

Florida A & M University - School of the Environment

EVR 1001-005 (3475)

Course Title: Fundamentals of Environmental Science

Fall Semester 2023

Course Dates: August 28 – December 15, 2023, on Thursdays from 5:30 - 8:45 p.m. EDT/EST

Location: Humphries Science Research (FSHS), Rm. 214 (1515 S. Martin Luther King Jr. Blvd)

This course is being offered in a Hybrid model. **We will meet IN-PERSON** primarily, with virtual class meetings being announced at least one week in advance.

Instructor: Dr. Ivory S. Council

Office Hours: Mondays - 1:00 p.m. to 2:00 p.m., Wednesdays - 09:00 a.m. to 10:00 a.m., or by prior appointment.

Office Location: 217, Lucy Moten (Street Address: 449 Robert & Trudie Perkins Way)

Office Phone: 850-412-6578

Email (preferred contact method): ivory.council@fam.u.edu.

Dr. Ivory S. Council earned a Ph.D. in Environmental Science with a concentration in Environmental Chemistry from Florida A & M University in 2020. Her doctoral research focused on the identification, removal, recovery, and remediation of heavy metals from Florida phosphogypsum. She spent eight years working in the environmental chemistry lab and has taught several courses for the School of the Environment, including Environmental Chemistry & Laboratory, Research Design and Analysis, and Fundamentals of Environmental Science. Dr. Council currently serves as the Research Associate with the Center for Faculty ADVANCEment at FAMU and adjunct instructor for this course.

Graduate Teaching Assistant: TBD

Note: This course may occasionally feature guest lecturers.

Excerpt From the School of the Environment (SOE) Mission Statement

SOE strives to produce students and citizens 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.

Course Description

An introduction to Environmental Science as a field of study derived from the interactions between every system, biological or physical, and its surroundings. The effects of the exchanges between various environmental compartments and the abiotic environments can influence the physical and chemical properties of inanimate objects and the physiology of living systems. These interactions may be harmful or beneficial to the system's overall functioning. This course presents the foundations of Environmental Science, including the principal elements of abiotic environments. It builds upon these from basic concepts, through focused discussions of the subject matter, to the general principles and methods of scientific inquiry and exploration that apply to all environmental components.

Catalog Description: Systems And Process Of Importance To Environmental Science Will Be Treated. Systems Treated Include The Solar System, The Atmosphere Of Earth, The Oceans, Soils, Rivers, Animals, And Plants. Processes Treated Include The Sun As A Photon Source, The Relationship Between The Atmosphere And Global Climate, Toxic Materials And Organisms, And Environmental Remediation. The Course Starts With A Short Summary Of Basic Concepts In Biology, Chemistry And Physics.

Core curriculum course: EVR 1001 is a 3-credit hour General Education course. This is not a core course of the School of the Environment.

Prerequisite(s): College Algebra (MAC 1105) is recommended. EVR 1001 is open to all registered FAMU undergraduate students, irrespective of major.

Course Objectives: By the end of this course, students should be able to demonstrate:

1. An understanding of basic concepts in biology, chemistry, environmental science (including law and policy), physics, and toxicology;
2. An understanding of the basic principles of exchange between systems (natural and manufactured) and their physiochemical environments and how these exchanges affect system performance;
3. Familiarity with the attributes of abiotic environments and their essential features, including the atmosphere, oceans and freshwaters, soil and groundwater, and the recognition of problems within these environmental compartments;
4. An understanding of the influence of the sun-earth system on environmental processes and components;
5. An appreciation of environmental change and pollution, as well as their causes and effects;
6. An understanding of the issues that are related to environmental health and how human activities affect sustainable and healthy environments; and
7. How science and policy can be used to address and prevent environmental issues, particularly at the local level.

Expected Learning Outcomes

1. **Foundation skills and knowledge** – Students will demonstrate a basic understanding of:
 1. The environment as a setting within which all systems, living (biotic) and non-living (abiotic), operate;
 2. The influence of the environment on system performance;
 3. Changes in the environment brought about by physical and chemical processes;
 4. The various factors (i.e., climate, chemical composition, vegetation and wildlife, biological processes, etc.) which define an environment and the events (i.e., hurricanes, tsunamis, earthquakes, volcanoes, droughts, etc.) that can drastically alter the characteristics and performance of an environment; and
 5. The influence of human activities such as agriculture, urban/industrial development, production and waste management, transportation, and personal consumption on the environment.
2. **Effective written and verbal communication** – Students will demonstrate their ability to:
 1. Communicate their thoughts, opinions, and ideas openly and with clarity;
 2. Write, using grammatically correct prose, essays, or other discourse, on current and relevant environmental topics in environmental science; and
 3. Make clear oral presentations on selected environmental issues of interest to themselves, their classmates, local communities, and other audiences.
3. **Critical thinking** – Students will demonstrate an ability to:
 1. Understand, analyze, and critically evaluate environmental issues;
 2. Initiate discussion(s) on environmental science topics and answer questions from their peers on discussed topics; and
 3. Locate and objectively evaluate scientific publications and assess the validity of conclusions drawn therein.
4. **Integration of learned skills and information** – Students will demonstrate the ability to analyze data from various subject areas and synthesize the relevant components into a coherent presentation of their chosen topic in environmental science.

