

URP 535: Introduction to Urban Informatics Fall 2017

Course Staff and Schedule

Instructor: Prof. Robert Goodspeed (rgoodspe@umich.edu)
Office: 2384 Taubman Wing, Art & Architecture Building
Office Hours: T/Th 3:00-4:00 PM (sign up via Canvas link)

Website: <https://umich.instructure.com/courses/179552>
Class times: T&Th 1:00 – 2:30 PM, Room 2210, Art & Architecture Building

Summary

This course provides students an introduction to the technical and applied dimensions of the emerging field of urban informatics, an interdisciplinary field of research and practice that uses information technology for the analysis, management, planning, inhabitation, and usability of cities. Given these diverse application areas, the course is centered on a series of technical lectures and hands-on labs which are designed to build on the knowledge typically covered in a standard course in statistics. Technical topics covered includes databases, SQL, web-based mapping and basic spatial data analysis. Seminar and lecture sessions cover topics related to the context and practice models associated with urban technologies, including civic technology, indicators, smart cities, and performance management. Students have an opportunity to explore innovative practice or implement a technical analysis through a class project.

Prerequisite: Introductory course in statistics or quantitative methods, does not require programming or geographic information systems (GIS) background.

Learning Objectives

- Apply technical skills of data analysis, including creating a database, conducting an analysis utilizing SQL queries, and creating a web-based visualization and spatial analysis.
- Analyze the ethical implications of new urban technologies and develop responses to professional ethical situations in urban informatics.
- Create a novel analysis OR evaluate an emerging practice model associated with urban informatics.

Materials

Readings

- All required readings will be posted to Canvas. “Additional Readings” listed below are available from Canvas, online, or from the University Library. While not required, they are recommended for doctoral students, or students interested in exploring the topics further.

Assignments

Class Attendance and Participation (5%) – Attendance to class is required. Students should communicate with the instructor in the case of absences for reasons accepted in a professional environment (illness, personal emergencies, etc).

Lab Assignments (30%) – The class includes five lab assignments, completed individually. In general, the lab assignments will be started in-class on Thursdays during the last 30 minutes of the class period, to be completed as homework. Lab due dates are listed on Canvas, and are generally due at the start of the class the following Thursday. The labs will require use of Microsoft Access, Microsoft Excel, and the web-based Carto mapping software.

Exam (15%) – The class includes one exam, to be held in-class on October 5th. The exam covers all content included in readings and lectures.

Final Project (20%) – Students will complete final projects working individually or in small groups. Each project will fall into one of the categories described below, and additional details about expectations for each will be distributed separately. A short project description will be due for class on **Thurs., Oct. 19th**, when a topic workshop will be held to refine the project ideas. A project proposal will be due **Thurs, Nov. 3rd**, and final presentations will be held during weeks 14 and 15. Project categories:

Analysis Project: Students working individually or in groups up to three can complete an applied urban analysis project utilizing the analysis methods covered in the course, and also optionally other analysis methods. These projects will investigate a focal question through obtaining and analyzing one or more relevant datasets.

Case Study Project: Students working individually or in groups of up to three can complete a case study of a novel urban informatics project. These will require conducting 2-3 interviews, and reviewing related published materials.

Detroit Data Utility Michigan Engaging Community through the Classroom (MECC): A group of up to 5 students may work with a group of Detroit stakeholders who are collaborating to build a shared data infrastructure. As a MECC project, students working on this project will collaborate with students in another Taubman College Class, Prof. Norman's Public-Private Partnerships Class through participating in monthly coordination meetings (tentatively Sept. 19, Oct. 17, and Nov. 21 from 6-7:30 PM). Due to the additional time requirements, students opting for this project will not be required to facilitate a class (see below), but instead the project and reading responses will each receive 5% greater weight.

APA Smart City Challenge Entry: A group of up to five students may work to prepare an entry for the APA Smart City Challenge competition. Due to the additional time requirements, students opting for this project will not be required to facilitate a class (see below), but instead the project and reading responses will each receive 5% greater weight.

