

Florida A & M University School of Environment
EVR 1001- 002 FUNDAMENTALS OF ENVIRONMENTAL SCIENCE
1:25PM – 2:15PM MWF FSH SCIENCE RESEARCH CENTER RM-116
January 6, 2016 – April 22, 2016

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Office Hours: T-W-TH — 10:00am-11:00am; and by appointment

MISSION STATEMENT

The School of the Environment (SOE) strives to produce students uniquely prepared to address present and future environmental science concerns. SOE fosters the development of students by emphasizing rigorous academic course work; student involvement in faculty research; and student involvement in collaborative research efforts with other universities, community/junior colleges, national laboratories, regulatory agencies, corporate environmental contractors, utilities, and municipalities.

COURSE DESCRIPTION

FAMU catalog description: Conditions that are healthy for living things on earth are the main topics covered in the course. To identify these conditions relevant concepts from biology, chemistry, and physics are presented. Threats to healthy conditions, actions that are likely to maintain healthy conditions, and laws that promote health conditions are then discussed. One objective of the course is to present information that will serve as part of the basis for decisions about economic actions to support lifestyle choices.

Prerequisite(s): MAC 1105 College Algebra

Core curriculum course: No

Course restrictions:

Availability to non-ESI majors: YES

COURSE OBJECTIVES

1. To provide you with a basic understanding of environmental science and its components.
 2. To define, explain and characterize the spatial and temporal scales, and organizational levels of the integration between the atmosphere, hydrosphere, lithosphere, ecosphere, and biosphere.
 3. Solicitation of your perspectives, reactions, and experiences in the class discussions, assignments, and exams.
 4. Develop and present annotated essay: 'My Environmental Ethic'.
 5. Develop and present: 'Visual/Performing Arts Presentation: Environmental Connections'.
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LEARNING MATERIALS

Required eBook: *Your Environmental Connections*, Elijah Johnson and Richard D. Schulerbrandt Gragg III, Great River Learning, August 2015, **ISBN Number:** 9781680750300. Available through FAMU Bookstore (<http://famu.bncollege.com/>) or Great River Learning (<http://www.greatriverlearning.com/students>). All other multimedia materials for the course are available at: <http://famu.blackboard.com/>

TOPICS COVERED

1. Information Literacy, Writing Skills, Annotated Bibliography
 2. Framework of Environmental Science
 3. Spatial, Temporal, and Organizational Scales
 4. Interdisciplinary Components of Environmental Science
 5. Impact Analysis and Case Studies
 6. Environmental Science Essay Development and Presentation
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EXPECTED LEARNING OUTCOMES

Foundation skills and knowledge: You will demonstrate a basic understanding and application of the framework of environmental science. You will demonstrate a basic understanding of the atmosphere, hydrosphere, lithosphere, ecosphere, and biosphere. You will demonstrate a basic understanding and application of the components of environmental science: atmospheric sciences; ecology; environmental chemistry; and geosciences. You will demonstrate a basic understanding and application of spatial and temporal scales, and organizational levels. You will demonstrate a basic understanding and application of environment and society. You will demonstrate a basic understanding and application of the annotated essay.

Effective written and verbal communication: You will demonstrate, through the development of an annotated essay entitled *My Environmental Ethic*, the ability to present and explain concepts related to the environment and society to yourself, your classmates, the instructor, and invited guests.

Critical thinking: You will demonstrate, through the development of an annotated essay on environment science, an ability to assimilate and critically evaluate facts and concepts related to environment and society, and to stimulate discussion and answer questions from your peers on this topic through highlighting important themes; placing the individual readings in perspective by comparison and contrast; introduce distinctions and concepts that supplement multimedia resources; and provide additional insights and perspectives not developed elsewhere in the course.

Integration of learned skills and information: You will demonstrate, through the development of an annotated essay on environment science, the ability to analyze information from the interdisciplinary context of environmental science and apply that knowledge to the Visual/Performing Arts Presentation: 'Environmental Connections'.

COURSE ADMINISTRATION

ACTIVITIES	PERCENT OF FINAL GRADE
CLASS PARTICIPATION	25 PTS
CUMULATIVE ANNOTATION ASSIGNMENTS	150 PTS
EXAMS (3 TAKE HOME)	75 PTS
FINAL EXAM PRESENTATION	50 PTS
EXTRA CREDIT ASSIGNMENTS	10 PTS
FINAL GRADE ASSIGNMENT	>280=A; 250-279=B; 220-249=C; 199-219=D; <199=F

Course Description: Introduces the participant to the interdisciplinary field of environmental science. Primarily this course will provide a forum to discuss and learn the variety of ways in which environmental science is applied to understand the natural and human environments where we live, work and play. This course includes supervised and independent research, periodical review and discussion of current environmental/occupational health issues and events.

Course Objectives: Provide participants with the opportunity to become well-versed and knowledgeable about environmental science.

Course Content: Students will conduct and present (written & oral) individual and group projects, study, review, and apply environmental science and related societal issues in the public media, journals and periodicals and complete reading assignments and class projects.

Teaching Methods: Group and individual projects, assignments, exams, and guest lecturers.

Make-up policy: Missing any exam or deadline is strongly discouraged. Excused absences will be allowed only with advance permission of instructor and for valid hardship. Homework, presentations and projects will not be accepted late; no make-up exams will be given.

