GEOG 581 Cartographic Design  
(Advanced GIS-based mapping and Web-based cartographic techniques)  
(Fall 2004)  Web site ⇒ http://map.sdsu.edu/geog581/

Lectures: Thur. 12:30pm - 13:20pm (SH248), 14:00am-14:50pm (SH338)  
Labs: Thur. 15:00pm - 16:40pm  Lab room: Storm Hall 338

Instructor: Dr. Ming-Hsiang Tsou  
Storm Hall 326  
mtsou@mail.sdsu.edu

Office Hour: Monday 4:00pm-5:00pm, Tuesday 11:00am-12:00am,  
or by appt. (619) 594-0205

No TA for this course.

Overview:

Effective cartographic design is the key to a successful communication between map makers and map readers. This course will focus on computer-assisted map production techniques with emphasis on GIS mapping tools (ArcGIS and ArcIMS) and web-based cartographic design issues (Animation and Visualization). Geovisualization and communication will be the two major cartographic topics focused in lecture sessions. The lab exercises will introduce ArcGIS extensions (such as Maplex, PLTS and 3D tools) for the design of large-size professional paper maps. Web-based multimedia software (Flash) will also be used for the design of web-based interactive maps. The learning goals of this course are

- To learn advanced cartographic principles and theories.
- To establish hand-on experiences on cartographic techniques and software packages.
- To explore the future research topics in advanced cartography.

Required Textbooks:


Lectures:

Lectures focus on advanced topics of cartographic design, including geovisualization and communication theories. Also, web-based cartography and the state-of-the-art mapping tools will be introduced and demonstrated in the lecture sessions.

Lab Exercises: The lab exercises will focus on the practical GIS software trainings in ArcGIS cartographic functions and web design tools for Internet mapping services. Students must attend each lab session. Lab exercises focus on the training of cartographic design skills by using ArcGIS, ArcIMS and Flash software package.

Grading:  
Midterm exam 25%,  
Lab exercises 30%,  
Group project and Web design 40%,  
Class participation (assignments) 5%.

Graduate students will have an additional assignment (one short essay for related cartographic research topics). (Additional 10% ) The short essay should be double-spaces, 12-point fonts and between 4 - 6 pages. Examples of essay topics are the following (you can choose your own topics):
1. The history and development of web-based mapping techniques.
2. The differences between geovisualization paradigm and communication paradigm.
3. GIS vs. Cartography: What are the differences between them?
4. Color use for qualitative data.
   (Find more topics from the Cartography and Geographic Information Science Journal).

**Group Project:** 2-3 students will form a group project for web-based design exercises. Details will be announced before the mid-term exam.

**Additional Readings:** (one copy of these papers in the Geography Reading Room SH 319 and electronic copies in the Z:/data/readings/ drive)

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<td>31 Aug 2 Sep</td>
<td>Introduction Technology Change and Visualization</td>
<td>Slocum Ch.1</td>
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<td>2</td>
<td>Sep 9</td>
<td>Symbolization Analytical Cartography</td>
<td>Slocum Ch.4 Christman, 1998 Tobler, 1976</td>
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<td>3</td>
<td>Sep 16</td>
<td>Color Use and Topography</td>
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<td>4</td>
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<td>Geovisualization</td>
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<td>Visual Cognition</td>
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<td>6</td>
<td>Oct 7</td>
<td>Elements of Cartographic Design and Map Reproduction</td>
<td>Slocum. Ch. 11, 12</td>
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<td>7</td>
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<td>(Exam Questions) Knowledge schemata</td>
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<td>Map Representation I</td>
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<td>10</td>
<td>Nov 4</td>
<td>Map Animation</td>
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<td>Visual Thinking and Visualization</td>
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<td>Due day for Group project Report (15:00).</td>
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Additional Reading:


