**EVS 4021 Critical Thinking in Environmental Science, Fall 2014**

Florida Atlantic University, Boca Raton

 Undergraduate Environmental Sciences Program

**Instructor:** Dianne Owen, PhD  **Course:** EVS 4021

**Office Hours:** WR 11:30-1:30 **CRN# Email:** dowen@fau.edu **Time:** F10:00AM-12:50PM

**Telephone:** 561-297-0873 **Location:**

 **Pre-requisites:** EVR 2017 or PCB 3352 **Credits:** 3

**Course Description:**

An exploration of contemporary and emerging societal issues in environmental science, with an emphasis on seeking practical solutions to complex problems through reading, discussion, written critical analysis, and practical research.

**Course Objectives:**

Students will analyze, discuss, and seek solutions to contemporary issues in environmental science within a framework that emphasizes the interaction of social systems and ecosystems. The course is organized around fundamental concepts in environmental science:

 1) Ecosystem Function

2) Environmental Resources

3) Environmental Ethics

4) Conservation and Restoration

5) Ecological Economics

 6) Public Policy

This course is the required capstone for the Environmental Sciences Certificate and is suitable for other advanced undergraduates with an interest in environmental science who meet the course prerequisite requirements. As part of this course, students may fulfill the required research component and earn Academic Service-Learning credit by participating in Community-Based Research with a partner agency.

**Prerequisites:**

 EVR 2017 or PCB 3352 or permission of instructor.

**Textbook**

*No textbook is required for this course. Articles from scholarly journals and mainstream publications are assigned weekly. These assigned materials are available to students online free of charge. Links to assigned materials are posted on Blackboard two weeks in advance.*

**Evaluation**

Your grade will be determined by the total points obtained on:

 Three opinion essays (20 pts each, 60 pts total);

 Class participation, including three short topical summaries (30 pts total);

 Independent Research Project (60 pts total);

 Midterm exam (20 pts) and Final Exam (30 pts).

The following scale will be used to determine your letter grade:

 93-100% (186-200pts) = A 73-76.5 (146-153pts) = C

 90-92.5% (180-185pts) = A- 70-72.5 (140-145pts) = C-

 87-89.5% (174-179pts) = B+ 67-69.5 (134-139pts) = D+

 83-86.5% (166-173pts) = B 63-66.5 (126-133pts) = D

 80-82.5% (160-165pts) = B- 60-62.5 (120-125pts) = D-

 77-79.5% (154-159pts) = C+ Below 60% (<120pts) = F

*Academic Code*Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. For more information on FAU’s academic code, see http://www.fau.edu/ctl/4.001\_Code\_of\_Academic\_Integrity.pdf

*Disability policy* In compliance with the Americans with Disabilities Act (ADA), students who require special accommodation due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) -- in Boca Raton, SU 133 (561-297-3880); in Davie, MOD 1 (954-236-1222); in Jupiter, SR 117 (561-799-8585); or at the Treasure Coast, CO 128 (772-873-3305) – and follow all OSD procedures.

  *Late Work* If work is late due to university-approved activities, the work may be submitted within a reasonable period after the due date without penalty (documentation is required). A grade of Incomplete “I” is reserved for students who are passing the course but have not completed all of the required work because of exceptional circumstances.

 *Attendance and Safety* Students are expected to attend all research work sessions in which they agree to participate. The instructor must be notified at least 24 hours in advance if they are unable to attend. In the case of a last-minute emergency, a text message should be sent to 954-592-4280. Failure to notify the instructor of an absence in advance may result in a grade penalty. Students doing field research must follow all safety instructions posted in the content area of Blackboard.

*Religious Accommodations:* Students who wish to be excused from coursework, class activities or examinations must notify the instructor in advance of their intention to participate in religious observation and request an excused absence.

