BSC 4861L

Systems Sustainability: Socially & economically viable environmental protection

Fall 2014

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Office Hrs:	Wednesday, 11:30am-12:30pm at the Arboretum, and by appointment
Instructor Names and Contact Information	Alaina Bernard Alaina.Bernard@ucf.edu 407-823-3146 (office) Facilities and Safety (Behind Police) Jennifer Elliott Jennifer.Elliott@ucf.edu 407-823-4702 (office) Arboretum (Trailer 525)

Syllabus subject to change

Course Description

Sustainability has been defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs (United Nations, 1987), or "meeting human needs without compromising the health of ecosystems" (Callicott and Mumford, 1997). We will explore eco-system sustainability by breaking it into its essential, but inseparable, components of human interactions (people), economic impacts (profit), and ecology (planet). This interdisciplinary approach will allow students to discover the barriers, successes, and ethical dilemmas associated with ecological sustainability.

The purpose of the course is to teach students how to answer eco-system sustainability questions, and how to properly communicate scientific information. Students will be asked to explore the topic of eco-system sustainability in class, design and conduct a science based project (approved by the instructor), and publically communicate the results at the end of the semester.

Projects

Students will spend a minimum of 35 hours throughout the semester, no less than 5 hours/week, on their assigned project (unless specified in course schedule below). Students will spend time reflecting on their learning experiences through class conversations, reflective writings, and class presentations (poster and oral). Student projects will address the three components of sustainability: human interactions (people), economic impacts (profit), and ecology (planet). Students will develop their own project questions and scientific methods to answer these questions, conduct projects, and communicate the results publically through a judged poster presentation. All projects must be approved by the instructors, completed within a six-week period, conducted on campus or with approved partners, provide a service to the community, and focus on eco-system sustainability.

Obstacles may arise throughout the semester and the student is expected to communicate issues to the instructors immediately for resolution. If any student has a valid objection to a proposed project or group placement, he or she must let the instructor know BEFORE proposals are written and projects begin.

Service:

Projects will provide a service to the Department of Landscape & Natural Resources and the Arboretum by addressing questions that can change the environmental culture on campus. Each group must do a community outreach activity to complete the service requirement. These activities can include presenting at a library, school, or other public forum, or hosting a volunteer event.

Course Requirements:

This course requires both in-class and out-of-class research time. The research activities will address a local need, support our course objectives, involve a connection between the individual and the world, and challenge students to be engaged as citizens. The course will include written papers, presentations, and posters. Motivated students who are willing to learn new things, and complete projects within the proposed timeframe, are encouraged to enroll in this course. Professional, adult behavior is expected at all times.

Course Objectives:

- Develop an understanding of ecological sustainability including human interactions (people), economic impacts (profit), and ecology (planet).
- Explore the concept of scale, and how urban ecosystems are connected to natural ecosystems.
- Use the scientific method to answer real-world questions.
- Communicate scientific results through ~~oral~~ and poster presentations.
- Enhance group communication skills, and personally reflect on strengths and areas of improvement.

Project Objectives and Requirements:

- Must be accomplished in 6 weeks.
- Instructors will present project options, and students will identify their prioritized choice of project. The instructors will then create groups guided by the student's selections.
- Each group will create a hypothesis and tentative testing method, which will be presented to the class for feedback. The final hypothesis and method will be captured in a formal proposal describing the project concept, the scientific methods to be used and anticipated results.
- Each group will conduct the experiment, and write a final paper documenting the project concept (introduction), methods, results (data), and discussion (what does the data mean).
- A poster presentation will be made by each group communicating the project question, methods, and final results. This will be judged by professional scientist and biologist.

