**EVR 1001 Environmental Science and Sustainability**

**Instructor:** Colin Polsky

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**Office Hours:**

**Course Title**: EVR 1001 Sustainability and Environmental Science

**Term:** Fall 2015

**Credit hours:** 3

**Course Prerequisites:** None

**Course website:** This course will utilize Blackboard (http://bb.fau.edu) for material and information dissemination, and grade posting.

**Text:** Environment: The Science Behind the Stories, 5th edition. Withgott, Jay, Barbara W. Murck, and Scott R. Brennan, 2013, Pearson

**Course description:** Introduction to the foundations of environmental science, with a focus on global environmental change. The human impact on the environment as it relates to economy, health, and ethics will be explored. There will be an emphasis on climate change, ecosystem disruption, and solutions.

**Course objectives:** By the end of the course, students should be able to

1. Evaluate the physical science aspects of global environmental change, related to chemistry and geology
2. Differentiate various ecosystems, species interactions ,and components of biogeography
3. Assess landscapes via measurement tools in remote sensing and GIS
4. Interpret complex interactions between human-environmental systems
5. Apply concepts such as global environmental change and sustainability science to policy and communication issues related to natural resources.

**Tentative Schedule:** The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

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| **Week** | **Topics/Subtopics** |
| 1. | Sustainability Science: An Introduction to Environmental Science  • Ecosystem services and resource consumption  • Landscapes/processes |
| 2. | Global Climate Change  • Climate change causes & feedback loops  • Sea level rise vulnerability and local impacts |
| 3. | Atmospheric Science, Air Quality, and Pollution Control  • Conventional and renewable energy alternatives  • Extreme weather and storm surge |
| 4. | Ethics, Economics, and Sustainable Development  • Who and what is at risk with global changes?  • What is the cost/benefit for adaptation/mitigation? |
| 5. | Evolution, Biodiversity, and Species Interactions  • Evolution vs human induced rates of environmental change  • South Florida wildlife conservation efforts |
| 6. | Environmental Systems and Ecosystem Ecology  • Ecosystem regimes and habitat disruption  • South Florida ecosystems: past changes and what to expect |
| 7. | Marine and Coastal Systems and Resources  • Coastal resilience with a changing shoreline  • Ocean acidification and coral bleaching |
| 8. | MIDTERM |
| 9. | The Urban Environment: Creating Sustainable Cities  • Human population growth/carrying capacity  • Creating opportunities to limit socioeconomic disparity |
| 10. | Forest Management and Protected Areas  • Adaptive management  • Florida Everglades, mangroves, pine scrub |
| 11. | Freshwater Systems and Resources  • Water supply and water quality  • South Florida’s coastal aquifers: storage and drainage |
| 12. | Freshwater Systems and Resources  • CERP and Everglades restoration  • Cultural practices and outdoor water use |
| 13. | Environmental Policy: Making Decisions and Solving Problems  • International, federal, and state agencies  • South Florida’s regional, county, and municipal actions |
| 14. | Sustainable Solutions  • Balancing environmental and economic sustainability |
| 15. | Sustainable Solutions  • Adaptation: protect, retrofit, land-use changes |

**Attendance Policy:** It is important for students to attend all lectures. You must attend the lectures to be prepared for weekly quizzes.

**Course Evaluation Method:** There will be 13 weekly quizzes given during the semester, counting for 40% of your final grade. A mid term will account for 30% of the final grade, and a final will account for 30% of the final grade. Quizzes and exams will be composed of a combination of formats, including, but not limited to, multiple choice, matching, true-false, and diagram interpretation, essays and short answer questions.

Each of the quizzes will be available Friday after lecture and expire the following Monday at 9AM. Please check blackboard for any changes in online quizzes. These quizzes will be available under “Assignments” on Blackboard and will be based on, but not limited to, materials covered in lectures, presented over the week as well as textbook readings assigned for the week. They will not be cumulative. It is imperative that you use a high speed internet access so you don't get locked out of the quiz, and it is your responsibility to make sure that your browser is compatible with Blackboard. We recommend that you use the on-campus computer services to do the quizzes (library, university center, etc). If you do get locked out of your first attempt at the quiz, log out of Blackboard and back in, and you will still be able to perform your second attempt. If for some reason you get locked out of the quiz and are unable to take it, an email should be sent to the instructor NO LATER THAN 9:00 AM, the time/day that the quiz expires.)

**Course grading scale:**

**Cumulative Performance Grade**

>94% A

>90% - 94% A-

>87% - 90% B+

>83% - 87% B

>80% - 83% B-

>75% - 80% C+

>65% - 75% C

>60% - 65% C-

>57% - 60% D+

>53% - 57% D

>50% - 53% D-

<50% F

Grades will neither be curved nor rounded for this course. Extra credit is not accepted in this course.

**Policy on make-up quizzes:** Make-up quizzes will only be given for a verifiable excuse with documentation. Lack of documentation will result in a zero. Make-up quizzes will be scheduled at the instructor’s discretion and may not be of the same format.