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  *Make-up Examss/In-Class Assignments and Late Work* A make-up exam will be scheduled if a student misses an exam for university-approved reasons (documentation is required). If a student misses an exam for any other reason, a make-up exam will be given only at the discretion of the instructor and an automatic 10% (ten percent) penalty may be imposed. If work other than an exam is late due to university-approved activities, the work may be submitted within a reasonable period after the due date without penalty (documentation is required). Students who miss class for a reason that is not university-approved will lose participation points for the missed classes. More than four absences may result in a failing grade. A grade of Incomplete “I” is reserved for students who are passing the course but have not completed all of the required work because of exceptional circumstances.

 *Attendance and Classroom Etiquette* Attendance is required; points for participation in class discussions can only be earned by students who attend class. If you miss a class you are responsible for getting notes, including announcements made in class, from a classmate. Disruptive, uncivil or threatening behavior toward an instructor or classmates will not be tolerated.

**COMPONENTS OF YOUR GRADE**

**MIDTERM AND FINAL EXAMS: 50 POINTS**

There will be a midterm exam, 20 points, and a cumulative final exam, 30 points. The exams may include multiple choice, matching, true-false and essay questions. These exams will cover material from assigned reading or videos, class discussions, and topical presentations.

**THREE OPINION ESSAYS: 60 POINTS TOTAL**

Three opinion essays (600-800 words, 20 points each) based on an assigned reading or video or on an issue discussed during class. Essays will present a reasoned, scientifically sound argument that supports the author’s position on a controversial issue in environmental science. References must be in a standard, consistent, APA format, with at least four references from peer-reviewed scholarly journals. Essay issues will be assigned by the instructor and will be evaluated according to the rubric posted on Blackboard.

**CLASS PARTICIPATION: 30 POINTS TOTAL**

A total of 15 points will be earned by attendance and participation in class discussions. Except for university-approved reasons, 2 points will be automatically deducted for each absence. Points will also deducted be for repeatedly arriving late or leaving early. In addition, each student will present three ***short*** talks (there will be a penalty for exceeding 10 minutes) that summarize topical or emerging issues and identify the causes and sources of controversy surrounding the issues. Following their talk, the student will lead a class discussion on the issue (5 points each).

**INDEPENDENT RESEARCH PROJECT: 60 POINTS TOTAL**

*During the first two weeks of class, each student will develop a project proposal in response to a “Request for Proposal” posted on Blackboard.* In accordance with the details of the RFP, the proposal will present the research question or hypothesis, explain the value of the research, summarize relevant current knowledge in the field of research, outline an approach and methods, list equipment and supplies needed, and propose a timeline for completion of project tasks. Students who do research projects with community partners may receive AS-L credit for their work.

1) Research Project Proposal, due the 4th of class, including a timeline of tasks to be completed (15 points).

2) Research Progress Report, due the 8th week of class (15 points) Students working on ASL projects must also submit a journal entry during the 6th, 8th and 10th weeks of class.

3) Research Summary Report, due the 12th week of class (20 points). Content of this report will vary by project, and may include: a literature review, hypotheses and proposed methods; results and analyses; conclusions and implications; suggestions for further research; evaluation of the value of the research to the community.

4) Research Poster, due the 14th week of class (10 points). A poster of each student’s research project that presents Research Summary Report in visual format. Each poster will be evaluated by faculty and graduate students in the Environmental Sciences program according to the rubric posted on Blackboard. Students working on ASL projects must also post a Summary Journal during the 12th week of class to receive ASL credit.

**A S-L Community Based Research Projects**

*Other projects may be approved by instructor.*

***1) Invasive Species Management at Pine Jog Environmental Education Center***

Students will participate in monitoring, control and management of invasive plant species in natural areas of the Pine Jog Environmental Education Center

***2) Gopher Tortoise Survey of Natural Areas***

Students will receive training from Broward County scientists and conduct surveys of gopher tortoises and their habitat in Broward County’s natural area.

***3) Jonathan Dickinson State Park Habitat Monitoring and Species Monitoring***

Projects include monitoring of Cuban Tree Frog populations or Red-cockaded Woodpecker habitat in collaboration with park biologists.

***3)*** ***FAU Ecological Preserve: Ant Community Ecology***

Identification and mapping of native and non-native ant populations and their habitats at the FAU Preserve, in cooperation with FAU faculty and staff.

