Scripting Civic Engagement

Web Technologies for Designers
Andrea Hansen-Phillips
Fall 2019

University of Virginia
School of Architecture
Department of Landscape Architecture

Within the disciplines of landscape architecture, architecture, and planning, and in both academia and in practice, scripting and coding are increasingly prevalent as tools for analysis, design, and communication. While some forms of scripting and parametric design have worked their way into the mainstream for both analysis and design purposes, most of those who design the public realm do not actually code. However, those who do have used computer programming for a range of innovative applications that have the potential to expand the scope and reach of these professions quite dramatically beyond site design into the realm of community engagement and participation tools, web-based site analysis and mapping platforms, mobile and web apps, video games, and more.

These technologies become even more important when one considers the current cultural, environmental, and political context. Web tools and technologies can be extremely potent drivers of activism and change, and the use of these tools can help us become advocates for the role of spatial designers in solving complex problems of all kinds. This seminar views the current social, cultural, and environmental context as the catalyst for the proactive use of technology to reach a larger audience and use our profession's spatial analysis and design skills towards the greater good. Throughout the semester, we will consider many different case studies covering issues ranging from gentrification, racism and gun violence to natural disasters, climate change and sea level rise. These case studies try to tackle big problems in many different ways—sometimes neutrally, sometimes with a strong stance, but always through the innovative and thoughtful use of technology. In addition, students will be tasked with researching and presenting additional precedents that address issues meaningful to their own research or design agendas.

Being able to communicate through a variety of media is of critical importance to designers, and as new forms of media become more mainstream, designers who gain fluency in these new media will have a leg up. Fluency in code—the language of the internet—allows designers to be able to communicate directly with a much bigger and broader audience, and to communicate in real time. This presents a difficult yet worthy challenge: being a good programmer and web designer forces you to understand complex and technical programming languages while simultaneously being able to write clear and concise human language (website copy) that many difference audiences can understand.

This seminar explores the role of civic engagement in spatial design practices, and how the Internet has become an increasingly powerful tool for facilitating civic engagement, mobility, and social and environmental justice. Themes include unpacking the historical and social contexts of the web as a civic engagement platform, understanding best practices for user-centered design that promotes equity and usability in both the digital and the physical realm, and advocating for the designer's voice and the use of new media in addressing contemporary urban issues.

LAR 7415
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Fall 2019
3 credit hour elective

Thursdays, 1:00 -3:30 pm
CAM 325

Instructor:
Andrea Hansen Phillips
ah2th@virginia.edu
Office hours by appointment
CAM 412

Teaching Assistant:
Qiyao Li
ql3hv@virginia.edu
Office hours Thursday 10a-12p

Primary Objectives

1. To understand the importance of civic engagement in the design fields.
2. To consider how design can respond to the needs of specific communities (particularly vulnerable ones), and where designers can help to improve equity and accessibility.
3. To learn how to create web-based engagement tools that can respond to the needs of real users and have a lasting impact on communities and the design profession.
4. To realize the potential of the web as a medium for architects, landscape architects and urban planners.

Secondary Objectives

1. To become comfortable using a "lean" or "agile" workflow involving continuous, iterative concepting/prototyping and development/testing.
2. To gain a solid understanding of contemporary best practices for accessible website design and development.
3. To achieve basic competency with the use of contemporary web development tools and libraries including Balsamiq, Adobe xD, HTML/CSS/JS, jQuery, Bootstrap, Mapbox Studio, Mapbox GL JS, and SVG.
4. To understand the workflow for incorporating streaming data from real-time sources through the use of APIs (application programming interfaces).

Course Format

This course is a three-credit elective which meets from 1:00-3:30 pm on Thursday afternoons. Classes are intended to be interactive and interdisciplinary, and will include presentations and guest lectures, close examination of case studies and interactive precedents, discussion of critical texts and other supplemental media, design reviews and user testing sessions, and hands-on workshops exposing students to the fundamentals of coding and web-based technologies such as data visualization, web mapping, and app development. **No prior coding knowledge required.**

The course will be loosely divided into four topical modules (see schedule), each highlighting workflows and considerations surrounding a different phase of the web development process. Each module will include an introductory lecture by the instructor, guest lecture(s) and case study presentation(s), readings, tutorials (both in-class and take-home), progress reviews, and an assignment comprised of a series of smaller cumulative exercises.

