

Current Information:

I. A.) DEPARTMENT NAME: Biology

B.) COURSE NUMBER, and TITLE: BSC2862, Global Change Ecology and Sustainability

C.) CREDIT HOURS: 3 **D.) PREREQUISITES:** none

E.) CURRENT CLASSIFICATION

1. General Education Code: B C D H M N P S None

2. Writing Requirement: E2 E4 E6 None

3. Math Requirement: M None

Requests:

II. GENERAL EDUCATION

A.) Requested Classification: B C D H M N P S

B.) Effective Date: Fall Spring Summer 2013 (year)

Or

1-time Approval Fall Spring Summer _____ (year)

III. WRITING REQUIREMENT

MATH REQUIREMENT

A.) Requested Classification E2 E4 E6

B.) Effective Date: Fall Spring Summer _____ (year)

Or

1-time Approval Fall Spring Summer _____ (year)

C.) Assessment:

1.) What type of feedback will be provided to the student (in reference to writing skill)?

_____ Grade _____ Corrections _____ Drafts _____ Other

2.) Will a published rubric be used?

IV. ATTACH A DETAILED SYLLABUS

V. SYLLABUS CHECKLIST

Courses that offer students General Education and/or Writing Requirement credit must provide clear and explicit information for the students about the classification and requirements.

A.) For courses with a **General Education** classification, the syllabus should include:

- Statement of the General Education Purpose of the Course with attention to the General Education Classification requested
- List of assigned General Education Student Learning Outcomes
- List of any other relevant Student Learning Outcomes
- List of required and optional texts
- Weekly course schedule with sufficient detail (e.g. topics, assigned readings, other assignments, due dates)

B.) For courses with **Writing Requirement (WR)** classification, the syllabus should include:

- "The Writing Requirement ensures students both maintain their fluency in writing and use writing as a tool to facilitate learning."
- "Course grades now have two components: To receive writing credit, a student must receive a grade of "C" or higher and a satisfactory completion of the writing component of the course."

- A statement or statements indicating that the instructor will evaluate and provide feedback on the student's written assignments with respect to grammar, punctuation, usage of standard written English, clarity, coherence, and organization
- Assignment word counts, page lengths, submission deadlines and feedback dates

Additionally, the syllabus must clearly show that the course meets the WR to

- Evaluate [2,000/4,000/6,000] written words in assignments during the semester
- Provide all feedback on assignments prior to the last class meeting

Important note: The following types of writing assignments **CANNOT** be used to meet the WR: teamwork, exam essay questions, take-home exams, and informal, ungraded writing assignments.

VI. SUBMISSION AND APPROVALS

Department Contact:

Contact Name: ___ Colette St. Mary _____

Phone ___ 392-1636 _____ Email ___ stmary@ufl.edu _____

College Contact:

College Name: ___ CLAS _____

College Contact Name: _____

Phone _____ Email _____

BSC 2862: Global Change Ecology and Sustainability

Catalog Description

Examines key issues in sustainability and global environmental change from an ecological perspective. Major themes include impacts of climate change on terrestrial ecological communities; feedbacks between the terrestrial biosphere and the atmosphere; and implications of climate change for the sustainability of natural and managed ecosystems.

Credit Hours: 3

Pre-requisites: none

General Education Code: B (Biological Sciences)

General Education Purpose of the Course: Introduction to basic concepts, theories, and methods used to advance scientific knowledge in the field of ecology. We will focus on topics related to global environmental change and sustainability, but the concepts apply broadly to the biological sciences. Key concepts include formulating and testing empirically-testable hypotheses, critically evaluating statements and arguments using logical reasoning, and effectively communicating scientific information to scientists and non-scientists.

General Education Student Learning Outcomes

Students will learn to:

- Critically evaluate the effectiveness and sustainability of proposed solutions to environmental problems.
- Assess the credibility of different sources of scientific information.
- Apply logical reasoning and critical thinking to interpret and synthesize scientific data.
- Formulate empirically-testable hypotheses in the context of Ecology and Sustainability.
- Effectively communicate scientific information to a diverse audience.

