Geography 572
Graphic Design in Cartography

Instructor:
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Office: 375 Science Hall
Office Hours: 11-12pm Monday; 3-4pm Tuesday

Teaching Assistants:
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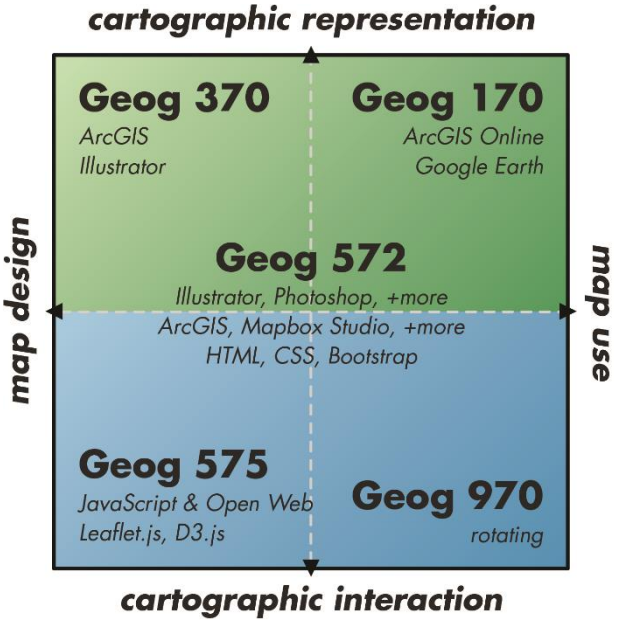
Lecture (360 Science Hall):
Tuesday/Thursday 1:00-2:15pm

Labs (380 Science Hall):
Section 301: Monday 11:00-1:00pm
Section 302: Monday 1:00-3:00pm

Course Overview

Course Description:
Geography 572 (G572) provides a deep examination of advanced topics in ***Cartography***, drawing from insight into vision and visual culture from art, science, and critical theory. G572 is a direct extension of the G370 course, but with a focus on design for the web rather than print. Further, G572 integrates concepts from both map design and map use (compared to G170 or G370, which focus upon one or the other) and emphasizes design of web-delivered static maps, rather than the design of interfaces for manipulating these maps (compared to G575).



Prerequisites:
Geography 370 or consent of instructor.

Programs/Breadth:
G370 serves undergraduate and graduate programs in Cartography/GIS, and is Physical Science breadth for L&S majors. G370 also can be used as an advanced Geography elective (Human Geography emphasis). Under university policy, undergraduates and graduates are graded on separate curves.

Credit Load:
G370 is a 4-credit course, and therefore assumes ~4 hours of classroom contact per week plus ~8 hours of self-directed study and design outside of class per week.

Lecture Summary (2-credits):

The lecture component of the course is designed to shed light on the question ***How maps work?*** Maps are more than just exported JPEGs or PDFs of your GIS analysis. Maps tell stories. Maps provide explanations. Maps make arguments. Maps solve problems from the critical to the mundane. But, maps also mislead. Maps confuse. Maps conceal. Sometimes, maps even kill. So, what separates a good map from a bad one? An ethical map from an evil one? ***DESIGN***. Design is far from random, and at its best is fully informed by the processes and politics at play in visual communication. Lectures introduce theory on map use to ***think critically*** about map design.

Lecture material is organized into three primary sections: (1) ***How maps are seen***, drawing on theory from visual perception; (2) ***How maps are understood***, drawing on theory from visual and spatial cognition; and (3) ***How maps become meaningful***, drawing on theory from semiotics as well as artistic and ethical epistemologies. Most lectures span multiple days, with the opening material introducing an influential theory relating to one of these three components and the subsequent material presented as discussion on how such theory informs (or confuses) one or several advanced techniques in cartography. Throughout, the broader context of the course is visual storytelling, with an 'eye' towards the fundamental changes occurring to map design as the world comes online.

Lab Summary (2-credits):

The laboratory component of the course focuses on ***cartographic workflows*** for designing maps that 'work' on the web. Thus, the focus is not on a single technology or programming language, but rather effective navigation across a range of modern cartographic tools and techniques. Specifically, the labs introduce strategies for integrating the ***ArcGIS Suite***, the ***Adobe Suite*** (Illustrator & Photoshop), ***Mapbox Studio***, and the ***Bootstrap*** responsive design framework (HTML/CSS) to create elegant and intriguing map-based stories on the web. Following the series of lab assignments, you are required to design a ***final project*** map on a topic of your choosing. Creativity and ingenuity are strongly encouraged in the conceptualization and execution of the final project.

