Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

1. This request is submitted by the Department of Ecosystem Science and Management

2. Course prefix, number and complete title of course: RLEM 635, Landscape Analysis and Modeling

   Attach a brief supporting statement for changes made to items 3a thru 3d. and 5 below.

3. Change requested
   a. Prerequisite(s): From: _______________ To: _______________

   b. Withdrawal (reason): ____________________________

   c. Cross-list with: ________________________________

   Cross-listed courses require the signature of both department heads.

   d. Change in course title and description. Enter complete current course title and current course description in item 4; enter proposed course title and proposed course description in item 5.

   e. Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 6. Attach a course syllabus.

4. Complete current course title and current course description:

5. Complete proposed course title and proposed course description (not to exceed 50 words):

6. a. As currently in course inventory:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLEM</td>
<td>635</td>
<td>LANDSCAPE ANALYSIS AND MODELING</td>
</tr>
</tbody>
</table>

   Lect.  Lab  SCH  CIP and Fund Code  Admin. Unit  FICE Code  Level
   0  2  0  2  0  3  3  0  5  0  6  0  0  5  0  8  4  1  0  0  3  6  3  2  6

   b. Change to:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
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</thead>
<tbody>
<tr>
<td>ESSM</td>
<td>660</td>
<td>LANDSCAPE ANALYSIS &amp; MOD</td>
</tr>
</tbody>
</table>

   Lect.  Lab  SCH  CIP and Fund Code  Admin. Unit  Acad. Year  FICE Code
   0  2  0  2  0  3  0  5  0  6  0  0  5  0  8  4  1  0  9  -1  0  0  3  6  3  2

   Approval recommended by: ____________________________ Date: 8-8-08

   Head of Department

   Chair, College Review Committee Date: 9/10/08

   Head of Department (if cross-listed course) Date: 9/10/08

   Dean of College Date: ____________________________

   Submitted to Coordinating Board by: ____________________________ Date: ____________________________

   Associate Director, Curricular Services

   Effective Date: ____________________________

Questions regarding this form should be directed to Sandra Williams at 845-8201.
Curricular Services – 11/07
ESSM 660 (Web-based)
LANDSCAPE ANALYSIS AND MODELING
3 Credit Hours
Spring 20XX

Instructor:

X. Ben Wu, Department of Ecosystem Science and Management
Office: 209D AnIn; Phone: 845-7334; E-mail: xbw@tamu.edu

Blackboard/WebCT:

A Blackboard Vista course is available (access through http://elearning.tamu.edu/) that include syllabus, lectures, readings, exercises, discussion forum, email tool, grades and student progress, resources through web links; and research project reports and presentations.

Schedule of synchronized sessions:

• Class meeting: Thursday 6:00-7:00 PM, on-campus students meet in Room 229 AnIn or join on line, off-campus students join on line.

• Office hour (on-line): Thursday 7:00-9:00 PM and other times by appointment

• TA office hour (on-line): Tuesday 7:00-9:00 PM and other times by appointment

Learning Outcomes:

Students will be able to:

• develop understanding of the conceptual basis of related spatial analysis methods and ability to use associated software for spatial analysis;

• formulate hypotheses related to spatial issues in related fields, select appropriate quantitative methods to test spatial hypotheses, interpret the findings, and develop refereed journal manuscripts based on their findings; and

• function as a peer reviewer for related scientific journals.

Course description:

Introduction to concepts and quantitative methods of spatial analysis and their applications, with an emphasis on natural resource studies.

Concepts and Methodology

Readings and lectures on quantification of spatial pattern and spatial statistics (patch-based metrics, contagion and lacunarity analysis, quadrat variance methods, spatial autocorrelation, Mantel tests, geostatistics, and point pattern analysis, etc.), supported by on-line discussions on WebCT and synchronized on-line office hour sessions.

On-line quizzes

On-line quizzes over lecture and reading materials will be given. These are open-book but timed quizzes. Two attempts are allowed for each quiz, with some alternative questions.
Paper Discussions

WebCT-based discussions of recent literature. Each student needs to post a synopsis (up to 1 page, including any critique and questions) of the paper and participate in WebCT discussions. Two students will be assigned as the discussion leaders for each paper. The discussion leaders will post a summary of main/interesting questions from the synopses by all students and facilitate the on-line discussion.