**Classroom etiquette policy:** University policy on the use of electronic devices states: “In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.”

**Disability policy statement:** In compliance with the Americans with Disabilities Act (ADA), students who requirespecial accommodation due to a disability to properly execute coursework mustregister 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.

**Academic Integrity policy statement:** Students at Florida Atlantic University are expected to maintain the highest ethicalstandards. Academic dishonesty, including cheating and plagiarism, is considered aserious breach of these ethical standards, because it interferes with the Universitymission to provide a high quality education in which no student enjoys an unfairadvantage over any other. Academic dishonesty is also destructive of the Universitycommunity, which is grounded in a system of mutual trust and places high value onpersonal integrity and individual responsibility. Harsh penalties are associated withacademic dishonesty.

**For more information,** see the Code of Academic Integrity in the University Regulations at <http://www.fau.edu/ctl/4.001_Code_of_Academic_Integrity.pdf>

**Reading Assignments:**

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| **Topic** | **Book pages/external resources** | **Other assignments** |
| Sustainability Science | 2-20 | Current Events: [Both Coasts Watch Closely as San Francisco Faces Erosion](http://www.nytimes.com/2012/03/25/science/earth/san-francisco-fights-erosion-as-coastal-cities-watch-closely.html) http://media.pearsoncmg.com/bc/bc_0global/img/external.png |
| Global Climate Change | 482-517 | Addressing Climate Skeptics' Claims  http://www.ces.fau.edu/nasa/module-7/ |
| Atmospheric Science, Air Quality, and Pollution Control | 448-481 | Current Events:  [Activists Crack China's Wall of Denial About Air Pollution](http://www.nytimes.com/2012/01/28/world/asia/internet-criticism-pushes-china-to-act-on-air-pollution.html) http://media.pearsoncmg.com/bc/bc_0global/img/external.png  GraphIt: [Monitoring Major Air Pollutants](javascript://) |
| Ethics, Economics, and Sustainable Development | 132-160 | CBRA Report: Rising Tides, Increasing Risk: How the Insurance Industry's Response to Global Climate Change Could Impact Commercial Real Estate Investors |
| Evolution, Biodiversity, and Species Interactions | 47-53; 62-73 | [INVESTIGATION: Weather Extremes](http://www.ces.fau.edu/nasa/module-1/weather-climate/exploration-2.php)  Part B: Recent Extreme Weather Events – connect to changes in Biodiversity |
| Environmental Systems and Ecosystem Ecology | 104-131 | Animation: [The Carbon Cycle](javascript:;) Animation: [The Nitrogen Cycle](javascript:;) Animation: [Earth's Water and the Hydrologic Cycle](javascript:;) BioFlix: [Carbon Cycle](javascript:;)  Current Events: [Florida Struggles to Overcome Threats to Freshwater Springs](http://www.nytimes.com/2012/06/23/us/florida-worries-as-growth-threatens-its-freshwater-springs.html) http://media.pearsoncmg.com/bc/bc_0global/img/external.png |
| Marine and Coastal Systems and Resources | 419-447 | GraphIt: [Global Fisheries and Overfishing](javascript://)  Current Events: [In South Florida, a Polluted Bubble Ready to Burst](http://www.nytimes.com/2013/09/09/us/lake-okeechobee-in-florida-a-polluted-bubble-ready-to-burst.html) http://media.pearsoncmg.com/bc/bc_0global/img/external.png |
| Environmental Health and Toxicology | 358-369 | GraphIt: [Dose-Response Curves](javascript://) |
| The Urban Environment: Creating Sustainable Cities | 335-346 | Current Events: [As Coasts Rebuild and U.S. Pays, Repeatedly, the Critics Ask Why](http://www.nytimes.com/2012/11/19/science/earth/as-coasts-rebuild-and-us-pays-again-critics-stop-to-ask-why.html) http://media.pearsoncmg.com/bc/bc_0global/img/external.png |
| Forest Management and Protected Areas | 305-318;325-332 | GraphIt: [Forestation Change](javascript://) Activity: [Madagascar and the Biodiversity Crisis](javascript://)  Current Events: [2,500 Pigs Join Debate Over Farms vs. Scenery](http://www.nytimes.com/2013/12/28/us/2500-pigs-join-debate-over-farms-vs-scenery.html) http://media.pearsoncmg.com/bc/bc_0global/img/external.png |
| Freshwater Systems and Resources | 388-394; 405-418 | * ABC News Video: [Ocean Acidification](javascript://) * Current Events: [Wells Dry, Fertile Plains Turn to Dust](http://www.nytimes.com/2013/05/20/us/high-plains-aquifer-dwindles-hurting-farmers.html?hp) http://media.pearsoncmg.com/bc/bc_0global/img/external.png   60 minutes interview on groundwater depletion monitoring by GRACE |
| Environmental Policy: Making Decisions and Solving Problems | 161-186 | Adaptation Action Areas Policy options report |
| Sustainable Solutions | 670-673 | P 673 activity: Calculating Ecological Footprint |