Fei Li, Ph.D.
Assistant Professor
Urban Studies Institute
Office Hours: TBD

feili@gsu.edu
404-413-0204
55 Park Pl NE 809

URB 8xxx: Urban Policy Analytics

Fall 2020

Classroom: TBD

I.   Course Description and Objectives

This is a hands-on course that provides future urban planners and policy analysts with a toolkit to collect, analyze, interpret, and visualize urban data. We will use multiple software packages and platforms including R, ArcGIS, CartoDB, Octoparse, and Tableau. Students will acquire data analytical skills through a series of mini projects, working with both qualitative and quantitative data, individually and in small groups, on problems relevant to urban planning practice, research, and policymaking. The course will also introduce students to various applications of data science and smart technologies in urban management and governance, as well as the associated social, economic, and ethical implications.

Upon completion of the course, students will be:
- familiar with different types of urban data, data sources, and the various ways of utilizing data in planning and policy solutions;
- comfortable with processing, analyzing, and visualizing spatial information;
- able to apply the analytical skills to real world urban problems;
- able to design and conduct a policy analysis project from beginning to end;
- fluent in communicating with data efficiently and effectively;
- cognizant of the ethical considerations in urban data science.

II.   Prerequisites

Students should have taken the following courses (or equivalent) prior to registering:

PMAP 8121 Applied Research Methods and Statistics I
PMAP 8561 GIS Applications for Planning and Policy Analysis

III.   Course Materials

This course has no required texts. Most readings are available online or via GSU library.

Recommended books/resources:

- Batty, Michael. 2013. "Building a Science of Cities." Chapter 1, pp.13-45 in *The New Science of Cities*. Cambridge, MA: MIT Press. (Available online via GIL-Find)
- Speck, J. (2013). *Walkable City. How downtown can save America one step at a time.* New York: Farrar, Straus and Giroux. Part 2: Ten steps of walkability. pp. 65-252. (Available for a small price on Amazon)
- Foster, Ian, Rayid Ghani, Ron S. Jarmin, Frauke Kreuter, and Julia Lane. 2017. *Big Data and Social Science: A Practical Guide to Methods and Tools.* Boca Raton, FL: Taylor & Francis Group. (Available online via GIL-Find)
- R for Data Science
- Fundamentals of Data Visualization

IV.   Requirements and Grading

Students will be evaluated through participation and completion of the guided mini projects and a final team project. For the final project, students are expected to form teams and choose topics by week 8, present the proposed method and data to be used in week 12, and present the project outcome in week 14.

Assignment 1 (walkability study): 20 points
Assignment 2 (urban flood risk analysis): 15 points
Assignment 3 (neighborhood change and housing prices): 15 points
Final project presentation 1: 15 points
Final project presentation 2: 20 points
Participation: 15 points

Please complete all readings and assignments *before* the class and be prepared to contribute to class discussions. If you cannot attend a class due to unavoidable circumstances, send me an email *in advance* including the reason and any supporting documents (unless the absence is due to pregnancy, in which case no medical note is expected). Each unexcused absence will lower your final grade by 3 points (in addition to any assignment or presentation you might miss in that class). Tardiness, early departure and distracting/disruptive behavior can also negatively affect your grade.

Late assignments submitted within 24 hours of the deadline may receive up to 80% of the fulsl credit. Submissions that are more than 24 hours late will not be accepted without valid reasons and prior approval.

V. Policies and Resources

Grading Scale

The course will use a plus/minus grading scale: 98-100: A+; 92-97: A; 90-91: A-; 88-89: B+; 82-87: B; 80-81: B-; 78-79: C+; 72-77: C; 70-71: C-; 60-69: D; 0-59: F.

Important Note: AYSPS students must maintain a cumulative grade point average (GPA) of a B (3.00) or higher in all attempts at courses numbered 6000 or higher. (This means that the original grade in a course that is repeated is not dropped from the cumulative GPA for purposes of determining good academic standing.) USI doctoral students must earn a B or higher in all core courses to maintain their doctoral candidacy.

