

ENSP 2000 Fall 2019 Sect. 1
TTh 11 AM-12:12 PM Brackett 212

Instructor: Scott Brame brames@clemson.edu
 340B Brackett 864-656-7167

Office Hours: Tuesdays 8-9:30, 12:20-1:30 and Thursday: 12:20-3:20, and by appt.

Contacting Me: Email is best if you cannot speak to me personally. If I do not respond to an email within 24 hours email me back and put "Reminder of my earlier request" at the top in the body.

Perusall: We will be using the Perusall app embedded in Canvas. The book for this course will be obtained online through Perusall and you will access the e-book through Perusall. You do not need a printed text! How to access and use Perusall will be presented in the first class.

Book: Environment: The Science behind the Stories Plus *MasteringEnvironmentScience*, 6ed, by Withgott and Laposata, ISBN 0134145933. The e-book should be bought through the Perusall link on Canvas. You have two options: \$55 for 180 day access, \$92 for eternal access.

Attendance: Attendance is expected and any material covered in class and announcements made (including changes in assignments and policy) in class are your responsibility. Given the focus of this class on critical thinking, attendance will often be the deciding factor in your grade.

Waiting Policy: If the instructor fails to show within 10 minutes of the starting time of the class you are allowed to leave.

Hour Tests: Hour Tests 1 and 2 are taken online during the regular class time, but are remotely proctored. Hour Test 3 will be taken online, but you must be present in the classroom. Details for the remote proctoring will be supplied prior to the tests.

About this Course: Environmental Science (ES) is an exploration of the causes and effects of environmental related concerns that affect us in our daily lives. A critical analysis of these environmental problems will reveal that they are a direct result of existing laws, policies, business practices, and consumer demand.

Course Goals:

- Create an awareness of the effect of environmental related concerns in our daily lives
- Develop a broad foundation of essential ES concepts that should enable you to recognize and formulate potential solutions for many of the environmental problems that we currently face
- Uncover the dependencies between related ES topics such as sustainability, ecological services, economics, social demands, biodiversity, resource use, and energy sources
- Adopt a critical thinking approach that will enhance your ability to excel not just in this class, but in other classes as well as your professional and personal life

Grading:

Perusall	10%
inClass Activities	5%
Project	10%
Hour Test 1	25%
Hour Test 2	25%
Final	25%

Grading scale:

A:	90-100
B:	80-90
C:	70-80
D:	60-70
F:	below 60

Critical Thinking Integration: This course purposely integrates critical thinking (CT) approaches and activities into the course experience. The emphasis of a CT class is not to memorize facts and regurgitate them on an hour test. This experience is designed to improve your critical thinking skills through an exploration of ES concepts, analysis of case studies, synthesis of alternative solutions, and the articulation of these ideas at higher levels of abstraction.

Excelling in this Class: You will have to do more than just know the definitions of key ES terms, that *task* is not the primary *goal* of a critical thinking experience. Your goal is learn how to effectively articulate and **apply** your knowledge of ES concepts on the hour tests. The application of concepts will be closely tied to the Student Outcomes listed below.

Student Outcomes: An important facet of developing your critical thinking skills is the process of tying desired outcomes to an action.

You should be able to:

Critically examine complex challenges presented by ES problems

Most environmental problems have complex backgrounds and conflicting factors. If we are to have a truly sustainable world, we must balance the competing interests of society, economy, and the environment. This implies that we must closely examine each competing interest.

Analyze multi-dimensional ES problems from several viewpoints

Deciphering the multiple levels inherent in a typical environmental issue is not a simple process. Because of the different competing interests, you must dig deeply into underlying causes and break them down into their individual components. This process requires looking beyond your current knowledge base and being open to new ideas from other individuals in ways you had not yet considered.

Connect the ideas and logic inherent in one concept to other concepts

The process of connection often requires the extrapolation of a concept you learned in one ES field into another ES field. Throughout the semester, we will be encountering issues that are directly and indirectly related to a concept we covered earlier. Your goal is to view this class as a process of building and extending your current knowledge base. In other words, almost all the topics are connected in one way or another. On the **Hour Tests**, you will be assessed to determine how well you are able to make these connections.

Devise new and alternative solutions to complex multi-dimensional ES problems

Environmental issues often do not have simple solutions. You will be challenged to apply novel solutions that may not have a precedent in that particular field. The reality is that if you want to change the status quo, you will need to think “outside the box”.

Articulate basic and complex Environmental Science concepts and communicate these concepts with others in both formal and informal settings

Communicating on multiple levels is the goal of this class. You should be able to discuss relevant topics not only in class, but with your friends, environmental professionals, and future employers. How you construct your speech reveals much about your ability to connect, analyze and synthesize.

