Critical Thinking in Environmental Science

EVS 4021 – Class #13428
3 credit hours – Fall 2024 Semester
T 8-9th periods (3:00 – 4:55pm), R 9th period (4:05 – 4:55pm)
Classroom: Turlington 3012

Instructor: Dr. Ryan Good (he/him), Instructional Assistant Professor
Email: ryangood@ufl.edu
Office Location: McCarty D, Room 2049
Office Phone: 352-294-6348
Drop-in help hours: T 1:00 – 2:30pm, W 4:00 – 5:00pm, or by appointment

Teaching Assistant: Kaitlyn Tucker (she/her)
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Office Location: McCarty D, Room 2053
Drop-in help hours: M 1:30 – 2:30pm (via Zoom), F 10:30 – 11:30am, or by appointment

Catalog 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.

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 and readings

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.

Acknowledgment and Disclaimer
The previous instructor of this course, Dr. Porzecanski, has decades of lived experience in many of the topics we will be exploring. Due to his retirement, you will miss out on his illuminating real-world examples and his style of facilitating discussion through challenging, multidimensional questions. This syllabus mirrors Dr. Porzecanski's closely, and I acknowledge that much of its content is taken verbatim or in modified form from his syllabus for this class. Portions of the syllabus are also derived in some fashion from Dr. Coenen, who has on occasion taught the class.

Grading Policies

Grading is based on assignment-specific rubrics provided on Canvas and the student learning objectives listed in the syllabus. It is your responsibility to ensure that all assignments are successfully uploaded to Canvas. Missing, corrupt, or incompatible files may result in grade penalties up to a score of zero for the assignment. You are responsible for maintaining duplicate copies of all work submitted in this course until the end of the semester.

In case of a grading dispute, you must notify your me by email within one week of the date the grade is posted to Canvas. Please include an explanation of what aspect of your grade you disagree with. End-of-semester requests for grade bumps, assignment do-overs, additional extra credit, etc. will be denied. Please do not wait until the end of the semester to discuss problems with the course material or your performance in class. Your well-being and success are important to me, SNRE, the College of Agricultural and Life Sciences, and the University of Florida, so please contact me to discuss any concerns as soon as they arise.

Information on current UF grading policies for assigning grade points can be found at
https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/.

Grading scale

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

Your final grade for this course will be based on a 1000-point scale and will be weighted as follows:

Grade Component	Points	Percentage
Engagement	250	25.0%
Presentations	250	25.0%
Exam 1	200	20.0%
Exam 2	200	20.0%
Seminar report 1	50	5.0%
Seminar report 2	50	5.0%
Total	**1000**	**100%**

Engagement*:* 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. Repeated unexcused absences, inappropriate or disruptive classroom behavior, and lack of active participation will result in a reduction of your engagement grade (see Course Policies for additional details).

Presentations*:* Each student will do multiple original presentations for EVS4021 this semester (likely 2-3, exact number will be dependent on the course's final enrollment total). 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 can be no longer than 12 minutes in length and conclude with two critical thinking questions to lead into an approximately 8-minute-long class discussion, which the presenter will also facilitate with the help of the instructor. Any remaining class time after all scheduled presenters have completed their talks and subsequent discussions will be dedicated to revisit unresolved aspects of the day's discussions or open discourse on current topics.

Student presentations should probe or extend the subject, or reveal some emerging problem or issue that was not obvious earlier. Your presentation will be successful if you address most of these questions:

- What is the nature (structure, context, significance) of the emerging issue you're presenting?
- What are your key findings and conclusions?
- What's new or surprising to you?
- What is the nature and relative strength of the evidence?
- Do the arguments reference or appear to rely on a well-known body of theory, concept, or idea?
- Do the arguments appear to depend on assumptions, stated or unstated?
- Are the arguments influenced by belief, political philosophy, worldview, or desired outcome?
- What is the nature of key uncertainties?
- What alternative conclusions, controversies, and questions are raised (or should have been raised), and what is their basis?

Students must contact the instructor by email or during office hours for approval of their proposed topic no later than 8 calendar days prior to their scheduled presentation. Students scheduled to present on Tuesdays must select and send to the instructor a high-quality reading assignment for dissemination to the class no later than midnight on the preceding Wednesday. Students scheduled to present on Thursdays must select their reading assignment no later than the preceding Friday. Their 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 a research paper 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*:* By the end of September, you will attend two in-person seminars on campus. No Zoom seminars, please! One must be part of SNRE's departmental seminar series (unless another course you are enrolled in conflicts – let me know by email no later than the second week of class if this is the case). The other can be part of any UF seminar series of your choice. As you watch the 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 are reflections up to 500 words in length.

