NYU Abu Dhabi — Interactive Media

POLITICS OF CODE

IM-UH 3110

Fall 2017

COURSE SYLLABUS

Instructor

Pierre Depaz (pierre.depaz@nyu.edu)

Meeting Time

Tuesday — 2:40 - 3:55PM
Thursday — 2:40 - 5:20PM

Classroom

C3-153

Office

C3-032

Office Hours

Wednesday — 1:00 - 3:00PM

Credits

4

Class website

https://github.com/pierredepaz/politics-of-code

This course counts towards the following NYUAD degree requirement:

- Core Curriculum > Art, Design and Technology
- Multidisciplinary Minors > Interactive Media
- Majors > Political Science

Course Description

While our relationships between ourselves, our environment, and other people are inherently political, computer technologies and technology companies consistently claim to remain "neutral". This course will assume the opposite—software is political—, and focus on how software applications share commonalities with political systems, how they affect their users as political actors and how we can build alternatives or improvements to those systems.

This course is aimed at deconstructing the design and implementation of software as a political medium, such as Facebook's timeline algorithm, city officials' use of computer simulations to orchestrate urban life, ownership of the intangible and algorithmic criminal assessment.

Along with an introduction to political theory and media studies, coupled with an exploration of the underlying political impacts of those systems, students will work on several hands-on projects to offer functioning alternatives to those systems. To that end, this course will include several workshops in JavaScript, Python and Unity.

Course Objectives

When the course is finished, students will:

- Be able to identify the particular agendas and biases present in the design and implementation of software systems.

- Have gained an understanding of how digital applications can be used to reinforce existing political biases or deconstruct these biases.

- Be able to design and develop a digital application which acknowledges its political agenda and engages with the user on an openly political level.

- Identify how conscientious software development can contribute to social and political change through a conscious use of digital technologies.

Course Assignments

This course consists of both theoretical discussion and in hands-on assignments. The course assignments will therefore include **readings**, **writing**, **presenting** and **coding**.

Reading
Readings will include book chapters, research papers and articles from science and technology studies, media studies and software studies fields. These readings will introduce the students to political sciences, media studies and software studies as well as survey the latest research and explorations in those fields.

Reading Responses
Reading Responses are required to be posted *the day before the lecture* on the student's website. Each response will be at least 500 words, and will focus on whether the student agreed or disagreed with the readings for that week, and why.

Essays
Each student is expected to write two essays relating to the class themes during the semester. The first essay will be around 1,500 words, the second essay will be around 3,000 words and should be posted on their website.

Group Project
Group projects will be completed by teams of 2-3 students. Students will work in groups to complete two functioning prototypes, such as a simple simulation, a simple web communications platform or a simple bot, accompanied by a solo, 500-word essay explaining the political nature of their prototypes. These group projects can be based on class exercises during workshop sessions but must extend those in significant ways (adding new functionalities, deploying it publicly, integrating it with another system).

Solo Project
Solo project will have students produce their own software prototype based on their own political opinions. Students will present a first version of their prototype as their midterm exam and a final version as their final exam. This project will go through a longer ideation and development phase, focus on a particular political issue and address it in a deliberate, thoughtful way.

Grading

Projects and writing assignment should be submitted by email. The submission for projects will be in a .zip file containing either a standalone application and the write-up document or the write-up, with the IP address of the project and with the local files uploaded to that server.
Writing assignments will be submitted by uploading it to one's website and sending that URL in an email.

Essays will be graded on **(1)** whether a clear understanding of the present and future challenges presented by computer technology in regard to that topic, and **(2)** if the response presents a clear, well-argued position (whether agreeing, disagreeing, or both) regarding that issue.
 - **20%**

Reading responses will be graded on **(1)** whether at least one of the issues presented in the readings has been acknowledged, **(2)** whether the response deliberately identifies the possible implications that these issues have and **(3)** whether the response presents an active position (agreement/disagreement) with those implications.
 - **10%**

Participation is the pendant of the weekly reading responses. During lectures, students are expected to participate **(1)** in class by asking questions, contributing to the discussion and providing feedback to other students' projects. Students who do not feel comfortable enough to participate regularly in class discussions can contribute to the class by **(2)** proposing readings, articles or examples that are relevant to the weekly topic.
- **10%**

Solo and Group projects will be graded on **(1)** functionality (*is the application free of unintentional bugs? is it usable by someone else than the developers? in case of a networked project, does it support more than two or three connections at once?*), **(2)** on how well the original political intent is represented in its design and its use (*does it influence the behavior of users in a specific way? does it open new ways to think and act about the situation?*) and **(3)** on how possible it would be to deploy the project in the real world (*does it only work in the classroom or could it work anywhere in the world? what would be the necessary steps for that to happen?*).
 - **15 + 15% Group Projects**
 - **30% Final Project**

Grade calculation

Students will be given grades based on a 100 point scale. Each assignment will be graded on a point scale, and these points will be added up to determine the final grade, according to <u>the following</u>:

        94 - 100 A
        90 - 93   A-
        86 - 89   B+
        83 - 85   B
        80 - 82   B-
        etc.

