EVS4021 Critical Thinking in Environmental Science

Spring 2026 – Class # 17400
Tuesday 8-9th periods (3:00 – 4:55pm), Thursday 9th period (4:05 – 4:55pm)
Rinker Hall, Room 215, 3 Credits

Instructor

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Teaching Assistant

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Office Hours (in-person): Mondays 1 – 2pm, Wednesdays 2 – 3pm, or by appointment

Course Description

Develops critical thinking and communication skills in the practicing environmental scientist. Students analyze the strengths, limitations and strategies of arguments regarding environmental science, policy and management, and craft arguments consistent with the scientific method.

Course Prerequisites

EVS_BA or EVS_BS, senior standing

Place in Curriculum

This is the required capstone course for the B.A. and B.S. major in Environmental Science. By the senior year, Environmental Science majors have acquired comprehensive knowledge in the science and policy tracks and are ready to explore implications of what has been learned, confront conflicts in classical paradigms, and apply knowledge and skills to real-world and emerging problems.

Student Learning Outcomes

By the end of the semester, you will be able to:

1. Appraise and hone your thinking in scientific matters: being able to clearly formulate questions; evaluate evidence; detect assumptions and gaps in data; notice when evidence is ignored; recognize appropriate support from or excessive reliance on conceptual generalizations (theory); ascertain and acknowledge biases driven by beliefs, worldviews, or preferences; weigh the validity of conclusions based on the strength or weakness of evidence; be more willing to discard positions for which there is little or contrary evidence; assign degrees of likelihood to conclusions you are willing to accept and advocate; and prepare to challenge and refute problematic arguments.
2. Internalize the scientific process and examine how you invoke it in your real-time thinking.

3. Formulate and present strong, logical, science-based arguments and evaluate and discuss arguments made by others.
4. Integrate prior knowledge of how biophysical systems work to better understand the constraints and opportunities for natural-resource and environmental management.
5. Evaluate the crucial role of social processes, communities, and institutions in effective natural-resource and environmental management.
6. Develop habits of disciplined thinking applicable to topics in the natural and social sciences.

Course Structure

EVS4021 is an in-person discussion-based course with three contact hours per week. We will aim to integrate three complementary aspects of scholarship:

a) Furthering your understanding of environmental science as an integrative, interdisciplinary endeavor, and what that means in practice.
b) Furthering your ability to link and trade-off between the social and the ecological domains of human activities and pursuits.
c) Exploring the impacts of ongoing research upon pressing environmental concerns and related management and policy paradigms.

To explore these items, we will take an interactive approach loosely inspired by Socratic discussion principles. In other words, students will take turns designing presentations and leading discussions, while the remaining students take active roles in putting forth ideas, well-informed opinions, and comments during class among each other under the guidance of the instructor. A typical class period will consist of two or more presentations by students, sometimes prefaced by instructor commentary. The instructor and TA will deliver students clear guidelines and rubrics for the selection of papers, mode of presentation, and discussions involved during the course, as well as providing adequate and timely feedback on students' performance.

Attendance and informed discussion are essential; students who attend classes, come prepared by reading the material, present effectively, and participate positively in class discussion should do very well.

The topics we will discuss depend on the unique interests of this semester's cohort of students. Possible examples include:

- The role(s) of a scientist in the modern world
- Issues pertaining to environmental quality, including air, water, and soil pollution and contamination
- Climate change, its impacts, adaptation, mitigation, and socio-cultural dimensions
- Energy systems, including the "green energy" transition, and the roles of geoengineering, nuclear power and new products from the fossil fuel industry in that transition
- Urban, suburban, and exurban growth patterns and their implication
- Agriculture, food, & patterns of consumption
- Environmental Management & Policy

Textbooks, Learning Materials, and Supply Fees

There is no required textbook for this course. Much of our discussion will revolve around peer-reviewed scientific literature selected by students, but we will complement this with pre-print articles, well-written book chapters, editorials, news reports, and audio/video materials. These will be made available through Canvas.

