FUNDAMENTALS OF ECOLOGY  
Renewable Natural Resources 205

OBJECTIVES
The primary objective of this course is to survey the principles and concepts of ecology for undergraduate students taking their first course in ecology. The course emphasizes the relevance of ecology to contemporary society by relating ecological principles to high profile environmental issues including, biodiversity, sustainable resource use, human population growth, climate change and food security. As a result of taking this course, students should appreciate and understand:

- The scientific process of ecology and its importance to contemporary society,
- Vital ecological services provided by various ecosystems,
- The effects of organism-environment interactions and how they shape organism adaptation and distribution,
- Population growth patterns in contrasting environments, and
- Patterns and characteristics of major ecosystems of North America and the Earth.

INSTRUCTORS
Dr. David D. Briske          Dr. Jacquelyn K. Grace
WFES, Room 326                WFES, Room 212
Email: dbriske@tamu.edu        Email: jkgrace@tamu.edu

Dr. Briske will teach the first two units of the course and Dr. Grace will teach the last two units. Each instructor will teach their respective units in both sections (501 and 502) of the course. This enables students to attend lectures in either section, but exams must be taken in the section for which you have registered.

MEETING TIMES AND LOCATIONS
Section 501: MWF 9:10-10:00 am
Section 502: MWF 1:50-2:40 pm

COMMUNICATING WITH INSTRUCTORS AND TEACHING ASSISTANT
Unless you need to contact a specific instructor/TA for confidential matters, please always email your questions/requests to renr205instructors@listserv.tamu.edu. These emails will reach both the instructors and the TA and one of us will respond within 24 hours.

RENR 205 ON eCampus
RENR 205 on eCampus (http://ecampus.tamu.edu/) will contain the syllabus, SimUText and other assignments, SimUText support materials and case analyses, and grade information for the course.

LEARNING ENVIRONMENT
Please contribute to a positive and constructive learning environment throughout the semester by:

- Attending class on time and staying through the entire session
- Sitting near the front of the room
- Turning off all electronic devices (except if you take notes on a laptop or tablet)
- Minimize talking and other distracting activities
I>CLICKER QUIZZES AND PARTICIPATIONS

I>clickers will be used regularly to promote student interaction and critical learning by providing immediate feedback and identifying topics that require further review. I>clickers will be used for weekly in-class quizzes and frequent participation activities to assess student understanding of content and survey class opinions on various environmental issues. Each student is required to have a functional i>clicker each class period and ensuring your i>clicker is working is your responsibility. Instructional Technology Services recommends that personal devices (REEF System) NOT be used for formal evaluations in large classes.

SIMUTEXT ASSIGNMENTS AND ECAMPUS CONTENT

The SimUText System® will be used as an interactive e-textbook throughout the course. Follow this access link (https://www.simutext2.com/student/register.html#/key/U2dQ-enrt-nsBX-R88B-BBZq) to subscribe to the SimUText for Fundamentals of Ecology (RENR 205) at Texas A&M University and pay for your access ($81 fee paid online). A hard copy textbook is not available, but you can print a PDF copy of each section. Please go through the Video tutorials and make use of the Knowledge Base on the SimUText Support Page (http://simbio.com/support/simutext) for help with questions regarding SimUText. SimUText will be supported in class by providing a synopsis in advance of weekly assignments, addressing student questions prior to assignment due dates, and reviewing assignment questions immediately following the due date. Outlines of related content covered in class will be made available on eCampus and it is to be brought to class to facilitate note taking and comprehension.

Each SimUText section has activities based on simulation with self-assessment questions to help students understand the content and “graded questions” at the end of the section. Student scores will be based on all questions within a section, not only the graded questions at the end. Full credit will be provided for answering the question correctly and half credit will be provided for answering the questions. Point values will be assigned as a percentage of 150 points that is determined by the number of points students have accumulated. The link to SimUText assignments and course outlines are located under the Assignment tab in eCampus. All SimUText assignments are due Tuesday night, and the questions will be reviewed the following Wednesday. We strongly recommend that you complete your SimUText assignment early in the week so that you can benefit from in class review and discussion of the content. This content will also be evaluated in the weekly I>clicker quizzes.

