

# GEO 301 Cartography

MWF 9 – 9:50 in 107 Houghton | Mondays 2 – 4:50 in 107/122 Houghton

Spring 2010

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	By Appointment		

## **Purpose:**

Cartography is the study of maps. Maps are essential descriptive and analytical tools for many disciplines. They can help generate hypotheses, analyze data, and display results of investigations. Beyond their academic uses, maps serve as tools for anyone who is faced with spatial problem solving – from the tourist using a road map to find the night’s motel to the urban or regional planner attempting to determine appropriate sites for industrial development. Whether we know how to fold them up or not, many of us love to look at maps – with no particular purpose in mind but to just peruse them. Old maps have a particular fascination for us. They make us feel confident in how much more we know about the world than we once did. It is entertaining and sobering to see those old mistakes and then reflect on how little our ancestors had with which to work as they endeavored to gain an understanding of their known world and communicate it to others. In some cases, maps are works of art that engage us not only because of their ability to communicate place, but for the way the spatial information has been rendered. The intricate detail and accurate hill-shading of Raisz’s and Imhof’s maps, for example, are still breathtaking today. Ironically, many of the methods for representing reality in such a beautiful, artistic fashion are still not easily achieved except by hand. It should, however, come as no surprise that most maps today are made by computer. For that reason, the maps you make this semester will almost all be constructed using a computer and one or more software packages.

GEO 301 is designed as an introduction to maps and their uses, in particular, as tools for communicating spatial information. Although it is an “introduction”, the content of the course and the amount of material covered is at an advanced level. You will be expected to make sophisticated observations regarding how maps influence and add to our understanding of the environment, the framework or structure inherent in maps, methods of extracting spatial data from maps, and essential strategies involved in displaying data on maps to support research conclusions or spatial decision making of any kind. While there are no pre-requisites, this is a technical four credit hour course. Much of the lecture meetings will be in a traditional lecture format. You will, however, be expected to respond to questions in class and engage in discussion as evidence of your understanding of the material and currency of your reading. The laboratory work will involve constructing maps based on the information provided in both lecture and lab. Cartography is a meticulous science. Your work in lab will be evaluated at what may appear to be an obsessive level of detail. The work you do will, therefore, be tedious at times. In order to do well in lab, you must leave your inner Charlie Brown at

the door – no sloppiness or smudges will be tolerated. Take comfort in the fact that most of the work will be on the computer and little if any will involve pen and ink.

**Required Reading:**

- *Thematic Cartography and Geovisualization* (2009), 3<sup>rd</sup> Edition by Terry A. Slocum, Robert B. McMaster, Fritz C. Kessler, & Hugh H. Howard. This book is expensive, but it is one of the top three used by colleges and universities around the world. I recommend you not sell it back at the end of the semester; it’s an excellent reference book.
- For lab, you are required to have a flash drive with at least 1 gigabyte of storage space.

**Student Evaluation:**

- Take-home exams, lab and class assignments, and a final project are the key components of how you will be evaluated. In addition to these measures, I will also keep track of your overall attendance, participation, evidence that you are keeping up with the reading, etc. in an effort to decide borderline cases.

<b>Evaluative measure</b>	<b>Points</b>
Take Home Exams (2 @ 100 pts each; 1 @ 150 pts)	350
Service Learning Class Project	50
Lab & Class Assignments	200
Final Project	100
<b>Total</b>	<b>700</b>

- There is no extra credit available in this course.

**Office hours:**

Please do not hesitate to ask me for help during my office hours. Unless a meeting or emergency should occur, my schedule is organized such that I am available at those times to answer questions you may have about the material covered in class, lab, or the assignments. Do not hesitate to make an appointment with me to meet at another time if my office hours don’t coincide with your schedule. My office hours are for you and the students in my other classes (GEO 165, GIS 201 and GIS 301).

**Late penalty** – Skipping class or lab and sliding your work under my door or putting it in my mailbox is unacceptable; your work will be considered late. If you foresee any conflicts with the due dates, you must talk to me beforehand to make other arrangements. If you cannot reach me beforehand, you must have a dated doctor’s excuse, mechanic’s receipt, etc. Otherwise, your work will be subject to penalty. I enforce this policy to protect those who turn their work in on time.

**Tentative Lecture Schedule:**

Week of...	Topic	Reading*
January 25	Cartography, GIS & Geovisualization; Thematic & Gen'l Reference Maps; Communicating Map Information	Chapter 1
February 1	Statistical & Graphical Basics; Data Classification	Chapters 3 & 4
February 8	Data Classification; Symbolization	Chapters 4 & 5
February 15	Color, Map Elements & Type	Chapters 10 & 11
February 22	Layout & Design; Choropleth Mapping 1 <sup>st</sup> Take Home Exam distributed on 2/24	Chapters 12 & 14
March 1	Isarithmic & Dasymeric Mapping 1 <sup>st</sup> Take Home Exam due on 3/3	Chapters 15 & 16
March 8	Mapping Techniques	Chapters 17, 18 & 19
March 15	Spring Break	
March 22	Terrain Mapping	Chapter 20
March 29	Data Exploration; Visualizing Uncertainty	Chapters 22 & 23
April 5	Travel Day (Monday) Mental Maps; Social & Ethical Issues 2 <sup>nd</sup> Take Home Exam distributed on 4/7	Gould, Downs & Stea

April 12	Historical Perspective 2 <sup>nd</sup> Take Home Exam due on 4/14	Chapter 2
April 19	Scale & Generalization	Chapter 6
April 26	Coordinate Systems & Map Projections Student Research & Creativity Expo (4/27, Noon – 6 pm)	Chapters 7, 8 & 9
May 3	Map Animation; Web Mapping; Virtual Environments	Chapters 21, 24 & 25
May 11	Final Exam, Tuesday, 8:30 – 10:30 pm	

\* *Thematic Cartography and Geovisualization* by Slocum et al. (2009)