Technical Support

UF Computing Help Desk & Ticket Number: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week. https://helpdesk.ufl.edu/ | 352-392-4357

Weekly Course Schedule

Adjustments to our schedule may be necessary during the semester due to unforeseen circumstances. Any changes will be announced in class and posted on Canvas.

Week	Topic	Assessment	Due Dates
Jan 13/15	Course Introduction	Sign up for first presentation time Attend W. Moseley talk for seminar report	In class, Jan 13 Jan 15 or 16
Jan 20/22	First presentations begin	First presentation	TBD on sign ups
Jan 27/29	First presentations	First presentation	TBD on sign ups
Feb 3/5	First presentations	First presentation	TBD on sign ups
Feb 10/12	First presentations	First presentation	TBD on sign ups
Feb 17/19	First presentations	First presentation	TBD on sign ups
Feb 24/26	First presentations	First presentation	TBD on sign ups
Mar 3/5	First presentations end	First presentation	TBD on sign ups
Mar 10/12	Guest speakers	Sign up for second presentation time Exam 1 – available Mar 5 to 12	In class, Mar 5 Mar 12
Mar 17/19	Spring Break	No class	
Mar 24/26	Second presentations begin	Second presentation	TBD on sign ups
Mar 31/Apr 2	Second presentations	Second presentation	TBD on sign ups
Apr 7/9	Second presentations	Second presentation	TBD on sign ups
Apr 14/16	Second presentations end	Second presentation	TBD on sign ups
Apr 21—May 1	Class wrap-up	Exam 2 – available Apr 22 to May 1	May 1, 12:30pm

Grading Policy

Course grading is consistent with UF grading policies.

Course Grading Structure

Assignment Type	Point Value	Percent of Final Grade
Attendance	100	10.0%
Participation	100	10.0%
Exams (2 x 200 points)	400	40.0%
Seminar Reports (3 x 60 points)	180	18.0%
Presentation 1	120	12.0%
Presentation 2	100	10.0%
Total	**1000**	**100.0%**

Attendance and Participation: EVS4021 is a discussion-based class. Therefore, actively engaging in the course is a prerequisite for success and achieving the student learning outcomes. Please arrive on time and be prepared to contribute. Your engagement grade is based on the quantity and quality of your contributions to formal and informal in-class discussions and activities.
On-time attendance is mandatory. You are permitted to miss up to **three** class periods unexcused without direct impact to your attendance grade. Excused absences will not count as part of your attendance grade. Missing more than eight cumulative unexcused class periods during the semester will result in a failing grade for the course. Note that double period classes count as two class periods. Additionally, inappropriate or disruptive classroom behavior, and lack of active participation will result in a reduction of your grade.

Presentations: Each student will do multiple original presentations for EVS4021 this semester. They should be well-designed and rehearsed, backed up by attractive and engaging slides that provide relevant context or additional detail, and reference multiple credible sources. The narration should not duplicate but rather complement the information on the slides.
Presentations will have varying lengths, posted on individual assignment guidelines on Canvas. Some presentations will require students to identify a topic and/or a reading for the class ahead of time. In these instances, students must submit their proposed topic for approval no later than 8 calendar days prior to their scheduled presentation. Similarly, some presentations will require students to select and post a high-quality reading assignment for dissemination to the class no later than 6 calendar days prior to their scheduled presentation. For all presentations, a copy of the final slides should be made available no later than noon on the day of the presentation.

Exams: Students will complete two take-home essay exams during the semester. Each will contain 2-3 prompts, of which you will choose 1-2 (depending on prompt complexity) to answer in the form of research papers totaling between 1500 and 2000 words in length, not including references. Prompts may ask you to further analyze material presented in the course, explore current or emerging environmental issues or news coverage, “wicked problems”, or the interface between environmental science and society at large (among others). You will search the library and other data sources for a complete and up-to-date understanding of the subject, the current issues it presents to society, and

proposed solutions and their prospects. Peer-reviewed articles and other references must be cited/referenced appropriately using APA 7th edition format. The essay should contain original conclusions backed by substantial evidence. Exam essays must be completed individually without the help or input of others.

