GRG 356T

Spring 2025

Course Information

Instructional Mode: Face-to-face
Meeting Times: Tue/Thu 02:00 PM - 03:30 PM
Meeting Location: RLP 1.402
Unique Number: 37374

Alternative lab location: Scholars Lab, Perry-Castaneda Library

Instructor

Yuhao Kang
Email: yuhao.kang@austin.utexas.edu

Office Hours and Location

Instructor Office Location: RLP 3.422

Instructor Office Hours: T 3:30-4:30 pm, W 4:00-5:00 pm or by appt

Overview of the Class

This course is designed to provide a general introduction to Cartography, defined as the art, science, and ethics of mapmaking and map use. It focuses on the basic theory of maps, design of maps, and user experience (UX) design. Students will learn basic cartographic principles such as map projection, map generalization, map symbolization, color theories, etc. Students will practice map-making and map-design skills through print mapping in ArcGIS Pro and Illustrator, as well as cutting-edge methods including interactive maps and Artificial Intelligence (AI). By learning the theoretical foundations of cartography and map design, and gaining hands-on

experience through lab sessions, students will be able to produce digital maps that are creative and visually appealing.

Pre-Requisites for the Course

Prerequisite: Varies with the topic.

Learning Outcomes

At the conclusion of this course, students will be able to:

- Understand key cartographic elements such as map projections, map generalization, typography, etc.
- Learn essential map design principles, including visual hierarchy, symbolization, and understand the characteristics of different types of maps in effectively communicating geographic information.
- Demonstrate proficiency in professional tools such as ArcGIS and Adobe Illustrator to create high-quality maps.
- Integrate cartographic theories into practical mapmaking processes and map critiques to design and evaluate maps that are not only accurate but also visually appealing.
- Acknowledge the evolution of mapping technologies, including the use of interactive maps and emerging methods such as Artificial Intelligence (AI) in cartography.

Generative Artificial Intelligence

The creation of artificial intelligence tools for widespread use is an exciting innovation. These tools have both appropriate and inappropriate uses in classwork. The use of artificial intelligence tools (such as ChatGPT) in this class is permitted for students who wish to use them, **provided the content generated by AI is properly cited and acknowledged.**

Grading Policy

Grading policy

Labs	50%	7 labs, 6% - 10% each
Exams	10%	1 final exam
Attendance	4%	4 lab attendance checks, 1% each
Discussion	6%	6 discussion questions, 1% each
Presentation	5%	1 presentation for each student
Final Project	25%	1 individual final project

Grade Breaks

Grade	Cutoff
A	94%
A-	90%
B+	87%
B	84%
B-	80%
C+	77%
C	74%
C-	70%
D+	67%
D	64%
D-	60%
F	<60%

Overview of all Major Course Requirements and Assignments

Labs The labs are designed to provide students with hands-on experience in creating maps using professional tools such as ArcGIS, Adobe Illustrator, interactive mapping platforms, and Artificial Intelligence (AI). These lab assignments enable students to apply the cartographic principles introduced in lectures, reinforcing their theoretical knowledge while developing essential mapmaking and design skills. For certain assignments, students will have multiple weeks to complete their work. Lab assignments will typically have a submission deadline of one week after the assignment date. Late submissions will incur a 10% penalty per day. Each lab requires students to submit both a high-quality paper map and a digital version.
Exams The exam is designed to assess students' understanding of key concepts, principles, and techniques covered throughout the course. It evaluates both theoretical knowledge and the ability to apply cartographic and geospatial concepts effectively.
Class attendance Attendance is mandatory for the lab sessions.
Discussion questions There are 6 discussion questions in the course that are closely related to topics covered in the lecture. Students are expected to submit their responses on Canvas in the same week as the lecture.
Final Project You will have a final project that make a printed paper map using professional tools (ArcGIS and Adobe Illustrator) to make a thematic map. A project proposal will be submitted in Week 10. The proposal contains a theme of the map and the datasets that you will use.

Canvas Assignments

Due Date	Assignment Name	Points
	Final Exam	100
4/8/25	Discussion 4	1
	Map Critique 3	1
4/8/25	Lab 6	10
4/10/25	Discussion 5	1
4/30/25	Final Project	23
3/27/25	Lab 4	10
3/4/25	Lab 2	13
4/1/25	Lab 5	10

Due Date	Assignment Name	Points
4/17/25	Lab 7	10
	Map Critique 2	1
4/22/25	Discussion 6	1
	Presentation Slides	5
3/6/25	Lab 3 Draft	1
3/11/25	Discussion 2	1
	Presentation	0
4/1/25	Final Project Proposal	2
2/11/25	Map Library Visit	5
2/11/25	Lab 1	10
2/4/25	Discussion 1	1
2/20/25	Lab 2 Draft	2
	Map Critique 1	1
3/25/25	Discussion 3	1
3/11/25	Lab 3	9

Required Course Materials

GIS&T Body of Knowledge
Subtitle: Cartography/Visualization

Recommended Course Materials

Field, K., 2018. Cartography: the definitive guide to making maps. Esri Press.

