Department of Geography
University of Idaho

GEOG 390: Geographic Visualization
January to May 2010

COURSE OUTLINE
(subject to change)

Instructor

Classes meet Mondays, Wednesdays 3:30 – 5:45 pm at MCCL 206

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Office Hours: Tuesday: 10:00 am – 12:00 pm or by appointment

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Objective: This course provides a theoretical and technical introduction to graphic representation and design of spatial information, including thematic mapping. Lectures will cover principles of scientific (geographical) visualization, graphical design and mapping for GIS and the GISciences. In labs, students will design digital, static maps using current graphical design software available on PC workstations (e.g. Macromedia Free-Hand, Flash, ESRI ArcGIS 9.3 and possibly other software). A small final project will introduce students to the design of interactive maps for the WWW based on Freehand. By the end of this course, students will be capable of producing high quality cartographic displays, of scanning images, of publishing maps on the WWW, and of processing cartographic data for geographic visualization.

Requirements: I will assume that all participants have prior knowledge of GIS principles (requirement is GEO 385) but also some knowledge of statistics. The latest is indeed very important when it comes down to statistical mapping. A strong familiarity with the fundamentals of Microsoft excel and familiarity with basic Windows operations is necessary.

Class meetings: Class periods will be devoted to lecture and exercise demonstration. Monday will be devoted to lectures only, Wednesday to the lecture and a lab demonstration when a lab is planned. There is not systematically a lab every Wednesday. To gain the most from lectures I recommend you read relevant material from the text before class. Class attendance is strongly suggested. Experience shows that students who attend class perform much better on exams. If you must arrive late or leave class early, please be considerate of other students.

Labs: A series of eight laboratory exercises will provide hands-on experiences that help you familiarize with the ArcGIS environment, and how to use Macromedia Freehand in a complementary way.

Labs are taught on Wednesday, but not systematically every week. You will be informed when labs will be taught. Labs are due in two weeks at the beginning of the lab period. Late assignments will therefore be penalized (i.e., 10% deduction per day). Please try to plan ahead if you have a field trip for instance.

You can get ArcGIS 9.3 from the bookstore and use it at a place of your choosing. However, because there may be differences in installation between the lab computers and your personal computer you must ensure your exercises can be correctly opened by computers in the lab. ArcGIS and Macromedia Freehand are available in McClure Hall 206. You will soon receive the door access and computer login account for MCCL206. Students can expect to become familiar in the use of Macromedia Freehand but also increase their experience in ArcGIS upon completion of this course.

Attendance: It is crucial for students to attend the full lab period to get the necessary exposure with the topic, the technology, and to stay on target on the lab work and project. I will provide theoretical and technical help that will aid you in completing the lab and project work. The real key to developing successful Map Design/Visualization skills lies in working with other people, getting feedback, and discussing specific problems as a group.

Textbook: Terry A. Slocum, Robert B. McMaster, Fritz C. Kessler, and Hugh H. Howard, 2009. *Thematic Cartography and Geographic Visualization*, 3rd Edition. Copies of the text are available at the Book Store.

Other readings: the following book has been reserved in the UI library main stacks: Borden D. Dent, Dubuque, Iowa: William C. Brown., 1999. *Cartography: Thematic Map Design*, Fifth Edition. Boston: The McGraw-Hill Companies.

Class schedule information, notes, study guide and other information will be posted on blackboard.

Grading system: The grading system is summarized in the following table. A total of 260 points can be earned. Final grade will be calculated out of 100.

Task	Number	Percentage
Quiz	1	10 points
Exams	Midterm / Final	40 points / 60 points
Lab exercises	6	20 points each / 120 points total
Final project and presentation	1	30 points (20 + 10)

Total		260 points

Grading policy: The grades are given as follows: A: >89.5, B: 79.5 - 89.5, C: 69.5 - 79.5, D: 55 - 69.5, F: < 55. There will be no make-up tests, exams, or quizzes.

Ethics: If you are contemplating an ethical failure please read the student code of conduct: http://www.webs.uidaho.edu/fsh/2300.html - article %20II-, so you can plan for the consequences. I encourage students to work on their own, yet helping each other understanding the concepts is fine. In other words, you may work with other on lab assignments but you may not copy projects from another student.

Subjects covered in class – may not be complete

Course outline and course introduction

Map scale: reducing, enlarging, converting

Map projection, coordinate systems

Statistical mapping, classification of data

Map composition

Quantitative thematic mapping: choropleth mapping, dot mapping, flow maps, proportional symbol, isarithmic mapping (e.g., contour)

Design issues in thematic mapping: typography, color, figure-ground concepts, symbolizing point features, linear and areal features

Web mapping and animation

Course Schedule

Week 1: January 13

    Lecture: Course overview
    Reading: No readings this week
    Lab: No labs this week

Week 2: January 18– 20 (no lecture on Monday)

    Lecture: Introduction
    Reading: Chapter 1
    Lab: No labs this week

Week 3: January 25– 27

    Lecture: Scale & generalization
    Reading: Chapter 6
    Lab1:   Introduction to ArcGIS (Map design)

Week 4: February 1– 3

    Lecture: Coordinate systems & projection

Reading: Chapters 7, 8
Lab1:   Cont'

Week 5: February 8 – 10

Lecture: Principles of color & text consideration
Reading: Chapter 10
Lab2:   Intro to Freehand
Lab1:   Due at the beginning of Wednesday's class

Week 6: February 15 –17

Lecture: No lectures on Monday
Lab2:   Cont'
Lab1:   Return to students

Week 7: February 22 – 24

Lecture: Data classification
Reading: Chapter 4
Lab3:   Categorizing data and choropleth mapping
Lab2:   Return to students

Week 8: March 1 – 3

Lecture: Choropleth mapping and Map symbolization
Reading: Chapters 5, 14
Lab3:   Con't

Week 9: March 8– 10

Lecture: Map elements
Reading: Chapter 11
Lab4:   Building your own blog
Lab2:   Return to students
Lab3:   Due at the beginning of Wednesday's class

Midterm exam written in class on March 8

Week 10: March 15– 17

No classes (Spring recess)

Week 11: March 22 – 24
Lecture: Cartographic design
Reading: Chapter 12
Lab4:   Con't

Week 12: March 29 – 31
Lecture: Isarithmic mapping
Reading: Chapter 16

Lab5:   Isarithmic mapping,
Lab4:   Due at the beginning of Wednesday's class

Week 13: April 5 –7
    Lecture: Dot mapping & Final project
    Reading: Chapter 17
    Lab5:   Cont'
    Lab4:   Due at the beginning of Wednesday's class

Week 14: April 12 – 14
    Lecture: Proportional mapping
    Reading: Chapter 17
    Lab6:   Proportional symbol and Dot mapping

    I will attend the AAG conference this Wednesday

    Lab5:   Due at the beginning of Wednesday's class

Week 15: April 19 – 21
    Guest Lecture: Web mapping
    Lecture: Multivariate mapping
    Reading: Chapters 18, 24

    Lab6:   Cont'

Week 16: April 26 – 28
    Lecture: No lecture/lab (you can work on your final project)

    Lab6:   Due this Wednesday (5:45pm)

Week 17: May 3 – 5

    Class Presentations (Monday/Wednesday, 3:30-5:45pm), and you should attend both sessions.

    Final project due this Friday midnight May 7th.

Week 18: May10 – 14

    Final exam is scheduled on May 11, 3:00 – 5:00 pm