Seminar Reports: During the first month of class, you will attend three in-person seminars on campus. No Zoom seminars, please! The first will be a special event during the first week of classes, as a preeminent speaker is visiting campus to give multiple talks. Another must be part of SNRE's departmental seminar series (unless another course in which you are enrolled conflicts – let me know by email no later than the second week of class if this is the case). The last can be part of any UF seminar series of your choice. As you watch each seminar, you will pay special attention to the presenter's style, including the way they structure the presentation, the design of their presentation materials, how they engage (or fail to engage) the audience, how they respond to audience questions, etc. You will then submit a brief review of each seminar that should include at least two things you learned in terms of the presented content, and two things the presenter did well (or poorly) that you can apply to your own presentation skills in this class and beyond. These submissions should be reflections of between 400 and 500 words in length each.

Grading Scale

Grade	Points	Percentage
A	930.0 to 1000.0	93.0 to 100.0%
A-	900.0 to < 930.0	90.0 to < 93.0%
B+	870.0 to < 900.0	87.0 to < 90.0%
B	830.0 to < 870.0	83.0 to < 87.0%
B-	800.0 to < 830.0	80.0 to < 83.0%
C+	770.0 to < 800.0	77.0 to < 80.0%
C	730.0 to < 770.0	73.0 to < 77.0%
C-	700.0 to < 730.0	70.0 to < 73.0%
D+	670.0 to < 700.0	67.0 to < 70.0%
D	630.0 to < 670.0	63.0 to < 67.0%
D-	600.0 to < 630.0	60.0 to < 63.0%
S	< 600.0	< 60.0%

Academic Policies and Resources

Academic policies for this course are consistent with university policies. See https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

Campus Health and Wellness Resources

Visit https://one.uf.edu/whole-gator/topics for resources that are designed to help you thrive physically, mentally, and emotionally at UF.

Please contact UMatterWeCare for additional and immediate support.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Privacy and Accessibility Policies

- Instructure (Canvas)
  - Instructure Privacy Policy
  - Instructure Accessibility
- Zoom
  - Zoom Privacy Policy
  - Zoom Accessibility

Make-up Policy

To maintain fairness, only work missed due to excused absences can be made up. For absences excused ahead of time, I will develop a make-up plan and schedule. In case of documented illnesses or emergencies, arrangements for completing make-up exams or assignments should be made upon your return to class. If experiencing truly extenuating circumstances resulting in longer absences, you should notify me as soon as possible to develop a plan to make up missed work. Unfortunately, I am unable to accept assignment do-overs (resubmissions for a higher score) in this class. If you do not submit an exam for a non-excusable reason, a score of zero will be entered.

Late Work

You are responsible for turning assignments in on time unless an extension has been requested via email prior to the deadline. In case of true documented emergencies, I may waive this requirement. Technical difficulties are not generally an excuse for missing an assessment or assignment.

Assignments submitted between one and four days late will incur a penalty of 10% of the possible points per day. I highly recommend starting on assignments early to preclude unexpected emergencies or late-semester stress from compromising your grade. Deadline extensions may be available on certain assignments if requested at least 24 hours ahead of the deadline via email. Deadline extensions will not be available for exam essays unless an excusable reason is provided.

Academic Honesty and Plagiarism

This course follows the university's honesty policy regarding cheating and plagiarism. The School of Natural Resources and Environment's undergraduate programs expect ethically and morally responsible behavior from its students and has zero tolerance for academic dishonesty. We recognize that being a

university student is a time-consuming and often stressful experience. Please give us a chance to help you instead of using unauthorized shortcuts!