Other Student Learning Outcomes

Students will learn to:

- Understand the dependence of human welfare on 'ecosystem services' provided by natural and managed ecosystems.
- Assess the long-term sustainability of human activities with respect to the continued supply of ecosystem services.
- Appreciate the complex economic and political factors that may form obstacles to implementing sustainable, science-based practices.

Instructor Information

Name: Jeremy Lichstein

Office location: Carr 317

Telephone: 352-392-1540

E-mail address: jlichstein@ufl.edu

Web site: <http://biology.ufl.edu/People/faculty/jlichstein.aspx>

Office hours: TBA or by appointment

Course Meeting Times: TBA

Course Meeting Location: TBA

Time Commitment

You are expected to spend 2 hours outside of class each week (on average) per credit hour. This is a 3 credit course, so you are expected to spend 6 hours (on average) each week outside of class on this course.

Course Website and Syllabus

Course materials and assignments will be posted on the course E-Learning (Sakai) website at <http://lss.at.ufl.edu>. You are responsible for all announcements made in class and/or posted on the course website. Details of the schedule (reading assignments, key dates, etc.) will be posted on the course website as the semester progresses.

Fees: none

Required Textbook

McConnell and Abel. 2008. *Environmental Issues: An Introduction to Sustainability*. Third edition. Pearson Prentice Hall

Additional Required Readings (free online resources)

- Intergovernmental Panel on Climate Change - Summaries for Policy Makers (free download from <http://www.ipcc.ch/>)
- Selected readings from PhysicalGeography.net <http://www.physicalgeography.net/>
- Journal articles (TBA; free download from UF electronic library resources)

Recommended Materials

We will use Top Hat Monocle (<http://www.tophatmonocle.com/>) for in-class quizzes and other activities. To use Top Hat in class, you will need a laptop computer, other Wi-Fi device (e.g., smart-phone), or a cell phone with text messaging. The usage fee is \$20 per semester or \$38 for five years. If you already paid for a Top Hat account through another course, you don't have to pay again.

In-class activities using Top Hat will account for roughly 20% of your semester grade. You may opt out of the Top Hat portion of your semester grade by instead submitting a 10-page review of a topic relevant to the course (see details below).

Outline of Course Topics

| Week | Topic |
|------|--|
| 1 | Introduction to Global Change Ecology and Sustainability |
| 2 | Human population growth, food production, and resource use |
| 3 | Population and community ecology |
| 4 | Ecosystem ecology |
| 5 | Biodiversity, invasive species, and ecosystem services |
| 6 | Introduction to climate change |
| 7 | The global carbon cycle |
| 8 | Climate change impacts, Part 1 |
| 9 | Climate change impacts, Part 2 |
| 10 | Response of plant productivity to climate change and CO ₂ |
| 11 | Feedbacks between the biosphere and the atmosphere |
| 12 | Biofuels, land use, and Reducing Emissions from Deforestation and Degradation (REDD) |
| 13 | Tradeoffs between carbon mitigation and other ecosystem services |
| 14 | Climate change policy |

Attendance Policy

Attendance is mandatory. If you are absent from class when a quiz or other activity requiring your participation occurs, you will receive a zero quiz and/or participation grade unless the absence is *excused*. An absence is considered *excused* if there is an *acceptable reason* according to UF policy (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>). Examples of acceptable reasons are medical illness, religious holidays, military obligation, and the twelve-day rule. For religious holidays, students are required to notify the instructor prior to the absence, but documentation of the religious holiday is not required. In all other cases, the following policies apply: It is your responsibility to notify the instructor of an excused absence and to provide documentation of an acceptable reason. Otherwise, the absence will be considered *unexcused* and will result in a quiz grade of zero. Whenever possible, notify the instructor by email prior to the absence. When this is not possible (e.g., due to unexpected emergency or illness), the instructor should be notified as soon as possible.