Final Exam Date and Time

The final exam will be held on April. 15, 2025

Notice of Academic Accommodations from Disability and Access (D&A)

The university is committed to creating an accessible learning environment consistent with university policy and federal and state law. Please let your instructors know if you experience any barriers to learning so they can work with you to ensure you have equal opportunity to participate fully in your courses.
If you are a student with a disability, or think you may have a disability, and need accommodations please contact Disability & Access (D&A).
Please refer to the D&A website. for more information. If you are already registered with D&A, please deliver your Accommodation Letter to your instructors as early as possible in the semester so you can discuss together your approved accommodations and needs in your courses.

University Policies and Resources for Students Canvas Page

This Canvas page is a supplement to all UT syllabi and contains University policies and resources that you can refer to as you engage with and navigate your courses and the university.

How Will You Learn?

Teaching Modality Information

This course is primarily conducted in person, requiring attendance at scheduled class times as published in the Course Schedule. All lectures and laboratory sessions will take place in designated classrooms and labs. Students are expected to be present physically for each class to participate in interactive discussions, group learning projects, and hands-on activities. Please note that this course does not offer remote participation options, and attendance is mandatory for successful completion.

Communication

The course Canvas site can be found at utexas.instructure.com. Please email me through Canvas. You are responsible for ensuring that the primary email address you have recorded with

the university is the one you will check for course communications because that is the email address that Canvas uses.

Asking for help

If you have questions or need assistance with course materials, please ensure you direct your inquiries to the appropriate person for timely and effective support. For lecture-related questions, contact the Instructor directly either by email or during office hours. For lab-related inquiries, please reach out to one of the two designated Teaching Assistants (TAs). We strongly encourage you to make use of office hours to discuss course content, seek clarification on assignments, and engage in further discussions about GIS topics.

Late Work and Making up Missed Work

Students are expected to complete all assignments by the due dates. However, if you anticipate or encounter situations such as serious illness, family emergencies, or other valid reasons that prevent you from submitting on time, please notify Prof. Kang and via Canvas for extensions. Late work will be accepted with a penalty. Assignments submitted late will incur a grade reduction of 10% per day past the due date.

Sharing of Course Materials is Prohibited

No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class materials, review sheets, and additional problem sets, may be shared online or with anyone outside of the class without my explicit, my written permission. Unauthorized sharing of materials may facilitate cheating. The University is aware of the sites used for sharing materials, and any materials found online that are associated with you, or any suspected unauthorized sharing of materials, will be reported to Student Conduct and Academic Integrity in the Office of the Dean of Students. These reports can result in initiation of the student conduct process and include charge(s) for academic misconduct, potentially resulting in sanctions, including a grade impact.

Course Outline

This is a tentative schedule and may change based on progress.

Week	Date	Day	Format	Lecture	Assignment
1	14-Jan	T	Lec	Introduction	Assignment 1: Make your first map
	16-Jan	TR	Lec	No Class	
2	21-Jan	T	Lab	Map Projections	

	23-Jan	TR	Lab	1. Environment Setup	
3	28-Jan	T	Lec	2. Adobe Illustrator (PCL)	
	30-Jan	TR	Lab	Map Projections II	
4	4-Feb	T	Lec	3. Generalization and Map Critique (PCL)	Assignment 2: Reference Map
	6-Feb	TR	Lab	4. Map Library Visit (PCL)	
5	11-Feb	T	Lec	Typography	
	13-Feb	TR	Lab	Visual Layout	
6	18-Feb	T	Lec	Symbolization	
	20-Feb	TR	Lab	5. Map Critique (PCL)	
7	25-Feb	T	Lec	Choropleth Map	
	27-Feb	TR	Lab	6. Choropleth Map	
8	4-Mar	T	Lec	Proportional Map & Dot Density Map	Assignment 3: Choropleth Map
	6-Mar	TR	Lab	7. Map Critique (PCL)	
9	11-Mar	T	Lec	Cartogram & Flow Map	Assignment 4: Proportional Map
	13-Mar	TR	Lab	8. ArcGIS Story Map	
10	18-Mar	T		Spring Break	
	20-Mar	TR			
11	25-Mar	T	Lec	Geovisualization I	Assignment 5: ArcGIS Story Map
	27-Mar	TR	Lab	9. ArcGIS Dashboard	
12	1-Apr	T	Lec	Geovisualization II	Assignment 6: ArcGIS Dashboard
	3-Apr	TR	Lab	AI for Cartography	
13	8-Apr	T	Lec	Guest Speaker	Assignment 7: AI for Cartography
	10-Apr	TR	Lab	10. GenAI exploration	
14	15-Apr	T	Lec	Final Exam	
	17-Apr	TR	Lab	Final Project	
15	22-Apr	T	Lec	12. Map Critique (PCL)	
	24-Apr	TR	Lab	Final Project	
* Final project proposal due: April. 1, 2025 ** Final project due: April. 30, 2025					