Advanced GIS for International Crises, Development and the Environment
CRN 2906 | NINT 5423 A | Spring 2019
Graduate Program for International Affairs
Instructor: Eric Brelsford | ericb@newschool.edu
Teaching Assistant: Sarah Kontos | konts832@newschool.edu
Course website: gpia-gis.github.io/adv-materials-spring2019

Weekly Schedule & Location:

Lecture & Lab
Thursdays 8:00 PM - 9:50 PM
63 5th Ave, room L106

Office Hours
By appointment

Course Description:

This course expands the desktop GIS skills acquired through *GIS for International Crises, Development and the Environment* to mapping for the geographic web. Building on introductory GIS concepts, students will learn web-based technologies for interactive, online mapping. Proficiency with web based, online data visualization is a skill that is in high demand in myriad of sectors and initiatives within the international development field. With current trends in social media as well as increasingly open data sources, students who possess a foundation of desktop GIS analysis coupled with interactive mapping skills will be effective within organizations delivering data-driven solutions to an increasingly vulnerable world.

Weekly lectures will cover the history, underlying fundamentals, tools and programming languages of the geographic web. Corresponding lab sessions will introduce technical fundamentals for each week's topics, followed by weekly assignments where students can master successive programming skills necessary for online mapping. By the end of the semester students will develop their own web based mapping project using the tools and strategies learned throughout the course. The final project will allow students to demonstrate their ability to integrate core geographic technologies and concepts in the online environment.

Prerequisite: GIS for International Crises, Development and the Environment

Course Themes:

- Open Source GIS Software
- Web-based GIS
- Participatory GIS
- Collaborative online mapping
- Programming for interactive maps

Learning Outcomes:

By the end of the semester, successful students will:

- Demonstrate a solid understanding of the conceptual framework of the geographic web.
- Develop an understanding of the ecosystem of contemporary geospatial technologies, how they relate to each other, and how they are best used for interactive mapping.
- Articulate and develop research and data strategies around a particular topic, and translate and enhance this topic through online mapping.

- Participate in class discussions and in-class exercises, as well as conduct independent research and weekly exercises (lab sessions will allow mastery of broad concepts, but students will ultimately be responsible for completing each week's technical exercise on time, and during out-of-class hours).
- Demonstrate a working knowledge of programming languages and platforms necessary for contemporary web mapping.
- Express their own understanding and mastery of geographic web technologies through a final project and presentation.

Prerequisite:

This advanced GIS course builds upon the geospatial fundamentals taught in the introductory GIS course. Students are required to take the introductory course; exceptions can be made by the instructor upon request.

Students seeking a waiver to the prerequisite course will need to demonstrate either a sound, working knowledge of HTML, CSS, and JavaScript or GIS skills commensurate with students who have taken the introductory course.

Course Outline (provisional, subject to change):

1/24   Class 1
             Desktop GIS Refresher | Introduction to Webmaps

1/31   Class 2
             How does the web work? | Introduction to Carto

2/7   Class 3
             Advanced Carto | CartoCSS
             Final project thoughts due

2/14   Class 4
             SQL | GeoJSON

2/21   Class 5
             HTML | Page structure | HTML in Webmaps

2/28   Class 6
             CSS | Styling workflow | CSS in Webmaps

3/7   Class 7
             JavaScript 1
             Final project proposal due

3/14   Class 8
             JavaScript 2

3/21   **NO CLASS (spring break)**

3/28   Class 9
             JavaScript 3

4/4   Class 10
             JavaScript 4 | GitHub
             Final project milestone due

4/11   Class 11

Mapbox

4/18   Class 12
              OpenStreetMap | Adding data to OpenStreetMap | Field Papers | Other topics

4/25   Class 13
               Final project lab

5/2   Class 14
              Final project presentations, Session 1

5/9   Class 15
              Final project presentations, Session 2
              Final projects due

Materials:

During each class session you can store reading materials, GIS files, and your notes on the local folder in the lab, but remember to take this data with you if it is valuable to you. Although much of this course will involve web-based data and platforms, its always a good practice to back up important data to a networked location (eg, Dropbox), on a USB drive, or on a laptop that you bring to class.

Course lecture topics, readings, and in-class exercise data will be available in Canvas and the course website; however, each student will be required to organize and maintain their own GIS data files, especially those pertaining to the final project. These files should be consistently backed up across multiple locations. A crashed, lost final GIS project will severely effect one's standing in the course!

Course Policies:

Email: Students are required to maintain and check their New School email account on a regular basis except over official breaks. When sending an email, please use the following guidelines:
   - Email the Google Group (**gpia-advanced-gis-spring-2019-group@newschool.edu** or post to it online) to communicate technical issues and questions about assignments. This is a mailing list for the students in the course, the instructor, and the teaching assistant. As such, please make sure your email subject is specific;
   - Use the teaching assistant's and instructor's personal email addresses when asked to, for example to send details about a question that are not relevant to the group;
   - Use the instructor's personal email if you have a personal question or to let the instructor know that you will not make it to class.

Course assignments: Students should work through class assignments early in the week to be certain they understand the technical challenges of each assignment and finish these assignments prior to assignment deadlines. **Assignments turned in up to one week past their due date may incur a 25% penalty. Assignments will only be accepted more than one week after their due date at the discretion of the instructor.**

Academic Honesty: As part of the larger New School academic policy, plagiarism and cheating are unacceptable. Using others' 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 instructors, or if you need special arrangements, please bring it to my 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 in advance that you will miss a class you should notify me as a courtesy in advance - it will be much easier for both you and myself to make arrangements early rather than late over missed material and assignments.

Courtesy: Please abstain from using your cell phones for the duration of class. Students arriving more than 15 minutes late will be marked absent for the day. It is critical to be on time to this class. We have a short amount of time in which to accomplish a lot, and we will need every minute of class time.

Evaluations and Grading:

Weekly technical assignments	40%
Final project and presentation	40%
Participation and attendance	20%

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 As 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 collaborative 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 produces an engaging final project. Student offers own approach to class readings, and participates well with in-class exercises and activities. Students are engaged with instructors through questioning 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 approaches to data collection, research concepts and final presentation. Student shows 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 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.