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Guest Lectures + Case Study Presentations

In addition to lectures from the instructor at the beginning of each module, the course will include a series of guest lectures and case study presentations, during which guests will present real-world examples of how web technologies have been used in the fields of architecture, landscape architecture, and urban design/planning. In addition to presenting their own work, guests will be on hand to review and provide feedback on student exercises. (* indicates TBC)

Guest Lecture: How to Lie With Data (9/12)
Case Study: Charlottesville Regional Equity Atlas (9/12)
Rebecca Coleman, Fine Arts Librarian, UVA Library
Barbara Brown Wilson, Assistant Professor, UVA UEP
https://equityatlas.lib.virginia.edu/

Case Study: ISLAND (10/03)
UVA Landscape Studies Initiative Team
http://lsi.hellodatum.com

Case Study: RCN Mainstreet21 (10/24*)
Mona El Khafif, Zihao Zhang + Taro Matsuno, UVA A-School
http://mainstreet21.org

Case Study: Chattahoochee RiverLands (10/31)
Liz Camuti, SCAPE
https://chattahoocheeriverlands.com/

Case Study: Transforming Community Spaces (11/21*)
UVA Institute for Engagement & Negotiation
http://transformingcommunityspaces.org

Assignments and Grading

Assignments are cumulative, and will result in the creation, testing, and deployment of an interactive website that foregrounds themes of social and environmental justice, community participation, and civic engagement. Students will **NOT** be evaluated on their technical competency, but rather on their inventiveness, approach, and consideration of accessibility, equity, and engagement.

1. **Assignment 1: Framing the Project** **15%**
2. **Assignment 2: Building the Frame** **15%**
3. **Assignment 3: Connections + Connectivity** **15%**
4. **Assignment 4: Engaged Testing** **15%**
5. **Final Project Submission*** **10%**
6. **Attendance + Participation** **30%**

* Not a separate project—accounts for final presentation and refinements of previous assignments.

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Course Schedule

Module I : Framing the Project
UX, Ideation, and Prototyping

8.29 **Lecture: Course Introduction**
Workshop: Design Thinking + Ideation
Pass out As1, Ex1: Ideation Mash-Up

Readings:

- Andrea Hansen Phillips, "The New Maker Culture: Landscape architects coding tools for design and participation," in *Codify: Computation and Landscape Architecture* ed. Bradley Cantrell and Adam Mekies (London: Routledge, 2018).
- Chris Bentley, "Follow the Script: Computation Reshapes Landscapes—And Thinking," in *Landscape Architecture Magazine*, July 2016, 70.

9.05 **Lecture: Introduction to UX**
Workshop: Prototyping in Adobe xD
*** Review As1, Ex1: Ideation Mash-Up*
Pass out As1, Ex2: UX Case Study
Pass out As1, Ex3: Wireframe

Readings:

- Andrea Hansen Phillips, "UX for Landscape Architects: A New Paradigm for Conceptual Design" in *Conceptual Landscapes*, ed. Simon Bussiere (London: Routledge, 2020).

9.12 **Guest Lecture: How to Lie with Data**
Case Study: Charlottesville Regional Equity Atlas
*** Review As1, Ex2: UX Case Study*
Pass out As1, Ex4: Prototype

Readings:

- https://immerse.news/nothing-about-us-without-us-23168e28c32
- https://nonprofitaf.com/2015/05/weaponized-data-how-the-obsession-with-data-has-been-hurting-marginalized-communities/
- https://mastersofmedia.hum.uva.nl/blog/2012/03/28/cultural-bias-in-data-visualization/

9.19 **Hackathon: From Wireframe to Prototype***
Review As1, Ex3: Wireframe
Pass out ThT1: HTML, CSS, and Bootstrap

* I will be out this week and the hackathon will be run by UVA Library's UX team.

Module II: Building the Frame
Responsive Web Design with HTML, CSS, and Javascript

Readings for Module II to be passed out with brief.

9.26 **Lecture: Making a Responsive + Accessible Website**
Workshop: Bootstrap
*** Review As1, Ex4: Prototype*
Pass out As2, Ex1: Bootstrapping Bootstrap
Pass out ThT2: Javascript

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10.03 **Case Study: ISLAND**
Workshop: jQuery and jQuery UI
*** Review As2, Ex1: Bootstrapping* Bootstrap
Pass out As2, Ex2: Website Front-End

10.10 **Hackathon #2: Front-End Q&A**
*****Progress review As2, Ex2: Website Front-End*
Pass out ThT3: Mapbox GL JS

Module III: Connections and Connectivity
Web Maps, Data Visualization and APIs

Readings for Module III to be passed out with brief.