Conduct in Class

- Please be courteous. Do not talk during class unless you are participating in a classroom discussion or asking the instructor a question. Side conversations are distracting to other students and the instructor.
- You may use a laptop to take notes. You may use an audio recording device. Unapproved electronic devices include cell phones (except for the purpose of Top Hat), video recorders, digital cameras, and headphones.

Appropriate Responses

During the semester, you will submit responses to in-class questions and out-of-class online discussions. In some cases, there may be no single correct response. Nevertheless, it is important that your responses are “appropriate.” Essentially, this means taking the activity seriously, being respectful of the instructor, and (most importantly) being respectful of other students. Please be courteous. It is fine to disagree with others, but please do so in a respectful way. You will not receive credit for inappropriate responses. Furthermore, the instructor reserves the right to penalize your final semester grade if you make negative or offensive comments directed towards another individual or group of people.

Grading

You can earn a maximum of 600 points during the semester. Your final semester grade is the percent of points you earn out of 600. For example, if you earn 540 points, your semester grade is 90%. The number of possible points by category (see details below) is:

- Top Hat (or opt-out review paper): 100
- Scientific Reports: 120
- Online Discussions: 20
- Homework: 60
- Presentation (or opt-out review paper): 50
- Midterm Exam: 100
- Final Exam: 150

Grading Scale

| Point Range (%) | Letter Grade | GPA equivalent |
|-----------------|--------------|----------------|
| ≥ 90.00 | A | 4.0 |
| 86.7 – 89.9 | A– | 3.67 |
| 83.3 – 86.6 | B+ | 3.33 |
| 80.0 – 83.2 | B | 3.0 |
| 76.7 – 79.9 | B– | 2.67 |
| 73.3 – 76.6 | C+ | 2.33 |
| 70.0 – 73.2 | C | 2.0 |
| 66.7 – 69.9 | C– | 1.67 |
| 63.3 – 66.6 | D+ | 1.33 |
| 60.0 – 66.2 | D | 1.0 |
| 56.7 – 59.9 | D– | 0.67 |
| < 56.7 | E | 0 |

Note: A grade of C– is not a qualifying grade for major, minor, Gen Ed, or College Basic distribution credit. For further information on UF's Grading Policy, see:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

<http://www.isis.ufl.edu/minusgrades.html>

Top Hat

You can earn up to 100 points by submitting answers to in-class questions administered via Top Hat. It is your responsibility to bring a functioning wireless device to class to submit Top Hat answers. There will be 120 points offered during the semester. If you earn more than 100 (hooray!), only 100 will count towards your semester grade. The extra 20 points allows for some slack, so that unfortunate events (you did not understand the reading assignment, your cell phone ran out of batteries, your laptop is being repaired, etc.) need not affect your final semester grade.

Top Hat questions include unannounced in-class quizzes and 'activity questions' related to classroom discussions, upcoming exams, etc. Activity questions are worth 1 point each and are graded for participation only (i.e., you get 1 point for submitting an appropriate response, as defined above). Quiz questions are worth 2 points each: 1 point for participation, and 1 point for getting the correct answer. Any exceptions to the above grading scheme will be explicitly stated in class. Quizzes assess comprehension of course content, including reading assignments and in-class material.

Top Hat questions that are missed due to excused absence (see Attendance Policy above) will not adversely affect your grade. Questions that are missed due to unexcused absence will be assigned a zero grade. There will be no make-up questions. If you choose to opt out of the Top Hat portion of your semester grade, you must notify the instructor by the end of the third week of class. The opt-out review paper is described below.