Course Policies

Inclusiveness Statement
Diversity is a one of our biggest assets in the classroom and in environmental science. Different perspectives enrich our understanding of the variety of human-nature interactions and are imperative to developing just solutions to complex environmental problems. This classroom is a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities & races, genders, gender identities, gender expressions, national origins, religions (if any), sexual orientations, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class. This does not mean that you are not allowed to disagree with others, but that such differences should be explored without ad hominem judgment. It is my goal to present diverse societal perspectives on environmental issues. For pedagogical reasons, this may include strategies such as "playing devil's advocate" or "putting yourself in the shoes of others" from time to time. At no point should students misconstrue such pedagogical strategies as an endorsement of any position in conflict with CS/HB 7 as adopted by the 2022 Florida legislature. Should I inadvertently make a statement offensive to you, please let me know so that I may learn and grow from the incident.

Attendance Policy
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. [Click here to read the university attendance policies](). Requirements specific to this class are outlined below:

On-time attendance is mandatory. You are permitted to miss up to three class periods unexcused without direct impact to your engagement grade, although missing certain activities beyond the typical in-class discussion will incur a score of zero for those activities.
Absences will be excused:
-   in case of illness or injury, upon receipt of a doctor's note or equivalent, or by following the procedure outlined here: https://care.dso.ufl.edu/instructor-notifications.
-   in case of religious holidays, by informing me via email ahead of time.
-   in case of military duty, jury duty, participation in academic conferences, or participation in official university or UAA events, by providing appropriate evidence ahead of time.
-   in case of family emergencies, deaths, or other extenuating circumstances, by following the procedure outlined here: https://care.dso.ufl.edu/instructor-notifications.
-   in all other cases, or if you are unsure, please email me as soon as feasible. Absences are generally not excused for personal non-emergency travel and vehicle problems.

If absent, it is your responsibility to make yourself aware of all due dates and upcoming activities via the course e-learning site and obtaining notes from fellow students on the material you missed.

Make-up Policy
To maintain fairness, <u>only work missed due to excused absences can be made up</u>. 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. Missed extra credit opportunities cannot be made up. 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. <u>Technical difficulties are not generally an excuse for missing an assessment or assignment</u>; you should have contingency plans in case any such issues arise. I recommend storing your documents on a cloud service that can be accessed from any device ([Dropbox](#) and [OneDrive](#) are free to UF students), and having a plan for internet outages (such as identifying a source for public Wi-Fi near you or using your cell phone as a Wi-Fi hotspot). Try not to wait until the last minute to submit assignments!

Assignments submitted between one and four days late will incur a penalty of 10% of the possible points per day. Work submitted more than four days late will be assigned a score of zero. I <u>highly</u> 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. If extended deadlines are not met, late penalties will be assessed based on the <u>original</u>, not the revised due date! Deadline extensions will not be available for exam essays unless an excusable reason is provided.

Artificial Intelligence (AI) Statement
AI applications including natural language chatbots like ChatGPT are an amazing new technology that is revolutionizing the way we access information, just like computers, the internet, and mobile phones did in prior decades. AI can be a useful tool for tasks such as editing, spellchecking, organizing, and brainstorming. **Other uses, including copying & pasting chatbot output and representing as your own work, are not appropriate in college courses; doing so constitutes academic dishonesty.** If you use any AI application for any part of an assignment (including brainstorming ideas or editing), you must state so as part of your submission. AI-generated images may not be used unless expressly approved by your instructor for a specific assignment.

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.

Course Communication
The preferred way to get ahold of me or your TA outside of drop-in help hours is via Canvas message or direct email from your official UF email account. You can expect a response within 24 hours on weekdays in most cases. Emails from outside providers, like Gmail, are not considered secure and will be deleted to protect student privacy.

All students are expected to check the course web site on Canvas (https://elearning.ufl.edu) each weekday. In addition, we may send specific communications directly to your UF email, which you should check daily as well. You should enable Canvas notifications for this class, so that you are notified immediately about grading, assignment feedback, due date changes, announcements, etc.

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.

Canvas Display Name Change
Canvas uses the "Display Name" as set in myUFL. The Display Name is what you want people to see in the UF Directory, such as "Ally" instead of "Allison." To update your display name, go to one.ufl.edu, click on the dropdown at the top right, and select "Directory Profile." Click "Edit" on the right of the name panel, uncheck "Use my legal name" under "Display Name," update how you wish your name to be displayed, and click "Submit" at the bottom. This change may take up to 24 hours to appear in Canvas. This does not change your legal name for official UF records.

