FOR 421/521
Spatial Analysis of Forest Landscapes
Fall, 2007
3 credits
Two classes per week, 80 minutes

Instructors: Michael Wing and William Ripple

Prerequisite:
FOR 421: Senior standing and successful completion of a previous GIS course (GEO 365, FE 357, GEO 465/GEO 565, or the equivalent).
FOR 521: Graduate standing and successful completion of a previous GIS course (GEO 365, FE 357, GEO 465/GEO 565, or the equivalent).

Course Content
This course involves examining and applying geographic information systems (GIS) and related spatial technologies such as remote sensing and global positioning systems (GPS) for the study of forest landscapes. Students are presented with lectures and exercises that cover a wide range of topics including techniques and applications of spatial analysis and the design of landscape studies. Class meetings include lectures, guest lectures, and hands-on spatial analysis exercises in a computer lab. Students are required to complete lab assignments as well as design, propose, conduct, present, and write-up a large term project.

Measurable Student Learning Outcomes
Upon completion of the FOR 421 and FOR 521, students will be able to:

1. Design and conduct spatial analysis projects.
2. Manipulate spatial models for forestry and natural resource analyses.
3. Cite recent spatial analysis applications in forestry and natural resources.

1. Communicate scientifically with others in writing and orally regarding spatial analysis.

Additionally, FOR 521 students will be able to:
1. Critique journal articles on topics of spatial analysis of forested landscapes.
2. Synthesize key issues involving spatial analysis and landscape studies; and

Evaluation of Student Performance
Student performance in meeting learning outcomes in FOR 421/521 will be evaluated through:
Graded lab assignments (8), a term project proposal, and both a written report and oral presentation of the term project.

FOR 521 grades will be based additionally on assignments associated with reviewing, critiquing, and synthesizing scientific literature including:
1) Conducting a literature review for a specific topic involving spatial analysis of forested landscapes.
2) Writing critiques and syntheses of peer-reviewed journal articles.
3) Presenting an overview and critique of selected journal article(s) to the class.
GRADING
FOR 421/521 (100 points total)
FOR 421-- labs 40, proposal 10, term project 40, and class participation 10 points.
FOR 521-- labs 30, proposal 5, term project 40, class participation 10, literature review 8, and article presentation 7 points.
Class attendance is mandatory, an attendance sheet will be taken (one point will be deducted from class participation points for each unexcused absence).

Letter grade % of total points for FOR 421/521
A  92.5-100
A- 90.0-92.5
B+ 87.5-90.0
B  82.5-87.5
B-  80.0-82.5
C+ 77.5-80.0
C 72.5-77.5
C- 70.0-72.5
D 60.0-69.9
F < 60.0

Learning Resources
1. Lecture and lab notes are made available on the course website.

Geographic information systems: Applications in forestry and natural resource management.

3. Guest speakers and their power point presentations.

4. Journal articles that will be reviewed and analyzed by the graduate students.

Classroom Policies
Please see the OSU Student Conduct website:
http://oregonstate.edu/admin/stucon/achon.htm

OSU Policy on Students with Disabilities:
"Accommodations are collaborative efforts between students, faculty and Services for Students with Disabilities (SSD). Students with accommodations approved through SSD are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through SSD should contact SSD immediately at 737-4098."
<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture</th>
<th>Lab</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 25</td>
<td>Course Overview, Introductions, Literature Review Assignment</td>
<td>Lab 1 ArcGIS I</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spatial Data Management</td>
<td></td>
</tr>
<tr>
<td>Sept 27</td>
<td>Class Project Design, Selection of project partners</td>
<td>Lab 2 Spatial Overlay Analysis</td>
<td></td>
</tr>
<tr>
<td>Oct 2</td>
<td>GIS Case Study: Spatial Analysis of Lewis&amp;Clark Trail, Species Range Contractions</td>
<td>Lab 3 Digital Elevation Models and Examining Earth Topography</td>
<td></td>
</tr>
<tr>
<td>Oct 4</td>
<td>Map Projections Determine presentation order</td>
<td>Lab 4 ArcGIS Map Projections</td>
<td></td>
</tr>
<tr>
<td>Oct 9</td>
<td>GIS and Conservation Biology</td>
<td>Lab 5 GPS Applications and ArcGIS</td>
<td></td>
</tr>
<tr>
<td>Oct 11</td>
<td>Global Positioning Systems</td>
<td>Lab 5 GPS Applications and ArcGIS</td>
<td>Lit. Review</td>
</tr>
<tr>
<td>Oct 16</td>
<td>Modeling wolf habitat</td>
<td>Lab 6 Geospatial Statistics</td>
<td>Project Proposal</td>
</tr>
<tr>
<td>Oct 18</td>
<td>Marbled Murrelet Models</td>
<td>Lab 6 Geospatial Statistics</td>
<td>Lab 4</td>
</tr>
<tr>
<td>Oct 23</td>
<td>Map Projections Determine presentation order</td>
<td>Lab 7 ArcGIS Spatial Modeler</td>
<td></td>
</tr>
<tr>
<td>Oct 25</td>
<td>Spatial Analysis Case Study</td>
<td>Lab 8 Wildlife Habitat Modeling</td>
<td>Lab 5</td>
</tr>
<tr>
<td>Oct 30</td>
<td>Implications of Scale</td>
<td>Lab 8 Wildlife Habitat Modeling</td>
<td></td>
</tr>
<tr>
<td>Nov 1</td>
<td>Spatial Models for Owls</td>
<td>Project Work</td>
<td></td>
</tr>
<tr>
<td>Nov 6</td>
<td>Bird Habitat Relationships</td>
<td>Project Work</td>
<td>Lab 6</td>
</tr>
<tr>
<td>Nov 8</td>
<td>GIS Applications in Oregon Forests</td>
<td>Project Work</td>
<td></td>
</tr>
<tr>
<td>Nov 13</td>
<td>Presentation of Habitat Models</td>
<td>Project Work</td>
<td></td>
</tr>
<tr>
<td>Nov 15</td>
<td>Getting it Visual</td>
<td>Project Work</td>
<td></td>
</tr>
<tr>
<td>Nov 20</td>
<td>Student Presentations</td>
<td></td>
<td>Final paper</td>
</tr>
<tr>
<td>Nov 22</td>
<td>Student Presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov 27</td>
<td>Student Presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov 29</td>
<td>Student Presentations, Course Evaluation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>