EVALUATION PROCEDURES

There will be three one-hour exams during the semester and a final exam at the end of the term. Each examination will consist of 40 multiple choice questions worth 2.5 points each, for a total of 100 points. The final exam will not be comprehensive, but will consist of a 100-point exam of Unit IV. Eleven 10 point quizzes, consisting of 10 multiple choice questions each, will be taken in class during the semester, and the lowest score will be dropped. Fifteen participation activities (3-5 questions) for a total of 20 points maximum will be made available in-class as bonus points to encourage attendance and participation. Grades will be assigned as a percentage of 650 total points acquired in the four exams, SimUText assignments, 10 highest quiz, in addition to the bonus points received for participation.

<table>
<thead>
<tr>
<th>Evaluation Instruments and Point Values</th>
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<tbody>
<tr>
<td>4 100-point class examinations</td>
</tr>
<tr>
<td>12 SimUText Assignments</td>
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<tr>
<td>10 10-point in-class quizzes</td>
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<tr>
<td>15 2-point ‘Participation Activities’</td>
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<tr>
<td>Total Course Points</td>
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</table>
**Grade Assignments**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
<th>Points Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
<td>585-650</td>
</tr>
<tr>
<td>B</td>
<td>80-89%</td>
<td>520-584</td>
</tr>
<tr>
<td>C</td>
<td>70-79%</td>
<td>455-419</td>
</tr>
<tr>
<td>D</td>
<td>60-69%</td>
<td>390-454</td>
</tr>
<tr>
<td>F</td>
<td>0-59%</td>
<td>&lt; 390</td>
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</tbody>
</table>

Exams will be scantron graded; **students must provide their own full page scantrons** (NCS mp90051 or 0-101607-TAMU). A **valid student identification card**, a scantron, and a **No. 2 lead pencil** with an eraser are required for all exams. Students are responsible for correctly providing all required information on their scantrons. No personal electronic devices may be used during the exams.

**MAKE-UP EXAMINATIONS**

Make-up examinations will be given provided that students present **a documented University-excused absence within 1 week of the scheduled exam**. An excused absence means that illness or some other problem beyond your control prevented you from taking the scheduled exams [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07). Make-up exams must be taken within 4 weeks of the scheduled exam. **Instructors are under no obligation** to provide an opportunity for students to make up course work missed because of unexcused absences (see TAMU Regulations below). **Make-up exams will include** a combination of short answer, fill-in-the-blank, and graph interpretation questions in addition to multiple choice. **Opportunities to make-up missed quizzes will require clear, valid documentation. Participation activities can not be made-up**, but multiple opportunities exist to achieve the maximum number (20) of participation points. These policies will be strictly enforced.

**ATTENDANCE**

Many examination questions originate from in class activities and experience shows that those **students who attend class consistently obtain the highest scores**. **Attendance is expected and will be recorded** during most class periods with i>clickers.

The University views class attendance as an individual student responsibility. Students are expected to attend class and to complete all assignments. Instructors are expected to give adequate notice of the dates on which major tests will be given and assignments will be due.  
 **7.1** The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for absence.  
 **7.3** If the student is seeking an excused absence, they must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g. accident, or emergency) the student must provide notification by the **end of the second working day after the absence**. This notification should include an explanation of why notice could not be sent prior to the class. If needed, the student must provide additional documentation substantiating the reason for the absence, which is satisfactory to the instructor, within one week of the last date of the absence. The make-up work must be completed in a timeframe **not to exceed 30 calendar days** from the last day of the initial absence.  
 **7.4** The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence. (Texas A&M University, Student Rules, 2013; student-rules.tamu.edu/rule07).
RENR 215 LABORATORY
This one credit hour class is a separate course from RENR 205. Students wishing to take it must register for it separately. Please contact your undergraduate academic advisor for questions regarding this course. Students often take RENR 215 after completing this course.

AMERICANS WITH DISABILITIES ACT
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, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit: http://disability.tamu.edu.

ACADEMIC INTEGRITY STATEMENT
“An Aggie does not lie, cheat, or steal or tolerate those who do.”
Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit: www.tamu.edu/aggiehonor/.