Exercises

Hands-on exercises on spatial analysis using Excel, GIS and specialty software for ecological inquiries. In addition to presentations and directions for the exercises, TA office hours will be held to provide assistance.

Research project

Each group of three students will conduct a research project:

1. Formulate a research problem, preferably one in students’ own areas of research, and develop a short (1-2 page) research proposal using appropriate spatial analysis approaches to address the problem. The proposals are due on March 20.

2. Develop a formal report in the format of a manuscript for Landscape Ecology (due April 17). Each report will be peer-reviewed by 3 students in other groups and the reviews are due back by April 24. A revision of the report based on the peer-reviews, as well as written responses to the review comments, are due May 1.

3. Project presentations (~15' voice over PowerPoint) are due April 24 and will be evaluated by peers based on common rubrics on WebCT. Evaluations are due May 1. An alternative project can be arranged from non-thesis Master’s students.

Grading (A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%):

- On-line quizzes on lecture and reading materials, 20%;
- Exercises/assignments, 25%;
- Research project, 40%: 30% for the report (manuscript, revision, and response to review comments), and 10% for the voice over ppt presentation of the project.
- Paper synopsis and discussions on WebCT, 15%.

Prerequisites:

Approval of Instructor.

Reference materials:

Readings available on WebCT. The following reference books are recommended (not required) and available in the Reserve Dept. of Evans Library:


The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

"An Aggie does not lie, cheat or steal, or tolerate those who do." (www.tamu.edu/aggiehonor)

For any other questions or concerns, please refer to http://student-rules.tamu.edu
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic (lecture ppt)</th>
<th>Readings</th>
<th>Exercises</th>
<th>Quiz</th>
<th>Tentative Schedule</th>
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<tbody>
<tr>
<td>1</td>
<td>Landscape Ecology (basic)</td>
<td>Chapter 1 and 2 of Turner et al. 2001; Fragstats Background Material</td>
<td>Q1-Landscape metrics</td>
<td>E1-Metrics</td>
<td>Attachment C37</td>
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<tr>
<td>2</td>
<td>Continuation</td>
<td>Gustafson 1998; Fragstats metrics (Area/Density/Edge/Shape, Isolation/Proximity, Contrast, and Diversity metrics)</td>
<td>Q2-Contagion</td>
<td>E2-Contagion</td>
<td>WebCT: Introduction on WebCT.</td>
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<tr>
<td>3</td>
<td>Lacunarity analysis</td>
<td>Li &amp; Reynolds 1993</td>
<td>Q3-Lacunarity</td>
<td>E3-Lacunarity-GIS</td>
<td>Synopsis of an applied landscape ecological paper in your own field</td>
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<td>4</td>
<td>Point pattern analysis</td>
<td>Plotnick et al. 1993</td>
<td>Q4-Point pattern</td>
<td>E4-Point pattern/ RIPPER</td>
<td>Follow-up discussion of the synopses from last week.</td>
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<td>6</td>
<td>EDA &amp; variography</td>
<td>Fortin &amp; Gurevitch 1993; Wu and Misch 1998</td>
<td>Q6-EDA &amp; variography</td>
<td>E6-VarioWin</td>
<td>Follow-up discussion of Feagin and Wu 2007; follow-up discussion of Li and Wu 2004.</td>
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<td>8</td>
<td>Kriging</td>
<td>Isaaks &amp; Srivastava 1989 (Chpt. 11)</td>
<td>Q8-Quadrat variance</td>
<td>E9-PASSAGE, Quadrat variance</td>
<td>Presentation of project proposals.</td>
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<td>9</td>
<td>Quadrat variance methods</td>
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<td>Follow-up discussion of Holderegger and Wagner 2008; discussion</td>
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<td>10</td>
<td>Work on projects</td>
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<td>14</td>
<td>Peer evaluation of the project presentations</td>
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<tr>
<td>15</td>
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