Practice Model Presentation & Facilitation (10%) – Students will select a week as individuals or as a group of two to lead the class discussion of the topic. Students should post to the class forum by **noon on Monday** the week of the discussion 1) a working definition or brief summary of the topic to be discussed; 2) a set of questions that will be used to organize the discussion about the readings and the topic in general. Students may choose to provide additional examples, readings, activities or other materials, however these should be introduced during the class period. Students are encouraged to review the “Additional Resources” provided for each

week, as well as discuss their plans with the instructor during office hours the week previous. The following materials, posted on Canvas, may be useful as students develop ideas for how to facilitate the discussion:

Module 2 & 3 Reading Response Posts (10%) – After the exam, students should post a 300-500 word response to the class website each week before the Tuesday class. These posts should respond to the questions posed by the student facilitators. Responses are due for a minimum of 4 of 6 weeks. The grade is the percentage of required posts completed (maximum of 100%).

Resources

Spatial and Numeric Data Services (SAND) Lab

<https://www.lib.umich.edu/clark-library/services/sand>

The University Library's Spatial and Numeric Data Services (SAND) provides assistance with spatial data, numeric data, and statistics for the University of Michigan community. One of the two UM SAND labs is located at Taubman College in room 2207A of the Art & Architecture Building. This lab is generally open during business hours (9AM – 5PM, M-F), and is staffed by a GIS consultant during regular hours which will be announced to the class. The lab supports students from Taubman College, in addition to those from other North Campus programs including the Schools of Engineering and Information. SAND provides advanced computers and software to help students and researchers work with spatial and numeric data and access to data only available from within our labs. These labs are equipped with ArcGIS, ArcView, ERDAS, SAS, SPSS, StatTransfer, Stata, Adobe Creative Suite (Photoshop, Illustrator, InDesign, Dreamweaver), and other software. SAND also provides access to and assistance with data from the Inter-university Consortium for Political and Social Research (ICPSR), Roper Center for Public Opinion Research, Europa World Plus, Global Insight, Geolytics, the U.S. Census Bureau, the U.S. Geological Survey, and other sources.

UM Clark Library Digital Projects Studio

<https://clarkdatalabs.github.io/>

A resource providing tutorials and support for visualization work on campus. Includes resources on data analysis and mapping using R and Python, web mapping with Leaflet, network analysis using Cytoscape, and more.

Advanced Research Computing (ARC)

<http://arc.umich.edu/>

Advanced Research Computing (ARC) enables data-intensive and computational research at U-M through support of programmatic initiatives; multidisciplinary collaboration; instruction and consultation; and high performance computing resources and services. Although most of their activities are related to faculty research, they sponsor many events and workshops which are open to students.

External Resources

Organizations, Networks, and Labs

Code for America - <https://www.codeforamerica.org/>

National Neighborhood Indicators Partnership - <http://www.neighborhoodindicators.org/>

MetroLab Network - <http://metrolab.heinz.cmu.edu/>

What Works Cities, Bloomberg Philanthropies - <https://whatworkscities.bloomberg.org/>

Data-Smart City Solutions at the Ash Center for Democratic Governance and Innovation, Harvard Kennedy School of Government - <http://datasmart.ash.harvard.edu/>
QUT Urban Informatics Lab (Marcus Foth) - <http://www.urbaninformatics.net/>
MIT Senseable City Lab - <http://senseable.mit.edu/>
Center for Spatial Research (Laura Kurgan) - <http://c4sr.columbia.edu/>
SENSEable City Lab (Carlo Ratti) - <http://senseable.mit.edu/>

Startups/Apps

Citiesense [NYC] <https://www.citiesense.com/>
Development Activity Database MassBuilds [Mass.] <http://www.massbuilds.com/>
StreetLightData <https://www.streetlightdata.com/>
State of Place <http://www.stateofplace.co/>

APA Smart City Design Competition - <https://www.planning.org/blog/blogpost/9125012/>

O'Reilly Media – *Publishes a wide selection of technology books relevant to the class; many are available in print or electronic copy in the University Library* - <http://shop.oreilly.com/>

About the UM Urban Informatics Graduate Certificate

This course was created as part of a new Rackham Graduate Certificate in Urban Informatics. Students enrolled are invited to complete the certificate, and information about requirements will be distributed to the class separately.

Course Policies

In addition to those specified here, policies which apply to students in this class include those of the Urban and Regional Planning Program, Taubman College, students' home academic units, and the University.