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 (see *Campus Helping Resources* below).

Technical Difficulties
For help with technical issues or difficulties with Canvas, please contact the UF Computing Help Desk at
https://helpdesk.ufl.edu .
352-392-HELP (4357)
Walk-in: HUB 132

While technical difficulties are not generally an acceptable excuse, any requests for make-ups (assignments, exams, etc.) due to technical issues should be accompanied by the ticket number received from the UF Computing Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You should email me within 24 hours of the technical difficulty if you wish to request a make-up.

CALS and University of Florida Policies

Academic Honesty and Plagiarism
As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."* It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: https://sccr.dso.ufl.edu/process/student-honor-code/.

PLAGIARISM, WHETHER INTENTIONAL OR UNINTENTIONAL, IS A SERIOUS AND POTENTIALLY CAREER-ENDING FORM OF ACADEMIC MISCONDUCT. Copying and pasting from external sources without attribution is <u>never</u> 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.

Grades and Grade Points
For information on current UF policies for assigning grade points, see
https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Course Evaluation Process
Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/.

Zoom Conference Privacy
Should it become necessary or convenient to hold classes virtually using zoom, those class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you

will need to keep your mute button activated. As in all courses, unauthorized sharing of recorded materials is prohibited.

Software Use
All UF faculty, staff and students 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.

Services for Students with Disabilities
The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.
You must submit this documentation prior to submitting assignments or taking quizzes or exams. Accommodations are not retroactive; therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations. The DRC may be contacted by visiting 001 Reid Hall, calling 352-392-8565, or visiting their web site at www.dso.ufl.edu/drc/.

Student Complaints
Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/
Online Course: https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complaint

Campus Helping Resources

Your wellbeing is important to me and the University of Florida community. If you experience a crisis or personal problem that interferes with your wellbeing, please utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance. You are, of course, always welcome and encouraged to talk to me about any issues that interfere with your academic performance and wellbeing.

- *U Matter We Care.* 352-292-2273. UF's umbrella program for UF's caring culture. Provides students in distress with support and coordination of the wide variety of appropriate resources. https://umatter.ufl.edu/

- *University Counseling & Wellness Center*, 3190 Radio Road, 352-392-1575. Counseling Services, Groups and Workshops, Outreach and Consultation, Self-Help Library & Wellness Coaching. https://www.counseling.ufl.edu/

- *Gatorwell Health Promotion Services*, multiple locations on campus, 352-273-4450. GatorWell uses health promotion strategies to educate UF students about health and wellness topics relevant to the college experience. https://gatorwell.ufsa.ufl.edu/

- *Career Connections Center*, First floor Reitz Union, 352-392-1601, https://career.ufl.edu/

- Student Success Initiative, https://studentsuccess.ufl.edu/

- *Dean of Students Office*, 202 Peabody Hall, 392-1261. Among other services, the DSO assists students who are experiencing situations that compromises their ability to attend classes. This includes family emergencies and medical issues (including mental health crises). https://care.dso.ufl.edu/

- *CLAS Academic Resources*, Turlington Hall, 352-392-2010 or 352-392-6420. General study skills, tutoring, and supplemental instruction for select classes. https://academicresources.clas.ufl.edu/

- *Writing Studio,* 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/

- *Field and Fork Pantry.* Food and toiletries for students experiencing food insecurity. https://pantry.fieldandfork.ufl.edu/

- *UF Help Desk*. 352-392-4357. Technical support for computer issues and UF web services. https://helpdesk.ufl.edu/

- *University Police Department*, 352-392-1111 (or 9-1-1 for emergencies). https://www.police.ufl.edu/

- *Library Support.* Various ways to receive assistance with using the libraries or finding resources. https://uflib.ufl.edu/find/ask/

Critical Dates (subject to change – please check the Canvas calendar for the latest information)

Course introduction	Thursday, August 22
Student presentations start	Tuesday, September 3
Seminar reflections due	Thursday, September 26
Exam 1 available	Friday, October 11
Exam 1 due	Thursday, October 17
Exam 2 available	Monday, December 2
Exam 2 due	Wednesday, December 4

Course Alterations
Due to unforeseen circumstances or to enhance class learning opportunities, it may be necessary to alter the information given in this syllabus during the semester. Such changes are not unusual and should be expected. All changes to the syllabus will be announced in class and posted to Canvas. It is your responsibility to keep up with any syllabus changes.