Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and attach a course syllabus.

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

2. Course prefix, number and complete title of course:
   ESSM 671; Ecological Economics

3. Course description (not to exceed 50 words):
   Study of the relationships between ecosystems and economic systems; understanding
   the effects of human economic endeavors on ecological systems and how the ecological
   benefits and costs of such activities can be quantified and internalized.

4. Prerequisite(s):
   Graduate Classification

   Cross-listed with:
   AGEC 659, RENR 659

5. Is this a variable credit course?
   ☐ Yes  ☒ No
   If yes, from _____ to _____

6. Is this a repeatable course?
   ☐ Yes  ☒ No
   If yes, this course may be taken _____ times.
   Will this course be repeated within the same semester?
   ☐ Yes  ☒ No

7. Has this course been taught as a 489/689?
   ☐ Yes  ☒ No
   If yes, how many times? _____
   Indicate the number of students enrolled for each academic period it was taught.

8. This course will be:
   a. required for students enrolled in the following degree programs(s) (e.g., B.A. in history)
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

   MS/PhD in Forestry, MS/PhD in Rangeland Ecology and Management

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments.
   Attach approval letters.

10. Prefix  Course #  Title (excluding punctuation)  E  S  S  M  6  7  1  E  C  O  L  O  G  I  C  A  L  E  C  O  N  O  M  I  C  S

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

   Approval recommended by:
   Head of Department  Date  ________
   Head of Department (if cross-listed course)  Date

   Submitted to Coordinating Board by:
   Associate Director, Curricular Services  Date  ________
   Effective Date  ________

Questions regarding this form should be directed to Sandra Williams at 845.8201.
Curricular Services – 11/07
ESSM 671/AGEC 659 - ECOLOGICAL ECONOMICS
FALL 2008

Instructors
ESSM 671: URS P. Kreuter, Dept. RLEM, 845-5583, urs@tamu.edu
AGEC 659: J. Richard Conner, Dept. AGEC, 845-7456, jrc@tamu.edu

Blocker 155 - Tuesday/Thursday 9:35-10:50am

Prerequisites: There are no prerequisites for this course.

Introduction
Ecological Economics has been defined as the study of the relationships between ecosystems and economic systems. This inter-disciplinary approach "recognizes the need to make economies more cognizant of ecological impacts and dependencies; to make ecology more sensitive to economic forces, incentives and constraints; and to treat integrated economic-ecological systems with a common set of conceptual and analytical tools" (Robert Costanza, 1989. Ecological Economics, 1:1-7). It integrates environmental economics and ecological impact assessment, and encourages innovative ways of thinking about the linkages between ecological and economic systems.

The format of this course will be primarily facilitated discussion of assigned readings. To achieve this, course instructors or assigned students will lead the discussion of each topic. You will be expected to complete the readings prior to the class and to be ready to discuss the topic with your peers. You will also be expected to exhibit professionalism and respect for your class peers, be self-motivated and disciplined, think critically, and assimilate, assess and synthesize large amounts of information. Consistency of class participation will affect your grade.

The main product of this course will be a 15-20 page manuscript for publication in a peer-reviewed journal. The manuscript topic must integrate ecological and economic concepts or issues and term papers can be either a review or research paper. You are encouraged to link the topic of your manuscript to your own research if possible. Your manuscript will be reviewed by one or two of your peers and you must address the reviewer comments and revise your manuscript accordingly.

Course Learning Objectives
- **Section I:** To gain knowledge and comprehension about elements that differentiate ecological economics from other economics and ecological disciplines and about approaches to evaluating ecosystem services.

- **Section II:** To apply this knowledge by examining and analyzing case studies that focus on interactions between human economic activities and the provision of ecosystem services and that focus on promoting sustainable development.

- **Section III:** To synthesize the knowledge and analytical skills acquired by presenting a seminar and writing a potentially publishable review/research paper on a topic of the student's choosing, preferably related to their own graduate research, and that examines the interaction between economic activity and ecosystem function.
Course Structure

The course will be divided into three sections.

