OBJECTIVES
The primary objective of this course is to explore ecology, its applications, and ecological inquiry. As a result of taking this course you should be able to:

1. explain and distinguish between basic ecological concepts related to:
   a. effects of environmental factors on organisms and adaptations of organisms to their environment
   b. structure and dynamics of populations and communities and the role of disturbances
   c. structure of ecosystems including energy flow dynamics and nutrient cycling
   d. landscape pattern and process, and their interactions
   e. characteristics of major ecosystems and factors determining their spatial distributions
2. use ecological concepts and principles to interpret and critique current issues in environmental management and natural resource conservation
3. explain the scientific inquiry process and conduct simple ecological inquiries

INSTRUCTORS
Dr. Mariana Mateos
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Dr. X. Ben Wu
Dept. of Ecosystem Science & Mgmt
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Office hours: Mon. 3:15-4:14 PM, Wed. 10:30-11:30 AM or by appointment

Meeting Times:
Section 501: MWF 09:10 am-10:00 am: ILSB 1105
Section 502: MWF 01:50 pm-02:40 pm: ARCB 101

TEACHING ASSISTANT
Carlos A. Santamaria
Dept. of Wildlife & Fisheries Sciences
Contact via eLearning
Office hours: Wed. 3:00-5:00 PM, or by appointment at Heep Lab. Bldg. (Old Heep) Rm. 321

SUPPLEMENTARY INSTRUCTOR (SI) LEADER
Michael Taborn
Session times: Sunday, Tuesday, Wednesday from 9-10 PM in Blocker 106
Facebook group: “RENR 205 Fall 2011”.
RENR 205 Fall 2011

RENR 205 in eLearning (Blackboard Vista)

Please check RENR 205 in eLearning daily during the week. We use eLearning extensively with quizzes and assignments, as well as syllabus, lecture outlines, readings, and grades. All class announcements and communications (mail and discussion forum) are done in eLearning. Use your NetID and password for your eLearning login (http://elearning.tamu.edu). You can also access it from the Howdy portal.

CLICKER - Classroom Performance System (CPSRF)

"You are required to purchase an i>clicker2 remote for in-class quizzes and activities. i>clicker is a response system that allows you to respond to questions we pose during class, and you will be graded on your i>clicker2 responses. You must register your i>clicker2 remote online before Sep 7th. You must have voted in class on at least one question in order to complete this registration properly. Once you have voted on a question in my class, go to http://www.iclicker.com/registration. Complete the fields with your first name, last name, student ID, and remote ID. The remote ID is the series of numbers and sometimes letters found on the bottom of the back of your i>clicker2 remote. You are responsible to make sure that your clicker is functional and with power in every class period.

TEXTBOOK


Weekly reading needs to be completed before class and there will be a clicker quiz for the readings in each class.

GRADERS (≥90% A, 80-89% B, 70-79% C, 60-69% D, and <60% F)

<table>
<thead>
<tr>
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<th>Points</th>
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<tbody>
<tr>
<td>Weekly on-line quizzes</td>
<td>100</td>
</tr>
<tr>
<td>In-class clicker quizzes</td>
<td>70</td>
</tr>
<tr>
<td>Participation in clicker activities</td>
<td>30</td>
</tr>
<tr>
<td>4 unit exams (@100 points each)</td>
<td>400</td>
</tr>
<tr>
<td>Inquiry projects and peer reviews</td>
<td>100</td>
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Total: 700 points

IN-CLASS CLICKER QUIZZES AND ACTIVITIES

There will be clicker quizzes in class over the reading assignments. The purpose of these clicker quizzes is to assess your understanding of the reading material and to guide classroom activities to improve your understanding. Each class quiz will have equal value. We will discard the 20% lowest grade quizzes.

Clickers will also be used for active learning activities. Students who participate in 80% or more of these activities will get full credit (30 points).