Assessment Summary

	Item	Weight	Description	Date(s)
Lecture	Exam #1	15%	120-minute online midterm	10/15
	Exam #2	15%	120-minute online final (non-cumulative)	11/21
	Sketch Mapping Activities	5%	Five 30-60 minute rapid tangible mapping activities	throughout
Labs	Lab Assignments	40%	Four multi-week mapping challenges	Weeks #5, #9, #11, & #14
	Final Project	20%	Individual mapping project (no group projects allowed)	Proposal Week #12; Draft Week #14; Final 12/16
	Cohort Critique	5%	Two critique assignments completed w/ your cohort	Weeks #12 & #14

*All course materials, deliverables, and assessments are managed via the G370 Canvas site.

Learning Outcomes

Upon completion of this course, you will be able to:

Explain how maps work. Specifically, you will be able to justify your designs by describing:

- How maps work as a narrative form.
- How visual attention is directed through map symbolization and the visual variables.
- How visual form is constructed in maps through contrast, grouping, and figure-ground.
- How visual complexity influences the way maps are understood.
- How sign systems like maps are mediated.
- How maps function as art.
- How maps exercise power and marginalize the disempowered.

Design maps. Specifically, you will be to understand and apply principles of:

- Visual storytelling genres and tropes.
- Bivariate and multivariate mapping.
- Visual layout and balance.
- Terrain representation.
- Representation of time.
- Iconic map symbol design.
- Aesthetics and style.

Produce maps. Specifically, you will be able to:

- Execute original map designs from conceptualization to delivery.
- Design within client-defined constraints.
- Acquire and prepare geographic datasets.
- Follow and deviate from four different workflows using the ArcGIS Suite, the Adobe Suite, Mapbox Studio, and the Bootstrap framework.
- Optimize maps for the web.
- Publish a professional web portfolio.

Critique maps. Finally, you will reflect on your theory, design, and production to:

- Consider cartographic design within its broader historical and social contexts.
- Deconstruct maps by their elementary design components to identify opportunities and alternatives.
- Provide constructive feedback for peers during the process of design.
- Self-critique and edit your own designs using professional standards and ethical guidelines.
- Present your work to colleagues.

Lecture-based Assessments (35%)

Reading (Optional):

Course lectures draw from an eclectic set of papers, book chapters, and online materials. Readings are not required, but are ***highly recommended*** for students that are pursuing a career in Cartography and/or students struggling with specific lecture topics. Reading materials are posted to the Canvas course website and are best reviewed before class. ***Learning Outcomes:*** Explain, Design.

Exams (30%):

Your understanding of course material is evaluated through two exams requiring you to apply what you have learned through map critique. Exams are in an essay format, with each exam requiring you to answer ***two*** of three questions. The exams are proctored online and thus are ***open*** book/notes. Online exams are ***timed***, giving you ***120 minutes*** to draft your responses one you begin the exam; the exam will be open for a ***~24-hour*** period to complete at your convenience. The exams are ***not*** cumulative. While group studying is encouraged, cheating during the exam is not tolerated and results in a zero for the exam and disclosure of the impropriety to the Department and University. Make-up exams are rarely allowed given the 24-hour open window. ***Learning Outcomes:*** Explain, Critique.

Sketch Mapping Activities (5%)

In non-exam weeks, you will complete a sketch mapping activity at the beginning of lecture covering material since the last exam or sketch mapping activity. Sketch mapping activities are designed to promote active learning and attentive note-taking, as well as class attendance. Sketch mapping activities are ***open*** book/notes and can be completed in groups. Four sketch mapping activities are assigned randomly throughout the semester. You will have ~15 minutes to work on the sketch mapping activity in class, with the final sketch due prior to the next lecture for discussion unless otherwise noted. Make-up activities require a doctor's note or, in the event of planned travel, must be rescheduled in Week #1; you may ***not*** submit a sketch mapping activity late. ***Learning Outcomes:*** Explain, Design, Produce.