**Section I:** In this section we will follow a lecture/directed discussion format led by the course instructors to expose students to basic concepts. Assigned readings will provide the study framework. You will be expected to complete assigned readings prior to the class and be prepared to discuss them in class. By the time we complete this section you must submit the topic for your manuscript to the course instructors for approval.

**Section II:** In this section we will use directed discussion format to address three topics: Conservation Credits (1 class), Investing in Nature (4 classes), and Global Warming (3 classes). You will be assigned to groups of two or three students with whom you will be responsible to lead a class discussion on the assigned topic. All students must complete the readings prior to the class and will be expected to participate actively in the discussion. By the time we complete this section you must complete the first draft of your manuscript for review by your peers.

**Section III:** This section of the course will follow a seminar format during which you will be required to present a 15-20 minute oral/Power Point presentation of your manuscript. This will be followed by a 10 minute discussion/critique of the topic/presentation by your peers. During this section you will also be required to review the assigned manuscript and provide anonymous reviewer comments to the author. By the time we complete this section you must revise your own manuscript based on peer-review comments and provide a written response respond to the reviewers' comments.

### Course Learning Outcomes

<table>
<thead>
<tr>
<th>Competence</th>
<th>Skills</th>
<th>Assessment Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section I</strong></td>
<td>Knowledge and recall of major concepts</td>
<td>Class test</td>
</tr>
<tr>
<td>Knowledge and Comprehension</td>
<td>Understand, <strong>interpret</strong>, compare and contrast information</td>
<td>Question cues: List, define, describe, etc.</td>
</tr>
<tr>
<td><strong>Section II</strong></td>
<td>Apply information, methods and concepts in new situations</td>
<td>Group led discussions on key topics/case studies</td>
</tr>
<tr>
<td>Application and Analysis</td>
<td>Analyze information by identifying components, patterns &amp; differences</td>
<td>Question cues: Examine, demonstrate, illustrate, show, compare, relate, etc.</td>
</tr>
<tr>
<td><strong>Section III</strong></td>
<td>Synthesize concepts by applying knowledge &amp; skills to a new topic</td>
<td>Preparation draft of term-paper and a short oral presentation of it</td>
</tr>
<tr>
<td>Synthesis and Evaluation</td>
<td>Evaluate application of key concepts/methods</td>
<td>Question cues: plan, design, integrate, modify, prepare, present, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Review of other students' term papers and revised personal term paper after peer review</td>
</tr>
</tbody>
</table>
Grading

<table>
<thead>
<tr>
<th>Section</th>
<th>Topic</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section I</td>
<td>Class test covering key concepts</td>
<td>300</td>
</tr>
<tr>
<td>Section II</td>
<td>Group leadership of class discussion of assigned topic</td>
<td>100</td>
</tr>
<tr>
<td>Section III</td>
<td>Oral presentation of manuscript</td>
<td>100</td>
</tr>
<tr>
<td>Section III</td>
<td>Peer review of other students' manuscript</td>
<td>100</td>
</tr>
<tr>
<td>Section III</td>
<td>Final manuscript for publication &amp; response to peer comment;</td>
<td>300</td>
</tr>
<tr>
<td>All sections</td>
<td>Consistency of participation in class discussion</td>
<td>100</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>1000</td>
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A = 100-90; B = 89-80; C = 79-70; D = 69-60; F = <59