Required Reading Materials:

- Knisely, K. 2013. A Student Handbook for Writing in Biology, Fourth Edition.
  Massachusetts: Sinauer Associates, Inc. 235p.
- Peer-reviewed journal articles will be assigned in class throughout the semester

Evaluation Procedures

Grade Category: Class Discussions and Readings
Description of Requirements: Students will be asked to read peer-review literature, and an assigned text book on how to write in Biology. Students will need to read the assigned literature prior to class, as they will be asked to discuss their ideas and understandings of these readings.
Total: 10 points

Grade Category: Project Proposal
Description of Requirements: Students will be asked to create an achievable project proposal that will focus on their assigned group project. The approved topics will be explored and students will be expected to write a scientific proposal that will include an introduction (including how it pertains to eco-system sustainability), methods to be used to accomplish the project, and anticipated results. Properly cited literature using APA style (style used in peer-reviewed journals) must be used. Guidelines for the proposal will be passed out in class.
Total: 15 points

Grade Category: Project Reflections
Description of Requirements: Weekly reflections will be completed to evaluate the student's understanding of course material and how it applies to project experiences. Forms will be filled out digitally and emailed to the instructors prior to the beginning of class each Friday during projects. These forms will be made available in class or through email.
Reflections must be submitted online using webcourses
Total: 6 points

Grade Category: Implementation of Projects
Description of Requirements: Students will spend a minimum of five-hours a week for six-weeks conducting an approved project. Points will be earned by participating in group project activities and meeting the above requirements.
Total: 18 points

Grade Category: Service Activity
Description of Requirements: Students will host a service activity to share knowledge gained with the community. These activities can include presenting at a library, school, or other public forum, or hosting a volunteer event.
Total: 6 points

~~**Grade Category:** Oral Presentations~~
~~**Description of Requirements:** Students will give a 40-minute final public presentation highlighting their question, project methods, results and discussion.~~
~~**Total:** 12 points~~

Grade Category: Poster Presentations
Description of Requirements: Students will create a poster presentation (scientific presentation style) highlighting their question, project methods, results and discussion.
Total: 10 points

Grade Category: Final Paper
Description of Requirements: Students will be expected to turn in a final paper outlining eco-system sustainability (how their project fits into this theme), the main goals of the project, methods used to complete the project, results, and a discussion.
Total: 20 points

Grade Category: Mid-term Exam
Description of Requirements: Students will complete a mid-semester essay examination on material presented in class and on assigned readings.
Total: 15 points

Grading Scale: A (100-95), A- (94-90), B+ (89-85), B (84-80), C+ (79-75), C (74-70), D (69-60), F (59-0)

Technology Requirements:

Technology	Expectations for Use
E-mail:	Use of email is permitted to schedule appointments with the instructor, to ask questions, turn in assignments, or to notify instructor of your absence. Grades will not be provided over email. Communication with classmates via email will be done at the student's discretion.
WebCT:	WebCT will be used for this class
Computer Software	Students must use Microsoft Word, Excel, and Power Point

Additional Policies

Grading and evaluation	Grades will be calculated according to the above evaluation procedures. **If** grades are distributed in class, and the student is absent on that day(s), an appointment must be made to get the grade from the instructor. Grades will not be given over the phone, or via email.
Attendance and	Attendance will be kept. If students can not attend class, it is their responsibility

participation	to get the notes/resources to understand the key components of what was missed in the lecture. 10% of the course grade comes from attendance for the service-learning project and participation in class conversations/activities. For every unexcused absence or tardy, 3% of the grade will be removed from this score, not to exceed 10% of the overall grade. If students have to be absent, rescheduling their time would not result in the removal of points from the attendance score, as long as this is communicated BEFORE the student's scheduled time with the participating partner. In the event of a schedule absence, it is best to communicate with the instructor as soon as possible to make necessary arrangements.
Late and make-up	Unless excused, work turned in late will lose 25% of the grade per day. Make-up work will not be accepted. Exam(s) will not be offered at any other time besides the specified date on this syllabus. Failure to take exam(s) will result in 0 points issued.
Academic integrity	Integrity, scholarship, community, creativity, and excellence are the core values that guide our conduct, performance, and decisions. As reflected in the UCF creed, integrity and scholarship are core values that should guide our actions and decisions as members of the UCF community. Plagiarism and cheating contradict these values, and are very serious academic offenses. Penalties can include a failing grade in an assignment or in the course, or suspension or expulsion from the university. Students are expected to familiarize themselves with and to follow the University's Rules of Conduct.
Accommodations for the differently-abled (alternate testing opportunities, support for signers, etc.)	The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students with disabilities who need accommodations in this course must contact the instructors at the beginning of the semester to discuss needed accommodations. No accommodations will be provided until the student has met with the instructors to request the necessary accommodations. Students who need accommodations should register with Student Disability Services before requesting accommodations from the professors. *Student Disability Services* Ferrell Commons 7F, Room 185, phone (407) 823-2371. TTY/TDD please phone (407) 823-2116