Attendance: Regular and punctual attendance is expected and is fundamental to success in this course. Information presented during class is the responsibility of the student whether present or not. It is up to the student to obtain class material from other students when a session is missed.

As stated in the most recent edition of the Florida A & M University handbook ("The Fang", pp 72-73) any student exceeding 3 unexcused absences may be dropped from the course and assigned the letter F".

Academic Honesty: Plagiarism and cheating will NOT be tolerated in any form. Please review the Florida A & M University handbook "The Fang" for the FAMU academic honesty policy.

Cell Phone Policy: Cell phone use is strictly prohibited during class, no ringing, vibrating, text messaging, games, pictures, etc. unless requested/permitted by instructor. Failure to comply with this rule will result in your dismissal from the class.

LECTURES – EXAMS – ASSIGNMENTS**January 6th – January 22nd****Introduction and Overview: Framework of Environmental Science****Module I: The Context and Framework of Impact Assessment**

- Chapter 12: Comets and Asteroids
 - Case Study 1: A Procedure for Evaluating Environmental Impact. Leopold, L.B., F.E. Clarke, B.B. Hanshaw and J. R. Balsley, (1971) Geological Survey Circular 645. United States Department of Interior.
 - Annotation: The Environmental Quality Act of 1969 prompted the then Secretary of the Interior, Rogers C. B. Morton to direct the U.S. Geological Survey to provide systematic guidance for environmental impact reporting to inform environmental decision making and management. In the Circular 645 Foreword Secretary Morton stated “Every human action affects the world around us in some degree and the full effect is difficult to assess because of complex relations among living and nonliving things. Under the circumstances one can neither expect to restore the entire past nor preserve the entire present for future generations. However, all can and should strive for proper balance between resource development and maintenance of pleasant surroundings.” In addition to detailing a standard empirical procedure for evaluating environmental impacts the circular presented the specific example of a phosphate mining lease its impacts at the local scale.

Module II: Impact Analysis: Integrating Theoretical and Empirical Perspectives

- Chapter 1: Concepts of Systems and Processes
 - Case Study 2: Scale and Cross Scale Dynamics: Governance and Information in a Multilevel World. Cash, D. W., et al., (2006) Ecology and Society 11(2):8.
 - Annotation: Challenges of ignorance, mismatch and, plurality arise when we tackle resource exploitation and management, because there is a lack of consideration of the proper scales, cross-scale and cross-level dynamics and interactions, which more often result in improper public policies that ultimately hamper the protection of the environment and human health. This ignorance leads to management and national policies that adversely constrain local policies and short-term solutions that lead to long-term problems. Mismatches occur between levels and scales in human-environment systems and affects the resiliency and credibility of the information and structures present. Lastly, plurality is the failure to recognize the different ways that scales are perceived. In cross-scale linkages, different actors seek to gain different outcomes from strengthening to weakening cross-scale and cross-level linkages. As in the commons, this needs to be addressed because the benefits and risks are not symmetric.

- Case Study 3: Grand Challenges in Environmental Sciences. Committee on Grand Challenges in Environmental Sciences. Oversight Commission for the Committee on Grand Challenges in Environmental Sciences. National Research Council. Grand Challenges in Environmental Sciences. Washington, DC: The National Academies Press, 2001
 - Annotation: The Grand Challenges in Environmental Sciences – elucidates the suitability of the interdisciplinary nature of the environmental sciences to investigate the complex and multifaceted relationship of our technological society with the environment within the broader context of understanding the environment and humanities place in it. The grand environmental challenges: biogeochemical cycles; biogeochemical diversity and ecosystem functioning; climate variability; hydrologic forecasting; infectious disease and the environment; institutions and resource use; land-use dynamics; and reinventing the use of materials were selected and detailed through a collaborative and participatory process including recommended research investment strategies and implementation issues.
- Chapter 15: Extreme Events
 - Case Study 3a. Institutions and Resource Use
 - Annotation: Grand Challenges in Environmental Sciences: Institutions and Resource Use – The multilevel capacity, function and utilization of institutions and resources has evolved. In the context of the human dimension the science, technology, and industrial revolutions call for special and closer attention to the institutions of government, law and public policy necessary to manage and sustain economic, social and environmental resources locally, regionally and globally. “The challenge is to develop a systematic understanding of the role of institutions—markets, hierarchies, legal structures, regulatory arrangements, international conventions, and other formal and informal sets of rules—in shaping systems for natural resource use, extraction, waste disposal, and other environmentally important activities.”
 - Case Study 3b. Reinventing the Use of Materials
 - Annotation: Grand Challenges in Environmental Sciences: Reinventing the Use of Materials – Human decisions on how we exploit and utilize natural resources must account for the impacts on human health and the environment. Appropriate and sufficient social, economic and environmental adaptations and remedies that sustain human health and the environment locally, regionally and globally, must accompany the assessment of the impacts. “The challenge is to develop a quantitative understanding of the global budgets and cycles of key materials used by humanity and of how the life cycles of these materials may be modified. Among the materials of particular interest for this grand challenge are those with documented or potential environmental impacts, those whose long-term availability is in some question, and those with a high potential for recycling and reuse. Examples include copper, silver, and zinc (reusable metals); cadmium, mercury, and lead (hazardous metals); plastics and alloys (reusable substances); and

CFCs, pesticides, and many organic solvents (environmentally hazardous substances).”

- Chapter 9: Restrictions on the Use of Earth Systems
 - Case Study 4: The Tragedy of the Commons. Hardin, G., (1968) Science 162:1243–1248.
 - Annotation: Hardin sheds light on humanities response to the plethora of resources at our disposal with the phrase and concept: “tragedy of the commons.” Hardin uses the example of the pasture, which represents an open access resource that is available to anyone who brings their cows to graze with the sole goal of maximizing private gains and benefits. Every herder is enticed to bring more cows to the pasture because they will receive the direct benefit of grazing their cattle there. The concluding result unbeknownst to the cattleman is that by placing their individual benefits to the forefront, it opens the door for ruin and over exploitation of the pasture, a representation of our earth’s resource. Resources we commonly waste range from water that we pour to nurture our lawns; to driving two cars to one place; and living a materialistic lifestyle that warrants waste filling landfills and the like. If we are not mindful of the little things that we do then, short-term decisions can turn into long-term problems.

Assignment #4: My Environmental Ethic Annotated Essay: 1st Draft Due January 22nd

January 25th – February 26th

Module III: The Built Environment: Impacts and Assessments

- Chapter 2: Basic Physics
 - Case Study 5: Grand Challenges in Environmental Sciences: Climate Variability
 - Annotation: The human exploitation of fossil fuels (oil) is evidenced to impact the carbon biogeochemical cycle and the subsequent increase in atmospheric greenhouse gases (i.e., CO₂). These increases perturb the climate system with unknown effects on climate extremes and variability. “The challenge is to increase our ability to predict climate variability, from extreme events to decadal time scales; to understand how this variability may change in the future; and to assess its impact on natural and human systems.”
- Chapter 3: Basic Chemistry
 - Case Study 6: Grand Challenges in Environmental Sciences: Biogeochemical Cycles
 - Annotation: The cycling of chemical elements through the Earth system in their multi-level biological, geological, and chemical forms constitutes the biogeochemical cycles. These chemical elements include the nutrient elements: carbon, oxygen, hydrogen, nitrogen, sulfur, and phosphorus; and elements such as: potassium, calcium, molybdenum, iron and zinc which function as physiological regulators or cofactors for enzymes. These cycles operate at individual, local, regional and global scales. Changes in these cycles, which can be induced by human activity, may lead to

large scale earth systems changes such as increases in the levels of carbon dioxide in the atmosphere which are linked to changes in global temperatures, sea levels, ocean acidification, and food security. “The challenge is to understand the Earth’s major biogeochemical cycles and how they are being perturbed by human activities; to be able to predict the impact of these perturbations on local, regional, and global scales; and to determine what public policies and technological innovations can restore these cycles to more natural states, should such restoration be deemed desirable.”

- Chapter 4: Basic Biology
 - Case Study 7: Grand Challenges in Environmental Sciences: Biological Diversity and Ecosystem Functioning
 - Annotation: The human exploitation of natural resources can impact ecosystem biodiversity. ‘Biodiversity is the variety of different types of life found on earth. It is a measure of the variety of organisms present in different ecosystems. This can refer to genetic variation, ecosystem variation, or species variation (number of species) within an area, biome, or planet’ (<https://en.wikipedia.org/wiki/Biodiversity>). ‘Biomes are regions of the world with similar climate (weather, temperature) animals and plants. There are terrestrial(land) biomes; aquatic biomes, both freshwater and marine; and atmospheric biomes’(kids.nceas.ucsb.edu/biomes/). Biodiversity is crucial to ecosystem function and service. For example, microbes are an old and large fraction of the Earth’s life forms improving this understanding is of great scientific and practical interest. Human activity can unintentionally impact aquatic, terrestrial, and atmospheric biodiversity diminishing the capacity of the Earth to support human societies. “The challenge is to understand the regulatory and functional consequences of biological diversity, and to develop approaches for sustaining this diversity and the ecosystem functioning that depends on it.”
- Chapter 6: Toxicology for Plants
 - Case Study 8: The Response of Natural Ecosystems to The Rising Global CO² Levels. Bazzazz, F.A. (1990). Annual Review of Ecology and Systematics, 21:167–196.
 - Annotation: The observed responses to elevated CO₂ include specific changes in plant physiology, respiration, photosynthesis and reproduction. The seminal paper by Bazzaz reviewed and integrated all the research related to this topic conducted prior to 1990. It’s conclusions have been borne out by further detailed and advanced research and similar review and integration at the local, regional and global levels via the United Nations Intergovernmental Panel on Climate (<http://www.ipcc.ch>; <http://www.un.org/climatechange/>) and the Organization of Economic Co-operation and Development (<http://www.oecd.org>).