Top Hat opt-out review paper

If you choose to not participate in the Top Hat segment of the course, you may instead submit a paper, 6000-7000 words in length (roughly 10 single-spaced pages), that reviews a topic of your choice related to Global Change Ecology and Sustainability and subject to instructor approval. As with Top Hat, you can earn up to a maximum of 100 points towards your semester grade. Papers should include at least 20 references to journal articles in the primary literature. The schedule for papers is as follows: (1) notify the instructor in person or by email that you wish to opt out of the Top Hat segment by the end of week 3; (2) submit to the instructor a proposed paper topic by the end of week 5; (3) if the proposed topic is not approved, it is your responsibility to work with the instructor to identify an approved topic by the end of week 7; (4) papers are due by the end of week 12, and will not be accepted after this deadline except under extraordinary unforeseen circumstances (e.g., medical emergencies) that must be documented. Ten percent will be deducted from your paper grade for missing each of the first three deadlines. For example, if you miss all of the first three deadlines, the highest possible paper grade is 70% (70/100 points). Papers will be graded on properly formatted citations (at least 20 appropriate references) (10%), accurate summary of information in the cited articles (25%), logical synthesis of information in the cited articles (40%), total length (excluding references) 6000-7000 words (10%), and clarity of presentation (15%). If you are not sure if your references are appropriate, you may submit your list of references to your instructor for pre-approval at least one week before the due date.

Scientific Reports

You are required to submit three reports during the semester. The first is worth 30 points, the second is worth 40 points, and the third is worth 50 points. Each report encompasses multiple stages and activities: (1) formulating an empirically testable hypothesis related to Global Change Ecology and Sustainability; (2) designing an empirical study to test the hypothesis; (3) analyzing data provided by the instructor (either real data, or pseudo-data generated by the instructor); and (4) summarizing the methods, results, and empirically-grounded conclusions in a brief report that includes both text (600-700 words, or about one single-spaced page) as well as supporting figures and/or tables. After receiving feedback from your peers and the instructor, you will have opportunities to revise your report before final submission for a grade. Additional details on the schedule and format will be discussed in class and posted on the course website.

Learning outcomes: Students will practice key skills related to the scientific process, including: formulating empirically-testable hypotheses, study design, data analysis, using critical thinking and logical reasoning to infer evidence-based conclusions, written communication of scientific information.

Grading: Formulating an empirically testable hypothesis: 10%; designing a study capable of testing the hypothesis: 20%; data analysis and results: 25%; empirically supported conclusions: 25%; clarity of presentation: 20%. Additional details on grading components and criteria will be discussed in class and posted on the course website. You will receive feedback and have opportunities to revise your reports before final submission for a grade.

Online Discussions

You can earn up to 20 points by participating in online discussions using the Discussions tool in Sakai.

- You should initiate at least two new Discussions in Sakai (5 points each; 10 points total). One of these must be initiated by the end of week 7. The discussion topic may be based on any scientific, political, or ethical issue related to Global Change Ecology and Sustainability, including current events.
- You should participate in at least five Sakai Discussions initiated by another student (2 points each; 10 points total). You will only get credit for “appropriate” responses as defined above.

Homework

There will be several homework assignments related to reading assignments and/or in-class material. Grading criteria will be announced for each assignment separately.

Presentations

Each student will give a five-minute oral slide presentation to the class at some time during the semester. If you do not want to give an oral presentation, you have the option to instead submit a written review paper of a topic related to Global Change Ecology and Sustainability. Details of the written option are given below. Everyone is strongly encouraged to give an oral presentation. You may choose any topic related to Global Change Ecology and Sustainability. Your presentation should include references to three or more scientific peer-reviewed journal articles as explained in Sakai: Resources/miscellaneous/citation_guide.pdf.

A file with your presentation slides should be emailed to the instructor by the end of week 9 (Friday at 5:00 p.m.). Presentations will be presented in class during weeks 10-15. The order of presentations will be determined by random draw. You should submit your topic (1-2 sentence description) and pdf copies of your proposed articles to your instructor by the end of week 7 (Friday at 5:00 p.m.) for approval. If the proposed topic or articles are not approved, it is your responsibility to work with your instructor to identify an approved topic and approved articles by the end of week 8.