Other Important Outcomes: A typical American subjects themselves to a wide variety of information on a daily basis. In order to make sense of this information, it is necessary to:

- Separate fact from inferences

- Correctly interpret relationships (numerical, etc.) in graphs and figures
- Identify correct and incorrect conclusions
- Identify key assumptions and determining which is correct and incorrect

Service Learning (Extra Credit): Learning about these topics is a one-dimensional experience. The knowledge gained from this course imparts a special responsibility to improve the social and natural environments upon which we, and all other organisms, depend for our continued survival. This course includes a service learning component whereby you are required to extend what you have learned with a real world experience. See your instructor if interested by Sept 23.

Use of Technology in the classroom: This is an issue of trust. Students believe that they should be trusted to use technology appropriately in the classroom. Here are the appropriate uses as defined for this class:

- (a) Computers, tablets, and cell phones are permitted if their use is related to the class.
- (b) Checking email, facebook, playing video games, internet surfing, etc. during class is detrimental to the development of your critical thinking skills and may be distracting to your class colleagues. If you decide to engage in this, you should sit in the back of the room so as to minimize the distraction this activity has on those who want to learn the class material.
- (c) It is not acceptable to have your cell phone ring during class.
- (d) Texting during class is considered disrespectful behavior.

Instructor Evaluations: All students are *encouraged* to submit an evaluation.

Student Accessibility Services

Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students who experience a barrier to full access to this class should let the professor know, and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by emailing studentaccess@lists.clemson.edu.

Academic Integrity

As members of the Clemson University community, we have a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.

A simple definition of plagiarism is when someone presents another person's words, visuals, or ideas as his or her own. The instructor will deal with plagiarism on a case-by-case basis. All infractions of academic dishonesty will be reported to Undergraduate Studies for resolution through that office.

Non-Discrimination

Clemson University is committed to providing a higher education environment that is free from sexual discrimination. Therefore, if you believe you or someone else that is part of the Clemson University community has been discriminated against based on sex, or if you have questions about Title IX, please contact the Title IX Coordinator, Alesia Smith, who also serves as the Executive Director of Equity Compliance, at 110 Holtzendorff Hall, 864-656-3181 (voice) or 864-656-0899 (TDD).

Reading Schedule and HW due dates

Reading assignments for: Environment: The Science behind the Stories, 6ed, by Withgott and Laposata

Aug

- 22 What is Critical Thinking?
- 27 Introduction, Chapt 1: p. 2-9
- 29 e-Learning Day: Chapt 1: Nature of Science and Sustainability, p. 10-20

Sept

- 3 Chapt 2: Matter, Energy, and Geology
- 5 Chapt 3: Speciation and Extinction, p. 47-73
- 10 Chapt 4: Community Ecology, p. 74-89, Ecological succession and biomes, p. 90-100
- 12 Chapt 5: Ecosystems and nutrients, p. 104-116, Ecological Services and Geochemical cycling, p. 117-129
- 17 Chapt 6: Ethics and Environmental History, p. 132-152,
Out-of-class HW: watch *Story of Stuff*, <http://storyofstuff.org/movies/story-of-stuff/>
- 19 Chapt 7, p.161-177, In-class Film: Surviving Progress

24 Review

26 **Hour Test 1**

Oct

- 1 Chapt 9: Soil and Erosion and Overgrazing, p. 214-239
- 3 Chapt 10: Agriculture and Pest Control: p. 243-260
- 8 Chapt 10: GMOs, Animals, and Sustainable Ag, p. 260-270
- 10 In-class Film: *Food, Inc.* if you miss class watch clips at:

[Food, Inc. movie trailer \[HD\] Official Full Length](#)

[McDonald's, the meat industry, and chickens \(from Food, Inc\)](#)

[Food, Inc. - Industrial Chicken Farmers](#)

<http://www.youtube.com/watch?v=xThSnJb8miQ&feature=related>

15 **Fall Break**

- 17 Chapt 23: Mineral Consumption, p. 644-661
- 22 Chapt 18: Global Climate Change, p. 484-502
- 24 Review

29 **Hour Test 2**

31 Chapt 15: Water Pollution, p. 408-416

Nov

5 Chapt 19: Fossil Fuels, p. 518-548, In-class Film: Kilowatt Ours,

7 Chapt 20: Nuclear Energy, Biofuels and Hydropower, p. 552-576

In-class Film: Blind Spot

12 Chapt 21: Alternative Energy, p. 580-605,

14 Chapt 17: Air Pollution

19 Review

21 **Hour Test 3**

26 **Thanksgiving**

28 Project presentations

Dec

3 Project presentations

5 Project presentations