Academic Integrity

The Taubman College Policy on Plagiarism reads as follows: *"Plagiarism is knowingly presenting another person's ideas, findings, images or written work as one's own by copying or reproducing without acknowledgement of the source. It is intellectual theft that violates basic academic standards. In order to uphold an equal evaluation for all work submitted, cases of plagiarism will be reviewed by the individual faculty member and/or the Program Chair. Punitive measures will range from failure of an assignment to expulsion from the University."*

Students will be provided guidance in class about academic integrity norms in data analysis, including how to appropriately cite data sources and document analyses. Students with additional questions should contact the course instructor.

Accommodations for Students with Disabilities

It is Taubman College policy to "meet the educational needs of all persons, including those with physical or perceptual limitations, who are interested in the study of architecture, urban planning and/or urban design." If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Services for Students with Disabilities (SSD) office to help us determine appropriate academic accommodations. SSD (734-763-3000; <http://ssd.umich.edu>) typically recommends

accommodations through a Verified Individualized Services and Accommodations (VISA) form. Any information you provide is private and confidential and will be treated as such.

Statement on Diversity, Equity & Inclusion

This course pursues the principles of diversity, equity, and inclusion pursued by the University of Michigan and Taubman College, as described in the Taubman College Strategic Diversity Plan, through course content, classroom facilitation, assignments, and selection of topics. The following is an excerpt from the College Commitments described in this plan:

The A. Alfred Taubman College of Architecture and Urban Planning is comprised of highly-ranked academic degrees in architecture, urban design, urban and regional planning. Throughout the degree-granting programs, Taubman College values skilled craft and critical thinking. The college is committed to thoughtful research on the built environment, design, and urbanism and consistently generates new knowledge across these fields. As part of this commitment to thoughtful research and creative work, critical engagement, and the highest standards of craft and methods, the College has evolved in the 21st century to embrace the values of diversity and social justice; expansive rights to well-planned and well-designed spaces, and the rights to equitable institutions, systems and policies. We affirm the principles of diversity, equity, and inclusion as we organize resources and priorities that align with our values. We seek to have a diverse group of persons at all levels of the college – students, faculty, staff and administrators – including persons of different race and ethnicity, national origin, gender and gender expression, socioeconomic status, sexual orientation, religious commitment, age, and disability status. We strive to create a community of mutual respect and trust, a community in which all persons and their respective backgrounds, identities, and views are allowed to be made visible – providing an inclusive environment that without the threat of bias, harassment, discrimination, or intimidation.

Grading

The following scale will be used for grading in this course.

Grade	Minimum %
A+	100
A	95
A-	90
B+	87
B	83
B-	80
C+	77
C	73
C-	70
D+	67
D	63
D-	60
E	50
F	40

Course Overview

Module	Week	Tuesday	Thursday	Labs/Assignments
Foundations		<i>Applications</i>	<i>Technical Topics</i>	
	1	Introduction	Data for Urban Knowledge	-
	2	Data Infrastructures	Data Types & Database Principles	L1 HMDA Analysis
	3	Crowdsourcing & Participatory Mapping	Spatial Data	L2 Carto Intro
	4	OSM, energy data, & other sources	SQL and PostGIS	L3 SQL in Carto
	5	Intro. to Spatial Analysis	Exam	-
Practice Models		<i>Practice Models</i>	<i>Guest Speakers</i>	
	6	Urban Management	<i>No class</i>	L4 311 Analysis
	7	<i>Fall Break</i>	Project Topic Workshop	A1 Topic Workshop
	8	Citizen Interaction Design & Civic Technology	Alicia Rouault (MAPC)	-
	9	Intelligent Planning	Alex Steinberger (Frego. Associates)	A2 Project Proposal L5 Envision Tomorrow Balanced Housing Tool
	10	Smart Cities	Janae Futrell (Atlanta)	
Final Topics	11	Participatory Urbanism Workshop	Participatory Urbanism Seminar	-
	12	Project Check-Ins	<i>Thanksgiving</i>	-
	13	Sparking Innovation	Nigel Jacob (Boston)	-
	14-15	Ethics	Final Presentations	A3 Final Report & Presentation

Module 1: Foundations

Week 1: Introduction and Data for Urban Knowledge

Tues., Sept. 5: Introduction

Readings:

1. Thrift, N. 2014. "The promise of urban informatics: some speculations." *Environment and Planning A* 46 (6):1263-1266.

