GEOG 589 – Cartography & Visualization
Course Syllabus – Summer Semester 2011

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Office Hours: Mondays and Fridays, 8:00-9:00 a.m. (Pacific time)
I am always available asynchronously via eMail. I am also available for synchronous chats via mobile phone (short) on urgent matters or via Adobe Connect or Skype, which provide audio/video and screen-sharing, during my office hours or by prior arrangement. Please stay 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. Topics covered include:

• Datums & Projections – The mathematics behind how the round Earth is flattened onto a sheet paper
• Elements of Map Design – The expected components and visual variables of a map product, and how to utilize them effectively
• Data Collection/Creation – Obtaining and preparing raw spatial and conceptual facts from which to make a map
• Spatial & Thematic Generalization – Simplifying facts spatially and conceptually, according to scale, to make them suitable for mapping
• Symbolization – The mechanics and artistry of portraying simplified facts graphically, with glyphs, shapes, patterns, colors, and transparency

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

• Explain how maps work, conceptually and technically, regarding essential matters of abstraction, generalization, and portrayal
• Recognize the benefits and limitations of some common map projections, and the fundamental importance of scale
• Demonstrate good cartographic technique regarding map layout, required elements, and visual variables, especially color and transparency; and reciprocally assess maps made by others in these same regards
• Handle the combination of vector features and raster surfaces to make maps that illustrate spatial topics in context with appropriate aesthetics and emphasis
• Create credible reference and thematic maps in page, tabloid, and larger sizes on paper, and as images for viewing on the Web
**Course Format**

This a graduate level course, so you should expect it to be both academically robust and intellectually challenging. As a graduate student you are expected to engage with the subject matter and to critically assess the ideas, opinions, and techniques presented in the readings and exercises. My role as instructor is that of a guide to help keep you and your fellow students on the path of discovery. The challenge for all of us is to replicate such an academic experience within the milieu of “online learning”.

All course materials will be organized through Blackboard. The main theoretical concepts will be provided through course notes and assigned readings. The map-making demonstrations and exercises are designed to bring you face-to-face with practical problems, explicating the other materials. All software products required will be accessible over the Internet.

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 me 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.

- **Live & recorded 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 introductions, demonstrations, and final student presentations.

- **Telecommunications** – Mobile phones and voice-over-IP, e.g. Skype ([http://www.skype.com](http://www.skype.com)), which also supports video, are still the preferred technologies for individual chats.

**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. Several software platforms will be utilized, including Excel, Word (with MS Draw), and CartoGraph, as well as Esri ArcGIS; you should be prepared to spend significant time learning (more) about these tools and working with them.

A letter grade (A: 90+pts, B: 80+pts, C: 70+pts, D: 60+ pts, or F) will be determined from weekly work submissions as follows:

- Introductory blog and teleconnect with instructor – 2 pts
- Précis of articles from cartographic literature: 8 in number, biweekly - 3 pts each, 24 pts total
- Cartographic essays (your maps): 7 in number, biweekly – 7 pts each, 49 pts total
- Cartographic reviews (maps by others): 2 in number, biweekly – 3 pts each, 6 pts total
- Timed tests (on Blackboard): periodically, throughout course - 4 pts each, 16 pts total
- Portfolio review; concluding teleconnect with instructor - 3 pts
Requirements

Technology – The following equipment is required for this class:

• Hardware: Computer with a fast Internet connection (DSL at a minimum) and a functional Web camera. A modern inkjet (or better) color printer is highly recommended.

• Software: Microsoft Office 2003 or later (PC) or Office 2004 (Mac), and modern Web browser. All other softwares provided over the Web or via Citrix on the GIST Server.

Textbooks – The following four books are required for this class; these are available from the USC Bookstore or online outlets such as Amazon (http://www.amazon.com)


Note that the last book is also required for GEOG 581 and GEOG 587 (effective from Fall 2010). These textbooks will be supplemented with instructor’s notes and readings from academic journals, professional reports, and websites (below), posted to Blackboard.

Readings (superlist) – To be posted on Blackboard:


References – Selections to be posted on Blackboard:


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. We will have a bulletin-board forum for each Map exercise and I may create and monitor additional bulletin-boards through which we 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 via eMail through Blackboard any notices that are time-sensitive. Please check daily for eMail sent from Blackboard as well as from me personally (jthastin@usc.edu). Also, be sure that eMail sent from both Blackboard and me does not go into your junk mail!

I will endeavor to respond to all eMail from you within 24 hours of receipt, aiming for no more than 36 hours delay. In the event that I expect to be off-line for more than 24 hours, I will post an announcement on Blackboard.

It is your responsibility as student to stay up-to-date with the course, to respond timely to eMail from me (through Blackboard or personally), and to make all submissions on time. I will, of course, make allowance for sicknesses or personal emergencies during the course, if I am informed of the circumstances, as soon as possible please.