Withdrawals, Incompletes, and Grade Changes

Students who withdraw after the midpoint of each term will not be eligible for a "W" except in cases of Emergency Withdrawal.
- Withdrawal Policy: http://advisement.gsu.edu/self-service/policies/withdrawal-policy/
- Repeat to Replace Policy: http://advisement.gsu.edu/self-service/policies/repeat-to-replace-policy/
- Grade Appeal and Change (including Incomplete Grades) Policy: http://registrar.gsu.edu/academic-records/grading/grade-appeals-and-changes/

Important University dates can be found at http://registrar.gsu.edu/registration/semester-calendars-exam-schedules/

Academic Integrity

High standards of intellectual and academic integrity will be enforced. GSU guidelines are posted at https://deanofstudents.gsu.edu/files/2017/09/Academic-Honesty-Policy.pdf and https://codeofconduct.gsu.edu/. Special attention should be paid to the following sections:

- Plagiarism. Plagiarism is presenting another person's work as one's own. Plagiarism includes any paraphrasing or summarizing of the works of another person without acknowledgment, including the submitting of another student's work as one's own. Plagiarism frequently involves a failure to acknowledge in the text, notes, or footnotes the quotation of the paragraphs, sentences, or even a few phrases written or spoken by someone else. The submission of research or completed papers or projects by someone else is plagiarism, as is the unacknowledged use of research sources gathered by someone else when that use is specifically forbidden by the faculty member. Failure to indicate the extent and nature of one's reliance on other sources is also a form of plagiarism. Failure to indicate the extent and nature of one's reliance on other sources is also a form of plagiarism. Any work, in whole or part, taken from the internet without properly referencing the corresponding URL (along with the author's name and title of the work, if

available) may be considered plagiarism. Finally, there may be forms of plagiarism that are unique to an individual discipline or course, examples of which should be provided in advance by the faculty member. The student is responsible for understanding the legitimate use of sources, the appropriate ways of acknowledging academic, scholarly or creative indebtedness, and the consequences of violating this responsibility.

- <u>Unauthorized Collaboration</u>. Unauthorized collaboration means working with someone or getting assistance from someone (a classmate, friend, etc.) without specific permission from the instructor on any assignment (e.g., exam, paper, homework) that is turned in for a grade. It is also a violation of academic honesty to knowingly provide such assistance to another student. Collaborative work specifically authorized by a faculty member is allowed.

- <u>Multiple Submissions</u>. It is a violation of academic honesty to submit substantial portions of the same work for credit more than once without the explicit consent of the faculty member(s) to whom the material is submitted for additional credit. In cases in which there is a natural development of research or knowledge in a sequence of courses, use of prior work may be desirable, even required; however, the student is responsible for indicating in writing, as a part of such use, that the current work submitted for credit is cumulative in nature.

All quotes, ideas, data or other information that are not original must be clearly cited in written work. Plagiarism, unauthorized collaboration or multiple submissions will result in all participating students failing the course and being remanded to the discipline committee for further action.

Course Evaluation

Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, please take time to fill out the online course evaluation. We appreciate honest, open and constructive feedback.

Disability Accommodation

Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of a signed <u>Accommodation Plan</u> and are responsible for providing a copy of that plan to instructors of all classes in which an accommodation is sought.

The Office of Disability Services also offers free academic coaching and other services. To learn more go to <u>disability.gsu.edu/services</u>.

Research Data Services

The GSU Library has a **Research Data Services (RDS) Team** that offers help with various statistical/quantitative and qualitative software tools (SPSS, SAS, Stata, Excel, NVivo), finding data, survey design, and mapping and data/GIS visualization. Check out their website (library.gsu.edu/data) to learn more about their services, browse and register for workshops, see when they have drop-in help hours, or email RDS Team members directly to set up appointments. The RDS Team also offers the following special initiatives:

- **RDS@GSU Data Certification** – if GSU students, staff, and faculty attend a minimum of five unique RDS workshops, they receive a custom RDS@GSU Data Certified certificate listing their completed workshops – learn more at research.library.gsu.edu/dataservices/data-certified

- **Data After Dark workshops** – to better meet the needs of our GSU researchers with daytime commitments, we offer evening workshops – learn more at research.library.gsu.edu/dataservices/data-after-dark

AYS Career Services & Alumni Office

The Andrew Young School provides career support and leadership development services to all AYS students and alumni. If you are interested in career building activities and are in the Atlanta area go to career.aysps.gsu.edu. If you are out of the area, please contact the office to schedule a phone or online consultation with the Career Services department.

Syllabus Deviation

The course syllabus provides a general plan for the course; deviations may be necessary.