IMPORTANT NOTE ABOUT THE CLASS: This class is being held in a one-meeting-per-week format. It is structured such that each class period covers multiple topics. To keep up in the course, students must study and read the material covered each day, and be prepared to take random, unannounced quizzes every class period on reading assignments and the previous class topics. Students should plan to spend several hours over the course of the week studying the course materials and working on assignments. Students should begin working on the final project(s) as soon as the criteria for assignment evaluation are presented. It is also important that students carefully read this entire syllabus to fully understand how the class is structured and the expectations for performance and participation. **Students should take this notice seriously and commit to putting in the time to succeed in this class.** Although this is an in-person, face-to-face class, **students should bring their laptop computers or electronic note pads to class daily** as the quizzes and exams will require these devices. **Cell phones may not be suitable or functional** for quizzes and exams, so laptops are strongly recommended. Sometimes, the class may be held remotely, with notice given in advance.

Learning Materials

Textbooks (recommended but not required):

1. Houtman, A., Karr, S., & Interlandi, J. (2018). *Scientific American Environmental Science for a Changing World*. 3rd Macmillan.
2. Zehnder, C., Manoylov, K., Mutiti, S., Mutiti, C., VandeVoort, A., & Bennett, D. (2018). *Introduction to environmental science*. 2nd ed. (link to the pdf will be placed in Canvas)
3. Frank, A. (ed.). (ND) *Environmental Issues*. Available here:
<https://pressbooks.bccampus.ca/environmentalissues/>

Articles: Articles in scientific and lay publications will be included in the reading assignments. Details on locating scientific publications will be presented during the first week of class.

Presentations: Students will be required to make one (1) major presentation in the class which will include a PowerPoint presentation on an environmental issue.

Lectures/Discussions: This is a discussion-based course! Open class discussion of course topics guided by instructors will be the frequent format of class activities. This requires students to prepare for each class session by reading assigned articles/chapters/studies and watching videos or other material. Traditional lectures by instructors will be used sparingly. Discussion boards and posts in Canvas will be used to solidify concepts discussed in class. Videos may also be used. There will be occasional lectures by different instructors. Most learning materials will be transmitted to the class via FAMU e-mail, Canvas, or zoom. **All students should check their FAMU e-mail and Announcements in Canvas at least once daily. This is very important to be successful in this class.**

Course Administration

Examinations (30%): It is anticipated that there will be two major exams (a mid-term and a final exam) during the course. **The final exam will be a comprehensive examination covering all topics covered or assigned during the entirety of the semester.** The final examination will be held on the date and time established by the University and **will not be given earlier or later than that date and time.**

Quizzes (10%): You should **expect** a quiz every class period. Quiz questions usually come from assigned articles to be read, videos to be watched before the day of the class, and discussions, lectures, and other materials covered in the previous class period. Those quizzes will also cover assigned textbook and home-study materials (free or open-source publications).

Final Paper & Presentations (35%): Students are responsible for making one (1) significant presentation which includes an individual PowerPoint presentation. The presentation should show that the student has critically evaluated the topic. Students must present the given topic(s)

using well-rounded and holistic approaches and compose a paper on the topic which meets the criteria outlined for the written assignment.

Assignments, class participation and discussions (25%): Students are expected to be active in class discussions. Participation includes discussions on assigned readings and videos and other topics that may be discussed in class. Participation in Discussion Board topics on Canvas is required for full marks to be earned in this grading category. Class participation will be monitored and evaluated. Additional assignments will be posted during the semester and the grades for these will be included in this category.

Student final course grades will be determined on the following grade scale:

A = 90% - 100%

B = 80% - 89%

C = 70% - 79%

D = 60% - 69%

F = 0% - 59%

Final grades will NOT be curved or rounded. There will be opportunities to earn bonus points throughout the semester, however.