10.17 **Lecture: Web Maps and Data Visualization**
Workshop: Mapbox Studio
Pass out As3, Ex1: Mapbox Studio Basemap

10.24 **Case Study: RCN Mainstreet21**
Workshop: Mapbox GL JS (Layout and Controls)
*** Submit As3, Ex1: Mapbox Studio Basemap*
Pass out As3, Ex2: Interactive Map

10.31 **Case Study: Chattahoochee RiverLands**
Workshop: Mapbox GL JS (Popups and Interactivity)
*** Progress review As3, Ex2: Interactive Map*

11.07 **Workshop: APIs**
*** Progress review As3, Ex2: Interactive Map*

11.14 **Hackathon: Web Maps and Data Visualization**
*** Progress review As3, Ex2: Interactive Map*

Module IV: Engaged Testing
User Testing + Feedback

Readings for Module III to be passed out with brief.

11.21 **Case Study: Transforming Community Spaces**
Desk Crits
Pass out As4, Ex1: User Testing

11.28 **No Class (Thanksgiving)**

12.05 **Final project presentations**

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Computing Requirements

While this course is technically intensive, computing requirements are minimal. Students must have a Mac (preferred) or Windows computer with the following software installed, all of which are free or open source.

- Text editor (tutorials will be given using Sublime Text 3 – https://www.sublimetext.com/)
- Balsamiq – https://balsamiq.com/
- Adobe Creative Suite (**Make sure to install Adobe xD!**)
- Mapbox Studio – https://www.mapbox.com/mapbox-studio/ (Web-only)
- Javascript libraries (instructions for downloading or linking via CDN will be given in class, there is no need to install anything)
    - jQuery – https://jquery.com/
    - Leaflet.js – http://leafletjs.com/
    - Mapbox GL JS – https://www.mapbox.com/mapbox-gl-js/api/
    - d3.js – https://d3js.org/
    - Bootstrap – https://getbootstrap.com/

Training + Tutorials

It is assumed that students have little or no prior experience in coding or web development, therefore care will be taken to move slowly in order to ensure students understand the fundamentals of each tool listed above. However, while in-class tutorials will strive to provide a strong foundation in web development, it is impossible to cover every aspect of web development in one class. Therefore, students will be assigned a series of take-home tutorials which will provide an in-depth introductio to key tools, thereby allowing us to spend class-time focusing on specific techniques rather than comprehensive overviews. These take-home tutorials make use of many excellent online resources that are generally available for free, though some take-home tutorials will have optional additional resources that require payment. The following websites are recommended as excellent resources for coding tutorials:

- Lynda.com – https://www.lynda.com/
- Code School – https://www.codeschool.com/
- Treehouse – https://teamtreehouse.com/
- Codecademy – https://www.codecademy.com/
- Udemy – https://www.udemy.com/
- Stack Overflow – https://stackoverflow.com/ (not tutorials, but rather a forum for code troubleshooting. If you have a question or get stuck, Google it and you'll probably find the answer on Stack Overflow.)

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Readings + Resources

Specific readings will be assigned in class to complement each week's lecture and/or workshop. In addition, the following books will help provide context and grounding:

- Eubanks, Virginia. *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. New York, NY: St. Martin's Press, 2018.
- Dyson, Lauren. *Beyond Transparency: Open Data and the Future of Civic Innovation*. Edited by Brett Goldstein. 1st edition. San Francisco: Code for America Press, 2013.
- Goldsmith, Stephen, and Susan Crawford. *The Responsive City: Engaging Communities Through Data-Smart Governance*. 1st edition. San Francisco, CA: Jossey-Bass, 2014.
- Herzberg, Caspar. *Smart Cities, Digital Nations: Building Smart Cities in Emerging Countries and Beyond*. Petaluma, CA: Roundtree Press, 2017.
- Levine, Peter, Ethan Zuckerman, W. Lance Bennett, Alexandra Segerberg, Stefania Milan, Chris Peterson, Brady Robards, et al. *Civic Media: Technology, Design, Practice*. Edited by Eric Gordon and Paul Mihailidis. 1 edition. Cambridge, Massachusetts: The MIT Press, 2016.
- Jenkins, Henry, Mizuko Ito, and danah boyd. *Participatory Culture in a Networked Era: A Conversation on Youth, Learning, Commerce, and Politics*. 1st edition. Polity, 2015.
- Mihailidis, Paul. *Civic Media Literacies*. 1st edition. New York ; London: Routledge, 2018.
- Monmonier, Mark, and H. J. de Blij. *How to Lie with Maps*. 2nd edition. Chicago: University of Chicago Press, 1996.
- Negroponte, Nicholas. *Being Digital*. 1st edition. New York, NY: Vintage, 1996.
- Noble, Safiya Umoja. *Algorithms of Oppression: How Search Engines Reinforce Racism*. 1 edition. New York: NYU Press, 2018.
- Ratti, Carlo, and Matthew Claudel. *The City of Tomorrow: Sensors, Networks, Hackers, and the Future of Urban Life*. New Haven ; London: Yale University Press, 2016.
- Silver, Nate. *The Signal and the Noise: Why So Many Predictions Fail-But Some Don't*. 1st edition. New York: Penguin Press, 2012.
- Townsend, Anthony. *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia.* W.W. Norton & Company, 2014.

