Design and Urban Ecologies Methods 3

PGUD 5260 | Section A | Fall 2018
Design and Urban Ecologies (MS)
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Course website: http://due-parsons.github.io/methods3-materials-fall2018
Course email group: join | email

Weekly Schedule & Location:

Lecture & Lab
Tuesday 12:10 PM - 2:50 PM
55 West 13th Street | Room 805

Office Hours
By appointment.

Course Description:

Design and Urban Ecologies Methods 3 introduces geospatial technologies tailored to participatory, community-based research and activist agendas for urban spaces. The class explores open source desktop and web-based geospatial toolsets for research, design, and visualization of urban conditions, as well as strategies for intervention and transformation of issues and challenges facing urban communities. Students will gain valuable experience in harnessing open data and creating innovative mapping tools with local urban communities.

Weekly lectures will cover the history, underlying fundamentals, tools, and programming languages required to make use of GIS and the geographic web. In-class activities will introduce technical fundamentals for each week's topics, followed by weekly assignments where students can master the skills necessary for interactive mapping. Throughout the course, students will balance their efforts between individual research and assignments. During the later phase of the course, students will develop interactive mapping projects that address specific local community challenges. These projects will feature opportunities for students to engage local communities; ground their emerging geospatial skills in real-world urban issues; and draw significant thematic connections broadly with their ongoing urban studies.

Course Themes:

- Open Source GIS Software
- Desktop and online GIS
- Strategies for creating desktop and online cartography
- Participatory GIS
- Critical cartography and GIS
- Collaborative online mapping
- Programming for interactive maps

Learning Outcomes:

By the end of the semester, successful students will:

- Demonstrate a solid working knowledge of GIS and interactive mapping technologies.

- Articulate and develop research and data collection strategies around a unique research topic in geospatial technology for urban communities.
- Articulate their own understanding of research, data, and GIS processes through a final project and presentation.
- Participate in class discussions and in-class exercises, as well as conduct independent research and weekly GIS / interactive mapping exercises (lab sessions will allow mastery of broad concepts, but students will ultimately be responsible for completing each week's technical exercise out of class).
- Demonstrate their ability to translate and migrate GIS data to other spatial technologies in both desktop and online environments.
- Articulate how GIS and the geographic web relates to other spatial modeling techniques for urban design.
- Develop their own interactive mapping project with sufficient complexity, reflecting their mastery of geospatial technologies as they relate to their own research topic.
- Apply concepts and skills to their future work in urban design.
- Utilize technical, quantitative, and qualitative mapping/ethnographic knowledge in the context of local urban communities, neighborhood development, and their spaces.
- Contribute to the course archive, creating a resource for project community partners and future students.

Course Outline (subject to change):

Class 1 8/28	Introduction to GIS, offline and online. *Lab:* Latitude and longitude. Using geojson.io.
Class 2 9/4	Cartographic design & conventions. Projections and coordinate systems. *Lab:* Desktop GIS basics. Managing projections and coordinate systems.
Class 3 9/11	Thematic and choropleth maps. Finding data. Spatial file formats. *Lab:* Desktop GIS: Spatial joins, selections by attributes, map outputs, choropleths
Class 4 9/18	Geoprocessing: proximity, overlay, and extraction. *Lab*: Desktop GIS: feature proximity, overlay, and extraction operations
Class 5 9/25	Spatial analysis. Free and open source software. *Lab:* Desktop GIS: Analysis.
Class 6 10/2	Editing features, georeferencing. *Lab:* Editing features and georeferencing.
Class 7	Census data. Introduction to Carto

10/9

Lab: Census data and Carto basics.

Class 8 10/16 — CartoCSS. Working with layers in Carto.

Lab: Online GIS: Carto, CartoCSS, and layers.

Class 9 10/23 — Getting things online. HTML and CSS.

Lab: Basic HTML and CSS in Carto.

Class 10 10/30 — Introduction to Mapbox and Mapbox Studio.

Lab: Custom map tiles through Mapbox. Using Mapbox Studio to further customize map tiles.

Class 11 11/6 — OpenStreetMap

Lab: Using OpenStreetMap data.

Class 12 11/13 — Final Project Lab 1

Class 13 11/20 — Final Project Lab 2

Class 14 11/27 — Final Project Presentations, Part 1

Class 15 12/4 — Final Project Presentations, Part 2

Recommended Readings:

In the early and middle phases of the course, students will be required to develop a conceptual and theoretical framework for the various geospatial technologies covered in the course. Students will be provided PDF reading files, URLs and textbook excerpts. Each week students will be offered access to additional reading materials. Students are encouraged to pursue these recommended readings, especially for those components of the course that relate directly to student's interest or study focus.

In addition to these provided recommended readings, there are some books that may prove useful:

Bolstad, Paul. ***GIS Fundamentals: A First Text on Geographic Information Systems*****.**
ISBN: 978-0971764736

This is an excellent, relatively exhaustive and system-agnostic look at the field of GIS. Students looking for additional conceptual material should consider this book.

Crampton, Jeremy. *Mapping: A Critical Introduction to Cartography and GIS*.
ISBN: 978-1405121729

Crampton's survey of critical cartography and GIS is a good start for those new to the areas.

Wood, Denis. *Rethinking the Power of Maps*.
ISBN: 978-1593853662

This is a followup to the classic *The Power of Maps*, also by Wood, and it's recommended to skip to this edition. The ways maps harness power and use signs and symbols are enumerated in a passionate and conversational manner that is—perhaps suprisingly—quite readable.