Readings

All readings will be available as PDFs on the class website (<u>https://github.com/pierredepaz/politics-of-code/wiki/readings</u>).
The class will also include screenings of related documentaries, which are all mandatory.

Attendance

Attendance and arriving on time to all class sessions is required and expected, too many unexcused absences will lower your final grade. **Two unexcused absences lower your final grade by a letter**. Each subsequent unexcused absence will lower another letter grade. Two tardies will count as one absence. Arriving more than 15 minutes late will also count as an absence. If you will be missing a class, please notify me in advance to be excused.

Laptop Use

As we will see throughout the class, digital media are more and more designed to take our attention away from our current actions. As such, laptops, tablets and smartphones are not allowed during lectures. In order to avoid wasteful printing of materials, students are encouraged to take notes from readings and write down questions as preparation for class discussions.

Academic Integrity

As set forth in NYU Abu Dhabi's Academic Integrity Policy, the relationship between students and faculty at NYU Abu Dhabi is defined by a shared commitment to academic excellence and is grounded in an expectation of fairness, honesty, and respect, which are essential to maintaining the integrity of the community. Every student who enrolls and everyone who accepts an appointment as a member of the faculty or staff at NYU Abu Dhabi agrees to abide by the expectation of academic honesty. The full policies and procedures relating to Academic Integrity may be found on <u>the NYUAD Student Portal</u>. Also, if you're going to copy/paste some code, please include the author/StackOverflow link as a comment.

Schedule

1 - INTRODUCTION

Readings
- *On Tools*, in *Computer Power and Human Reason,* J. Weizenbaum, W. H. Freeman, 1976.

Lecture - 09/05
- Housekeeping
- Class introduction

Lab - 09/07
- Introduction to server-side Javascript
- Workflow to set-up a website from scratch

Homework
- Post a reading response to your website
- Post one or several project proposals on your website, be ready to discuss/present them briefly in class next week.

2 - CODE IN THE PHYSICAL WORLD

Readings

- *On Software, or the persistence of visual knowledge*, Wendy Hui Kyong Chun, Gray Room, 2004.
- *Code/Space: Software and the everyday life*, R. Kitchen and M. Dodge, MIT Press, 2011, Chap 2.
- *Rethinking The Public Sphere,* N. Fraser, Social Text, 1990.
- *A Declaration of Independence of Cyberspace*, John Perry Barlow, EFF, 1996.

Lecture - 09/12

- The public sphere as a political concept
- Physical space as individual and collective expression
- Software as a functional transformation of space
- Multilayering

Lab - 09/14

- JavaScript - Forms
- JavaScript - Reading/writing
- Analyzing and designing an algorithm for housing allocation

Homework

- None.

3 - BIASES IN SOFTWARE

Readings

- *How Computer Systems Embody Values*, H. Nissenbaum, Computer, 2001.
- *Machine Bias*, J. Angwin, J. Larson, S. Mattu, L. Kirchner, ProPublica, 2016.
- *Man is to Computer Programmer as Woman is to Homemaker? Debiasing Word Embeddings*, T. Bolukbasi, K.-W. Chang, et. al., *arXiv.org*, 2016.
- *Keep Adding: On Kill Lists, Drone Warfare and the Politics of Databases*, in *Environment and Planning D: Society and Space,* Jutta Weber, 2015.

Lecture - 09/19

- Introduction to databases

Lab - 09/16

- Embodying values
- Mediation and remediation
- Repetition and automation
- Work session.

Homework

- Prepare for project presentation.