Our policy is to assign a grade of zero for any exam on which a student is cheating, which will very likely result in course failure. These individuals will also be reported for honor code violations.
## TENTATIVE WEEKLY SCHEDULE OF TOPICS, ASSIGNMENTS AND EXAMS

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>SimUText &amp; eCampus Assignments</th>
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</thead>
<tbody>
<tr>
<td><strong>Unit I</strong></td>
<td></td>
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<tr>
<td><strong>Week 1</strong></td>
<td>Organizational meeting</td>
<td>SimUText: Set up SimUText account</td>
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<tr>
<td>(Jan 18)</td>
<td>What is Ecology?</td>
<td>i&gt;Clicker: Registration and Set Up</td>
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<td></td>
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<td>eCampus: What is Ecology?</td>
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<tr>
<td><strong>Week 2</strong></td>
<td>Community Dynamics</td>
<td>SimUText: Community Dynamics in Yellowstone</td>
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<tr>
<td>(Jan 23)</td>
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<td>SimUText: Disturbance and Succession</td>
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<td></td>
<td></td>
<td>SimUText: Community Stability</td>
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<td></td>
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<td>eCampus: Community Organization, Soils, &amp; Resilience</td>
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<tr>
<td><strong>Week 3</strong></td>
<td>Ecosystem Ecology</td>
<td>SimUText: Primary Production and Respiration</td>
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<tr>
<td>(Jan 30)</td>
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<td>SimUText: Secondary Production</td>
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<td></td>
<td></td>
<td>eCampus: Photosynthesis, Ecological Efficiencies, Global Human Diets &amp; Scientific Method</td>
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<td><strong>Week 4</strong></td>
<td>Biodiversity and Biogeography</td>
<td>SimUText: Species Richness and the Extinction Crisis</td>
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<tr>
<td>(Feb 6)</td>
<td>Exam I</td>
<td>SimUText: Global Patterns in Physical Conditions</td>
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<td></td>
<td>eCampus: Biome Distribution</td>
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<tr>
<td><strong>Unit II</strong></td>
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<tr>
<td><strong>Week 5</strong></td>
<td>Nutrient Cycling</td>
<td>SimUText: Nutrient Cycling Fundamentals</td>
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<tr>
<td>(Feb 13)</td>
<td></td>
<td>SimUText: Nitrogen Cycling in Ecosystems</td>
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<tr>
<td></td>
<td></td>
<td>eCampus: Hydrological Cycle, Implications &amp; ENSO</td>
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<tr>
<td><strong>Week 6</strong></td>
<td>Nutrient Cycling</td>
<td>SimUText: Impacts of Human Activities</td>
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<tr>
<td>(Feb 20)</td>
<td>Ecosystem Ecology</td>
<td>SimUText: Ecosystem Services</td>
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<tr>
<td></td>
<td></td>
<td>eCampus: Tradeoffs, Externalities &amp; Regulations</td>
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<tr>
<td><strong>Week 7</strong></td>
<td>Climate Change</td>
<td>SimUText: Why does Climate Change Matter?</td>
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<tr>
<td>(Feb 27)</td>
<td>Exam II</td>
<td>SimUText: Detecting Climate Change</td>
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<td></td>
<td></td>
<td>eCampus: Earth’s Climate and Climate Models</td>
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</tbody>
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### UNIT III

#### Week 8
(Mar 6)
**Evolution and Adaptation**
- SimUText: The Importance of Evolution in Ecology
- SimUText: Genetics and Evolution (only the “In the Language of Genetics” subsection)
- SimUText: The Logic of Evolution by Natural Selection

#### Week N/A
(Mar 13)

#### Week 9
(Mar 20)
**Population Growth and Regulation**
- Ecological Integration
- Symposium on Mar 24
- SimUText: Geometric Growth
- SimUText: Exponential Growth
- SimUText: Logistic Growth

#### Week 10
(Mar 27)
**Behavioral Ecology**
- SimUText: So Many Choices (only “The Hows and Whys of Behavior” subsection)
- SimUText: Family Matters
- SimUText: Cooperation

#### Week 11
(Apr 3)
**Exam III**
- Life Table/Demography

### UNIT IV

#### Week 12
(Apr 10)
**Competition**
- SimUText: Limited Resources and Competition
- SimUText: Intraspecific Competition

#### Week 13
(Apr 17)
**Consumer-resource interactions**
- SimUText: Natural History of Exploitation
- SimUText: Predator-Prey Dynamics

#### Week 14
(Apr 24)
**Evolutionary Arms Race and Mutualism**
- SimUText: Evolutionary Arms Race
- eCampus: Why sex? (*Poeciliopsis* section only)
- eCampus: Knowledge Survey
- eCampus: CLASS-Ecol Survey

#### Week 15 & 16
(May 1)
**Review & Exams**