Thurs., Sept. 7: Data for Urban Knowledge

Readings:

1. Thakuria, Piyushimita, Nebiyu Y. Tilahun, and Moira Zellner. 2017. "Big Data and Urban Informatics: Innovations and Challenges to Urban Planning and Knowledge Discovery." In *Seeing Cities Through Big Data: Research, Methods and Applications in Urban Informatics*, edited by Piyushimita Thakuria, Nebiyu Tilahun and Moira Zellner, 11-45. Cham: Springer International Publishing.
2. Schweitzer, Lisa and Nader Afzalan. 09 F9 11 02 9D 74 E3 5B D8 41 56 C5 63 56 88 C0 Four Reasons Why AICP Needs an Open Data Ethic. *Journal of the American Planning Association*, 83:2 161-167.
3. Innes, Judith E., and D.E. Booher. 2000. "Indicators for sustainable communities: a strategy building on complexity theory and distributed intelligence." *Planning Theory and Practice* 1 (2):173-186.

Additional Readings:

- Sawicki, D. S., and P. Flynn. 1996. "Neighborhood indicators - A review of the literature and an assessment of conceptual and methodological issues." *Journal of the American Planning Association* 62 (2):165-183.
- Sawicki, D.S. 2002. "Improving community indicator systems: injecting more social science into the folk movement." *Planning Theory & Practice* 3 (1):13-32.
- Perdicoulis, Anastassios, and John Glasson. 2011. "The Use of Indicators in Planning: Effectiveness and Risks." *Planning Practice and Research* 26 (3):349-367. doi: 10.1080/02697459.2011.580115.
- StreetlightData. 2017. Tools for Collecting Travel Behavior Data: An Overview of Planners, Modelers, and Engineers.

Week 2: Data Types & Databases

Tues., Sept. 12: Public and Private Data Infrastructures & Open Data

Readings:

1. Chapter 2, "Small Data, Data Infrastructures and Data Brokers," and Ch. 3, "Open and Linked Data" in Kitchin, Rob. 2014. *Data Revolution: Big Data, Open Data, Data Infrastructures & Their Consequences*. Los Angeles: Sage Publications.
2. Sunlight Foundation. 2014. "Open Data Policy Guidelines."
3. Bousquet, Chris. 2017. A Better Way to Release Your City's Data. *Data-Smart City Solutions*.

4. Sieber, Renee E, and Peter A Johnson. 2015. "Civic open data at a crossroads: Dominant models and current challenges." *Government Information Quarterly*.
5. U.S. City Open Data Census. <http://us-city.census.okfn.org/> (review)
6. Mallach, Alan. 2017. *Neighborhoods by the Numbers: An Introduction to Finding and Using Small Area Data*. Center for Community Progress. (skim)

Thurs., Sept. 14: Data Types and Database Principles

Readings:

- Foster, Ian and Pascal Heus, Chapter 4, "Databases." In Foster, Ian et al, eds. 2016. *Big Data and Social Science*, CRC Press.

Lab 1: Querying structured data from Home Mortgage Disclosure Act (HMDA)

Additional Reading:

- Janssen, Marijn, Yannis Charalabidis, and Anneke Zuiderwijk. 2012. "Benefits, adoption barriers and myths of open data and open government." *Information Systems Management* 29 (4):258-268.
- MacDonald, Matthew. 2013. *Access 2013: The Missing Manual*. Sebastopol, CA: O'Reilly.

Week 3: Spatial Data

Tues., Sept. 19: Crowdsourcing Urban Spatial Information

1. Boulos, M.N.K., B. Resch, D.N. Crowley, J.G. Breslin, G. Sohn, R. Burtner, W.A. Pike, E. Jezierski, and K.Y.S. Chuang. 2011. "Crowdsourcing, citizen sensing and sensor web technologies for public and environmental health surveillance and crisis management: trends, OGC standards and application examples." *International Journal of Health Geographics* 10 (1):67.
2. Zook, Matthew, Mark Graham, Taylor Shelton, and Sean Gorman. 2010. "Volunteered Geographic Information and Crowdsourcing Disaster Relief: A Case Study of the Haitian Earthquake." *World Medical & Health Policy* 2 (2):7-33. doi: 10.2202/1948-4682.1069.
3. Paulos, Eric, R Honicky, and Ben Hooker. 2008. "Citizen science: Enabling participatory urbanism." In *Urban Informatics: The Practice and Promise of the Real-Time City*, edited by Marcus Foth. Hershey, PA: Information Science Reference.