4 - MODELING SOCIETY

GROUP PROJECT 1 DUE

Readings
- *Modeling Civil Violence: An Agent-Based Computational Approach*, J. Epstein, Proceedings of National Academy of Science, 2002.
- *Theories and Models*, in *Computer Power and Human Reason*, J. Weizenbaum, W. H. Freeman, 1976. Chap 5.
- *Dumb People, Smart Objects: The Sims and the Distributed Self*, J. Tirrell, Philosophy of Computer Games, 2012
- *The Rhetoric of Videogames*, I. Bogost, The Ecology of Games: Connecting Youth, Games, and Learning, MIT Press, 2008.

Lecture - 09/26
- Agent-based modeling
- Object-Oriented Programming
- Emergence
- Procedural Rhetoric

Lab - 09/28
- Project presentations
- Introduction to simulations in Unity

Homework
- Post about a second idea for a group project on your website. Have groups formed at the beginning of next class.

5 - GOVERNMENT CONTROL

Readings
- *NSA Files Decoded,* E. McCaskell, L. Poitras, The Guardian, 2013.
- *Protocol: Control After Decentralization,* A. Galloway, MIT Press, 2010, Introduction.
- *Discipline and Punish*, M. Foucault, Random House, 1975
- *Engineering the public: Big Data, Surveillance and Computational Politics,* Zeynep Tufekci, firstmonday.org, 2014.

Lecture - 10/03
- Public organization
- Public communication
- Population control

Lab - 10/05
- Botmaking in JavaScript.

Homework
- None

6 - POPULAR ORGANIZATION

Readings

- *The Networked Public Sphere and Civic Engagement in Post-2011 Egypt: A Local Perspective*, N. Rizk, L. Attalah, N. Weheba, arabnps.org, 2016.
- *Electronic Civil Disobedience*, CAE, Printed Matter, 1994.
- *Restricting Digital Sites of Dissent*, Arne Hintz, Critical Discourse Studies, 2016.
- *Exploring the Potential for Open-Source Self-Governance*, M. Mussman, https://sites.google.com/site/efficasync/, 2009.

Lecture - 10/10

- Political protest
- Horizontal hierarchy
- Decentralized organization
- Hacktivism

Lab - 10/12

- Work session

Homework

- Prepare to present your second project.

7 - MIDTERM PRESENTATION

GROUP PROJECT 2 DUE
ESSAY 1 DUE

Readings

- *Public and Counterpublics*, M. Warner, Quarterly Journal Of Speech 88, 2002.
- *Places To Intervene In A System*, D. Meadows, Sustainability Institute, 1999.
- *Public CulturalProduction Art(Software){*, in CODE: The Language of Our Time, Christiane Paul, Ars Electronica, 2003.

Lecture - 10/17

- Public speech
- Systemic intervention
- Public art

Lab - 10/19

- Project presentation

Homework

- Post an idea for your final project on your website. Be ready to discuss it when we come back.

FALL BREAK

8 - SOCIAL NETWORKS

Readings
- *Who Controls your Facebook Feed*, W. Oremus, Slate, 2016.
- *Manufacturing Consent*, E. S. Herman and N. Chomsky, Pantheon, 2002, Chap 1.
- *The Will-to-synchronize,* in *Infinite Distractions,* Dominic Pettman, Polity, 2016, Chap 2.
- *What Facebook Knows,* T. Simonite, technologyreview.org, 2012.
- *The Male Gazed*, Kate Losse, Model View Culture, 2014.

Lecture - 10/31
- The Echochamber
- Habitus
- Social Reinforcement
- Propaganda

Lab - 11/02
- Social Networks with *peer.js*

Homework
- None

9 - THE SELF

Readings
- *Artificial Intelligence*, in *Computer Power and Human Reason*, J. Weizenbaum, W. H. Freeman, 1976. Chap 6.
- *A Cyborg Manifesto,* D. Haraway, Routledge, 1990.
- *AI's Language Problem*, W. Knight, The Technology Review, 2016.
- *Missing Masses*, B. Latour, Shaping Technology/Building Society: Studies in Sociotechnical Change, 1992.

Lecture - 11/07
- Artificial Intelligence
- Emotional attachment
- Actor-network theory
- Cyber-Feminism
- Post-humanity

Lab - 11/09
- Introduction to NLP
- Writing ELIZA

Homework
- None

10 - LABOR REPRESENTATION

Readings
- *Uber's Drivers: Information Asymmetries and Control in Dynamic Work*, A. Rosenblat, Data & Society, 2015.
- *The Ladies Vanish*, S. Wen, The New Inquiry, 2014.
- *How Technology Is Destroying Jobs,* D. Rotman, The Technology Review, 2013.
- *The Wealth Of Networks*, Y. Benkler, benkler.org, 2006.

