GEOGRAPHY 243
GEOGRAPHIC INFORMATION SYSTEMS: ArcGIS
MLIB 321
R: 5:30 pm – 8:00 pm

Instructor: Dr. Peter Hayward
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Office Hours: M, W, F: 10:00 am – 12:00 pm; R: 3:30 pm – 5:30 pm (or by appointment)

Course Description and Goals
Geographic Information Systems (GISs) refer to any software that can be used to capture, store, analyze, manage, and display data that are tied to a particular location on Earth. ArcGIS 9.3 is the leading GIS software on the market today. Because of this, it is imperative for all geographers to learn the fundamentals of ArcGIS! In this course, we will study the theoretical background to GIS and use this knowledge for distinct applications in ArcGIS 9.3. Thus, this class will have both lecture and lab periods. A significant portion of the course will focus on tutorials in the book and the weekly assignments which are based on those tutorials. This background will prepare you for the final project, where you will have the opportunity to apply the GIS skills you have gained throughout the semester to a unique project of your liking.

Text

Policies
• Attendance: is expected of each student. An official, written excuse is required for missed quizzes, the test, or the final project. If you are absent, it is imperative that you obtain the lecture notes you missed from a fellow student.

• Noise: please turn off all cell phones, and refrain from talking in class. Be polite to your fellow students.

• Attentiveness: we will move quickly in this class, so be alert and try to work efficiently. You are not allowed to do the following during class: read newspapers, play computer games, text message (or talk on cell phone), or anything else that does not directly relate to the content of this course.

• Clarity: it is my responsibility to present the course material in a clear, concise manner. If anything is unclear, please bring your concerns to my attention. You can speak with me before-during-after class, via email, at my office hours, or at another specified time.

• Attitude: have a good attitude about being in class. You are not required to attend class; therefore, if you come, be positive. Remember, your post-secondary education is your choice. You are paying for a service—get the most out of it!
• **Food/Drinks:** No food or drinks are permitted in the computer lab.

• **Emergency Evacuation/Shelter-in-Place Procedures:** In the event of an emergency evacuation (i.e., fire or other emergency), classes meeting in this building are directed to reassemble at **Chase Gymnasium** so that all persons can be accounted for. Complete details of the College’s emergency evacuation, shelter-in-place and other emergency procedures can be found at [http://www.oneonta.edu/security/](http://www.oneonta.edu/security/).

**Grading**
The grades are distributed as follows:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Possible Points</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Homework Assignments</td>
<td>200 Points (20 Points Each)</td>
<td>370 – 400 Points = A</td>
</tr>
<tr>
<td>2 Quizzes</td>
<td>40 Points (20 Points Each)</td>
<td>360 – 369 Points = A-</td>
</tr>
<tr>
<td>Final Examination</td>
<td>60 Points</td>
<td>350 – 359 Points = B+</td>
</tr>
<tr>
<td>Final Project</td>
<td>100 Points</td>
<td>330 – 349 Points = B</td>
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</tbody>
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• **Homework Assignments:** the homework assignments will reflect lecture and book material. It is imperative that you work on the book tutorials before attempting the homework assignments. There will be a selection of short answer questions. The assignments will be distributed during a class and will be due at the start of the following class (that means 5:30 pm!). Late assignments will be accepted; however, a 25% penalty per day will be incurred.

• **Quizzes:** the quizzes will reflect lecture and book material. There will be a selection of multiple choice, true/false, matching, and short answer questions. The quizzes can only be made up if the student presents an official, written excuse.

• **Final Examination:** the final examination will reflect lecture and book material. There will be a selection of multiple choice, true/false, matching, and short answer questions. The final examination can only be made up if the student presents an official, written excuse.

• **Bonus:** 5 bonus points will be made available to each student, and it will reflect in-class discussions. The bonus will be unannounced and it cannot be made up.

• **Final Project:** the final project is an opportunity for you to showcase the GIS skills you have gained throughout the semester! The project can focus on any topic of your choosing as long as it has a strong geographic component. Overall, the project is intended to provide you with a deeper understanding of GIS application though
experience. While the finished product will be a poster containing maps, tables, and other visual elements of your choosing, a significant portion of your final project grade will be based on the following criteria (and their associated deadlines).

- **Project Proposal (20 Points):** a professional project proposal is required. Please use the guidelines presented in your book, pages 11 – 15, as a template for your own proposal. Because you are completing your project pro bono, the “Budget” section of the proposal can be omitted. Your grade will be based on inclusion of all sections, logical consistency of the project, proper format, spelling, and grammar. **Due October 29th, 2009.**

- **Data Presentation (10 Points):** before the completion of your final project, you must see me (office hours, before or after class, etc.) and present your data. Your grade will be based on evidence of the data. **Due November 12th, 2009.**

- **Poster Presentation (70 Points):** the poster should reflect the major aspects associated with your project. Every poster should include a title, a description of the data and methods used, and your results in the form of visual elements such as maps and tables. The last day of class will serve as a poster session, similar to those found at professional conferences. In an informal setting, you will have the opportunity to quickly present your poster to your peers. Your grade will be based on the logical consistency of the project, the quality of your poster, the number/difficulty of spatial analysis techniques you used to complete the project, and your overall creativity. **Due December 3rd, 2009.**

**Schedule**
The following schedule is tentative and is subject to changes by Dr. Hayward. The “Assignment:” represents what should be completed following that class period.

Week 1 (August 27th): Introduction to GIS  
*Assignment: Read Preface and Introduction*

Week 2 (September 3rd): GIS Data  
*Assignment: Read Chapter 1; Complete Homework 1*

Week 3 (September 10th): Mapping GIS Data  
*Assignment: Read Chapter 2; Complete Homework 2*

Week 4 (September 17th): Presenting GIS Data  
*Assignment: Read Chapter 3; Complete Homework 3*

Week 5 (September 24th): Attribute Data  
*Assignment: Read Chapter 4; Complete Homework 4*
Week 6 (October 1st): Coordinate Systems
Quiz 1
Assignment: Read Chapter 11; Complete Homework 5

Week 7 (October 8th): Queries
Assignment: Read Chapter 5; Complete Homework 6

Week 8 (October 15th): Spatial Joins
Assignment: Read Chapter 6; Complete Homework 7

Week 9 (October 22nd): Geoprocessing
Assignment: Read Chapter 7; Complete Homework 8

Week 10 (October 29th): Raster Analysis
Project Proposal Due
Assignment: Read Chapter 8; Complete Homework 9.

Week 11 (November 5th): Geocoding
Quiz 2
Assignment: Read Chapter 10; Complete Homework 10

Week 12 (November 12th): Basic Editing
Data Presentation Due

Week 13 (November 19th): Network Analysis

Week 14 (November 26th): Fall Break; go have fun

Week 15 (December 3rd): Last day of class
Poster Presentation Due

Final Examination (subject to University schedule).
Final Examination