Make-up policy: Missing any exam or assignment deadline is strongly discouraged. Excused absences will be allowed only with the advance permission of the instructor or for valid hardships, highly unusual circumstances, or emergencies. Make-up exams will **not** be given unless proof of an extreme hardship situation is provided (typically with **an official excuse acceptable to the instructor**). Presentations and projects will not be accepted late.

Attendance: Regular and punctual attendance is expected and fundamental to this course's success. **For many classes, quizzes will be given at the beginning of the class. After the quizzes are collected, latecomers may not be able to take the quiz. Gathering information presented during class is the student's responsibility, whether present or not.** It is up to the student to obtain class material 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 with three (3) or more unexcused absences may be dropped from the course and assigned the grade F".

Conduct: Students must be respectful and attentive to their professors, classmates, and guest speakers.

Cell Phone Policy: Cell phone use is strictly prohibited during class. This includes ringing, vibrating, text messaging, gaming, taking/browsing pictures, etc. Failure to comply with this rule will result in dismissal from the class.

Non-Discrimination Policy Statement: It is the policy of Florida Agricultural and Mechanical University to ensure that each member of the University community is permitted to work or attend classes in an environment free from any form of discrimination, including discrimination based on race, religion, color, age, disability, sex, marital status, national origin, veteran status. Additionally, state and federal statutes prohibit sexual harassment. This policy is drafted to include applicants for admission to the University and employment. Questions concerning this policy and procedures for filing complaints under the policy should be directed to: University EOP Officer, Equal Opportunity Programs, 674 Gamble Street, Tallahassee, FL 32307, (850) 599-3076.

Academic Honor Policy: Plagiarism or cheating will not be tolerated. The University's Academic Honor Policy is located in the FANG Student Handbook, under the Student Code of Conduct- Regulation 2.012 section, beginning on page 55.

University Americans with Disabilities Act (ADA): To comply with the Americans with Disabilities Act (ADA) provisions, please advise the instructor of any accommodations required to ensure participation in this course. Documentation of disability is required and should be submitted to the Learning Development and Evaluation Center (LDEC). For additional information, please contact the LDEC at (850) 599-3180, your Academic Advisor, or the University EOP Officer, Equal Opportunity Programs located at 674 Gamble Street, Tallahassee, FL 32307, (850) 599-3076.

Academic Learning Compacts (ALC): The Florida Board of Governors has articulated the importance of student achievement in its strategic planning and accountability processes. Therefore, FAMU has developed Academic Learning Compacts (ALC) and related assessment processes to define and demonstrate student achievement in its degree programs. The FAMU School of the Environment Academic Learning Compacts (ALC) are posted online. Please visit <https://www.famu.edu/administration/strategic-planning-analysis-and-institutional-effectiveness/university-assessment/academic-learning/current-alcs.php#:~:text=Each%20Compact%20includes%20statements%20of,being%20awarded%20the%20baccalaureate%20degree>. for more information.

Role of the Student

1. Prepare for class meetings by reading and becoming knowledgeable about the content of assigned texts, articles, or other material before coming to class.
2. Do all assigned coursework and submit it at or before the deadline.
3. Think about the relevant course concepts in and out of the classroom.
4. Communicate about concepts that are not understood. Ask questions as often as needed to clarify ideas and concepts.
5. Take notes of in-class lectures, videos, slide presentations, and discussions. Refine notes after class by reading articles or viewing videos and comparing notes with classmates.

Responsibilities of the Student

The following statement is from the website and syllabus of the course IDS 101 Interdisciplinary Science at Green River Community College in Auburn, Washington. The website for the course is <http://www.instruction.greenriver.edu/ids/101/syllabus.htm>.

“Characteristics of an ‘A’ Student”

Sometimes when a student is not doing as well in this course as they would like, we hear the question, ‘What do I have to do to get an A?’ There is no easy answer to that question. Although excellent students are not all the same, the following are characteristics generally observed in ‘A’ students:

- 1) Attend class every day. Absence rates among ‘A’ students are usually very low.
- 2) Complete the modules with out of class work when needed.
- 3) Understand the material rather than relying upon memorization for the test. They are able to apply ideas learned in other parts of the class (and other classes) to the issues they are studying for this class.
- 4) Be Prepared for class. They have read the assigned material before the class session and are prepared to ask questions and discuss the material. Their work is on time and neat.
- 5) Have the attitude that the primary responsibility for their learning is their own, not the instructor’s. These students will do well in spite of the particular instructor in a class.
- 6) Work well in groups. Have good communication skills and are willing to listen to the ideas of others.
- 7) Study actively. They do not just read the material, but outline, take notes, and solve problems as they read. This helps their retention and understanding of the material. They use the study guides provided.”