

# Mapping for the Urban Humanities

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Center for Spatial Research | Summer 2017

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May 21, 2017 – June 8, 2017 | 1:00-5:30 pm

Studio@Butler & 300 S Buell Hall

## Description

*Mapping for the Urban Humanities* is an intensive institute on digital mapping designed for faculty and advanced graduate students at Columbia University. It is offered through the Center for Spatial Research at the Columbia University Graduate School of Architecture, Planning, and Preservation with support from the Office of the Dean of Humanities.

This hands-on workshop course is intended to broaden and transform the disciplinary locations within which data analysis takes place. This course will introduce participants to open-source mapping software, QGIS, to methods of data collection and creation, and to approaches and concepts in critical spatial analysis. With support from the course's four instructors, participating faculty will incorporate newly-acquired spatial analysis skills into course assignments and syllabi as well as research plans. One aim of the summer intensive is to equip faculty with tools to transform their humanities courses into places where students learn spatial data analytical skills and apply them to humanistic questions.

The course condenses topics from a semester long introductory GIS course into a two-week hands-on intensive and one-week practicum. Skills based tutorials draw on diverse datasets relevant to investigations in the urban humanities, including: CEISEN's Gridded Population of the World, UN Population Division national population estimates, the National Historic Geographic Information System's historic census records, historical rail lines from the University of Nebraska's Digital History Project, the Readex list of Newspaper Publishers, American Community Survey demographic data, New York State Board of Education records of schools, and scanned historical maps from Columbia University's map collection. Course tutorials and lectures have been developed concurrently and will expose faculty to critical approaches in GIS, introductory spatial analysis methods, and modes of data creation.

## Structure and Rhythm:

Over the course of the first two weeks (May 21-June 1), participants will learn critical methods in digital mapping and data collection through the use of open-source software (QGIS). The

course will meet for 4.5 hours each day in an intensive workshop and lab format. The third week (June 5 - 8) will focus on how to incorporate newly acquired skills into research and course assignments and syllabi, using the syllabi or research brief submitted with the application to the course as a starting point. During the third week, participation is optional and will be scheduled in individual (or small group) workshop sessions.

## Course Goals:

The course aims to equip faculty with a grasp of the methods and methodologies of Geographic Information Systems so that they can introduce critical spatial pedagogies into their teaching and research. Through the course faculty will:

- Develop robust familiarity with QGIS and its functions
- Perform vector and raster spatial analysis operations
- Create new spatial datasets using data creation methods integral to GIS
- Identify and analyze key data sources in their field
- Adapt course tutorials for use in their own classes
- Develop data-driven urban humanities courses and assignments
- Define spatially-driven research questions
- Gain basic fluency in methodology design

## Materials

- Laptop with QGIS 2.18 installed (see instructions [here](#))
- A three button mouse
- In addition to printed copies distributed on the first day, all course tutorials are available via [Github](#)
- A three button mouse (this is highly *highly* encouraged)
- Optional: a 16 GB flash drive to store course data + exercises

## Background on CSR

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The Center for Spatial Research was established in 2015, through a generous grant from the Andrew W. Mellon Foundation, as a hub for urban research that links design, architecture, urbanism, the humanities and data science. It sponsors research and curricular activities built around new technologies of mapping, data visualization, data collection, and data analysis. CSR focuses on data literacy as well as interrogating the world of 'big data,' working to open up new areas of urban research and inquiry.

Our projects generally involve collaborations with researchers and advocates across a variety of disciplines and institutions, working with them to communicate information clearly, critically,

responsibly, and provocatively. We are committed to rigorous and reliable work with data; to harnessing the most powerful techniques of design and visualization; and to a critical reflection on the limits and ideologies of both data and its representation. Based in the disciplines of design, architecture and urbanism we make links with and bring spatial expertise to the humanities as well as the sciences.

