Environmental Change Modeling (GIS5306)  
(Fall 2012)

Class meets: Tuesdays 2:30 - 5 pm, Bellamy 035  
Office hour: Tuesdays 1-2 pm or by appointment

Instructor  
Dr. Tingting Zhao, Department of Geography, Bellamy 304  
Phone: 850-645-8198; E-mail: tzhao@fsu.edu

Credit Hours: 3

Course Objectives  
This course is designed to help students understand the contemporary environmental changes as well as modeling techniques used for evaluating, simulating and predicting these changes. Lectures focus on human dimensions of environment change, with emphasis on terrestrial ecosystems. Topics include population dynamics, land-cover/land-use change, ecosystem dynamics, human behavior and institution, and vulnerability and adaption of human-natural systems. You will also explore data used for modeling environmental changes and errors associated with data manipulation. IDRISI and NetLogo are the main software packages for labs and assignments.

Electronic Materials  
Class announcements, part of lecture materials, and readings will be posted on Blackboard course site ENV CHANGE MODELING.

Grading  
You will be graded based on contribution to class discussion (10%), four assignments (60%), and a term project (30%).

Term Project  
Your project needs to address an environmental change issue. Focus should be given to the scientific background of this issue and modeling techniques associated with this issue. Your project may be either literature review or data-driven research project. Check the project guide (under Bb “Term Project folder”) for detailed requirements on oral and written reports.

Course Policies  
Attendance is required throughout the semester. Persistent informal talking and any reading or studying of other materials will not be tolerated.

Delay of the submission of assignment decreases 20 of 100 points per day. No delay will be accepted for the term project, including both oral and written reports.
All changes to the course schedule made in class are the responsibility of the student. Students are responsible for all missed class materials. Office appointments will be made only when there is a clear conflict with the student’s course schedule.

**Academic Horner Policy**
The Florida State University Academic Honor Policy outlines the University’s expectations for the integrity of students’ academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to “. . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University.” (Florida State University Academic Honor Policy, found at [http://dof.fsu.edu/honorpolicy.htm](http://dof.fsu.edu/honorpolicy.htm).)

**Americans with Disabilities Act**
Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Student Disability Resource Center; and (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact

Student Disability Resource Center
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu
[http://www.disabilitycenter.fsu.edu/](http://www.disabilitycenter.fsu.edu/)

**Syllabus Change Policy**
This syllabus is subject to change with advance notice.
### Schedule (subject to change)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/28</td>
<td>Environmental change &amp; models</td>
<td>n/a</td>
<td>Intro to IDRISI</td>
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<tr>
<td>3</td>
<td>9/11</td>
<td>Errors &amp; uncertainties</td>
<td>(Burnicki et al., 2007, Pontius and Millones, 2011)</td>
<td>Assignment 2: Markov Model (due on Oct 9)</td>
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<tr>
<td>5</td>
<td>9/25</td>
<td>Land-cover/-use change</td>
<td>(Wood et al., 1997, Turner et al., 2007)</td>
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<tr>
<td>6</td>
<td>10/2</td>
<td>Land-cover/-use change (cont.)</td>
<td>(Verburg and Overmars, 2009, Theobald, 2005)</td>
<td></td>
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<tr>
<td>7</td>
<td>10/9</td>
<td>Land-cover/-use change (cont.)</td>
<td>(Batty, 1997, Stevens et al., 2007)</td>
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<tr>
<td>8</td>
<td>10/16</td>
<td>Ecosystem dynamics</td>
<td>(Waring and Running, 2007, Mladenoff, 2004)</td>
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<tr>
<td>9</td>
<td>10/23</td>
<td>Changes in ecosystem function</td>
<td>(Chapin et al., 2006, Zhao et al., 2007)</td>
<td>Term project topic and readings due</td>
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<tr>
<td>10</td>
<td>10/30</td>
<td>Human behavior</td>
<td>(Brown et al., 2005, Parker et al., 2003)</td>
<td>Assignment 4: Agent-Based Model (due on Nov 13)</td>
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<tr>
<td>11</td>
<td>11/6</td>
<td>Institution</td>
<td>(Dietz et al., 2003, Hexmoor et al., 2006)</td>
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<tr>
<td>14</td>
<td>11/27</td>
<td>Project oral report</td>
<td>Student’s choice</td>
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<tr>
<td>15</td>
<td>12/4</td>
<td>Course summary &amp; evaluation</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>16</td>
<td>12/11</td>
<td>Term project written report due by 5 pm. No delay will be accepted.</td>
<td>n/a</td>
<td>n/a</td>
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Required Readings