ON-LINE QUIZZES

- Weekly online quizzes will be given in eLearning, each with about 10-15 questions based on readings, lectures and assignments during the preceding week. Each quiz can
be taken twice within the allowed time period; the higher of the two scores will be used. A portion of the exam questions will come from the quiz questions. Each quiz will begin at 5:00 am on Saturday and will be available until 5:00 am on the following Saturday. At the end of the semester, the lowest grade will be dropped and others will be averaged.

INQUIRY PROJECTS
An inquiry project on spatial interactions of brown bears (grizzlies) using the Bear Cam (remotely controlled camera at the McNeill River Falls in Alaska) and another inquiry project on spatial pattern of vegetation distribution in the Wolong Nature Reserve represented in a virtual world (Second Life) will be conducted during the second half of the semester. See information below.

EXAMS
There will be 4 unit exams each consisting of 40 multiple choice questions worth 2.5 points each. Exams will be scantron graded; students must provide their own full page scantrons (NCS mp90051 or 0-101607-TAMU). For all exams, a valid student identification card and a No. 2 lead pencil with an eraser. No other materials (notebooks, etc.) will be allowed in the room during exams. No personal electronic devices may be used during the exams.

MAKE-UP POLICY
A make-up exam will be given for students with a University-excused absence (http://student-rules.tamu.edu/rule07) for a unit exam. If physically able, you must register your excused absences with Dr. Mateos or Dr. Wu within 5 days of the missed exam, quiz or assignment.
LECTURE TOPICS/READING ASSIGNMENTS AND EXAM DATES

Week 1  (Aug 29)  Introduction to course  
UNIT I  
Part I – Introduction and Life in the Physical Environment  
Chapter 1: Introduction  
Chapter 2: Adaptations to the Physical Environment: Water and Nutrients  

Week 2  (Sep 5)  Chapter 3: Adaptations to the Physical Environment: Light, Energy, & Heat  
Chapter 4: Variation in the Environment  
Chapter 5: The Biome Concept in Ecology  

Week 3  (Sep 12)  Part II – Organisms  
Chapter 6: Evolution and Adaptation  
Chapter 7: Life Histories and Evolutionary Fitness  
Chapter 8: Sex and Evolution  

Week 4  (Sep 19)  Chapter 9: Family Society, and Evolution  
Review  
Exam I (Sep 23)  

Week 5  (Sep 26)  UNIT II  
Part III – Populations  
Chapter 10: The Distribution and Spatial Structure of Populations  
Chapter 11: Population Growth and Regulation  
Chapter 12: Temporal and Spatial Dynamics of Populations  

Week 6  (Oct 3)  Chapter 13: Population Genetics  
Part IV – Species Interactions  
Chapter 14: Species Interactions  
Chapter 15: Dynamics of Consumer-Resource Interactions  

Week 7  (Oct 10)  Chapter 16: Competition  
Chapter 17: Evolution of Species Interactions  
Review (Oct 14)  

Week 8  (Oct 17)  Exam II (Oct 17)  
UNIT III  
Part V - Communities  
Chapter 18 Community Structure  
Bear-cam inquiry project  

Week 9  (Oct 24)  Chapter 19 Ecological Succession and Community Development  
Chapter 20 Biodiversity  
Bear-cam inquiry project  

Week 10  (Oct 31)  Chapter 21 History, Biogeography, and Biodiversity  
Part VI – Ecosystems  
Chapter 22 Energy in the Ecosystem  
Bear-cam inquiry project
**Week 11**
(Nov 7)  
Chapter 23 Pathways of Elements in Ecosystems  
Chapter 24 Nutrient Regeneration in Terrestrial and Aquatic Ecosystems  
Review (Nov 11)  
Bear-cam inquiry project

**Week 12**
(Nov 14)  
Exam III (Nov 14)  
UNIT IV  
Part VII – Ecosystems  
Chapter 25 Landscape Ecology  
Virtual Ecological Inquiry project (VEI)