Monmonier, Mark. *How to Lie with Maps*.
ISBN: 978-0226534213

This is a much quicker and simpler read than Wood's and Crampton's works above. Monmonier focuses on how the design of a map can lead the reader to understand the underlying data and landscape in dramatically different ways. As such, it's a decent primer on cartographic design with a mildly critical spin.

Mandel, Alex, et al. *QGIS 2 Cookbook*.
ISBN: 978-0226534213

This book walks you through common tasks in QGIS in a step-by-step and approachable manner. If you're looking for more help with using QGIS this is a good place to start. While this is for the older version of QGIS, much of the content is still applicable. Available online at packtpub.

Materials:

Course lecture topics, readings and in-class exercise data will be available on Canvas, but each student will be required to organize and maintain their own GIS data files, especially pertaining to the final project. During each class session, reading materials, GIS files and your notes can be on your local folder in the lab; however, you are responsible for taking this data with you and bringing it back for the next session. When moving GIS files and research materials back and forth, a **USB drive** or **online backup** is ideal. Even when working on your own laptop, you are responsible for backing up the data.

Course Policies:

Email: Students are required to maintain and check their New School email account on a regular basis except over official breaks.

Announcements will be sent through the course's email group (join at: **https://groups.google.com/a/newschool.edu/forum/#!forum/due-methods-3-fall-2018-group**, email

at: **due-methods-3-fall-2018-group@newschool.edu**), and students are expected to send technical questions to the group too.

Please email the instructor directly only (1) when discussing personal matters or (2) as a secondary resort when working on assignments.

Assignments: Students are required to submit completed assignments via Canvas. Students should work through class assignments before the deadline to be certain they understand the technical challenges of each assignment and finalize these assignments prior to assignment deadlines. **Assignments can be turned in up to one week past their due date with a 25% penalty. With some exceptions, assignments will not be accepted more than one week after their due date.**

Academic Honesty: As part of the larger New School academic policy, plagiarism and cheating are unacceptable. Using other's ideas, analysis, and projects as one's own is unacceptable. Being positively influenced by a methodology or past project is one thing; taking the details of that work and claiming them as your own is another. The university's academic policy applies to GIS projects, interactive mapping and the theory responses that you will author throughout the course.

Adaptations: If you need course adaptations or accommodations because of a disability or emergency medical information that needs to be shared with the instructor, or if you need special arrangements please bring it to the instructor's attention as soon as possible.

Attendance: Class attendance is mandatory. Students are expected to participate in each class session, be punctual to all scheduled meetings, and complete all coursework by the due dates assigned. It is your responsibility to make up work missed due to an absence. If you know that you will miss a class you should notify the instructor in advance - it will be much easier for both you and the instructor to make arrangements early-on. Your third absence will put you at risk of a failing grade in the course, as stated in the Parsons Student Handbook: http://www.newschool.edu/forms/ss_student_handbook.pdf

Courtesy: Please silence your cell phone during class. Students arriving more than 15 minutes late will be marked absent for the day. We plan on covering a great deal in a short timeframe and will need all of our class time to do this.

Evaluations and Grading:

Evaluation for this course occurs across several performance expectations: weekly technical assignments/projects, independent research and data development, final project, and course participation. Through the early and middle phases of the course, students will complete weekly assignments which expand upon the weekly lab sessions. In the later phase of the course weekly assignments will give way to concentration on final course projects. Projects will be evaluated according to the conceptual preparation of the project, the results of the project, and the project presentation.

Weekly technical assignments	30%
Participation and attendance	20%
Final project and presentation	50%

General Grading Categories

A
Students receiving an **A** show exceptional mastery over course material, and produce exceptionally engaging and unique final mapping projects. Student excels in all aspects of the weekly assignments and participates very actively in class discussions and activities. Throughout the class, students receiving an A will consistently accomplish each week's goals while further establishing their own interests and

approaches to particular technical and research data issues in both the weekly course content and the final project.

B/B+
Unlike C/C+ average work, students receiving a **B** show definitive engagement with all aspects of the class, complete assignments in a timely fashion, and produce an engaging final project. Students offer their own approach to class readings, and participate well with in-class exercises and activities. Students are engaged with instructor through questions and feedback over course material to ensure course mastery.

C/C+
Average work that shows some success in engaging with course concepts but no particular distinction or unique approach to data collection, research concepts, and the final presentation. Students receiving Cs show some participation with class discussion and exercises, but not a significant interest level to achieve real mastery over course concepts and material.

D
A **D** will be given if partial required work is submitted; some classes are missed completely and work is not completed on a make-up basis. Weekly exercises are either completed late or not at all. General class concepts are not translated into the final course project. Limited participation in both in-class sessions and out-of-class research requirements.

F
Failing grades are given for required work that is not submitted, for incomplete final projects and lack of participation in reading discussions and in-class exercises. Make-up work or completion of the final project may be permitted only with the approval of the instructor and the program director.

I
A grade of **I** (Incomplete), signifying a temporary deferment of a regular grade, may be assigned when coursework has been delayed at the end of the semester for unavoidable and legitimate reasons. Incomplete grades are given only with the written approval of the instructor and the program director. The Request for an Incomplete Grade form must be filled out by the student and instructor prior to the end of the semester.

For undergraduate students, if a grade of incomplete is approved, outstanding work must be submitted by the seventh week of the following Spring semester. Otherwise, a grade of I will automatically convert to a permanent unofficial withdrawal (WF) after a period of four weeks. For graduate students, the maximum deadline for completion of an incomplete is one year, though a shorter period may be imposed at the discretion of the instructors.