Course Schedule, Critical Themes & Goals (subject to change)**:**

Class Introduction	
Monday 8/18	• Review Syllabus
Wednesday 8/20	• Lecture: Eco-system Sustainability
Thursday 8/21 *Friday 8/22*	*Drop/Swap Deadline* *Add Deadline*
Friday 8/22	• Lecture: How to Find Peer Reviewed Papers (reference book) • Lecture: How to Cite Right (reference book) • Review Projects • Exercise: Find one paper on "urban ecology" and produce an example of a literature citation (emailed or handed in to instructors prior to Monday 8/25 class)
Monday 8/25	• Lecture: Urban Ecology • Paper Discussion (Farber, S. et al. & Alberti, M. et al.) • Turn in project selections
Wednesday 8/27	• Lecture: How to Write Science and Conduct Experiments (reference book) • Assign Groups • Exercise: Complete "MyPlan" http://ucf.myplan.com/ Create Free Account; license # **XDW8MCGN**; Take Personality Test under Assessment
Friday 8/29	• Guest Lecture: Personality Types
Monday 9/1	• **No Class – Labor Day**
Wednesday 9/3	• Urban Ecology Paper Discussion (Callicott, J. and Mumford, K. & Ramalho, C. and Hobbs, R.)

Friday 9/5	• Lecture: The Importance of Scale and Patterns of Connectivity • Paper Discussion (Barabasi, A. and Bonabeau, E. & Douglas, I.)
Monday 9/8	• Lecture: Developing questions, hypothesis, methods and thinking of results
Wednesday 9/10	• Work in groups on proposal
Friday 9/12	• Work in groups on proposal
Monday 9/15	• Mid-term evaluation
Wednesday 9/17	• Proposal presentations – Groups 1-2 share hypothesis and scientific design. Two – three slides and 10 minute presentation for each group with 10 minutes for discussion
Friday 9/19	• Proposal presentations – Groups 3-4 share hypothesis and scientific design. Two – three slides and 10 minute presentation for each group with 10 minutes for discussion
Monday 9/22	• Proposals due
Wednesday 9/24	• Feedback on proposals and overview of project expectations
Friday 9/26	• *Work on Project*
Monday 9/29	• *Work on Project*
Wednesday 10/1	• *Work on Project*
Friday 10/3	• 1. Meet in class – turn in reflections; Discussion on Problems and Solutions
Monday 10/6	• *Work on Project*
Wednesday 10/8	• *Work on Project*
Friday 10/10	• 2. Meet in class – turn in reflections; Discussion on Problems and Solutions
Monday 10/13	• *Work on Project*
Wednesday, 10/15	• *Work on Project*
Friday, 10/17	• 3. Meet in class – turn in reflections; Discussion on Problems and Solutions
Monday 10/20	• *Work on Project*
Wednesday 10/22	• *Work on Project*
Friday 10/24	• 4. Meet in class – turn in reflections; Discussion on Problems and Solutions
Monday 10/27	• *Work on Project*
Wednesday 10/29	• *Work on Project*
Friday 10/31	• 5. Meet in class – turn in reflections; Discussion on Problems and Solutions
Monday 11/3	• *Work on Project*
Wednesday 11/5	• *Work on Project*
Friday, 11/7	• 6. Meet in class – turn in reflections; Discussion on Problems and Solutions
Monday 11/10	• *Work on Project*
Wednesday, 11/12	• *Work on Project*
Friday, 11/14	• 7. Meet in class – Discussion on Problems and Solutions
Monday 11/17	• Expectations for posters and final papers
Wednesday 11/19	• In Class: Work on Paper/Poster
Friday 11/21	• In Class: Work on Paper/Poster
Monday 11/24	• Poster Due – bring digital copy to class for review Presentations
Wednesday 11/26	• No class
(Th-F 11/27- 11/29)	• No class - Thanksgiving Break
12/3 – 12/9	• Final Papers Due • Poster Presentations (judged by professionals)