Thurs., Sept. 21: Spatial Data Models & Formats

1. Chapter 2 in Maantay, Juliana, and John Ziegler. 2006. *GIS for the Urban Environment*. Redlands, Calif.: ESRI Press.

Lab 2: Intro to Web-based Mapping with Carto

Friday, Sept. 23: National Day of Civic Hacking

(<https://www.codeforamerica.org/events/national-day-of-civic-hacking-2017>)

Week 4: SQL for Analysis

Tues., Sept. 26: APIs, OpenStreetMap, Carto Data Observatory, Energy Data Example

Readings:

- Pincetl, Stephanie, Robert Graham, Sinnott Murphy, and Deepak Sivaraman. 2016. "Analysis of High-Resolution Utility Data for Understanding Energy Use in Urban Systems: The Case of Los Angeles, California." *Journal of Industrial Ecology* 20 (1):166-178. doi: 10.1111/jiec.12299.
- Jokar Arsanjani, J., Zipf, A., Mooney, P., & Helbich, M. (2015). An Introduction to OpenStreetMap in Geographic Information Science: Experiences, Research, and Applications. In J. Jokar Arsanjani, A. Zipf, P. Mooney, & M. Helbich (Eds.), *OpenStreetMap in GIScience: Experiences, Research, and Applications* (pp. 1-15). Cham: Springer International Publishing.

Thurs., Sept. 28: SQL and PostGIS

Readings:

1. SQL Handout
2. Reference – Chapters 1, “Query Construction,” and 2, “Calculating with Queries,” in Bluttman, Ken, and Wayne S. Freeze. 2007. *Access Data Analysis Cookbook*. Beijing ; Sebastopol, CA: O'Reilly. Available Online: <http://proquest.safaribooksonline.com/0596101228>.
3. Obe, Regina O., and Leo S. Hsu. 2011. *PostGIS in Action*. Greenwich: Stamford, CT. Table of Contents and Chapter 1.

Lab 3: SQL in Carto (Due 1pm, Tues., Oct. 3)

Additional Reading

- Chappell, David, and J. Harvey Trimble. 2002. *A visual introduction to SQL*. 2nd ed. New York: Wiley.
- Jiang, Shan, Gaston A Fiore, Yingxiang Yang, Joseph Ferreira Jr, Emilio Frazzoli, and Marta C González. 2013. "A review of urban computing for mobile phone traces: current methods, challenges and opportunities." Proceedings of the 2nd ACM SIGKDD International Workshop on Urban Computing.
- Haklay, M. (2010). How good is volunteered geographical information? A comparative study of OpenStreetMap and Ordnance Survey datasets. *Environment and Planning B: Planning and Design*, 37(4), 682-703.

Week 5: Intro. to Spatial Analysis

Tues., Oct. 3: Social Media Data and Intro. to Spatial Analysis

Reading:

1. Cranshaw, Justin, Raz Schwartz, Jason I Hong, and Norman Sadeh. 2012. "The livelihoods project: Utilizing social media to understand the dynamics of a city." Sixth International AAAI Conference on Weblogs and Social Media.
2. Shelton, Taylor, Ate Poorthuis, and Matthew Zook. 2015. "Social media and the city: Rethinking urban socio-spatial inequality using user-generated geographic information." *Landscape and Urban Planning* 142:198-211. doi: <http://dx.doi.org/10.1016/j.landurbplan.2015.02.020>.

Thurs., Oct. 5: Exam

Module 2: Practice Models

Week 6: Urban Management

Tues., Oct. 10: CitiStat & Performance Management

Readings:

- The What Works Cities Standard
- Schachtel, M.R.B. 2001. "CitiStat and the Baltimore Neighborhood Indicators Alliance: Using Information to Improve Communication and Community." *National Civic Review* 90 (3):253-266.
- Robert D. Behn. 2006. "The Varieties of CitiStat." *Public Administration Review* 66 (3):332-340. doi: 10.1111/j.1540-6210.2006.00592.x.
- Chapter 2, "Manage S.M.A.R.T." in Klein, Gabe, and David Vega-Barachowitz. 2015. *Start-up city : inspiring private & public entrepreneurship, getting projects done, and having fun*. Washington: Island Press. (The entire book is available online at <https://link.springer.com/book/10.5822/978-1-61091-691-2>)