- Chapter 7: Toxicology for Animals
 - Case Study 9: Endocrine-disrupting chemicals in fish: Developing exposure indicators and predictive models of effects based on mechanism of action. Gerald T. Ankley, et al., (2009). *Aquatic Toxicology* 92 (2009) 168-178.
 - Annotation: Endocrine-disrupting chemicals are anthropogenic agents that interfere with the production, release, transport, metabolism, binding, action, or elimination of natural hormones in the body responsible for the maintenance of homeostasis and the regulation of developmental processes. These agents act on reproduction and development processes through direct effects on hypothalamic-pituitary-thyroidal or hypothalamic-pituitary-gonadal axes in humans and other vertebrates.
- Chapter 8: Alteration of Earth Systems and Processes
 - Case Study 10: The Trajectory of the Anthropocene: The Great Acceleration. Steffen, W., W. Broadgate, L. Deutsch, O. Gaffney and C. Ludwig (2015) *The Anthropocene Review* 2(1):81-98.
 - Annotation: Human interaction with the environment is characterized and shaped by our economic and social activities, which are manifest in the built environment. Globalization is driving the analysis of human behaviors on spatial, temporal and organizational scales within and between the biotic and abiotic systems and the subsequent impacts on the environment including human life and endeavors. The environmental impact of the human dimension is now innovatively characterized in terms of the epochal 'Anthropocene' period beginning in 1750 and currently updated to 2010. The Anthropocene period is characterized by the accelerated trends in growth and interactions of industrialization, population growth and fossil fuel extraction and combustion and their global environmental and human health and well-being impacts.

Assignment #5: My Environmental Ethic Annotated Essay: 2nd Draft Due February 26th

Exam I Due February 29th: Thus far in this course we have covered some basic aspects of environmental science: fundamental principles, the concepts of spatial, temporal, and organizational scales, the biosphere and impact analysis. For this exam you are required write an annotated assay on how these aspects are related to each other and society's environmental challenges and opportunities. You are required to utilize and reference Modules I & II Case Studies and any other relevant news/magazine, and public policy information to support your discussion. To access the Case Studies, go to famu.blackboard.com; select the Course Documents link; then select Case Studies folder.

February 29th – March 25th

Module IV: Atmospheric Science, Environmental Chemistry, Geosciences and Ecology

- Chapter 10: Food
 - Case Study 11: Environmental Consequences of Ocean Acidification: A Threat to Food Security (2010). United Nations Environmental Program.
 - Annotation: The Earth system is responsive in a variety of ways to the rising global CO₂ levels. For example, the absorption of excess CO₂ from the atmosphere by coastal marine and ocean systems

disrupts their biogeochemical carbon cycle and negatively impacts the abundant food resources in these aquatic systems that respond by an increase in acidification (decrease in pH). Responses are observed at molecular, biochemical, physiological, individual, community and populations levels at local, regional and global spatial and temporal scales with respect to specific species, habitats, and ecosystems. Rising CO₂ levels are reported to increase global atmospheric and water temperatures leading to environmental and societal impacts of melting glaciers, sea level rise and disruption of coastal environments.

- Chapter 11: Sun
 - Case Study 12: Glaciers and the Changing Earth System: A 2004 Snapshot. Dyrurgerov, M.B. and Meier, M.F. (2005), Occasional Paper No. 58 2005. Institute of Arctic and Alpine Research, University of Colorado.
 - Annotation: The Earth system is responsive in a variety of ways to the rising global CO₂ levels. For example, the absorption of excess CO₂ from the atmosphere by coastal marine and ocean systems disrupts their biogeochemical carbon cycle and negatively impacts the abundant food resources in these aquatic systems that respond by an increase in acidification (decrease in pH). Responses are observed at molecular, biochemical, physiological, individual, community and populations levels at local, regional and global spatial and temporal scales with respect to specific species, habitats, and ecosystems. Rising CO₂ levels are reported to increase global atmospheric and water temperatures leading to environmental and societal impacts of melting glaciers, sea level rise and disruption of coastal environments.

- Chapter 13: Earth Systems and Processes
 - Case Study 13: The Coasts of Our World: Ecological, Economic and Social Importance. (2007) M.L. Martínez, A. Intralawana, G. Vázquez, O. Pérez-Maqueo, P. Sutthond, R. Landgrave. *Ecological Economics* 63:254–272.
 - Annotation: The Earth is a coastal planet. Humans have been occupying and using the coasts and their multiple ecosystems for millennia and our impact has been very large in some areas and is likely to increase in others. The majority of the world's population and significant food resources and economic activities reside in coastal regions. More than 50% of the coastal countries have from 80 to 100% of their total population within 100 kilometers of the coastline. Coastal ecosystems are impacted by the development of urban, industrial and agricultural systems. These human activities have modified coastal habitats and shorelines; overexploited coastal ecosystem services; exacerbated invasive species; and fostered conservation of coastal and marine biodiversity. In order to continue to derive beneficial social, economic and environmental coastal ecosystem services at local, regional and global scales human society must elevate and integrate this multi-level task into their governance and information.

Assignment #6: My Environmental Ethic Annotated Essay: 3rd Draft Due March 25th

Exam II Due Exam 2 Due March 30th: With regard to spatial and temporal scales and organizational levels write an annotated essay on the relationship between ocean acidification and glacier dynamics. You are required to utilize and reference Module III & IV Case Studies and any other relevant news/magazine, and public policy information to support your discussion. To access the Case Studies, go to famu.blackboard.com; select the Course Documents link; then select Case Studies folder.

