Environmental Planning and Design 462: Advanced Environmental Geomatics
Spring 2014 11:37:42:01 3 credits

Department of Landscape Architecture
School of Environmental and Biological Sciences
Rutgers, The State University of New Jersey

Class meeting times: Tuesdays and Fridays, 10:55 AM – 12:15 PM
Classroom: Environmental & Natural Resource Sciences Bldg (ENR), Room 237
Instructor: Luke Drake
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Office Hours: Tuesdays and Fridays, 1:15 – 2:15 p.m., Blake 117, or by appointment

General Information
This course builds on geospatial techniques that you have learned in introductory and intermediate courses, stressing critical spatial thinking in social, political, and economic, and environmental contexts. In addition to learning advanced techniques, you will also work on a project to assist a non-profit client in a research project as part of the course. Thus, in addition to learning advanced techniques, you will develop a research proposal, carry out analyses based on data you collect, and present your findings in a report and presentation.

Learning Objectives
Given an open-ended problem, it is the course’s goal that students will be expected to:

- Identify components of the spatial problem/s;
- Develop a proposal that identifies the analytical approaches, tools, data, etc. needed to address the spatial problem;
- Be able to execute an acceptable solution;
- Be able to evaluate the results and assess how to improve the outcome in the future.

Textbook
There is no required textbook for the course and readings will be provided as needed. A suggested reference book, however, is *GIS Fundamentals: A First Text on Geographic Information Systems*, 4th edition, by Paul Bolstad.
Course Schedule
Due to the project-centered nature of the course, the weekly schedule will appear on the course’s Sakai website. The schedule is subject to change, and lectures or workshop days may be added or changed accordingly. Due dates for assignments will be announced through Sakai.

Over the course of the semester we will cover a series of topics, including:
- GIS & Society
- Communicating GIS Skills and Geographic Information
- Geodesy and Georeferencing
- Data quality and standards
- Geocoding
- Surface Analysis
- Suitability Analysis through ModelBuilder
- Spatial Statistics
- Web Mapping: Google Maps Engine, ESRI StoryMaps
- Advanced Web Mapping: MapBox & TileMill; Leaflet JS with MapQuest Open
- Web GIS: ArcGIS for Server, ArcGIS Online

Assignment of Grades
GIS & Society assignment: 15%
Lab assignments: 25%
Individual spatial analysis project: 20%
Group project: 40%

GIS & Society assignment: There are three parts to this assignment—annotated bibliography, presentation, and class discussion. Each student will read the papers provided by instructor and create an annotated bibliography, present one of the papers to the rest of the class, and participate in a class discussion. Due: February 4th.

Lab assignments: Each student will completed advanced exercises. Upload your lab assignment to the Sakai website to be graded. When uploading make sure to NAME YOUR ASSIGNMENT: LASTNAME_FIRSTNAME_LABX where X stands for the lab number. Due dates as assigned.

Individual spatial analysis project: Each student will be responsible for undertaking a hands-on spatial analysis of a selected problem and synthesizing the objectives/methods/results in a short report. Projects should demonstrate not only understanding of how to carry out the given technique(s) but also an understanding of how it fits within a project management scenario. Due dates: abstract/rough draft due March 7th. Final draft due April 4th.

Group project: The entire class will be divided into groups to work on the Rutgers-Isles research project “Integrating Re-Use of Abandoned Properties for Healthy Food Options in Trenton, New Jersey.” The objectives of the group project are to develop a GIS methodology and use this method to conduct suitability analysis for the non-profit organization Isles.

**Key dates:**
- February 4th: GIS & Society bibliography and presentations
- March 7th: Individual spatial analysis project abstract/rough draft
- March 18-21: Spring break
- March 28th: Group project proposal
- April 4th: Individual spatial analysis project final draft
- April 15th: Group report outline
- May 14th: Group final report and presentation

Grading scale: A=90-100; B+ = 85-89; B = 80-84; C+ = 75-79; C = 70-74; D = 60-69; F=59 or less.

While the assignment of grades is ultimately the purview of the instructor, the department uses the following guideline for understanding appropriate grading in its courses:

**A – Outstanding** – This not only means fulfilling the requirements, but impressing and going beyond the initial expectations of the project. The student has demonstrated a superior grasp of the subject matter coupled with a high degree of creative or logical expression, and strong ability to present these ideas in an organized and analytical manner.

**B – Very Good** – The student has demonstrated a solid grasp of the material with an ability to organize and examine the material in an organized, critical, and constructive manner. The projects and in-class performance reveal a solid understanding of the issues and related theories or literature.

**C – Acceptable** – The student has shown a moderate ability to grasp concepts and theories for the class, producing work that, while basically adequate, is not in any way exceptional. This performance in class displays a basic familiarity with the relevant literature and techniques.

**D – Unacceptable** – The work demonstrates a minimal understanding of the fundamental nature of the material or the assignment with a performance that does not adequately examine the course material critically or constructively.

**F – Failure** – The student has demonstrated a lack of understanding or familiarity with course concepts and materials. Their performance has been inadequate. Failure is often the result of limited effort and poor attendance which may indicate that the student is not in the proper field of study.

**Attendance Policy**
Attendance at all regularly scheduled class meetings is expected. A minimum level of participation is defined as being in attendance for the entire duration of a class session. It is the student’s responsibility to be in attendance at all required classes and all personal plans should be
made in accordance with the schedule. Students on academic probation have NO ALLOWABLE CUTS.

Due Dates
Except for circumstances truly beyond the student’s control, all assignments are due at the dates and times specified throughout the semester. Projects that are incomplete on the due date should still be submitted on the date it is due to receive at least partial credit. Any work submitted late will be penalized a letter grade for each day past due. Working beyond a due date is both unrealistic in a professional setting and unfair to your classmates in this course.

Classroom Conduct
Your conduct in the classroom should be conducive to learning. Please treat other people and the classroom and lab equipment with respect. Please turn all cell phones off or set to silent during class. No food or drink is allowed at the computer terminals.

Academic Integrity Policy
Rutgers has an academic integrity policy that emphasizes the importance of staying beyond reproach. You should never take inappropriate credit for the work of others, either your classmates, roommates, siblings, famous authors or obscure Internet sources. A huge percentage of academic integrity cases could simply be resolved by giving credit to the source of the data, idea or wording—that is why quotation marks are so valuable.

Since some of the work in this class will almost certainly end up being published online or in print, your personal reputation and that of the program both depend on giving proper credit for the basis of any work. They also depend on not using photos, data, or other materials for which you do not have permission. Use of copyrighted materials on a publicly posted publication, without permission, is both a violation of the class rules and violates Federal and International law. Any project that is turned in that uses photography or images from outside sources without giving credit will be penalized.

If you ever have any questions about whether something requires credit, please check with me. Once you turn in a problematic assignment, it can be very hard to undo the damage.

Cheating and plagiarism will not be tolerated. Please review the University's Academic Integrity Policy here: http://studentconduct.rutgers.edu/files/documents/AI_Policy_2013.pdf.

Ownership of Student Work
Submitted maps or written papers for any project assigned in Landscape Architecture courses are considered the property of the Department and may be retained in its archives for exhibition and accreditation purposes. All projects will be graded and returned to the student at a location designated by the instructor. Should your drawings be retained by the Department, you will be given the opportunity to obtain a print or photographic record of your work. Department files are off limits to students.
Disabilities
Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: https://ods.rutgers.edu/students/documentation-guidelines. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: https://ods.rutgers.edu/students/registration-form.