VI.   Tentative Course Schedule (*Readings available via GIL-Find; +Readings on iCollege)

Week	Date	Topic & Assignments
1	Aug 24-28	**Course Overview** **Introduction to Urban Data Science** *Batty, Michael. (2013). "Building a Science of Cities." Chapter 1, pp.13-45 in *The New Science of Cities*. Cambridge, MA: MIT Press. Foster, Ian, Rayid Ghani, Ron S. Jarmin, Frauke Kreuter, and Julia Lane. (2017). "Introduction." Pp. 1-19 in *Big Data and Social Science: A Practical Guide to Methods and Tools*. Boca Raton, FL: Taylor & Francis Group. Parker, Brenda. (2006). Constructing Community through Maps? Power and Praxis in Community Mapping. *Professional Geographer*, 58(4): pp. 470-484.
2	Aug 31 - Sept 4	**R Basics** Resources: R for Data Science Fundamentals of Data Visualization

Project I. Downtown Walkability Study

Readings:
*Ewing, Reid and Handy, Susan (2009). Measuring the Unmeasurable: Urban Design Qualities Related to Walkability. *Journal of Urban Design,* 14(1), pp. 65-84.

Speck, J. (2013). "Ten Steps of Walkability." Part 2, pp. 65-252 in *Walkable City. How downtown can save America one step at a time*. New York: Farrar, Straus and Giroux.

Week	Date	Topic & Assignments
3	Sept 8-11	**Collecting and Storing Locational Data**
4	Sept 14-18	**Network Analysis and Accessibility**
5	Sept 21-25	**Interactive Mapping with CartoDB**

Project 2. Urban Flood Risk Analysis

Readings:
*Flanagan, B., Gregory, E., Hallisey, E., et al. (2011). A Social Vulnerability Index for Disaster Management. *Journal of Homeland Security and Emergency Management*, 8(1), pp. 1-22.

*Rincón, D., Khan, U.T., & Armenakis, C. (2018). Flood Risk Mapping Using GIS and Multi-Criteria Analysis: A Greater Toronto Area Case Study. *Geosciences,* 8(8), pp. 275-301.

*Al-Kodmany, K. (2001). Visualization tools and methods for participatory planning and

Week	Date	Topic & Assignments

design. *Journal of Urban Technology*, *8*(2), 1-37.

Week	Date	Topic & Assignments
6	Sept 28 - Oct 2	*(Assignment 1 due)* **Working with Raster Data**
7	Oct 5-9	**Assessing Social and Environmental Vulnerability**
8	Oct 12-16	*(Final project team & topic)* **Story Mapping**

Project 3. Neighborhood Change and Housing Prices

Readings:
*Chapple, K., & Zuk, M. (2016). Forewarned: The Use of Neighborhood Early Warning Systems for Gentrification and Displacement. *Cityscape, 18*(3), 109-130.

Greene, Solomon and Pettit, Kathryn L.S. (2016). What if Cities Used Data to Drive Inclusive Neighborhood Change? *Urban Institute* (June 15).

Ward, Brian. (2019). A Light Introduction to Text Analysis in R. *Towards Data Science* (May 3).

Week	Date	Topic & Assignments
9	Oct 19-23	*(Assignment 2 due)* **Finding and Processing Neighborhood Data**
10	Oct 26-30	**APIs, Web Scraping and Text Analysis**
11	Nov 2-6	**Data Visualization and Communication with Tableau**

Final Project

Week	Date	Topic & Assignments
12	Nov 9-13	*(Assignment 3 due)* **Final Project Proposal Presentations**
13	Nov 16-20	**Big Data and Smart Technology Applications in Cities** **Ethics** Readings: *Batty, M., Axhausen, K.W., Giannotti, F., et al. (2012). Smart Cities of the Future. *The European Physical Journal Special Topics,* 214(1), pp. 481–518. Crawford, Kate. (2013). The Hidden Biases in Big Data. Harvard Business Review (April 1). O'Neil, Cathy. (2013). On Being a Data Skeptic. Sebastopol, CA: O'Reilly Media. Boyd, D., & Crawford, K. (2012). Critical questions for big data: Provocations for a cultural, technological, and scholarly phenomenon. *Information, communication & society*, *15*(5), 662-679.

Week	Date	Topic & Assignments
	Nov 23-27	Happy Thanksgiving – NO CLASS
14	Nov 30 - Dec 4	**Final Project Presentations**