March 28th – April 22nd

Module V: Environment and Society–Lead in the Environment

- Chapter 5: Toxicology and Health
 - Case Study 14: America's Real Criminal Element: Lead “New Research Finds Pb is the Hidden Villain Behind Violent Crime, Lower IQs, and Even the ADHD Epidemic. And Fixing the Problem is a Lot Cheaper than Doing Nothing”: By [Kevin Drum](#), Mother Jones, [January/February 2013 Issue](#)
 - Case Study 15: Ghost Factories: Poison in the Ground (2012), USA Today Investigative Report.
 - Annotation: Evidence of the environmental impacts on human health is reflected in the socioeconomic global phenomena of environmental justice (<http://environmentaljusticeblog.blogspot.com>). Environmental justice is rooted in the disproportionate co–location of hazardous emissions facilities and other environmental stressors within and in proximity to people of color and low wealth populations and communities. This phenomena, can be characterized in the contexts of social, economic and environmental scales, levels and dynamics (<http://www2.epa.gov/ejscreen>). The health outcomes are defined and manifest as health disparities where people of color and low wealth populations and communities are disproportionately represented in disease outcomes compared to their proportion of the total population. For example, the hazardous emissions and other environmental stressors are established risk factors for the health outcomes such as birth defects and reproductive disorders; cancer; immune function disorders; kidney dysfunction; liver dysfunction; lung and respiratory diseases; neurotoxic disorders; diabetes; obesity; and low birth weight outcomes that these populations have higher rates of compared to the general population. In fact, singular hazardous emission pollutants, like elemental lead (Pb) are risk factors for multiple health outcomes: neurotoxic, kidney and high blood pressure). As well the body burden of elemental lead is disproportionately higher in children of color and low wealth populations and is known to accumulate overtime in the bone and other tissues including the brain and kidney. Lead is also reported to impact human behavior over time in direct proportion to its concentration in the environment The sustainable solution and answer to the call for environmental justice calls for and lends itself to the application of a specific and relevant environmental impact analysis in the context of scale and cross scale dynamics: (<http://www.epa.gov/environmentaljustice>

[/resources/policy/ej-rulemaking.html](#)).

- Chapter 16: Soils
 - Case Study 16: Grand Challenges in Environmental Sciences: Land-Use Dynamics
 - Annotation: The built environment is the manifestation of human social, economic and environmental interactions at local, regional and global scales. The built environment is evidenced in the use and transformation of ecosystems comprised of land, air, water and living organisms. For example, the development of housing, industry, transportation, agriculture and water results in changes in the use and functions of land, i.e., ecosystems and ecosystem services. “The challenge is to develop a systematic understanding of changes in land uses and land covers that are critical to biogeochemical cycling, ecosystem functioning and services, and human welfare.”
- Chapter 17: Water Systems
 - Case Study 17: Grand Challenges in Environmental Sciences: Hydrologic Forecasting
 - Annotation: Water is an essential natural resource that spatially and temporally shapes multi-level local, regional, global and human landscapes and it is vital to ecosystem functioning and human/societal well-being. The human exploitation of natural resources such as fossil fuels and the perturbation of biogeochemical cycles such as carbon and nitrogen leads to contamination and stressing of the resource, and alterations in the hydrologic (water) cycle. Hydrologic alterations can contribute to aspects of climate variability. “The challenge is to predict changes in freshwater resources and the environment caused by floods, droughts, sedimentation, and contamination in a context of growing demand on water resources.”
- Chapter 18: Sediment
 - Case Study 18: The Urban Environmental Gradient: Anthropogenic Influences on the Spatial and Temporal Distributions of Lead and Zinc in Sediments
 - Annotation: Heavy metals such as lead and zinc that originate from the social and economic interactions of people are initially emitted into the air, water and soil and a portion is transported through runoff and atmospheric deposition to aquatic rivers, lakes, stream and coastal environments over time and accumulate in the sediments.

Assignment #7: My Environmental Ethic Final Draft Due April 22nd

Assignment #8: Group Project Due April 22nd: Write an annotated essay on the societal impacts of environmental lead accompanied by *a one-page Policy Memo recommending a particular course of action for the community of Flint Michigan based on evidence gained and case studies throughout the module.* To access the Case Studies, go to famu.blackboard.com; select the Course Documents link; then select Case Studies folder.

Course Projects and Activities

Environment and Society Portfolio: You are required to produce annotated essay of the Module I-V Case Studies. Go to the Purdue Online Writing Lab for annotation instructions: (<https://owl.english.purdue.edu/owl/resource/614/1/>). A working draft is due on the last day of every module beginning January 22nd and your final Annotation Essay **Assignment #7** is Due April 22nd. A cumulative annotation is produced when you incorporate all of the case studies into one singular annotation. A working draft cumulative annotation is the result of you incorporating subsequent case studies into the previous annotation due at the end of every module. When you have more than one case study in a module you must combine those into one cumulative annotation due at the end of that module. To access the Case Studies, go to famu.blackboard.com; select the Course Documents link; then select Case Studies folder.

Assignment #9: Extra Credit Paper 750 Words (9pts) Due April 22, 2015: My Environmental Connections

Final Exam Visual/Performing Arts Presentation: Our Environmental Connections Due Final Exam Week April 25 – 29, 2015.

Part 1. (25pts) Using the environmental science information you have acquired and assimilated in this course translate your cumulative annotation essay into a **Visual/Performing Arts Presentation: Our Environmental Connections**. You are required to submit your presentation by April 22, 2015. Project Coordinator Kabuya Bowens Saffo, FAMU Sustainability Institute Artist in Residence, will be visiting our class to advise and answer your questions. She is available at pamela.saffo@famu.edu.

Part 2. (25pts). Present and discuss your **Visual/Performing Arts Presentation: Our Environmental Connections** during the scheduled final exam period. You must integrate your cumulative annotation essay's into the presentation.