Many students are unaware of the seriousness of violating academic ethics. CHEATING, WHETHER INTENTIONAL OR UNINTENTIONAL, IS A SERIOUS AND POTENTIALLY CAREER-ENDING FORM OF ACADEMIC MISCONDUCT. It is not a "victimless offense"; it has serious repercussions for your fellow students, your instructor, the reputation of SNRE, and – most of all – yourself!

Copying and pasting from external sources without attribution is never okay in academia. Direct quotes are not commonly used in science writing; paraphrases accompanied by a proper in-text citation should be used instead. Inappropriate use of direct quotes in this class will result in a loss of credit.

Artificial Intelligence (AI) Policy

Artificial Intelligence is an amazing new technology that is revolutionizing the way we access and process information, just like computers, the internet, and mobile phones did in prior decades. Large language models (LLMs) can be useful tools to assist (but NOT replace) writers when brainstorming, spellchecking, and (to a limited extent) editing if used judiciously and with the knowledge that outputs are subject to faulty reasoning and made-up (hallucinated) information. Brainstorming refers to using AI to explore general ideas and questions, not producing detailed outlines or arguments that will appear in your submission. Students should be cognizant that LLMs like ChatGPT, Gemini, Claude, Llama, and similar AI models are not considered academically credible sources and must not be treated as such. They are also ill-suited for finding scholarly sources and generally do a poor job at formatting reference lists.

All work submitted for credit in this class must be entirely your own. Using AI to generate any content for you, including but not limited to generating key talking points or copying & pasting AI output in whole or part into work submitted for this class (even if you subsequently edit or paraphrase the AI output), **constitutes academic dishonesty**. You may not use AI to substitute for applying your knowledge and critical thinking on assignments.

If you use any AI for **any part of an assignment** (including brainstorming ideas or editing), you **must** state so as part of your submission and include the entire prompt(s) that you used (below your list of references); failure to do so will be considered academic dishonesty. If in doubt whether a particular AI use violates this course's policy, ask first! You will be fully responsible for any errors caused by referencing AI output, and **any unsanctioned AI use will be referred to the Dean of Students Student Conduct & Conflict Resolution office for adjudication**. If found responsible for violating this course's AI policy and/or the UF Honor Code, significant sanctions will be imposed! Remember that taking unsanctioned shortcuts is **your** decision, and you must live with the consequences of doing so, even if this means that you will not be able to realize your career aspirations, continue as an Environmental Science major, or remain a student at the University of Florida.

Further, many web sites, online services, and software packages (e.g. Grammarly, Canva, many word processors) now feature both low-level assistive and high-level generative AI integrations. These policies apply to these services the same way that they do for LLMs. It is your responsibility to determine if any tools you use contain generative AI components, and if so, disclose use of that AI. AI-generated images may not be used unless expressly approved in writing by your instructor for a specific assignment.

External Communication

You may use GroupMe or similar tools to communicate with other students about the class and environmental science-related topics. **You may not, however, discuss exam questions/answers with others, including exams from prior semesters, or collaborate on any assignments intended to be worked on individually**. Doing so constitutes academic dishonesty.

Drop-in Help Hours

Please take advantage of office hours to discuss any questions or concerns. Contact your teaching assistant for basic questions and clarifications regarding grades and feedback they are responsible for. Contact me regarding grades and feedback I provide, absences, grading disputes, concerns about other students, and any other issues. If you cannot be present for the regularly scheduled help hours, we will attempt to accommodate you at an alternate time.

Paper Guidelines

All writing assignments will be submitted to Canvas and must be in Microsoft Word (.docx of .doc) format, with the proper file extension. UF provides fee-free access to Office365 to create Word and other Office files as needed for this and other courses. Other file formats will not be accepted. All assignments must include citations and references formatted according to APA 7th edition.

If you experience difficulties in the writing process are encouraged to contact your TA or me for advice or visit the UF Writing Studio.