
**Columbia University – School of International and Public Affairs (SIPA)
Master of Public Administration in Environmental Science and Policy (PESP)**

Summer 2017

**ENVPU6246: Analytics for Environmental Science
Part I: Workshops in Geographic Information Systems**

Instructor: Kytt MacManus

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Class Time and Location:

Section A Monday 10:00am-1:00 pm, INTERNATIONAL 510A

Section B Monday 1:30pm-4:30 pm, INTERNATIONAL 510A

Office hours: by appointment

Textbooks

This course does not require a textbook for the GIS section.

Course Description

Workshops in Geographic Information Systems present an introduction to GIS theory and application. The course will cover the fundamentals of data storage and introduce analytical techniques. Students will learn to use analytical techniques to create a traditional GIS map as well as a WebGIS presentation (ESRI Story Map).

Method of Instruction

The course will meet once per week. Classes will combine lectures by the instructor, discussions of reading assignments and case studies, and lab time for students to work with the instructor on learning analysis methods and software programs.

Attendance and Participation

Attendance and participation in this course are mandatory. The week's reading assignments are to be done in advance of class.

Grading

Grading for the GIS section of ENVPU6246 will be worth 50% of your total grade for the course.

The percentage weight of the assessment of student performance will be:

- Attendance and Participation 20%
- Practical Labs and Assignments 30%
- Final Project 50%

Workshops in GIS - Lecture Topics, Labs Exercises and Readings Schedule

Class # and Date	Lecture Topics	Lab Exercise	Homework	Readings TO BE COMPLETED BEFORE CLASS
1 6/5/2017	Introduction to GIS - GIS in a Nutshell - Spatial Data Types - Sources of Spatial Data - Storing Geographic Data - Symbology/Cartography - Metadata - GIS Software	ESRI Virtual Campus	Create your first map/webmap	- Excerpts from Getting to Know ArcGIS - Excerpts from GIS for Decision Support and Public Policy Making
2 6/12/2017	Using Data in GIS - Details on Vector Data - Coordinate Systems - Modifiable Areal Unit Problem - Tobler's First Law - Web GIS	ESRI Virtual Campus	Prepare your Final Project	- Vorosmarty et al. 2010. Rivers In Crisis: Mapping dual threats to water security and humans. <i>Nature</i> . Vol. 467, No. 7315, pp. 555-561.
3 6/19/2017	Spatial Analyst - Details on Raster Data - Surface Analysis - Interpolation Analysis - Site Selection using Raster - Course Conclusions	Project Presentations	Best of luck this year!	