ASSIGNMENT #1: Produce a Syllabus Road Map

Based on your reading and our class discussion graphically represent your understanding of the syllabus goals, objectives and deliverables.

ASSIGNMENT #2: Statement of Understanding

I, (insert your name), have read and completely understand the course syllabus and policies for FAMU School of the Environment course EVR1001 BY 5PM JANUARY 13, 2016.

PLEASE POST **ASSIGNMENT#2 (Extra Credit 1pt)** STATEMENT OF UNDERSTANDING AND TRANSFORMATION OF SYLLABUS INTO A ROADMAP MATRIX TO FAMU Blackboard Assignments Folder BY 5PM JANUARY 13, 2016.

Assignment #3: EVR 1001 PRE and POST – KNOWLEDGE ASSESSMENT (Extra Credit 3pts)

1. Exposure to environmental hazards can lead to the following disease states:
2. What are the four major interdisciplinary components of environmental science?
3. List the four major environmental media.
4. What is the ecological relationship between carbon dioxide and oxygen?
5. List and discuss three anthropogenic activities that have major impacts on water quality.
6. Humans exploit natural resources to develop, power and operate the built environment, what is the primary natural resource that powers the earth?
7. Endocrine disruptors are chemicals such as; and can cause the following adverse human health effects.
8. What is the relationship between holes in the ozone layer and skin cancer?
9. How can sustainable development improve our environmental fate?
10. What is an ecosystem?
11. How can biotechnology improve our environmental health?
12. What is a xenobiotic?
13. Draw a dose response curve and define its components.
14. Define risk assessment.
15. Is the earth a living organism? Discuss your answer.
16. What is the relationship between climate change and global warming?
17. What are the drivers of climate change and global warming?
18. In the context of environmental science how and why is food connected to conversations in our everyday lives?
19. What is the biosphere?
20. Define the following: atmosphere; hydrosphere; lithosphere and ecosphere.
21. What is the significance of spatial, temporal, and structural scales to understanding where we live work and play?

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Selected Course			
Institution	Online Publication	Description	Price
Your Institution	Your Publication	UNIVERSITY - Your Publication (AC-Ecommerce)	\$xx.xx
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Re-Enter Password

Password Challenge Question * What is your mother's maiden name?

Password Challenge Response * Smith

Step 3 continued: Complete your account by providing the billing and shipping address(es) of the credit card you will use for this purchase. If the billing address and shipping address are the same, check the box at the bottom of the billing section and the information will automatically populate under Shipping.

Billing Information

Address Type * Home

Address * Address 1
xxx Your Street
Address 2

* City * State * ZIP
Your City Your State ZIP

* Country
Your Country

Shipping Information

Check if shipping address is the same as billing address.

Address * Address 1
xxx Your Street
Address 2

* City * State * ZIP
Your City -- Please select a state ZIP

* Country
-- Please select a country --

Fields marked with an asterisk (*) are required.

Next

Step 4: This is the final screen to review your purchase. Please note the tax included in your grand total may vary depending on the state in which you make the purchase. Enter your credit card information and select “**Submit**”. Once this information is submitted, you will have successfully enrolled in your publication.

Selected Course			
Institution	Online Publication	Description	Price
Your Institution	Your Publication	UNIVERSITY - Your Publication (AC-Ecommerce)	\$xx.xx
Subtotal:			\$xx.xx
Tax:			\$y
Grand Total:			\$xx.xx + \$y

Credit Card Information

Name as it appears on the card

Card Type
   

Credit Card Number

Security Code

Expiration Date

[Submit](#)

Step 5: Your order is now complete and you can log into your publication via the “**Login to WebCOM**” button. A receipt of your purchase will be sent to the email address that you provided when creating your account.

Success!

Thank You For Your Order!

You have successfully enrolled in Your Publication.
A receipt for this purchase will be sent to your email.

[Login to WebCOM](#)

websupport@greatrivertech.net
to you

WebCOM: Enrollment Receipt

You have successfully enrolled in The Musical Experience, Third Edition.

Login to www.grtep.com with your email and password to get started.

Billing Information:	Shipping Information:
Your Name Street Number City, State 563-555-5555	Your Name Street Number City, State 563-555-5555

Institution	Online Publication	Description	Price
Your Institution	Your Publication	UNIVERSITY - Your Publication (AC-Ecommerce)	\$xx.xx

Once you click the “**Login to WebCOM**” button you will be taken back to the publication login page at <http://www.grtep.com/>.

In order to view your publication, login with the username and password you entered during step 3. The username is the email address you used when setting up the account. This is how you will access the publication for the remainder of the semester.

Login

Username *
This is your e-mail address

Password *
[Forgot Password?](#)

First Time User (with access code)

Access Code *

First Time User (without access code)

No access code? Purchase access codes here.

Registering the access code included in your bookstore purchase

Step 1: Go to <http://www.grtep.com/>

Once you've purchased an access code from the bookstore, you need to register that code in order to view the publication. Enter your 20 digit access code into the prompt box under **First Time User (with access code)** (with access code).

The screenshot shows the GreatRiver Technologies website header. Below it are three registration options:

- Login:** A form with fields for Username (with a note "This is your e-mail address") and Password (with a "Forgot Password?" link). A "Login" button is at the bottom.
- First Time User (with access code):** A form with an "Access Code" field (placeholder: "xxxxxx-xxxxx-xxxxx-xxxxx") and a "Next" button. A blue arrow points to the Access Code field.
- First Time User (without access code):** A form with the text "No access code? Purchase access codes here." and a "Click Here To Purchase" button.