**ACADEMIC SERVICE-LEARNING:**

Due to the nature of the course content, this course is designated as an **“academic service-learning”** course. The service you provide to the agency/organization during your academic service-learning experience benefits the community and will allow you to apply knowledge from the course to local, national, and/or global social issues. Throughout this course you will be participating in academic service-learning activities while demonstrating civic engagement at campus, local, national, and/or global community levels. You will also reflect on your academic service-learning experience and the impact on the community as well as your professional development.

To receive academic service-learning notation of hours on your transcript, your hours must be logged electronically through NobleHour, [www.noblehour.org](http://www.noblehour.org), while completing your academic service-learning project. Also, pre-assessment and post-assessment surveys through Noble Hour are required to be taken by academic service-learning students. Please visit the Weppner Center for Civic Engagement & Service website, [www.fau.edu/volunteer](http://www.fau.edu/volunteer), for instructions on how to log hours through NobleHour and the links for the surveys. Once your hours have been approved and both surveys have been completed, you will receive an academic service-learning notation on your transcript.

**To receive A S-L credit, students must complete a minimum of 10 hours of work on a Service Project.** Students’ work on these A S-L projects will enhance academic learning while providing a relevant and meaningful contribution to the community through purposeful civic engagement. Class discussions will include critical reflection on how student work on the A S-L project is linked to course learning objectives, how it benefitted the community, and how the student developed personally and professionally.

**Assessment of A S-L Projects**

Each student will submit 1) three journal entries during the 6th through 10th week of class that describe their progress on the project; 2) a summary journal entry during the 14th week of class that reflects critically on what was accomplished during the semester; 3) a Powerpoint presentation or poster that describes the objectives, methods, results and conclusions of their research project.

**Semester Schedule, Fall 2014**

**DATE TOPIC ASSIGNMENT**

Aug 22 Introduction and Organization *Video Lecture*

 Worldviews and Environmental Ethics

Aug 29- Ecological Economics *Jax et al., 2013*

Sep 5 Biogeochemistry; The Anthropocene Age S*teffen et al. 2011*

Sep 12 Feedback Systems and Climate Change *IPCC, 2013*

 *England et al. 2014*

Sep 19 Energy Resources *Heitzig et al. 2011 Nash 2011*

Sep 26 Populations and Demographic Transitions *Alcott, 2012*

 *Daumerie et al, 2010*

Oct 3 Biodiversity: Biogeography, *Jeschke et al 2013*

 Habitat Destruction, and Invasive Species *Hanski 2011*

Oct 10 Florida Ecosystems *NRC 2008.*

Oct 17 Wetland and Water Resources *Engle 2011*

Oct 24 Soil Resources and Agriculture *Foley et al. 2011*

Oct 31 Marine and Coastal Resources, *Hilborn & Branch, 2013*

[Nov 7 Pollution Prevention and Remediation](http://www.fau.edu/freshmanadvising/present_curriculum_sheets.php) *[Sodhi and Erlich 2010](http://www.fau.edu/freshmanadvising/present_curriculum_sheets.php)*

Nov 14 Conservation and Restoration *Sodhi and Erlich 2010*

Nov 21 Student Presentations

*ESSAY DUE DATES: Due dates for essays are Sep 19, Oct 17, Nov 14.*

*RESEARCH PROJECT DUE DATES: Proposal – Sep 12; Progress Report –Oct 12; Research Summary – Nov 14; Research Presentation –Nov 21.*

*FINAL EXAM: The Final Exam will be Monday, Dec 8, from 7:45AM to 10:15AM.*

*WEEKLY ASSIGNMENTS: Full references or links to reading assignments are posted in the Information folder for each week on Blackboard. Weekly assignments may change!!!!. Changes will be announced in class and posted in the Information folder at least ONE WEEK IN ADVANCE Students are responsible for checking Blackboard weekly.*

*Bibliography*

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Engle, V. D. (2011). Estimating the Provision of Ecosystem Services by Gulf of Mexico Coastal Wetlands. *Wetlands*, *31*, 179–193. doi:10.1007/s13157-010-0132-9

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