

## ***Principles of Computer-Assisted Cartography***

Geography 3840 – Winter/Spring 2009

### **Instructor:**

Jim Harlan  
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### **Office Hours:**

MWF 10-11:00 am

**Class Time:** 9:00 – 9:50 Monday and Wednesday in Stewart 106

**Lab Times:** 9:00 – 9:50 Fridays in Stewart 107

### **Text:**

Dent et al. *Cartography: Thematic Map Design*. 6<sup>th</sup> Edition. WCB McGraw Hill.

### **Other Reading:**

Articles in the Geography library (Room 2) and on the SPAM server.

### **Teaching Assistant:**

Claire Ruffing  
Room 9 Stewart Hall  
Email: [crpn2@mizzou.edu](mailto:crpn2@mizzou.edu)

### **Course Description:**

The development of the microcomputer and the proliferation of a plethora of mapping and graphic softwares have had enormous influence on map production. Today, far more maps are produced by computer than by hand. Lower costs, faster production, and greater flexibility are among the advantages in computer cartography. However, this ease of map production has disadvantages in that computer methods do not ensure high-quality maps. There has been a perceived loss of regard for the “cartographic tradition” with the consequential production of “cartojunk”.

This course provides an introduction to the art and science of cartography or, as the field is increasingly called, geographic visualization. It introduces the elements of graphic design as applied to thematic mapping and analytical cartography. Here the map will be considered as text, as social construct, and as a challenge in graphic design. We will also consider the map as embodying a series of transformations from one space to another.

Students completing this course should be able to read a thematic or general map with greater understanding of its message and a critical appreciation of its subtext, provenance, and fitness for use. They should be able to assemble geographic information and choose an effective display. They should have a grasp of design issues in cartography. The laboratory exercises will help the student develop an acquaintance with powerful desktop mapping applications, graphic packages,

and other tools of the trade. This course is a foundation for other courses on the use of spatial information, and the graphic and analytical skills gained should be useful in other courses in this department and elsewhere.

**Format:**

Classes will combine lectures and discussions. Students are expected to participate. Readings should be completed prior to class.

**Lab Exercises:**

As many as 10 assignments will be completed over the semester. Students will have one or two weeks for completion.

**Grading:**

Grading will be on the Plus-Minus grading system as listed in the winter schedule of courses. Grades are based on overall performance and measured by points assigned thusly:

Exams (2)	40%
Exercises (10)	40%
Participation & Attendance	5%
Final Project	15%

Comments are welcomed, especially as we make critiques of map approaches and conventions. You may also present completed assignments or discuss issues relating to an exercise.

*Attendance is most certainly expected.*

The exercises are to be turned in at the beginning of lab/class on the day they are due. Points for late assignments will be lowered 5% for each day they are late (excluding weekends). Assignments are to be given to the TA.

**Exams:**

Exams will mostly consist of definitions, short and long essay, multiple-choice, etc. Make-up exams will only be available in case of emergency.

**Final Project:**

Instead of a final exam, there will be a completed project due in my office or mailbox by 4:00 pm on Wednesday, May 13. This will involve students creating cartographic products on a theme of their choice and completing a 4-5 page report to explain the goals, rationale, problems encountered, and conclusions. More information on this work will be given as we go along with the semester.

**Academic Honesty:**

Academic honesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that another's work has been honorably acquired, developed, and presented. This doesn't mean you can't use others work but simply that you

must document that you have done so. Academic dishonesty is an extremely serious matter, with consequences ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, or collaboration, consult the instructor.

**ADA:**

If you need accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class, or at my office.

To request academic accommodations (for example, a notetaker), students must also register with Disability Services, AO38 Brady Commons, 882-4696. It is the campus office responsible for reviewing documentation provided by students requesting academic accommodations, and for accommodation planning in cooperation with students and instructors, as needed and consistent with course requirements. For other MU resources for students with disabilities, click on ADisability Resources@ on the MU homepage.

**Schedule:**

<b>Date</b>	<b>Topic</b>	<b>Readings</b>
1/21	Expectations, Introduction	NA
1/23	Lab Introduction	
1/26	Understanding Cartography and History	Chapter 1 (+ 3 articles)
1/28	Coordinate Geometry/Projections	Chapter 2
1/30	Lab (Ex. 1 Intro to ArcMap and Projections)	
2/2	Employing projections	Chapter 3
2/4	Geographic phenomena	Chapter 4
2/6	Lab (Ex. 2 Symbols)	
2/9	Geographic phenomena	Chapter 4
2/11	Processing geographic data	Chapter 5
2/13	Lab (Ex. 3 Symbols and importing data)	
2/16	Processing geographical data	Chapter 5
2/18	Choropleth maps	Chapter 6
2/20	Lab (Ex. 4 Choropleth maps)	
2/23	Review	
2/25	Test #1	
2/27	Lab (Ex. 5 Dot Density)	

3/2	Dot maps, map design	Chapter 7
3/4	Dot maps	Chapter 7
3/6	Lab (Ex. 6 TBA)	
3/9	Visual hierarchy, Visualization, Map Design	Chapter 12
3/11	Proportional/Graduated symbols	Chapter 8
3/13	Lab (Ex. 7 Graduated symbols)	
3/16	Color	Chapter 14
3/18	TBA	NA
3/20	Lab (Ex. 8 Reference Maps-Boone)	
3/30	Media and Internet Maps	Chapter 16
4/1	General Reference Maps	NA
4/3	Lab (Ex. 9 Reference Maps with Raster-Barry)	
4/6	Typographics	Chapter 13
4/8	Isarithmic/Surface Maps	Chapter 9
4/10	Lab (Cont. of Ex. 9)	
4/13	Isarithmic/Surface Maps	Chapter 9
4/15	Flow Maps	Chapter 11
4/17	Lab (Ex. 10 World Map)	
4/20	Cartograms	Chapter 10
4/22	Media & Internet Maps	
4/24	Lab (Cont. of Ex. 10))	
4/27	Review	
4/29	Test #2	
5/1	Lab (Final Project)	
5/4	Final Project	
5/6	Final Project	
5/13	Final Project is due!	