Step 2: You will then choose your institution and publication from the Institution and Online Publication dropdown menus. Most often, your institution and publication will automatically populate.

> Choose Your Online Publication

The screenshot shows the "Choose Your Online Publication" form with two dropdown menus:

- Institution:** A dropdown menu with the placeholder text "Your Institution Here". A blue arrow points to the dropdown arrow.
- Online Publication:** A dropdown menu with the placeholder text "Your Publication Here". A blue arrow points to the dropdown arrow.

Below the dropdowns, it says "Fields marked with an asterisk (*) are required." and there is a "Next" button.

Variable Step: If multiple sections of your course exist, you will need to select the section which you are enrolled in at your institution. This is a vital step in the registration process, as any grades or scores you obtain will be tied to the section that you select.

» **Choose Your Section**

Sections	
Section	Instructor
<input type="radio"/> Your University_year_Section 001	
<input type="radio"/> Your University_year_Section 002	
<input checked="" type="radio"/> Your University_year_Section 003	
<input type="radio"/> Your University_year_Section 004	

Next

Step 3: You will now create your user account by filling out the appropriate account and billing information. Take special care to enter a **valid email address**, as it will serve as your username throughout the semester. Click **“Next”** in the lower right hand corner to complete the form.

Create An Account & Checkout	
Account Info	
Salutation *	Miss
First Name *	Jane
Middle Initial	
Last Name *	Doe
Phone *	(555)555-5555
Email Address *	jdoe@university.edu <small>This will also be your username.</small>
Confirm Email Address *	jdoe@university.edu <small>Re-Enter Email Address.</small>
Password * <small>Password must be at least 7 characters</small>
Confirm Password * <small>Re-Enter Password</small>
Password Challenge Question *	What is your mother's maiden name?
Password Challenge Response *	Smith

Billing Information

Address Type * Home

Address

* Address 1
xxx Your Street

Address 2

* City * State * ZIP
Your City Your State xxxxx

* Country
Your Country

Next

Step 4: Your registration is now complete and you can log into your publication via the “**Login to WebCOM**” button. A receipt of your purchase will be sent to the email address that you provided when creating your account.

Success!

Thank You For Your Order!

You have successfully enrolled in Your Publication.

A receipt for this purchase will be sent to your email.

Login to WebCOM

If your publication package includes a subscription to Rhapsody, please continue onto the following page. Otherwise, your enrollment is now complete and you can log into WebCOM with the username and password you provided while creating your account.

Registering your Rhapsody Code

Step 1: If your online publication includes a subscription to Rhapsody, a Rhapsody Login Key will be provided upon the completion of your WebCOM registration. Copy the Login Key provided on your Success! Screen and click on the “**Finalize Rhapsody Activation**” button in order to register your Rhapsody Code:

Success!

Your Registration Is Complete!

You have successfully enrolled in Your Publication.

This online publication includes additional complimentary resources:

Rhapsody - 4-month subscription
Description: A four month subscription to unlimited music. To retrieve your Rhapsody subscription code please enter the "Login Key" displayed below into the form located at the "Website" link:
Website: <http://www.kendallhunt.com/digitalmusic/order/default.aspx>
Login Key: xxxxxxxxxxxx

1

2

Login to WebCOM Finalize Rhapsody Activation

Step 2: The “**Finalize Rhapsody Activation**” button will take you to the Kendall Hunt Rhapsody portal as shown in the screenshot below. Paste or manually type the Login Key into the Rhapsody Code prompt box. Click **Next**.

Register for your Rhapsody Music Subscription

Kendall Hunt offers you a subscription to the Rhapsody online music library. You will have a 4 month subscription and be able to listen to over 10,000,000 songs available on the site. Your professor will be requiring you to listen to selected assignments throughout the semester.

Please enter your Access Code below (Sample code: XXXXXXXXXXXXXXXX)

Rhapsody Code:

Next

Need help with this form? Email [Kendall Hunt Rhapsody Support](#) or call 1-800-228-0810

Must be at least 13 years old to participate. [Click here](#) for promotion redemption details, download instructions, system requirements and complete promotion terms and conditions. Normal Internet charges may apply. Coupon code does not cover any charges associated with Internet connection. All use of the Coupon codes and downloading of songs is subject to terms and conditions posted through the Rhapsody music resource being utilized for this promotion. Void where prohibited. Kendall/Hunt Publishing Company is not responsible for content or for any loss or damage of any kind incurred as a result of any data transmitted via the Web site.

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Step 3: Enter your contact information into the form fields. Once you have finished, click the **finish** button to view the final steps in activating your Rhapsody account.

Register for your Rhapsody Music Subscription

Kendall Hunt offers you a subscription to the Rhapsody online music library. You will have a 4 month subscription and be able to listen to over 10,000,000 songs available on the site. Your professor will be requiring you to listen to selected assignments throughout the semester.

Please enter your contact information

First Name:

Last Name:

School:

Professor:

Email Address:

Step 4: Follow the “Set Up you Rhapsody Music Subscription directions”.

