OPEN CARTOGRAPHIES: Visual Studies

Columbia University | GSAPP | A4839 & A4843
Fall 2014 | Tuesdays 5-7pm | 300 Buell North

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01 | COURSE OVERVIEW

The science of cartography and its related mapping activities have undergone fundamental changes in the last decade. From being a strict scientific discipline and the domain of a few specialists, it has become an expanding, flexible, open, collaborative and participatory environment. In addition, many of the classical tenets of cartography have been swept aside and been replaced by efficient computer algorithms (for example, the projection systems in Google Maps), allowing for more speed and accessibility, and opening a set of challenges to cartographic standards. In this context, this course seeks to introduce students to the multiple existing mapping paradigms - their possibilities and their challenges -, including both the traditional rigorous methods and the new open and participatory tools.

In Session A, students will learn the basic principles of cartography and will also be exposed to the emergent set of software and online tools that are challenging those principles. Working through a set of basic mapping exercises, students will familiarize themselves with existing cartographic tools and techniques.

In Session B, students will delve deeper into a specific mapping tool and through a final project, will map and analyze urban phenomena and create a series of interactive visualizations that will address and harness new mapping technologies.

Specifically, students will learn and work with ArcGIS, MapBox and TileMill, CartoDB, qGIS and Processing and no previous coding or GIS experience is required.

02 | TOPICS AND SOFTWARE

02.1 | Basic mapmaking theory and techniques

02.2 | Downloading, analyzing and visualizing demographic and economic data

02.3 | Querying social media APIs

02.4 | Creating and customizing interactive maps and animations

02.5 | Basic scripting techniques for mapping

02.6 | ArcGIS & qGIS

02.7 | CartoDB

02.8 | MapBox and TileMill

02.9| Processing

03| EVALUATION AND GRADING

- 10% Attendance
- 20% Class participation and discussions
- 30% Individual assignments
- 40% Final projects

04 | RESOURCES AND MATERIALS

Course files, tutorials and presentations will be located on the X-Drive. This drive also contains the GIS data available to all GSAPP students. Students are encouraged to explore the data that already exists in the drive and if necessary, use it in their projects. In addition, students should also contact the Digital Social Science Center (DSSC) located in Lehman Library (SIPA) for extra information and data.

The readings for the class will be duly uploaded to Courseworks. Similarly, students will be required to submit their assignments by uploading them to Courseworks. Finally, the class will also rely heavily on submissions to a blog. Students will be required to upload some of their own work as well as inspirational material, encouraging and developing a critical stance and visual skills.

05 | SCHEDULE

SESSION A:

Week 1 (Sept. 9)	Introduction to course and basic mapmaking theory and techniques
Week 2 (Sept. 16)	ArcGIS: Basic GIS tools (selection methods, clips, unions and buffers)
Week 3 (Sept. 23)	ArcGIS: Joining tables and census data
Week 4 (Sept. 30)	ArcGIS: Downloading, joining and analyzing point data
Week 5 (Oct. 7)	Processing: Querying APIs and introduction to Processing (Part 1)
Week 6 (Oct. 14)	Processing: Querying APIs and introduction to Processing (Part 2)

SESSION B:

Week 7 (Oct. 21)	CartoDB: Creating and customizing interactive maps
Week 8 (Oct. 28)	CartoDB: Creating animations and advanced techniques
Week 9 (Nov. 4)	MapBox and TileMill: Creating and customizing interactive maps
Week 10 (Nov. 11)	MapBox and TileMill: Advanced customization and interactive techniques
Week 11 (Nov. 18)	Processing: Basic mapping scripting techniques
Week 12 (Nov. 25)	Processing: Advanced mapping scripting techniques
Week 13 (Dec. 12)	Final projects due

06 | OTHER RESOURCES

Books:
- *Design for Information*, by Isabel Meirelles
- *Data Flow, Visualizing Information in Graphic Design*, by Gilles Berton
- *Data Flow 2, Visualizing Information in Graphic Design*, by Robert Klanten, Sven Ehmann, Nicolas Bourquin and Thibaud Tissot
- *Atlas of Shrinking Cities*, by Elke Beyer, Anke Hagemann, Tim Rieniets, Philipp Oswalt
- *Data Points: Visualization That Means Something*, by Nathan Yau
- *Semiology of Graphics*, by Jacques Bertin
- *The Visual Display of Quantitative Information*, by Edward Tufte
- *Envisioning Information*, by Edward Tufte
- *Visualizing Information for Advocacy*, by Tactical Technology Creative
- *Annual Reports*, Nicholas Felton

Websites:
- visualizingdata.com
- flowingdata.com
- periscopic.com
- accurat.it
- feltron.com
- newsvis.org
- fellinlovewithdata.com
- well-formed-data.net
- fathom.info

Apps:
- Reporter
- Open Paths
- iPhone Tracker