**Week 13**
(Nov 21)  
Chapter 26 Biodiversity, Extinction, and Conservation  
Virtual Ecological Inquiry project (VEI)  
Thanksgiving holiday – No class on Nov 25

**Week 14**
(Nov 28)  
Chapter 27 Economic Development and Global Ecology  
Virtual Ecological Inquiry project (VEI)

**Week 15**
(Dec 5)  
Review (Dec 5)  
Exam IV for Section 501 (Dec 9, 10:00am-noon)

**Week 16**
(Dec 12)  
Exam IV for Section 502 (Dec 13, 10:30am-12:30pm)

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**BEAR-CAM INQUIRY PROJECT**

*(Based on the research project of Dr. Larry Griffing and his colleagues)*

Each student will conduct a bear-cam inquiry project between Exam II and Exam III. The project will consist of the following tasks: develop a hypothesis based on observations of bear behavior using still pictures from the Bear Cam; test the hypothesis by collecting and analyzing data and interpreting the results; write a research report, review reports of peers, and revise your report based on peer review.

*All directions, pictures, and helpful hints are provided in eLearning.*

**The Research Process**

1. Observe bear distribution and interactions using still pictures.  
   Review the still pictures in eLearning and take notes on interesting patterns of bear behaviors you observed.

2. Develop your hypothesis and post it to your discussion group for peer feedback.  
   The hypothesis should be clear and specific about the expected bear behavior pattern (and the reasons for the pattern, if testable). The hypothesis should be “testable” – you should be able to test it based on data you can collect from the still pictures.

3. Collect and analyze your data and then interpret your results  
   Directions on collecting data from the stills will be provided in eLearning.

4. Develop an individual report of one’s study
Individual reports should contain 3 paragraphs (introduction and hypothesis, methods, results and discussion); ~1 pages long, single spaced. Details for the report components and grading rubrics will be provided in eLearning.

5. Participate in group discussion in eLearning

Discuss observations and the hypotheses you made on bear behavior, data collection, analysis, and interpretations, and respond to postings of peers from your discussion group. Please make your posts meaningful and descriptive. The purpose of this activity is to allow everyone the opportunity to provide and receive peer feedback, which will help each of you to develop a more complete and well thought-out project. A minimum of 6 postings is required. Directions for posting to your discussion group are provided in eLearning.

Calibrated peer review

- Individual reports should be submitted to Calibrated Peer Review (CPR, https://cpr.tamu.edu/cpr/cpr/login.asp).
- Review 3 calibration reports, 3 reports of other students’, and your own report using the rubrics provided.
  Directions for CPR will be provided in eLearning.

Revision of your report based on peer review

- Revise your report based on the review comments from the three reviewers. You can conduct additional data collection and analysis if necessary. Submit your revised report using the assignment tool in eLearning.

Bear-Cam Inquiry Project Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Participation in group discussion in eLearning</td>
<td>25%</td>
</tr>
<tr>
<td>Calibrated Peer Review (CPR)</td>
<td>25%</td>
</tr>
<tr>
<td>Report and data file</td>
<td>40%</td>
</tr>
<tr>
<td>Feedback on bear-cam inquiry project</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>100%</strong></td>
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**VIRTUAL ECOLOGICAL INQUIRY (VEI) PROJECT**

Each student will conduct a virtual ecological inquiry (VEI) project between Exam III and Exam IV. Similar to the bear-cam project, the VEI project also involves the authentic inquiry process: develop a hypothesis based on observations of vegetation pattern in the Wolong Nature Reserve, test the hypothesis by collecting and analyzing vegetation data in a virtual world (Second Life), interpret the results and write a research report, review reports of peers, and revise one’s report based on peer review.

*Detailed directions for the VEI project will be provided later in eLearning.*
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 the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.

AGGIE HONOR CODE - “An Aggie does not lie, cheat, or steal or tolerate those who do.” For additional information please visit: http://www.tamu.edu/aggiehonor/