Text Books and Resource Materials

- Assigned Readings Package - Available from Copy Corner

Section I - Key Topics and Questions

- **Introduction and orientation**: Purpose and scope of the course. Course structure, requirements, and grading.
- **Context**: Economics, ecology, and ecological economics: Economics versus ecology, economic growth versus sustainable development, is there common ground?
- **The nature of resources, and the second law of thermodynamics**: Are all substances resources or do they become resources? Why is the entropy concept important from an environmental perspective and does it impose constraints on economic activity?
- **Externalities temporal scale and intergenerational equity**: What are production and consumption externalities? Is opportunity cost real? Should we discount the future values of resources? If so, what discount rate will ensure intergenerational equity?
- **Spatial scale, distribution and globalization**: What is the appropriate scale for measuring ecosystem health, especially in the face of an increasingly global market?
- **Carrying capacity, renewable resources and the "Full" world**: Is carrying capacity real and if so is it fixed? How do we know the world is full?
- **Biodiversity, market failure and biotic resources**: What is biodiversity and is it important? Do market value biodiversity effectively? If not, how can it be included in ecological economic analyses?
- **Efficient allocation and valuation issues**: What do we mean by efficient allocation of resources? How do we allocate resources that are not traded in the market place? Use and non-use values and benefit cost analysis.
- **GNP, green accounting, and valuing ecosystem services**: Is natural capital included in standard measures of national wealth? If not, can it be and if so how?
- **Policy and property rights**: Who gets what and how? Private, common, and public property rights - definitions, and limitations. The importance of well defined, defendable rights that internalize costs.
Course and University Policy Statements

Make-up Test

Only University excused absences will be accepted for scheduling a make-up test. An excused absence means that illness or some other problem beyond your control prevented you from taking the class at its scheduled time.

Handouts

Handouts, including reading material and class test may not be copied without prior permission of the instructor.

Academic Integrity Statement

Aggie Honor Code: “An Aggie does not lie, cheat, or steal or tolerate those who do.”

As a student at Texas A&M University, it is your duty to know and live by the Aggie Honor Code. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information visit www.tamu.edu/aggiehonor/.

Plagiarism

Plagiarism consists of passing off as one’s own ideas, words, writings, etc., which belong to another. You are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that person. Evidence of plagiarism will result in an automatic null mark for the assignment or test, and possible further disciplinary action including expulsion from the course or Texas A&M University. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

Americans with Disabilities Act (ADA) Policy Statement

The following ADA Policy Statement (part of the Policy on Individual Disabling Conditions) was submitted to the University Curriculum Committee by the Department of Student Life. The policy statement was forwarded to the Faculty Senate for information. The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall or call 845-1637.

For any other questions or concerns, please refer to http://student-rules.tamu.edu
# Overall Course Calendar