Learning outcomes: Students will practice the following skills: critical thinking and logical reasoning; synthesizing multiple sources of scientific information; oral communication of scientific information.

Grading: Your presentation grade will be based on the following: topic, citations, and abstracts approved by end of week 8 (25%); content, including scientific accuracy, of presentation (50%); clarity and format, including proper citation of sources (25%). The format for citations is explained in Sakai: Resources/miscellaneous/citation_guide.pdf. Presentations should be targeted at educated but non-specialized audiences (e.g., school teachers or members of congress). A clear presentation explains individual ideas or results clearly and with minimal jargon; presents information in a logical order; and follows guidelines on font sizes, axis labels, etc. as explained in Sakai: Resources/miscellaneous/presentation_guide.pdf. The presentation_guide.pdf includes important information on your presentations. Following this guide will improve your grade.

Written option: Students who wish to opt out of the oral presentation may instead submit a paper, 300-3500 words in length (roughly five single-spaced pages), that reviews a topic of your choice related to Global Change Ecology and Sustainability. Papers should include at least ten references to journal articles in the primary literature. The assignment, timeline, grading criteria, etc. are identical to the Top Hat opt-out paper described above. The only difference is that the presentation opt-out paper is shorter.

Exams

The final exam will be administered in the regular meeting location on the date/time assigned by the university. There will also be an in-class mid-term exam. Exams cover all material discussed in class and all reading assignments. It is your responsibility to ask questions (either during class or at office hours) if you do not understand lecture or reading materials. The final exam is cumulative. Exams will be multiple-choice and will be administered in class. Exams will emphasize comprehension rather than facts and memorization. Hypothetical exam questions will be presented in class throughout the semester so you will know what to expect on the mid-term and final exams. Make-up exams will only be given by pre-arrangement (before the exam) or under extraordinary unforeseen circumstances (e.g., medical emergencies) that must be documented. See Make-Up Exam Policy below for more details.

Make-up Exam Policy

Essay exams will be administered place of in-class multiple choice exams that are missed due to unavoidable schedule conflicts or extraordinary unforeseen circumstances (e.g., medical emergencies).

- Schedule conflict: If you cannot take the in-class exam due to an unavoidable schedule conflict, you should notify your instructor at least two weeks prior to the in-class exam, or as soon as possible. Essay exams due to schedule conflicts must be taken before the in-class exam, not after.
- Unforeseen circumstances: If you miss an in-class exam due to extraordinary unforeseen circumstances (e.g., medical emergencies), you must notify your instructor as soon as possible, and you must provide documentation of the circumstances that prevented you from taking the exam. Essay exams due to unforeseen circumstances will be scheduled as soon as possible after the in-class exam.

UF Counseling Services

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
- Career Resource Center, Reitz Union, 392-1601, career and job search services.

Many students experience test anxiety and other stress related problems. “A Self Help Guide for Students” is available through the Counseling Center (301 Peabody Hall, 392-1575) and at their web site: <http://www.counsel.ufl.edu/>.

Honesty Policy

- All students registered at the University of Florida have agreed to comply with the following statement: “I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.”
- In addition, on all work submitted for credit the following pledge is either required or implied: “*On my honor I have neither given nor received unauthorized aid in doing this assignment.*”
- If you witness any instances of academic dishonesty in this class, please notify the instructor or contact the Student Honor Court (392-1631) or Cheating Hotline (392-6999). For additional information on Academic Honesty, please refer to the University of Florida Academic Honesty Guidelines at: <http://www.dso.ufl.edu/sccr/honorcode.php>.

Accommodation for Students with Disabilities

- Students who will require a classroom accommodation for a disability must contact the Dean of Students Office of Disability Resources, in Peabody 202 (phone: 352-392-1261). Please see the University of Florida Disability Resources website for more information at: <http://www.ufl.edu/disability/>.
- It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed. Once notification is complete, the Dean of Students Office of Disability Resources will work with the instructor to accommodate the student.

Software Use

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.