## Schedule and Topics

### Monday, May 21 | Introduction

Studio@Butler

- **Topics:** Introductions, What is GIS?
- **Tutorial:** [Mapping Data 00](#): Adding Layers to a Map

### Tuesday, May 22 | Mapping Data 01

Studio@Butler

- **Topics:** GIS Data Types: Vector & Raster; Quantitative & Qualitative, Fundamentals of Cartography, Symbology, Classification
- **Tutorial:** [Mapping Data 01](#): Mapping World Populations
  - *Population by Country*
  - *CEISEN Gridded Population of the World*

### Wednesday, May 23 | Mapping Data 02

Studio@Butler

- **Topics:** Coordinate Reference Systems & Projection
- **Tutorial:** [Mapping Data 02](#): Map Projections & Population Density
  - *U.S. Population by County 1850, 1870 Historical Census*
  - *U.S. Rail Lines 1850, 1870*

### Thursday, May 24 | Making Data 01

Studio@Butler

- **Topics:** Where GIS Data Comes From, Geocoding
- **Tutorial:**
  - [Making Data 01](#): Geocoding data from Historical Sources
    - *Newspapers from the Jacksonian (1823-1842) and Antebellum (1843-1860) Eras.*
    - *US cities*

## Friday, May 25 | Making Data 02

300 S Buell Hall

- **Topics:** Digitizing, Georeferencing
- **Tutorials:**
  - [Making Data 02](#): Working with Historical Maps
    - *East Bronx c. 1902: "Map or plan showing the system of streets, avenues, public squares and places, parks, bridges, etc. in that part of the borough of the Bronx, City of New York lying easterly of the Bronx River."*
  - [Making Data 03](#): Digitizing Features from Historical Maps
    - \* *East Bronx c. 1902: "Map or plan showing the system of streets, avenues, public squares and places, parks, bridges, etc. in that part of the borough of the Bronx, City of New York lying easterly of the Bronx River."*

## Monday, May 28 | No Workshop, Memorial Day

## Tuesday, May 29 | Making Work Public Studio@Butler

- **Due:** Deliverables from Week One tutorials. Printed 8.5x11 in color.
- **Topics** Group discussion and Pin Up of week one work, Examples from the GeoHumanities, Webmaps
- **Tutorial** Showing Data 01: Making Work Interactive with Webmaps
  - \* *Newspapers from the Jacksonian (1823-1842) and Antebellum (1843-1860) Eras.*
  - \* *US cities*

## Wednesday, May 30 | Analyzing Data 01

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- **Topics** Introduction to Geoprocessing, Vector Geoprocessing Operations, Spatial Joins, Proportional Split Estimation, Working with Census Data, Modifiable Areal Unit Problem
- **Tutorial:** [Analyzing Data 01](#): Libraries, Education, and Language
  - *NYC Branch Libraries*

- *American Community Survey Language Spoken by Census Tract*
- *NYC Board of Education Elementary School Locations*

## **Thursday, May 31 | Analyzing Data 02**

Studio@Butler

- **Topics**

Geoprocessing with Rasters, Raster Classification, Density Maps

- **Tutorials:** [Analyzing Data 02](#): Concentrations of Libraries and Education

- *NYC Branch Libraries*
- *NYC Board of Education Elementary School Locations*

## **Friday, June 1 | Bringing it all Together**

300 S Buell Hall

- Designing Methodologies and Assignments

## **Monday, June 4 | Spatial Pedagogies**

300 S Buell Hall

- Curriculum Development Sessions by Appointment

## **Tuesday, June 5 | Syllabus Development & Practicum**

Studio@Butler

- Curriculum Development Sessions by Appointment

## **Wednesday, June 6 | Syllabus Development & Practicum**

Studio@Butler

- Curriculum Development Sessions by Appointment

## **Thursday, June 7 | Syllabus Development & Practicum**

Studio@Butler

- Curriculum Development Sessions by Appointment

## **Friday, June 8 | Syllabus Development & Practicum**

300 S Buell Hall

- Debrief and discussion of course outcomes

