Information Technology Leadership

ITL 345 — Geovisualization (Intersession 2010)

Class Times: M-F 9:00 – 12:00, Technology Center 103A

Instructor: Dr. Byoungjae Lee
Olin, Room 105, 724-503-1001 Ext. 3403
blee@washjeff.edu

Office Hours: MW 3:00 – 4:00 or by appointment

Required Textbook:

Recommended Textbook:
Thematic Cartography and Geographic Visualization (2009), Keith C. Clarke, Prentice Hall, 3rd edition.

Course Overview
Digital maps on the World Wide Web and in Geographic Information Systems (GIS) allow more and more people to make and use maps to analyze data in sophisticated ways. GIS applications are found in business, the natural sciences, the social sciences, urban planning and management, and scores of other fields. This course reviews cartographic design, production, and visualization in the context of geographic information systems (GIS). The core of this course is the laboratory project: students will locate data on the World Wide Web, process the data so it can be mapped in ArcGIS (GIS and mapping software), and design and produce a series of maps based on the data. Students will learn how to develop and understand the intellectual and visual hierarchies by collecting appropriate data, constructing the map, and evaluating the map. Lab work is informed by lectures which focus on the concepts, frameworks, and technical issues of cartographic design, production, and visualization.

Course Prerequisites: none.
Goals & Objectives

Through completion of this course, students will develop the ability to:

- Locate relevant data, clean up and process the data so it can be mapped in ArcGIS (GIS and mapping software)
- Apply cartographic design concept with obtained spatial data.
- Generate digital thematic maps by using geographic information systems.
- Construct web mapping sites and launch map mashup.
- Manage the project with lab log, self-evaluation, and feedback from peers.

Laboratory Exercises

The individual laboratory exercises in ITL 345 build step by step into a final course project. **It is important that you attend class every day**, as the instructor will often lead students through the steps necessary to complete the exercise. **It is also important to complete the exercises on time**, as new exercises often depend on completion of the previous exercise. A significant part of your grade on individual exercises is determined by completing the exercise on time.

**Each student will keep a dated log for the course, containing documentation of all work pertaining to the lab project.** This Lab Log will contain comments on problems and solutions you run into while working on lab exercises, information on useful resources (such as WWW sites), and any work you are asked to complete in particular exercises (for example, some exercises ask you to define terms, or review a WWW site). Your Lab Log will eventually be formatted in HTML and placed on the WWW, along with your course project. It will be evaluated and used to determine your final project grade.

Lab Computer Skills Required

Students in ITL 345 will acquire basic competence in the Windows operating system, Excel spreadsheet, ArcGIS software, and HTML. This course will provide basic instruction in all of these software applications, but students will be expected to take initiative to learn additional details about the software and to solve problems as they arise. **Students should expect to spend time outside of scheduled hours to complete the course project** although I have included in-class time to work on the project.
Evaluation

- 2 Project Evaluations (Labs 6 & 10) @ 100 pts each = 200 pts.
- Lab Project = 530 pts total.
- Participation and effort will be rewarded.

Other Rules and Regulations

- Late Exercises: deduct 15% each day late.
- Plagiarism will be severely punished.
- You must inform instructor if you are going to miss a lecture or exercise due date.

Lecture and Reading Schedule

You are expected to complete the reading assignments before the class lecture on that material. The dates listed on the following calendar should be used as an approximate guide, as the schedule may be adjusted slightly.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Lecture</th>
<th>Reading</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/7</td>
<td>Introduction to Course</td>
<td>Lab 1</td>
<td>Ch. 1</td>
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<tr>
<td></td>
<td>1/8</td>
<td>Map Design</td>
<td>Lab 2</td>
<td>Ch. 2</td>
<td>Lab 1</td>
</tr>
<tr>
<td>2</td>
<td>1/11</td>
<td>Map Making Process &amp; Mappable Data</td>
<td>Lab 2</td>
<td>Ch. 3</td>
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<td></td>
<td>1/12</td>
<td>Map Making Tools</td>
<td>Lab 2</td>
<td>Ch. 4</td>
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<td></td>
<td>1/13</td>
<td>Lab 2 student demo</td>
<td>Lab 3</td>
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<td></td>
<td>1/14</td>
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<td>Lab 4</td>
<td>Lab 3</td>
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<td></td>
<td>1/15</td>
<td>Geographic Framework</td>
<td>Lab 5</td>
<td>Ch. 5</td>
<td>Lab 4</td>
</tr>
<tr>
<td>3</td>
<td>1/18</td>
<td>Geographic Framework</td>
<td>Lab 5,6</td>
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<td></td>
<td>1/19</td>
<td>Map Layout &amp; Intellectual and Visual Hierarchies</td>
<td>Lab 6 Ch. 6,7</td>
<td>Lab 5</td>
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<tr>
<td></td>
<td>1/20</td>
<td>Map Layout &amp; Intellectual and Visual Hierarchies</td>
<td>Lab 7 Ch. 7</td>
<td>Lab 6</td>
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<td></td>
<td>1/21</td>
<td>Map Generalization and Classification</td>
<td>Lab 7</td>
<td>Ch. 8</td>
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<td></td>
<td>1/22</td>
<td>Map Symbolization</td>
<td>Lab 8</td>
<td>Ch. 9</td>
<td>Lab 7</td>
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<tr>
<td>4</td>
<td>1/25</td>
<td>Type on Maps</td>
<td>Lab 8</td>
<td>Ch. 10</td>
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<td></td>
<td>1/26</td>
<td>Color on Maps</td>
<td>Lab 9</td>
<td>Ch. 11</td>
<td>Lab 8</td>
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<td></td>
<td>1/27</td>
<td></td>
<td>Lab 9</td>
<td>Ch. 12</td>
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<td></td>
<td>1/28</td>
<td>Student Presentations</td>
<td>Lab 10</td>
<td></td>
<td>Lab 9</td>
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<td></td>
<td>1/29</td>
<td>Final Updates on Projects</td>
<td>Lab 10</td>
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<td>Lab 10</td>
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Lab Schedule

The core of ITL 345 is the laboratory project: students will locate relevant data, clean up and process the data so it can be mapped in ArcGIS (GIS and mapping software), and design and produce a series of maps based on the data. Students will learn to construct HTML pages, containing the project maps, which will be placed on the WWW.

Note: The following exercises may be revised prior to assignment. Please do not begin the exercises until the day they are assigned.

Lab 1: Locating Mappable Data on the WWW, 50 points

Lab 2: HTML & Map Mashups, 100 points

with in-class demo

Lab 3: Data Processing: Part, 150 points

Lab 4: Introduction to ArcGIS, 30 points

Lab 5: Linking data to Base Map, Data Processing Part 2, 50 points

Lab 6: Mid-Project Evaluation, 100 points

Lab 7: Data Classification and Mapping, 100 points

Lab 8: Layouts and File Export, 50 points

Lab 9: Cartographic Animation, 100 points

Lab 10: Final Project Evaluation, 100 points

DUE: Word Doc to Dr. Byoungjae Lee by Friday January 29 @ 12 pm

Lab Project in-Class Presentations Thursday January 28

Lab Projects due Friday January 29