Wed., Oct. 11: "A Data-Driven World: Potentials and Pitfalls," 2017 Michigan Institute for Data Science (MIDAS) Symposium (<http://midas.umich.edu/2017-symposium/>)

Thurs., Oct. 12: No Class

Lab 4: Analyzing 311 Request Data

Week 7

Tues., Oct. 17: Fall Break

Thurs., Oct. 19: Project Topic Workshop – Justin Joque, UM Library

- Turn in project topic paragraph via assignment before start of class

Friday, Oct. 20: Urban Informatics Unconference (recommended, registration required)

Week 8: Citizen Interaction Design & Civic Technology

Tues., Oct. 24: Seminar: Civic Technology

Readings:

1. Scola, Nancy. 2013. "Beyond Code in the Tomorrow City." *Next City*.
2. McKenzie, Jessica. 2017. *Loveland's Labor's Lost: Detroit's Dubious Civic Tech Champions*. CivicHall.
3. Schrock, Andrew R. 2016. "Civic hacking as data activism and advocacy: A history from publicity to open government data." *New Media & Society* 18 (4):581-599. doi: doi:10.1177/1461444816629469.
4. Chapter 1 from Peixoto, Tiago, Sifry, Micah L. 2017. *Civic Tech in the Global South: Assessing Technology for the Public Good*. Washington, DC: World Bank and Personal Democracy Press. <https://openknowledge.worldbank.org/handle/10986/27947>

Thurs., Oct. 26: Civic Technology Guest Speaker (Alicia Rouault)

Additional Readings:

- Whitaker, Christopher. 2015. @CivicWhitaker Anthology: Three years of organizing, writing, and documenting in Chicago civic tech at the Smart Chicago Collaborative.
- Robinson, Pamela J, and Peter A Johnson. 2016. "Civic Hackathons: New Terrain for Local Government-Citizen Interaction?"
- Chapter 9 in Goldstein, Brett, and Lauren Dyson, eds. 2013. *Beyond Transparency: Open Data and the Future of Civic Innovation*. San Francisco: Code for America Press. *This book, published by Code for America, features many vignettes about their work.*

Week 9: Intelligent Planning

Tues., Oct. 31: Intelligent Planning Tools & Methods

Readings:

1. Holway, Jim, C.J. Gabbe, Frank Hebbert, Jason Lally, Robert Matthews, and Ray Quay. 2012. *Opening Access to Scenario Planning Tools*. Policy Focus Report. Cambridge, Mass.: Lincoln Institute of Land Policy.
2. Condon, Patrick, Duncan Cavens, and Nicole Miller. 2009. *Urban Planning Tools for Climate Change Mitigation*. Policy Focus Report. Cambridge: Lincoln Institute of Land Policy.

Additional Readings

- Klosterman, R. E. (1997). Planning Support Systems: A New Perspective on Computer-Aided Planning. *Journal of Planning Education and Research*, 17(1), 45-54.
- Klosterman, R. E., & Pettit, C. J. (2005). An update on planning support systems. *Environment and Planning B: Planning and Design*, 32(4), 477-484.
- Brail, R. K. (2008). *Planning support systems for cities and regions*. Cambridge, Mass.: Lincoln Institute of Land Policy.

Thurs., Nov. 2: Guest Lecture: Alex Steinberger, Fregonese Associates

Thurs., Nov. 2: Project Proposal Due

Lab 5: Envision Tomorrow Balanced Housing Tool

Week 10: Smart Cities

Tues., Nov. 7: Seminar: Smart Cities Debate

1. National League of Cities. 2016. *Trends in Smart City Development: Case Studies and Recommendations*.
2. Mayor's Office of New Urban Mechanics. *Boston Smart City Playbook*.
3. Vanolo, Alberto. 2013. "Smartmentality: The Smart City as Disciplinary Strategy." *Urban Studies*. doi: 10.1177/0042098013494427.

Thurs., Nov. 9: Janae Futrell, SmartATL, City of Atlanta (may visit on Tues.)

Additional Readings:

- Rob Kitchin, Tracey P. Lauriault & Gavin McArdle (2015) Knowing and governing cities through urban indicators, city benchmarking and real-time dashboards. *Regional Studies, Regional Science*, 2:1, 6-28, DOI: 10.1080/21681376.2014.983149
- Townsend, Anthony and Stephen Lorimer. 2015. Digital Master Planning: An Emerging Strategic Practice in Global Cities.
- Townsend, Anthony M. 2013. *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia*. New York: W.W. Norton & Company.
- Ratti, Carlo, and Matthew Claudel. 2016. *The city of tomorrow : sensors, networks, hackers, and the future of urban life*. New Haven ; London: Yale University Press. (provides an overview of the MIT SENSEable City Lab's projects)
- De Lange, Michiel, and Martijn De Waal. 2013. "Owning the city: New media and citizen engagement in urban design." *First Monday* 18 (11).
- Goodspeed, Robert. 2014. "Smart cities: moving beyond urban cybernetics to tackle wicked problems." *Cambridge Journal of Regions, Economy and Society*. doi: 10.1093/cjres/rsu013.
- Neirotti, P., De Marco, A., Cagliano, A. C., Mangano, G., & Scorrano, F. (2014). Current trends in Smart City initiatives: Some stylised facts. *Cities*, 38(0), 25-36. doi:http://dx.doi.org/10.1016/j.cities.2013.12.010
- Hollands, R. G. (2008). Will the real smart city please stand up? *City*, 12(3), 303-320.

November 10 & 11, A2 Data Dive (<http://a2datadive.org/>)

Week 11: Participatory Urbanism

Tues., Nov. 14: Urban Systems Walkshop (in groups)

Thurs., Nov. 16: Participatory Urbanism Discussion

1. Hill, Dan. 2008. "The City as Platform." (PDF posted, but also available online: <http://www.cityofsound.com/blog/2008/02/the-street-as-p.html>)

Module 3: Final Topics

Week 12: Project Check-Ins (Thanksgiving Week)

Tues., Nov. 21: Project Check-Ins

Thurs., Nov. 23: No Class (Thanksgiving Break)

Week 13: Sparking Organizational Innovation

Tues., Nov. 28: Seminar: Organizational IT Findings, Code for America, A2 Data Dive

Readings:

1. Crawford, Susan. 2015. Bluegrass, Blight, and the Future of Cities; How a fiddler and an astrophysicist introduced predictive analytics to Cincinnati.
2. Review Scola (2013) from Week 8.
3. Robey, Daniel, and Sundeep Sahay. 1996. "Transforming work through information technology: A comparative case study of geographic information systems in county government." *Information systems research* 7 (1):93-110.

4. Markus, M Lynne. 2004. "Technochange management: using IT to drive organizational change." *Journal of Information Technology* 19 (1):4-20. doi: 10.1057/palgrave.jit.2000002.

Thurs., Nov. 30: Guest Speaker: Nigel Jacob, City of Boston

Readings:

1. Jacob, Nigel. 2015. *City Accelerator Guide for Embedding Breakthrough Innovation in Local Government*.
2. Hillenbrand, Katherine. 2017. Case Study: Boston's Citywide Analytics Team. DataSmart Cities Project, Ash Center for Local Government, Harvard Kennedy School of Government.

Additional Readings:

- Robey, Daniel, and Marie-Claude Boudreau. 1999. "Accounting for the Contradictory Organizational Consequences of Information Technology: Theoretical Directions and Methodological Implications." *Information Systems Research* 10 (2):167-185. doi: 10.1287/isre.10.2.167.

Weeks 14-15: Data Ethics Revisited, Final Presentations

Tues., Dec. 5: Data Ethics Revisited (Class visitor: Cassie DeWitt)

1. Ethics Case
2. Schweitzer, Lisa and Nader Afzalan. 09 F9 11 02 9D 74 E3 5B D8 41 56 C5 63 56 88 C0 Four Reasons Why AICP Needs an Open Data Ethic. *Journal of the American Planning Association*, 83:2 161-167.
3. Chapter 10, "Ethical, Political, Social and Legal Concerns," in Kitchin, Rob. 2014. *Data revolution : big data, open data, data infrastructures & their consequences*. Los Angeles: Sage Publications. Available online at: <http://methods.sagepub.com/book/the-data-revolution/n10.xml>

Thurs., Dec. 7: Final Presentations

Tues., Dec. 12: Final Presentations