Lab Assignments (40%)

Lab Assignments:

Your ability to apply the mapping principles learned in lecture is evaluated through a series of four lab assignments. Each assignment represents a mapping "challenge", in which you need to design a map for a specific mapping purpose:

1. Visual Storytelling Challenge
2. Terrain Representation Challenge;
3. Aesthetic Styling Challenge; and
4. Web Portfolio Challenge.

Each assignment includes both an opening ***design activity*** to stimulate creativity, due one week after the lab is assigned, and a closing ***reflection essay*** to self-critique the design process, due along with the submitted map. Design activities and reflection essays are discussed in lab for peer input. ***Learning Outcomes***: Design, Produce, Critique.

Lab Assignment Submission:

All lab assignments must be ***uploaded*** to the Canvas Dropbox ***1 hour*** prior to the lab period meeting on the due date. We request that you upload all relevant files for provenance (e.g., datasets, .ai/.psd files with final exports, web directories with published links).

Lab Assignment Grading:

A rubric is provided for each lab assignment to indicate how it is marked. The penalty for a late lab assignment is ***10%*** of the total score per day late. Submission of an assignment the day it is due, but after the deadline, counts as one day late. Extensions for labs must be arranged in Week #1. Technical complications (e.g., disk errors) are not reason for extension; be sure to ***back-up*** copies of all of your work and version meticulously, as forgetting to save (or improperly saving over) your map is the easiest way to lose your work and subsequently fall behind in the course. Plagiarism is not tolerated; each lab assignment has an "Easter Egg" in it to ensure you are not using work from prior semesters. Any offense results in a zero for the lab assignment and disclosure of the impropriety to the University. Requests for grade changes must be submitted in writing (via email) within ***24 hours*** of receiving your feedback.

Final Project (20%)

Final Project Assignment (16%):

The final project is the cornerstone of G572, affording you the opportunity to apply the theoretical and practical knowledge acquired throughout the course on a cartographic project of your choosing. It is

never too early to begin thinking about your final project topic, and, once selected, to begin assembling the needed geographic information. It is recommended to select a topic that aligns closely with your area of study or a personal interest; your enthusiasm for the mapped topic is sure to shine through to the final map product. The best final projects from G572 often are competitive in national and international student mapping competitions, including the CaGIS Map Design Competition, the NACIS Student Dynamic Map Competition (Narrative Track), and the National Geographic Award in Mapping.
Learning Outcomes: Design, Produce, Critique.

Final Project Proposal (2%):

The final project proposal follows a professional cartographic process for responding to a request for proposals (RfP). The proposal outlines your design plan, distilling the design process into incremental tasks, and includes an estimation of effort (in terms of hours) for each task. Final projects should be proposed to consume 40 hours of time, with the proposal then used to assess progress in lab. Additional information about the final project proposal format is circulated after Exam #1.

Final Project Draft (2%):

You will discuss a ***75%*** complete draft of your final project in Week #14. "75%" is defined as a map that has all graphic elements on the page (e.g., the central map representation, labels, map elements, supporting text, etc.), but remains unpolished, allowing for integration of feedback provided during the cohort activity. Final project drafts are graded on their degree of reaching the 75% threshold.

Final Project Grading:

Late final projects will not be accepted. You must submit the current state of your project/portfolio by the deadline to avoid a zero for the deliverables. Plagiarism is not tolerated; final project topics are researched to ensure you did not directly copy an existing map. As with other evaluated items, any offense results in a zero for that activity and disclosure of the impropriety to the University. Additional information about the final project grading is circulated after Exam #1.

Cohort Critiques (5%)

Cohort Critique Assignments (5%):

The ability to constructively critique the work of others in a positive manner is an essential design skill in Cartography. You will be grouped into cohorts comprising 3 or 4 students and complete two cohort activities across the semester:

1. A map critique of your cohort peer's final project proposals; and
2. A map critique of your cohort's draft final projects (75% draft).

It is highly recommended that you meet as a cohort outside of class to provide informal peer-review on labs prior to submission, as well as to study for exams. You will come to rely on your cohort as you conceptualize and implement your final project design. ***Learning Outcome:*** Critique.

Cohort Critique Submission:

Critiques are ***open*** book/notes and must be uploaded to Canvas during the assigned class period.

Cohort Critique Grading:

Failure to attend the lab period or upload the critique results in a 0% for the deliverable. Make-up critiques require a doctor's note or, in the event of planned travel, must be rescheduled in Week #1.