Course Outline Form: Winter 2020

General Information

Course Title: Terrestrial Ecosystem Ecology (ENVS*3370)

Course Description: In this course, the ecosystem is the biological level of organization of interest. Living organisms and their physical environment are considered as components of an integrated system. Key ecosystem processes such as energy flow, carbon and nutrient cycling, and succession, and the controls on these processes, are examined. The impacts of human activity and global change on ecosystem structure and function are investigated.

Credit Weight: 0.5

Academic Department (or campus): School of Environmental Sciences

Campus: Guelph

Semester Offering: Winter 2020

Class Schedule and Location: LEC Mon, Wed, Fri
2:30pm-3:20pm
THRN 1307

Instructor Information

Instructor Name: Dr. Renuka Karunagoda
Instructor Email: renukak@uoguelph.ca
Office location and office hours: Graham Hall 3302; by appointment

GTA Information

GTA Name: Janelle Giberson
GTA Email: jgiberso@uoguelph.ca
GTA office location and office hours: ALEX 207; Mon, Wed, Fri 1:30-2:30 pm

Course Content

Specific Learning Outcomes:

Upon successful completion of the course, students should be able to:
• explain the major processes and mechanisms that control the flow and storage of energy and the cycling of material in an ecosystem (LO1)
• discuss major pathways by which carbon, nitrogen, phosphorus and water cycle, and energy passes through terrestrial ecosystems (LO2)
• describe how human activity impacts ecosystems (LO3)
• understand how ecosystem ecology differs from other areas of ecology (LO4)
• critically analyze ecosystem ecology-related ideas, issues, arguments and literature (LO5)

In addition, the course aims to meet some of the learning objectives developed by the School of Environmental Sciences (SESLO) and the learning outcomes put forward by the University of Guelph (UGLO):

• discover relationships within and between biotic and abiotic components of environments and their significance (SESLO1)
• demonstrate the ability to find and critically evaluate scientific information (SESLO2)
• effectively communicate ideas and information in graphic and written formats, while demonstrating fluency in the terminology of environmental sciences (SESLO3)
• choose and utilize appropriate quantitative and qualitative methods to analyze and interpret environmental data (SESLO4)
• demonstrate personal and professional integrity by respecting diverse points of view (SESLO5)
• critical and creative thinking (UGLO1), literacy (UGLO2), communicating (UGLO3)

Students will have opportunities to achieve these objectives by attending lectures, analyzing case studies, completing the readings and assignments, understanding and communicating research on ecosystem ecology and completing the mid-term and final exams.

Lecture Content:

**Approximate Schedule of Lectures**

Week 1 - Introduction to the ecosystem concept and systems thinking.
Week 2 - Primary productivity; ecosystem carbon dynamics.
Week 3 - Litter decomposition.
Week 4 - Primary productivity; photosynthesis–nitrogen relationships.
Week 5 - The nitrogen cycle and nutrient cycling in general.
Week 6 – Mid Term exam
READING WEEK
Week 7 - Ecosystem structure.
Week 8 - Climate change and ecosystem functioning.
Week 9 - Ecosystem functioning and biodiversity.
Week 10 - Temporal dynamics: disturbance and succession.
Week 11 - Human impacts on terrestrial ecosystems
Week 12 – Human impacts on terrestrial ecosystems. Wrap-up and exam review

