SSCI 589 – Cartography & Visualization (Section 35766)
Course Syllabus – Spring Semester 2013

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Office Hours: Tuesdays and Wednesdays, 10-11 a.m. (Pacific Standard Time)

I am always available asynchronously via e-mail. I am also available for synchronous chats via phone or Skype or IM text, audio or video most days and times *by prior arrangement* via e-mail. Or we can meet in my Adobe Connect room. Just get in touch!

Course Scope and Purpose

This is an elective course in both the GIST Graduate Certificate and the GIS Master of Science degree programs. The course provides an accelerated introduction (or refresher) on modern cartographic techniques for print and Web. Topics covered include:

- *Cartographic fundamentals* – map projections, graphic shapes, symbolization, classification, scale and generalization, and effective design (layout, color, and typography)
- *Mapping discrete features* – reference and thematic maps; and within the latter, the four basic subtypes of feature symbolization: choropleth, dasymetric, proportional symbol, dot density
- *Treatment of continuous surfaces* – isarithmic analysis and terrain representation, including contour lines and hill-shading
- *Advanced techniques* – cartograms and cartographic techniques for labeling with Maplex, developing annotation feature class and symbolizing with feature class representations
- *Geovisualization* – map design for Internet and 3D visualization
- *Map Communication* – cartographic thinking and cartographic communication

Learning Outcomes

This is a practical, hands-on course; when you have completed it, you will be able to:

- Attain actionable knowledge of cartography and geovisalization.
- Design and construct maps for communicating map information to others.
- Make base information that provides geographic reference.
- Choose and arrange map elements for better cartographic communication.
- Choose and control labels, symbols and colors for best effect.
- Utilize a variety of thematic mapping and geovisulization techniques.
- Design maps for print and nonprint reproduction and dissemination.

Course Structure

The course will be presented via Blackboard. There will be reading assignments, cartographic exercises, and a term project. The course will generally unfold on a weekly basis through a posted Assignment document that provides instructions on exercises, readings, and other work to be completed within the given time period. Assignments will be posted on the BlackBoard course site on Monday mornings. Assignments are due the following Thursday, unless specified otherwise.

The pedagogical technologies that facilitate our coursework and interactions include:

Blackboard – If you are registered for this course, it will automatically show up on Blackboard, in your list of available classes, at noon Pacific Time on the first day of the semester. Subsequently, all learning materials, including formal correspondence and assignments from me will be posted on Blackboard. You should submit your work products back to us via Blackboard (Assessment link), too.

Discussion boards – Also, Blackboard will host informal discussion boards relevant to various aspects of the course, particularly the exercises; these are the primary fora for "working together", sharing hints and help as in a traditional computer laboratory setting.

Individual meetings – Adobe Connect is a browser-based service that facilitates synchronous, interactive sessions with voice/video and shared desktop capabilities between two or more people; this will be used for discussions of the term project and individual sessions, by arrangement.

Assessment

This is a fast-moving graduate course that combines quantitative techniques with qualitative aesthetics. As a student, you should be prepared for the fusion and must keep up with weekly cartographic exercises to develop your practical skills.

A letter grade (A: 90+pts, B: 80+pts, C: 70+pts, or F) will be determined from weekly work submissions as follows:

- Cartographic exercises (maps, answers to questions, and peer reviews): 10 in number – 54 pts total
- Quizzes related to readings: 14 in number – 26 pts total
- Term project (written proposal, individual meeting, draft map, peer reviews, final report, and final map): 20 pts total

Requirements

Technology – There are several technology requirements:

- Every student must have a computer with a fast Internet connection (DSL at a minimum). Since we now serve the key software from the Server, you can use either a Mac or a PC.
- Every student must have a functional webcam for use whenever a presentation or meeting is scheduled.
- ArcGIS and all other software used in this course are provided on-line via the GIST Server.

Textbooks – The first three books are required for this class; the last one is optional. These are available from the USC Bookstore or online outlets such as Amazon (http://www.amazon.com)

1. **Slocum TA, McMaster RB, Kessler FC & Howard HH (2009)** *Thematic Cartography and Geovisualiztion*, 3rd edition. Pearson / Prentice-Hall.
2. **Monmonier M (1998)** How to Lie with Maps, 2nd edition. University of Chicago Press.
3. **Allen, DW & Coffey JM (2010)** GIS Tutorial 3: Advanced Workbook, 1st edition. Esri Press. (referred to in this course as GTW3)
4. **Gorr, WL & Kurland KS (2011)** GIS Tutorial 1: Basic Workbook, 4th edition. Esri Press. (referred to in this course as GTW1)

Note that the last book is required for *SSCI 581* (effective from Fall 2011).