<table>
<thead>
<tr>
<th>Class/Day</th>
<th>Moderator</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td><strong>Section I – Knowledge and Comprehension</strong></td>
<td></td>
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</tr>
<tr>
<td>1. Tu</td>
<td>UPK/JRC</td>
<td>Introduction and orientation</td>
</tr>
<tr>
<td>2. Tr</td>
<td>UPK</td>
<td>Context: ecology, economics, and ecological economics</td>
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<tr>
<td>3. Tu</td>
<td>JRC</td>
<td>Nature of resources and second law of the thermodynamics</td>
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<tr>
<td>4. Tr</td>
<td>UPK</td>
<td>Externalities, temporal scale, and intergenerational equity</td>
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<tr>
<td>5. Tu</td>
<td>JRC</td>
<td>Spatial scale, distribution and globalization</td>
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<tr>
<td>6. Tr</td>
<td>UPK</td>
<td>Carrying capacity, renewable resources and the “Full” world</td>
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<tr>
<td>7. Tu</td>
<td>JRC</td>
<td>Biodiversity, market failure and biotic resources</td>
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<tr>
<td>8. Tr</td>
<td>UPK</td>
<td>Efficient allocation and valuation issues</td>
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<tr>
<td>9. Tu</td>
<td>JRC</td>
<td>GNP, green accounting and valuing ecosystem services</td>
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<tr>
<td>10.Tr</td>
<td>UPK</td>
<td>Policy and property rights</td>
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<tr>
<td>11.Tu</td>
<td>JRC</td>
<td>How to review a manuscript and respond to peer-review</td>
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<tr>
<td>Tr</td>
<td></td>
<td>Class test (Submission of special topic titles)</td>
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<tr>
<td><strong>Section II – Application and Analysis</strong></td>
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<tr>
<td>12.Tu</td>
<td>JRC (Grp 1)</td>
<td>Topic 1 - Conservation credits</td>
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<tr>
<td>13.Tr</td>
<td>UPK (Grp 2)</td>
<td>Topic 2 – Investing in Nature: Conserv. Investment Banking</td>
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<tr>
<td>15.Tr</td>
<td>UPK(Grp 4)</td>
<td>Topic 2 – Investing in Nature: Incentives</td>
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<tr>
<td>16.Tu</td>
<td>UPK/Bill Ginn</td>
<td>Topic 2 – Investing in Nature: Overview; Future Directions</td>
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<tr>
<td>17.Tr</td>
<td>JRC (Grp 5)</td>
<td>Topic 3 – Global Warming: What is it and why is it occurring?</td>
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<tr>
<td>18.Tu</td>
<td>JRC (Grp6)</td>
<td>Topic 3 – Global Warming: Effects and consequences</td>
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<tr>
<td>19.Tr</td>
<td>JRC (Grp 7)</td>
<td>Topic 3 – Global Warming: Regulation and incentives</td>
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<tr>
<td><strong>Section III – Synthesis and Evaluation</strong></td>
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<tr>
<td>20.Tu</td>
<td></td>
<td>Student Presentations 1,2,3</td>
</tr>
<tr>
<td>21.Tr</td>
<td></td>
<td>Student Presentations 4,5,6</td>
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<tr>
<td>22.Tu</td>
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<td>Student Presentations 7,8,9</td>
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<tr>
<td>23.Tr</td>
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<td>Student Presentations 10,11,12</td>
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<tr>
<td>24.Tu</td>
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<td>Student Presentations 13,14,15</td>
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<tr>
<td>25. Tr</td>
<td></td>
<td>Student Presentations 16,17,18</td>
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<tr>
<td>26. Tu</td>
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<td>Student Presentations 19,20,21</td>
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<tr>
<td></td>
<td></td>
<td>Completion of term paper</td>
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<td></td>
<td></td>
<td>Submit Term Paper</td>
</tr>
</tbody>
</table>
From: "Lynette Huval" <LHuval@ag.tamu.edu>
To: <Suzieb@tamu.edu>
Date: Wednesday, September 24, 2008 2:24 PM
Subject: Fwd: Re: Cross-listed Courses - ESSM 671 & AGEC 659

Please add Dr. Nichol's response to the new course request for ESSM 671.

Lynette

Lynette Huval
Assistant to the Executive Associate Dean
College of Agriculture and Life Sciences
Texas A&M University
lhuval@ag.tamu.edu

Jack K. Williams Administration Building, Room 113
2142 TAMU

Tel: 979-847-9325 | Fax: 979-845-9938
http://aglifesciences.tamu.edu (http://aglifesciences.tamu.edu/)

>>> John Nichols 9/24/2008 2:16 PM >>>
Dear Lynette,  We have reviewed this and it does not change anything in our Department. I approve.
John Nichols

John P. Nichols
Professor and Head
Department of Agricultural Economics
Texas A&M University
College Station TX 77843-2124

Phone: 979-845-2116
Fax: 979-862-1563
E-mail: jpn@tamu.edu

Website: http://agecon.tamu.edu

>>> "Lynette Huval" <LHuval@ag.tamu.edu> 9/24/2008 11:56 AM >>>
Dr. Nichols,

Dr. Kreuter's new course proposal shows cross-listings with AGEC 659 (Dr. Conner's course) and RENR 659. Since your signature is not on the form, could you please indicate your approval of the cross-listing by email to Dr. Reed (dreed@tamu.edu) and cc me (lynette@tamu.edu)? I'll see that it gets to OGS.

Thank you,
Lynette

Lynette Huval
Assistant to the Executive Associate Dean
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