wm4.wilsonminer.com/posts/2008/oct/20/relative-readability/+&cd=1&hl=en&ct=clnk&gl=us
- The 100% Easy 2 Read Standard: http://ia.net/blog/100e2r
- The 30 CSS Selectors You Must Memorize: http://code.tutsplus.com/tutorials/the-30-css-selectors-you-must-memorize--net-16048

In-class assignments

- Quiz 9
- Scrum 9
- Progress 4

WEEK 10 (WEDNESDAY, NOV. 11)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week10.md

Topics

- Code: Introduction to CSS
- Code: Applying Bootstrap to our template pages

Readings due next week

- Epicenter Design: http://gettingreal.37signals.com/ch09_Epicenter_Design.php
- From Idea to Implementation: http://gettingreal.37signals.com/ch06_From_Idea_to_Implementation.php
- Lunr.js Example: http://lunrjs.com/example/

In-class assignments

- Quiz 10
- Scrum 10

WEEK 11 (WEDNESDAY, NOV. 18)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week11.md

Topics

- Code: Introduction to JavaScript
- Code: Applying interaction to our templates

Readings due next week

- When We Build: http://vimeo.com/34017777
- Material Honesty on the Web: http://alistapart.com/article/material-honesty-on-the-web
- Accessible Data Visualization with Web Standards: http://alistapart.com/article/accessibledatavisualization
- Design Principles for News Apps & Graphics: http://www.propublica.org/nerds/item/design-principles-for-news-apps-graphics

In-class assignments

- Quiz 11
- Scrum 11
- Progress 5

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WEEK 12 (WEDNESDAY, NOV. 25)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week12.md

Topics

- Design: Applying design principles
- Code: Responsive design

Readings due in two weeks

- Getting a Job in Journalism Code: https://source.opennews.org/en-US/articles/getting-job-journalism-code/
- The Natives Aren't Restless Enough: http://thescoop.org/archives/2013/10/01/the-natives-arent-restless-enough/
- Googling for Solutions Can Be Tricky: http://knightlab.northwestern.edu/2014/03/13/googling-for-code-solutions-can-be-tricky-heres-how-to-get-started/
- The Data-Driven Congressional Reporter: http://thescoop.org/archives/2012/12/26/the-data-driven-congressional-reporter/

In-class assignments

- Quiz 12
- Scrum 12

WEEK 13 (WEDNESDAY, DEC. 2)

Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week14.md

Topics

- Project management: Catch up if you're behind.
- Career: Getting a job in media.
- Career: Applying skills in a real-world setting.

Readings due next week

- Lists: Design and Construction: http://www.edwardtufte.com/bboard/q-and-a-fetch-msg?msg_id=0002QF
- Minard: http://www.edwardtufte.com/tufte/minard
- Sparklines: http://www.edwardtufte.com/bboard/q-and-a-fetch-msg?msg_id=0001lh
- Scaling Counties in a Checkerboard State: http://style.org/iowacaucus/
- Arrested Development: http://apps.npr.org/arrested-development/
- Fire Forecast: http://apps.npr.org/fire-forecast/

- PowerPoint Does Rocket Science: http://www.edwardtufte.com/bboard/q-and-a-fetch-msg?msg_id=0001yB&topic_id=1&topic=Ask+E%2eT%2e
- Leo, The Senate Model: http://www.nytimes.com/newsgraphics/2014/senate-model/index.html

In-class assignments

- Quiz 13
- Scrum 13
- Progress 6

WEEK 14 (WEDNESDAY, DEC. 9)
Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week15.md

Topics

- Visualizing data
- Code: Implementing a simple visualization

Readings due next week

- "Done!": http://gettingreal.37signals.com/ch06_Done.php
- What's Your Problem?: http://gettingreal.37signals.com/ch02_Whats_Your_Problem.php
- It Shouldn't be a Chore: http://gettingreal.37signals.com/ch02_It_Shouldnt_be_a_Chore.php

In-class assignments

- Quiz 14
- Scrum 14

Prepare for next class:

- Finish your website and prepare to demo it for the instructor and class. The instructor will begin evaluating the final projects on the last day of class and will finish evaluating them at the end of class. He will not evaluate a project after 10:30 p.m. on the last class day.

WEEK 15 (WEDNESDAY, DEC. 16)
Class on GitHub: https://github.com/jeremyjbowers/MPJO-779-01-FALL2015/blob/master/schedule/week16.md

Topics

- Demo your website

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In-class assignments

- Quiz 15
- Scrum 15