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. 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 as well as 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 11.00, while the recommended sanctions are located in Appendix A: http://web-app.usc.edu/scampus/wp-content/uploads/2009/08/appendix_a.pdf. 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/.
**Tentative Schedule (IN REVISION)**

<table>
<thead>
<tr>
<th>Week #</th>
<th>Class Week (begins Mon)</th>
<th>Topic</th>
<th>Textbook Readings</th>
<th>Cartographic Exercise</th>
<th>Literature Reading</th>
<th>Work Products (due Tue midnight)</th>
<th>DUE</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>5/16</td>
<td>Introduction</td>
<td>Kim-front; Mac-1; Mon-1</td>
<td></td>
<td></td>
<td>Intro Blog</td>
<td>5/27</td>
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<tr>
<td>1</td>
<td>5/23</td>
<td>Earth Coordinates and Datums</td>
<td>Cla-Ch2 part Kim-Ch1</td>
<td>Map1</td>
<td>Map1 Essay</td>
<td>5/31</td>
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<tr>
<td>2</td>
<td>5/30</td>
<td>Map Projections and Scale</td>
<td>Cla-Ch2 rest Kim-Ch2&amp;3</td>
<td>Map2A #2</td>
<td>Precis A Quiz I</td>
<td>6/7</td>
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<tr>
<td>3</td>
<td>6/6</td>
<td>Cartographic Data-I Vectors</td>
<td>Cla-Ch3 part Kim-Ch7</td>
<td>Map2B #3</td>
<td>Precis B Map2 Essay</td>
<td>6/14</td>
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<tr>
<td>4</td>
<td>6/13</td>
<td>Cartographic Data-II Rasters</td>
<td>Cla-Ch3 rest Kim-Ch8</td>
<td>Map3 #6</td>
<td>Precis C Quiz II</td>
<td>6/21</td>
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<tr>
<td>6</td>
<td>6/27</td>
<td>Map Elements</td>
<td>Cla-Ch8; Mon-Ch2</td>
<td>Map4</td>
<td>Map3 Review Quiz III</td>
<td>7/5</td>
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<tr>
<td>7</td>
<td>7/4</td>
<td>Visual Variables</td>
<td>Mac-Ch2; Mon-Ch10</td>
<td>Map5 Mac Ch2</td>
<td>Precis E Map4 Essay</td>
<td>7/12</td>
<td></td>
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<tr>
<td>8</td>
<td>7/11</td>
<td>Color and Transparency</td>
<td>Mon-Ch11</td>
<td></td>
<td>Map5 Essay</td>
<td>7/19</td>
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<tr>
<td>9</td>
<td>7/18</td>
<td>Spatial Generalization;</td>
<td>Mac-Ch3; Mon-Ch3</td>
<td>Map6 #4</td>
<td>Precis F Map5 Review</td>
<td>7/26</td>
<td></td>
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<tr>
<td>10</td>
<td>7/25</td>
<td>Thematic Generalization</td>
<td>Any Mon-Ch4,5,6,7,8</td>
<td>#5 or #7</td>
<td>Precis G Map6 Essay</td>
<td>8/2</td>
<td></td>
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<tr>
<td>11</td>
<td>8/1</td>
<td>Accuracy &amp; Uncertainty; Distortion / Emphasis</td>
<td>Kim-Ch10; Mac-Ch4</td>
<td>Map7 #1 + TBD</td>
<td>Precis H Quiz IV</td>
<td>8/9</td>
<td></td>
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<tr>
<td>12</td>
<td>8/8</td>
<td>Conclusion</td>
<td></td>
<td></td>
<td>Map7 Essay Portfolio</td>
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In addition to these asynchronous requirements, all students need to schedule an introductory, online Web conference (via Adobe Connect or Skype) with me during the first week of class and similarly a final Web conference to discuss their map portfolio during the last week of class (exam week).
Important Administrative Dates

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Open Registration</td>
<td>Mon-Tue</td>
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<tr>
<td>Classes Begin</td>
<td>Wed</td>
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<tr>
<td>Memorial Day</td>
<td>Mon</td>
</tr>
<tr>
<td>Fourth of July</td>
<td>Mon</td>
</tr>
<tr>
<td>Classes End</td>
<td>Tue</td>
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Classes Begin: Wed May 18
Memorial Day: Mon May 30
Fourth of July: Mon July 4
Classes End: Tue August 9

Schedule of Map Exercises

(Instructor Demo → Student Essay)

Map 1  Nevada → California, in MS Excel; & Word letter size
Map 2  Nevada in 4 projections → California in 4 projections, in Excel & Word; letter size
Map 3  CalNeva reference → Western US reference, in CartogGraph or ArcGIS.com; letter size
Map 4  CalNeva theme → Western US Power plants, in CartoGraph or ArcGIS.com; letter size
Map 5  Western US theme → CONUS State budget shortfalls in ArcGIS Desktop; tabloid
Map 6  Eastern US choropleth → US Population Density, in ArcGIS Desktop; tabloid
Map 7  Full US display → World Population Growth, in ArcGIS Desktop; tabloid or larger