Geography 625 - Intermediate Geographical Information Systems
Fall 2012 (09/04 – 12/12)

Class Place & Time: Lec 401 (MW 9:30am-10:45am) at Bolton Hall (BOL) B95
Lab Place & Time: Lab 801: W 1:00 pm - 2:50 pm at LAP 271
Lab 802: R 12:00 pm- 1:50 pm at LAP 271

Instructor

Professor Zengwang Xu
Office: NWQ B 6498
Phone: 229-4874
Email: xuz@uwm.edu
Office Hours: TR 2-4PM or by appointment

Teaching Assistant

Wenliang Li
Office: TBA
Email: wenliang@uwm.edu
Office Hours: see lab syllabus

Textbook:


Class website:

Class website can be accessed through D2L.

Course Description and Objectives

The objective of this course is to introduce students the concepts, implementations, and applications of the geographic information analysis within the context of GIS technology. Specifically, this course has three major goals: (1) introducing the concepts of geographic information analysis, (2) implementing geographic information analysis functions using geographic information systems (e.g. ArcGIS) and programming languages (e.g. R,
GeoDa, etc.), and (3) applying geographic information analysis in a specific area (e.g. public health, transportation, political studies, etc.).

**Credit Hours**

This course has four credit hours (graduate and undergraduate) consisting of two 75-minute lectures and one two-hour laboratory each week. For this semester, an average student is expected to spend the following amount of time (hrs) in this class: time in classroom (40), time spent online reading lecture and other materials (13), time in discussions online or in persons (8), time in laboratories (22), time taking exams (4), time in tutorials (44), time for completing assignments (22), and time for preparation and study (39).

**Prerequisites**

Geography 525, or equivalent, or permission of the instructor. Permission to take this course may be granted based upon GIS courses taken elsewhere.

**Course Evaluation**

*Undergraduate*

1. **Examinations (70% of class grade)** - There will be a mid-term and a final examination for this course (35% each).

2. **Laboratory exercises (20% of class grade)** – Bi-weekly lab assignments will be given and collected corresponding to topics covered in class.

3. **Class participation (10% of class grade)** - Throughout the semester, quizzes and other assignments may be given as a component of class participation. Attendance and participation in class discussion are expected of all students.

*Graduate*

1. **Examinations (60% of class grade)** - There will be a mid-term and a final examination for this course (30% each).

2. **Laboratory exercises (20% of class grade)** – Bi-weekly lab assignments will be given and collected corresponding to topics covered in class.

3. **Class project (10% of class grade)** – A project that utilizes GIS technologies to solve research problems is required for graduate students. Students are encouraged to discuss the project with the instructor. A project proposal is due at
5:00pm, Nov 7, 2012, and a final project report is due at 5:00pm, December 12, 2012.

4. **Class participation (10% of class grade)** - Throughout the semester, quizzes and other assignments may be given as a component of class participation. Attendance and participation in class discussion are expected of all students.

**Grading Scale**

- A = 90-100%, A- = 87-89.99%
- B+ = 83-86.99%, B = 80-82.99%, B- = 77-79.99%
- C+ = 73-76.99%, C = 70-72.99%, C- = 67-69.99%
- D+ = 63-66.99%, D = 60-62.99%
- F = 0-59.99%

**Make-up:** No make-ups will be allowed without emergency reasons with written proof.

**Final Exam:** 10:00-12:00 noon on Dec. 14 at the same classroom.

**Notices:**

- Please note that it's students’ responsibility to regularly check your D2L and UWM email accounts, which are designated as the official communication channels in this class. For email communication with TA or instructor, students should always use their UWM email accounts.
- Please refer to the following link for all UWM policies and procedures (http://www.uwm.edu/Dept/Acad_Aff/policy/uniformsyllabus.html), which will be fully abided by in this class. Additional questions can also be consulted in the Geography Department main office, NWQ B 6450.
- Full attendance is strongly recommended. Students are expected to attend every class, and are responsible for their own notes.
- Grades, once given, are final except clerical error

**Disability Statement:**

Any student who feels he or she may need an accommodation based on the impact of a disability should contact me privately to discuss his or her specific needs.
**Geography 625 Tentative Schedule (Fall 2012)(09/04-12/12)**

This schedule is subject to change as the class proceeds

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic(s)</th>
<th>Text</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>September 5</td>
<td>Introduction</td>
<td>Chapter 1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>September 10-12</td>
<td>Pitfalls and Potential of Spatial Data</td>
<td>Chapter 2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>September 17-19</td>
<td>Fundamentals: maps as outcomes of processes</td>
<td>Chapter 3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>September 24-26</td>
<td>Point pattern analysis</td>
<td>Chapter 4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>October 1-3</td>
<td>Point pattern analysis</td>
<td>Chapter 4</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>October 8-10</td>
<td>Practical point pattern analysis</td>
<td>Chapter 5</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>October 15-17</td>
<td>Practical point pattern analysis</td>
<td>Chapter 5</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>October 22-24</td>
<td>Mid-term examination</td>
<td>Chapter 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lines and networks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>October 29-31</td>
<td>Area objects and spatial autocorrelation</td>
<td>Chapter 7</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>November 5-7</td>
<td>Area objects and spatial autocorrelation</td>
<td>Chapter 7</td>
<td>Graduate project proposal due 5:00PM on Nov. 7</td>
</tr>
<tr>
<td>11</td>
<td>November 12-14</td>
<td>Describing and analyzing fields</td>
<td>Chapter 8</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>November 19-21</td>
<td>The statistics of fields</td>
<td>Chapter 9</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>November 26-28</td>
<td>The statistics of fields</td>
<td>Chapter 9</td>
<td>Thanksgiving holiday (no class)</td>
</tr>
<tr>
<td>14</td>
<td>December 3-5</td>
<td>New approaches to spatial analysis</td>
<td>Chapter 12</td>
<td>Final exam preview</td>
</tr>
<tr>
<td>15</td>
<td>December 10-12</td>
<td>Project presentation (graduate)</td>
<td>Graduate project report due by 5:00PM on Dec 12</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>December 14</td>
<td>Final exam, (10:00 am – 12:00 pm) in the same classroom</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>