Instructor: Gabriel Etengoff
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Office Hours: Fridays 2:30PM - 4:30PM or by request
Office Location: Virtual
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Class Meeting Days: Thursday
Class Meeting Hours: 9:30AM - 12:15PM
Class physical location: North 5033

Course Overview

Many of us live in cities. You might notice that places we inhabit are full of events marked by space and time. For example, a bus stopping is a small occurrence in terms of its spatial and temporal footprint whereas the creation of an urban park is a large spatial temporal event (i.e., takes a much longer time horizon to plan, fund, and build a park, and an urban park is typically larger than a bus). Similarly there are bicyclists, fire and police stations, roads, city blocks, parking spaces, parking meters, restaurants, and many other "things" in the city. These large and small things may be stationary or mobile, may have large or small footprints, or may be temporally around only for a few seconds or for decades. In the aggregate, these things make the city.

In this class we'll learn how to look at these "things" spatially using a Geographic Information System (GIS) framework. We'll think of the interactions between these elements, and how a systematic analysis of such data can lead to important policy insights e.g., Are bicycle accidents occurring around a certain type of intersection? Where are the spatial gaps in affordable housing production within Denver?

University Course Catalog Description

This course is a detailed introduction to GIS that focuses on spatial analytics for Urban Planning using vector and raster data. Aimed at professionals and researchers, this course includes advanced ArcGIS applications and tools, and innovations in geo-spatial data analysis.

Course Overview

The instructor will give a short lecture during the days with labs. Much of the class time will be spent learning the skillsets that will enable you to analyze geo-spatial data. Learning will

be through a series of labs, and your skills from the lab will be reinforced through assignments. There are 8 labs in this course and associated homework assignments. You are expected to budget, on average, about 6-9 hours every week for this workload including time in class. Please note that some students will finish the labs and assignments faster than others.

The final product for this course is a term project report which is due on the last day of class. Throughout the semester, I will provide guidance on how to move through the various steps for the term projects. These include: problem identification, problem definition, analysis, and final report.

Course Goals and Learning Objectives

Goals: The pedagogical emphasis of this course is on how to interpret an urban issue, identify sources for evidence, and analyze spatial information using commercial software. From a practitioner's perspective, the class will teach students how to be planners who are required to answer policy-related questions using evidence. The methodological focus of this course is to show students how to use commercially available software (ESRI's ArcGIS Pro) to visualize and analyze spatial data as planners. Students will learn how to apply GIS analysis to real world planning problems using publicly available datasets. This is a hands-on, skills building course with a primary emphasis on city/urban spatial data. Through a series of lectures and lab exercises the students will learn how to identify key spatial issues, run analyses on the gathered information, and present output as maps.

Objectives

At the end of this course the students will be able to:

1. Select and create appropriate thematic maps for data with different levels of measurement;
2. Design attractive, readable and useful maps through good cartographic practice;
3. Utilize geoprocessing tools (e.g., buffer, intersection, union, clip/erase, spatial join) to address planning questions;
4. Use spatial data showing real-world planning problems, and present possible policy recommendations for resolving planning issues;
5. Process and analyze GIS data related to the urban and regional planning profession; and
6. Make an effective report of the kind that planners are routinely asked to make for decision-makers and the public.

Course Prerequisites

Students interested in the field of geo-spatial analysis would be well prepared for this course. I do not expect that you will have any experience in the ESRI ArcGIS Pro environment. Restriction: Graduate level students.

Course Credits

3 Credits

Required Texts and Materials

There is no required textbook for this class. However, here are some textbooks that may be of interest to you:

- Ferrari E. and Rae A. (2019) GIS for Planning and the Built Environment: An Introduction to Spatial Analysis, McMillan International Higher Education and Red Globe press, London, UK
- Longley, P., Goodchild, M., Maguire, D., and Rhind, D. (2015) Geographic Information Science and Systems, 4th Edition, John Wiley & Sons, Hoboken, NJ
- Krygier, J. and Wood, D. (2016) Making Maps: A Visual Guide to Map Design for GIS, 3rd Edition, The Guilford Press, New York, NY
- Price, M. (2016) Mastering ArcGIS, 7th Edition, McGraw Hill, New York, NY

Supplemental (Optional) Texts Material

See above in section.