Lecture - 11/14
- Labor theory of value
- Peer-to-peer economy
- Digital labor
- Worker's rights

Lab - 11/16
- Sentiment Analysis

Homework
- None

11 - OWNERSHIP AND PROPERTY

Readings
- *Discourse on The Origins of Inequality*, J.-J. Rousseau, 1754.
- *Intellectual Property*, Lawrence Lessig, code-is-law.org, 2008.
- *The Coming War on General Computation*, Cory Doctorow, Chaos Communication Congress, 2011.

Lecture - 11/21
- Private property vs. public ownership
- Open-source vs. closed-source
- Intellectual property

Lab - 11/23
- Overview of some of the different licenses
- Work session.

Homework
- None

12 - SEMIOTICS

Readings
- *10 PRINT CHR$(205.5+RND(1)); GOTO 10,* N. Montfort, P. Baudoin, J. Bell, I. Bogost, J. Douglass, M. C. Marino, M. Mateas, C. Reas, M. Sample, N. Vawter, MIT Press, 2013.
- *Speaking Code: Coding as Aesthetic and Political Expression*, G. Cox, MIT Press, 2012, Chap. 4.
- *Speech, Writing, Code: Three Worldviews*, N. Katherine Hayles, in *My Mother Was A Computer*, University of Chicago Press, 2005.
- *There Is No Software,* F. Kittler, The Truth of The Technological World, Stanford University Press, 2014.

Lecture - 11/28
- Political Manifesto
- Semiotics
- Written code vs. Running code

Lab - 11/25
- Writing creative code

Homework
- None.

13 - ECOLOGY

Readings

- *The Tragedy Of The Commons*, G. Harding, Science, 1968.
- *An empirical study of practitioners' perspectives on green software engineering*, ICSE, 2016
- *What Can A Technologist Do About Climate Change?*, B. Victor, <u>worrydream.com</u>, 2015.
- *The Environmental Toll of a Netflix Binge*, I. Burrington, The Atlantic, 2015.

Lecture - 12/05

- Carbon footprint
- Political ecology
- Quantifying the planet

Lab - 12/07

- In-class help

Homework

- Have three people test your final project
- Record their interaction (written/video/audio)
- Ask them what they liked and what they didn't like

14 - FINAL PRESENTATIONS

SOLO PROJECT DUE
ESSAY 2 DUE

Readings
- *Against the Imperialism of Instrumental Reason,* in *Computer Power and Human Reason*, J. Weizenbaum, W. H. Freeman, 1976. Chap 10.
- *On Disobedience,* Joi Ito, joi.ito.com, 2016.

Lecture - 12/12
- Project presentations

Lab - 12/14
- Preparation for IM Show
- Class wrap-up

THE CRITICAL ENGINEERING MANIFESTO
(by The Critical Engineering Work Group, Berlin, October 2011)

0.   The Critical Engineer considers Engineering to be the most
     transformative language of our time, shaping the way we move,
     communicate and think. It is the work of the Critical Engineer to study
     and exploit this language, exposing its influence.

1.   The Critical Engineer considers any technology depended upon to be both
     a challenge and a threat. The greater the dependence on a technology the
     greater the need to study and expose its inner workings, regardless of
     ownership or legal provision.

2.   The Critical Engineer raises awareness that with each technological
     advance our techno-political literacy is challenged.

3.   The Critical Engineer deconstructs and incites suspicion of rich user
     experiences.

4.   The Critical Engineer looks beyond the "awe of implementation" to
     determine methods of influence and their specific effects.

5.   The Critical Engineer recognises that each work of engineering engineers
     its user, proportional to that user's dependency upon it.

6.   The Critical Engineer expands "machine" to describe interrelationships
     encompassing devices, bodies, agents, forces and networks.

7.   The Critical Engineer observes the space between the production and
     consumption of technology. Acting rapidly to changes in this space, the
     Critical Engineer serves to expose moments of imbalance and deception.

8.   The Critical Engineer looks to the history of art, architecture,
     activism, philosophy and invention and finds exemplary works of Critical
     Engineering. Strategies, ideas and agendas from these disciplines will
     be adopted, re-purposed and deployed.

9.   The Critical Engineer notes that written code expands into social and
     psychological realms, regulating behaviour between people and the
     machines they interact with. By understanding this, the Critical
     Engineer seeks to reconstruct user-constraints and social action through
     means of digital excavation.

10. The Critical Engineer considers the exploit to be the most desirable
     form of exposure.