Attendance and Participation

Attendance and prompt arrival for all class meetings is mandatory. Students who are excessively late to class will be penalized accordingly.

Absence for whatever reason, including participation on a site visit or other school-related activity, does not relieve a student from the responsibility of any instruction or work covered in class. **If you must be absent for any reason, please notify the course instructor in advance and in writing.** It is the responsibility of the student to inform the course instructor of conflicts caused by religious holidays. Students must request this accommodation during the first week of classes or whenever the date(s) of final deadlines are announced.

Students are permitted one unexcused absence (absence without prior written notification and approval). Having 2 or more unexcused absences will result in significant penalties to an individual's semester grade.

Deadlines + extensions

All deadlines are final. Please read exercise briefs carefully to ensure that you are aware of the requirements for a given deadline. Technical difficulties are not an excuse for missing a deadline.

Requests for extensions due to medical reasons or other circumstances must be submitted in writing to the course instructor in advance. The deadline extension request must include an official note from a physician or other note explaining the reason for the extension request, and a schedule specifying a proposed completion date of the course work.

The utmost discretion protecting your privacy will be assured. The final decision for any extension request will be made by the course instructor.

Grading System

Grades should reflect professional standards of ethics, timeliness, group cooperation and participation, while also allowing room for intellectual and material experimentation by students. The typical grade for a course is a B. Exceptional work can be recognized with an A or A–, but this work must exceed the expectations of the course and not merely meet those expectations. Brief descriptions for each letter grade are offered below.

A : The grade of A is given very rarely, and used to indicate that a student has exceeded the expectations of the course to a very unusual degree. It indicates that a student has exceeded the expectations of the course in terms of comprehension, while also maintaining a high professional standard for ethical behavior, participation in studio events, completeness, and timeliness. The student's demonstrated comprehension of spatial, representational, and process issues must be truly exceptional.

A– : The grade of A– is also given rarely. It indicates that a student has exceeded the expectations of the course in terms of comprehension, while also maintaining a high professional standard for ethical behavior, participation in studio events, completeness, and timeliness.

B+ : The grade of B+ is given to students who have completed their work in a professional and timely manner, and have exceeded the expectations of the course in some specific way that deserves special recognition, but have not exceeded expectations in all areas.

B : The grade of B is given to students who have completed their work in a professional manner, including demonstrating an ability to pursue questions and issues independently of their design explorations.

B– : The grade of B– is given to students whose work or performance has been slightly less than fully professional in terms of completeness, timeliness, and participation but shows promise in some other way.

C+ : Grades less than B– are considered failing grades in this graduate program; and in the sense that students must repeat these courses until they receive a B– or higher. Students whose performance is incomplete or repeatedly late, or who are unprofessional in ethical terms, unwilling to cooperate with peers in group settings, or whose work shows serious gaps in comprehension will receive grades lower than B–.

F : Students who clearly do not complete a course or whose work does not meet professional standards will receive a failing grade.

Honor Policy

We trust every student in this course to fully comply with all of the provisions of the UVa Honor System. By enrolling in this course, you have agreed to abide by and uphold the Honor System of the University of Virginia, as well as the following policies specific to this course:

- All graded assignments must be pledged.
- You may not access any notes, study outlines, problem sets, old exams, answer keys, or collaborate with other students without the course instructor's explicit permission.
- When given permission to collaborate with others, do not copy answers from another student.
- Always cite any resources or individuals you consult to complete an assignment.
- All suspected violations will be forwarded to the Honor Committee, and at the course instructor's discretion, you may receive an immediate zero/fail on the assignment, regardless of any action taken by the Honor Committee.

Please let the course instructor know if you have any questions regarding the course honor policy. If you believe you may have committed an honor offense, you may wish to file a Conscientious Retraction by calling the Honor Offices at (434) 924 – 7602. For your retraction to be considered valid, it must, among other things, be filed with the Honor Committee before you are aware that the act in question has come under suspicion by anyone. More information can be found at www.virginia.edu/honor.

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