Readings (*superlist*) – To be posted on Blackboard:

1. **Batty, M., A. Hudson-Smith, R. Milton and A. Crooks (2010)** Map mashups, Web 2 and the GIS revolution. *Annals of GIS* 16:1(1-13).
2. **Brewer CA (2005)** *Designing Better Maps*, ESRI Press. Chapter 1: The Big Picture on Design
3. **Brewer CA (2005)** *Designing Better Maps*, ESRI Press. Chapter 5: Color Decisions for Mapping
4. **Dent BD, Torguson JS, and Hodler TW (2009)** *Cartography: Thematic Map Design,* 6th Edition, McGraw-Hill. Chapter 10: The Cartogram: Value-by-area Mapping
5. **Fsi Fontshop International (2010)** *Meet Your Type: A Field Guide to Typography*, http://www.fontshop.com/.
6. **Jenny B, Jenny H & Raber Stefan (2008)** Map Design for the Internet (pp. 31-48). In Peterson MP (ed.), *International Perspectives on Maps and the Internet*. Springer.

Communications Protocol – This is a distance learning course, so most of our interactions will be by asynchronous (not at the same time) communications. For this to work, we need to observe the following protocol:

I will post all assignments on Blackboard, and all your submissions back to me should be made there, as previously stated. There will be a bulletin-board forum for cartographic exercises and possibly additional bulletin-boards through which I can handle administrative issues and/or discuss course assignments and readings, as the need arises. Please login to Blackboard regularly, several times a week at least.

I will send any time-sensitive notices through email using Blackboard. Please check daily for email sent from Blackboard as well as from me personally (druddell@usc.edu). Also, be sure that email sent from both Blackboard and me does not go into your junk mail!

While I am usually on-line and will probably respond to e-mails from students relatively quickly, I will endeavor to respond to all e-mail within 24 hours of receipt, aiming for no more than 36 hours delay. In the rare case when I expect to be off-line for more than 24 hours, I will post an announcement on the Blackboard site.

Your responsibility: It is each student's responsibility to stay informed about what is going on in our course. In addition to e-mail about time-sensitive topics, any important announcements will be posted on the Announcement page in Blackboard. Be sure to check these each time you log onto Blackboard.

Workload – This is a four-credit, one-semester course. As a student you should expect to spend 10-12 hours per week completing the work in this course.

Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester, as further described at: http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to an instructor as early in the semester as possible. DSP is located in STU 301 and is open from 8:30 a.m. to 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others and to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.0; while the recommended sanctions can be found at: http://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/.

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/.

Important Administrative Dates

1/14:	Spring semester classes begin
1/21:	Martin Luther King Day, university holiday
2/1:	Last day to register & add classes, change enrollment option to Pass/No Pass or Audit, or to drop a class without a mark of "W" and receive a 100% refund
3/18-23:	Spring recess
4/12:	Last day to drop a class with a mark of "W"
5/3:	Spring semester classes end
5/4-7:	Study days
5/8-15:	Final examinations

Tentative Schedule

Week #	Class Week	Topic	Textbook Readings	Cartographic Exercises & Term Project	Work Products
1	1/14	Map Projections	Slo-Ch.8&9 Mon-Ch.2		
2	1/22*	Terrain Representation	Slo-Ch.20	Map1	Quiz1
3	1/28	Map Elements	Slo-Ch.11&12	Map2	Map1 Quiz2
4	2/4	Typography	Slo-Ch.11 Fsi Fontshop	Map3	Map2 Quiz3
5	2/11	Symbolization	Slo-Ch.5 Mon-Ch.2	Map4	Map3 Quiz4
6	2/19*	Principles of Color	Slo-Ch.10&14 Brewer-Ch.5	Map5	Map4 Quiz5
7	2/25	Data Classification & Choropleth Mapping	Slo-Ch.4&14 Mon-Ch.10	Map6	Map5 Quiz6
8	3/4	Proportional Symbols & Dot Density Mapping	Slo-Ch.17	Map7	Map6 Quiz7
9	3/11	Dasymetric Mapping & Isarithmic Mapping	Slo-Ch.15&16	Project Proposal	Map7 Quiz8
	3/18	Spring Recess			
10	3/25	Generalization	Slo-Ch.6 Mon-Ch.3	Map8 Project Meetings	Proposal Quiz9
11	4/1	Map Design for Internet	Brewer-Ch.1 Jenny	Project Draft	Map8 Quiz10
12	4/8	Cartograms	Slo-Ch.19 Dent	Map9	Project Draft Quiz11
13	4/15	3D Visualization	TBA	Map10	Map9 Quiz12
14	4/22	Trends in Cartography	Slo-Ch.26 Batty	Project Final	Map10 Quiz13
15	4/29				Quiz14
**	5/6				Project Final
***	5/13				

*Mondays Jan. 21 and Feb. 18 are university holidays.
**May 4-7 is listed as "Study Days" on the USC calendar.
***May 8-15 is listed as "Final Exams" on the USC calendar.