**Labs:** N/A

**Seminars:** N/A

**Course Assignments and Tests:**

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Contribution to Final Mark (%)</th>
<th>Due Date</th>
<th>Learning Outcomes Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments (2)</td>
<td>10%</td>
<td>Assignment 1 - Jan 17, Assignment 2- Jan 31</td>
<td>LO1, LO2, LO3, LO4, LO5, SESLO2, SESLO3, SESLO5, UGLO1, UGLO2, UGLO3</td>
</tr>
<tr>
<td>Online discussions (4)</td>
<td>10%</td>
<td>Discussion 1- Jan 20-26, Discussion 2- Feb 3-9, Discussion 3- Mar 2-8, Discussion 4- Mar 16-22</td>
<td>LO1, LO2, LO3, LO4, LO5, SESLO2, SESLO3, SESLO5, UGLO1, UGLO2, UGLO3</td>
</tr>
<tr>
<td>Case studies (2)</td>
<td>10%</td>
<td>Case study 1- Jan 24, Case study 2- Feb 7</td>
<td>LO1, LO2, SESLO2, SESLO3, SESLO5, UGLO1, UGLO2, UGLO3</td>
</tr>
<tr>
<td>Group presentations</td>
<td>15%</td>
<td>Presentation 1 - Feb 28, Presentation 2 - Mar 6, Presentation 3 - Mar 13, Presentation 4 - Mar 20, Presentation 5 - Mar 27</td>
<td>SESLO1, SESLO2, SESLO3, SESLO4, SESLO5, UGLO1, UGLO2, UGLO3</td>
</tr>
<tr>
<td>Mid term exam</td>
<td>25%</td>
<td>Feb 10 (Monday)</td>
<td>LO1, LO2, SESLO1, SESLO2</td>
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<tr>
<td>Final exam</td>
<td>30%</td>
<td>April 13 (Monday) 8:30am-10:30am</td>
<td>LO1, LO2, LO3, LO4, LO5, SESLO1, SESLO2,</td>
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**Additional Notes (if required):** N/A

**Final examination date and time:** Monday, April 13, 8:30am-10:30am

**Final exam weighting:** 30%

**Course Resources**

**Recommended Text:**

Available as an online resource through the U of G library. (Hard copies also for sale at the Bookstore).

**Recommended Texts:** N/A

**Lab Manual:** N/A

**Other Resources:**

Other course material will be available online through Courselink.

**Field Trips:** N/A

**Additional Costs:** N/A

**Course Policies**

**Grading Policies:**

Assignments are to be submitted online via Courselink dropbox before midnight on the due date. Late assignments will be penalized with deductions of 10% of the full value per day late (so, if an assignment is worth 30%, 3/30 marks will be deducted per day late. An assignment that is 5 days late is guaranteed to receive a failing grade). Exceptions to this rule require a note from your doctor or program counsellor. If you require an extension on an assignment, you must make a request to Dr. Karunagoda in advance of the due date.

**Group presentations:**

A group will consist of four members. Please select your team members during the first week. Each group picks a topic from the list posted on CourseLink and prepare a presentation using information from journal articles published within the last five years. Each group has to use at least five references taken from journals indexed by a database such as SCIE (Science-Citation Index Expanded). The abstract and the presentation have to be submitted to a DropBox before the specified deadline. The group presentations will take place on Fridays of Weeks 7-11. Topics for the presentations, rubrics for presentations and the dates of presentations will be posted on CourseLink during the first two weeks.

**Deadlines for submission of the**

- Abstract – Monday of the week of presentation
- Presentation – Thursday of the week of presentation
Presentations – Attendance is mandatory for all presentations. All students are expected to participate actively during the discussion (marks will be given for attendance and participating in discussions).

Group activities:

There are two group activities, class assignments and case studies, other than the presentations. Students will work with the same group that they have identified for group presentations. The group assignments will be on January 17 and 31. Students will work on a given assignment during the class time. The two case studies will be discussed on January 24 and February 7, also as a group work.

These assignments have to be submitted on the same day.

Online discussions:

There will be three online discussions (Weeks 4, 7 and 10). Each discussion will be open for one week, and evaluated out of 5 points. A discussion question will be posted on the CourseLink, and the students have to post an answer/comment for the question and two replies to somebody else’s comment. Comments should be original, and will receive 2 points. Each reply will carry 1.5 points. Please do not use long paragraphs or very short replies (7-10 lines would be ideal).

Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Academic Consideration:

The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student’s control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar.
Academic Misconduct:

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Detailed information regarding the Academic Misconduct policy is available in Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar.

Accessibility:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or visit the Student Accessibility Services website (http://www.uoguelph.ca/csd/).

Course Evaluation Information:

End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the Course and Instructor Evaluation Website for more information.
Drop period:

The drop period for single semester courses starts at the beginning of the add period and extends to the Fortieth (40th) class day of the current semester (the last date to drop a single semester courses without academic penalty) which is listed in Section III (Schedule of Dates) of the Undergraduate Calendar.

The drop period for two semester courses starts at the beginning of the add period in the first semester and extends to the last day of the add period in the second semester.

Information about Dropping Courses can be found in Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar.

Additional Course Information

N/A