Register for your Rhapsody Music Subscription

Kendall Hunt offers you a subscription to the Rhapsody online music library. You will have a 4 month subscription and be able to listen to over 10,000,000 songs available on the site. Your professor will be requiring you to listen to selected assignments throughout the semester.

Set Up your Rhapsody Music Subscription

Step 1: Print this page for your records. It is **EXTREMELY IMPORTANT** that you have the Coupon Code listed below in order to be able to set up your Rhapsody account.

Step 2: Go to <http://www.rhapsody.com/promo>.

Step 3: Select whether you are an existing or new Rhapsody customer.

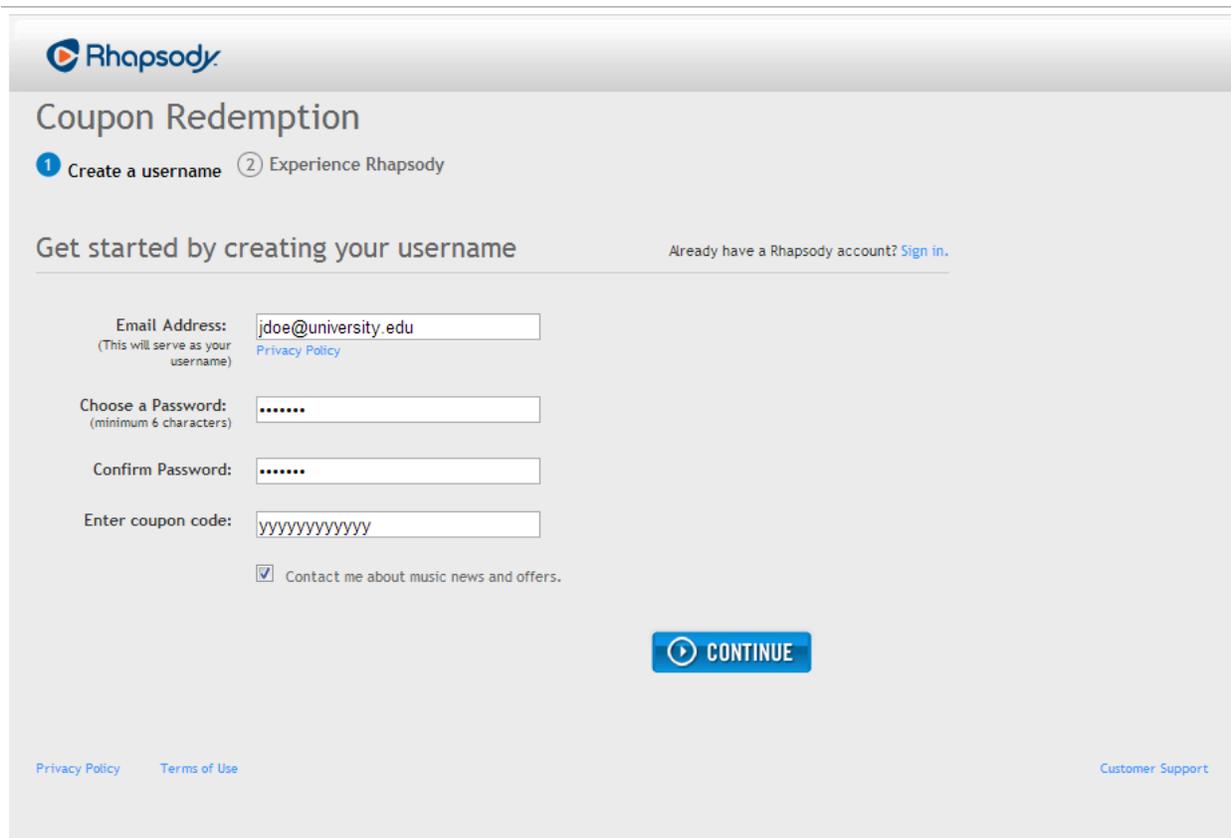
Step 4: Enter your information (email address, password(s), and coupon code - we recommend you copy and paste your coupon code) and click sign-in/continue. Your username will be your email address, if the program says your email is already used try a different email address.

Coupon Code: YYYYYYYYYYYY

Step 5: Your account has now been updated/created and you can proceed to login to Rhapsody.com. Your subscription expires 4 months after activation.

NOTE: Your Rhapsody account can only be used with a desktop or laptop computer; PC or Mac. No handheld devices or tablets can access this service via the Rhapsody app. Should you wish to use one of these devices and the Rhapsody app, a Rhapsody Premier account must be purchased through Rhapsody.

Redeem your coupon code at <http://www.rhapsody.com/promo> and create your Rhapsody username and password. Once you hit "**Continue**" your subscription to Rhapsody will begin.



The screenshot shows the Rhapsody website's "Coupon Redemption" page. At the top left is the Rhapsody logo. Below it, the page title "Coupon Redemption" is displayed. A progress indicator shows two steps: "1 Create a username" (active) and "2 Experience Rhapsody". The main heading is "Get started by creating your username", with a link "Already have a Rhapsody account? Sign in." to the right. The form contains the following fields and options:

- Email Address:** (This will serve as your username) [Privacy Policy](#)
- Choose a Password:** (minimum 6 characters)
- Confirm Password:**
- Enter coupon code:**
- Contact me about music news and offers.

A blue "CONTINUE" button with a right-pointing arrow is centered below the form. At the bottom of the page, there are links for "Privacy Policy", "Terms of Use", and "Customer Support".