Course Schedule

Week	Date	In-class (mandatory) activity	Points Assigned
1	Aug. 20	Week 1 Module: Course Introduction: GIS for Urban Planning	NA
2	Aug. 27	Week 2 Module: Lab 1: Introduction to GIS	8
3	Sept. 3	Week 3 Module: Lab 2: Map Making / Cartography	8
4	Sept. 10	Week 4 Module: TERM PROJECT 1 | PROJECT SCOPING	4
5	Sept. 17	Week 5 Module: Lab 3: Geocoding & Data Management	8
6	Sept. 24	Week 6 Module: Lab 4: Census & Demographic Analysis	8

7	Oct. 1	Week 7 Module: TERM PROJECT 2 | SCOPE & ANALYSIS PLAN	4
8	Oct. 8	Week 8 Module: Lab 5: Vector Geoprocessing	8
9	Oct. 15	Week 9: TERM PROJECT 3 | PROJECT WORKSHOP: DATA & METHODS	4
10	Oct. 22	Week 10: Lab 6: Network Analysis	8
11	Oct. 29	Week 11: Colorado APA Confrence – No Class | TERM PROJECT 4 | INDEPENDENT PROJECT WORK	4
12	Nov. 5	Week 12: Lab: 7 Suitability Analysis	8
13	Nov. 19	Week 13: Lab: 8 Raster Geoprocessing	8
14	Nov. 19	Week 14: TERM PROJECT 5 | 60-75 PROJECT CHECK-IN	4
15	Nov. 26	Week 15: Fall Break – No Class	NA
16	Dec. 3	Week 16: TERM PROJECT 7 | FINAL GIS PLANNING MEMO & REFLECTION	4
17	Dec. 10	Week 17 | Finals Week | TERM PROJECT 17 | FINAL GIS PLANNING MEMO & REFLECTION	11

Assignments

All labs will be available on Canvas at the start of the class session, and all assignments will be the Sunday before next class session.

Students are required to finish the term project report individually. This class has no written exam but the workload requires students to budget around 6-9 hours weekly for the class, especially for lab assignments, term project development, and report writing. The laboratory exercises and assignments are integral parts of the course and help illuminate the principles of spatial analysis. Thus, the labs and assignments teach skills that are useful in the Planning job market. To make learning more pertinent to student interests, the lab exercises use real data from local communities.

Labs/Assignments

The course has eight (8) labs which are run during class, and eight (8) homework assignments associated with the labs that have to be submitted on Canvas as Microsoft Word documents. This format allows for grading and commenting on your homework directly. All labs and assignments will be available on Canvas at start of the semester. These labs constitute a bulk of the workload during class hours. Lab time is critical and

gives an opportunity for one-on-one instruction. You will get most help during lab hours—both for your labs and the term project (see below). Plagiarism will not be tolerated, but students are encouraged to learn from each other and create their own assignment submissions. Your ability to use ArcGIS Pro and the quality of your term project will benefit from attending and finishing each lab and assignment individually. In this class, you do not need to submit the lab. Assignments associated with the labs must be submitted on Canvas in the form of a word document (docx).

Term Project

Students are encouraged to find urban policy-based stories from Denver to seek inspiration for project ideas. Some sample issues are: gentrification, suburbanization, infill development, bicycle infrastructure, speeding, pedestrian and bicyclist safety, locating schools, climate resiliency, and others.

You must identify one issue to focus on as a term project. You are required to formulate an argument, relying on data available in class, run analyses, and present the output in a term project report. The purpose of the term project is to give you a chance to apply all of the tools you learn in the class to an area of your interest. Soon after learning the tools each week, you are expected to take a lead on incrementally preparing your final project. You can do this by conceptually evolving your thinking about aspects of your term project, cleaning up and assembling datasets, and running early-stage analyses. The instructor will be available in class and during office hours to discuss issues. A focus on critical thinking with analysis and self-reflection must be evident in the work produced. Students are required to produce a 8–12 page product. Further instructions will be provided during the semester.

Basics for Final Grade

Assessment	Points Possible	Percent of Final Grade
Homework assignments	Total of 64 points across all assignments	64%
Term project and report	Total of 31 points across all assignments	31%
Attendance / Participation	5	5%
Total	**100**	**100%**

This course uses the grading scale of the university and the MURP Department as below:

Letter	Definition
A (94 to 100) A- (90 to 93)	Exceptional scholarship and superior work products that significantly exceed stated requirements in scope and/or quality.
B+ (87 to 89) B (84 to 86) B- (80 to 83)	Commendable scholarship and accomplished work products that somewhat exceed stated requirements in scope and/or quality
C+ (77 to 79) C (74 to76) C- (70 to 73)	Satisfactory scholarship and work products that meet or almost meet stated requirements in scope and/or quality.
D+ (67 to 69) D (64 to 66) D- (60 to 63)	Inadequate scholarship and inferior work products that clearly fail to meet stated requirements in scope and/or quality.
F (59 or lower)	Unacceptable scholarship and work product.

Grade Dissemination

Graded assignments in this course will be returned via Canvas. Each Microsoft Word file you submit will have comments and suggestions, and an overview of the class scores in reference to yours. Note that the Canvas score card only lists assignment scores as set up by instructor. This means that the final score on Canvas can differ from your actual grade once the instructor includes attendance and participation marks.

Course Procedures

Attendance Policy

The instructor has designed this course so as to learn the material synchronously. Students are expected to attend all sessions, participate in class, and finish all the assignments. The instructor may or may not take attendance in each class.

Late Work Policy

Late submissions will carry a penalty as follows: After deadline but before 12 hours from deadline - penalty is 25% marks. After 12 hours but before 24 hours from deadline - penalty is 50% marks. After 24 hours but before 48 hours from deadline - penalty is 75% marks. Your submissions will be on Canvas and date stamped by the server. All late submissions are subject to professor discretion.

For an excused absence where the cause is religious belief, a student must contact the instructor within two weeks of the start of classes to request accommodation for the term. Instructor may request adequate documentation to substantiate the student request.

A student who cannot complete one of the course assignments due to incapacitating illness, severe domestic affliction, or other compelling reason should contact the instructor via e-mail as soon as possible.

Extract Credit Policy

There are no Extra Credits envisioned for this course. The instructor will inform you if this changes.

Grades of "Incomplete"

The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course; students have up to one year (three semesters) to complete course requirements. The instructor is the final authority on whether you qualify for an incomplete. Incomplete work must be finished within the time allowed or the "I" will automatically be recorded as an "F" on your transcript.

Rewrite / Resubmit Policy

For this graduate level course, rewrites on assignments are not recommended. However, if the student has a legitimate reason to rewrite the assignment, they may do so after seeking the instructor's approval.

Course Polices: Technology and Media

Email

If you have a question for the instructor you can email him at Gabriel.etengoff@ucdenver.edu. Please state in the subject line URPL 6250 and keep the email brief. The instructor will make every effort to answer emails within 24-hours on weekdays. If your email arrives between 5:00 P.M. on Friday and mid-night on Sunday, your emails will be answered by mid-night on Monday.

Canvas

We will use Canvas for this course. All announcements, assignments / due dates, and discussions for this course are conducted via Canvas. Students are expected to log into the Canvas website at least once every 2-3 days to keep up with the class.

Recording course content

You may not record the sessions in audio or video format for any reason except with the explicit permission of the instructor.

Course Polices: Student Expectations Civility

My commitment is to create a climate for learning characterized by respect for each other and the contributions each person makes to class. I ask that you make a similar commitment.

The Student and Community Counseling Center

The Student and Community Counseling Center is in Tivoli 454 and provides cost-free and confidential mental health services to help students manage personal challenges that impact emotional or academic wellbeing. You can learn more at the Center at http://www.ucdenver.edu/life/services/counseling-center/Pages/default.aspx or by calling (303) 315-7270.

Campus Assessment, Response & Evaluation (CARE):

If you have an immediate concern about the behavior or safety of a class member at CU Denver, help by making a referral to the Campus Assessment, Response & Evaluation (CARE) team. The CARE team's purpose is to promote a safe productive learning, living, and working environment by addressing the needs of students, faculty, and staff. If you or a classmate needs help, please submit a concern at https://www.ucdenver.edu/student/wellness/care-team or call 303-315-7306.

Professionalism

Mobile devices must be silenced during the classroom sessions.

University Polices

Access

Disability Access

The University of Colorado Denver is committed to providing reasonable accommodation and access to programs and services to people with disabilities. Students with disabilities who want academic accommodations must register with Disability Resources and Services (DRS) in the Student Commons Building, Suite 2116, Phone (303) 315-3510, Fax (303) 315-3515, or via email disabilityresrouces@ucdenver.edu. See https://www.ucdenver.edu/offices/disability-resources-and-services.

Academic Honesty

Student Code of Conduct

Plagiarism is the use of another person's ideas or words without acknowledgement. The incorporation of another person's work into yours requires appropriate identification and acknowledgement. Examples of plagiarism when the source is not noted include: word-for-word copying of another person's ideas or words; the "mosaic" (interspersing your own words here and there while, in essence, copying another's work); the paraphrase (the rewriting of another's work, while still using their basic ideas or theories); fabrication (inventing or counterfeiting sources); submission of another's work as your own; and neglecting quotation marks when including direct quotes, even on material that is otherwise acknowledge.

CU Denver has a license agreement with Turnitin.com, a service that helps detect plagiarism by comparing student papers with Turnitin's database and Internet sources. Students who take this course agree that all required assignments may be submitted to Turnitin. While students retain copyright of their original course work, papers submitted to Turnitin become part of the Turnitin's reference database for the purposes of detecting plagiarism.

Nondiscrimination and Sexual Misconduct

The University of Colorado Denver is committed to maintaining a positive learning, working and living environment. University policy and Title IX prohibit discrimination on the basis of race, color, national origin, sex, age, disability, pregnancy, creed, religion, sexual orientation, veteran status, gender identity, gender expression, political philosophy or

political affiliation in admission and access to, and treatment and employment in, its educational programs and activities.

University policy and Title IX also prohibit sexual misconduct, including harassment, domestic and dating violence, sexual assault, stalking, or related retaliation. If you have experienced some sort of sexual misconduct or discrimination, please visit the Office of Equity/Title IX web site to understand the resources available to you or contact the Office of Equity/Title IX Coordinator (303-315-2567). https://www.ucdenver.edu/offices/equity

Important Dates to Remember

Academic Calendar: Please review the academic calendar for important dates available at https://www.ucdenver.edu/student/student-calendars/academic/fall

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