

Principles of Sustainability – SOIL/FS 436/536 (3 cr) Spring 2024 (v.1.8.24)

Doculectures: Online – Scheduled/Bundled Weekly

Prerequisites for class: None; Upper-division or graduate student standing required.

Instructor: Professor Greg Möller

Office Location: Sandpoint Organic Agriculture Center (SOAC) and UI Moscow campus, 204a Food Research Center

Telephone: 208-885-0401 desk, or **personal cell phone (preferred)**

E-mail: gmoller@uidaho.edu

Delivery: Online via HD streaming video. Students are required to have modern computer hardware and software, and access to a broadband internet connection. Documentary style lectures (doculectures) are available by streaming video. The doculectures are available in HD streaming embedded on the Principles of Sustainability course website. The doculectures are available for direct streaming or download to computers, smartphones, or tablets at the Course Web Site using the URL www.webpages.uidaho.edu/sustainability or the [Vimeo Home Page](#) for Professor Greg Möller using the URL <http://vimeo.com/gregmoller>. The doculecture videos can also be accessed directly at the Vimeo Channel for Principles of Sustainability using the URL

<http://vimeo.com/channels/prinsus>. With this Channel and an internet connection you can also explore doculectures in large screen HD using the media streaming capability of computers and other internet connected devices including smart TV. This approach requires accessing the “Professor Greg Moller” Vimeo Channel for the course. Doculectures, with surround-sound and virtual elements, are audio optimized in surround-sound for headphones/earbuds.

Both on-campus and off-campus students will view formal doculectures over the Web. Students can view doculectures anytime over the Web as your schedule and location permit. Because of the nature of the course, no formal office hours are scheduled; however, I can meet with you online, by phone, by text, most anytime you wish – please contact me with any questions or concerns you may have. Email/phone contact (off/on-campus) or other appointments are welcome when available. Phone/text contact via personal cell phone # given to enrolled students. Texts require student name and course to help me identify you. We can use Zoom and other VOIP clients, individual and small group voice conferencing available (via Zoom, MS Teams). All official course communications using email will be by the student’s official university email address; please forward that email address to any other, if you prefer alternate email addresses.

Textbook:

Introduction to Sustainability: Road to a Better Future, by Nolberto Munier. Springer; 1st edition; 456 pages; ISBN-10: 1402035578 (Available new (\$\$) and used (\$) from online booksellers; in ebook, paperback).

Online Course Web Site and Learning Management System:

Course Web Site: <http://www.webpages.uidaho.edu/sustainability>

Canvas: [UI Canvas LMS](#) for assignments, readings, homework, quizzes and exams (linked via Canvas course website for enrolled students).

Course Abstract: Sustainability is a broad area of inquiry, rapidly changing as we develop new knowledge of human practices that are more sustainable or less sustainable. Seek a hard vision of sustainability, and you will surely be disappointed. Our gaps in knowledge are great, but the task of growing a more sustainable global community is greater. We are faced with immense challenges that grow greater by the day. The social, political, economic, and environmental complexity of the task often confounds and defeats simplistic approaches. Yet, many of our solutions will lie in a simplification of our approach to community and commerce.

Crafting a sustainable present and future has all the elements of a "super wicked problem" (Levin et al., 2007):

1. Time is running out.
2. No central authority.
3. Those seeking to solve the problem are also causing it.
4. Hyperbolic discounting occurs.

It is the mission of the *Principles of Sustainability* course to provide students with a broad understanding of sustainability in the multiple human dimensions that it is manifested. Upper-division and graduate-level students from many disciplines will find the courseware of broad interest, intense in some areas and introductory in others,

but complete in a desire to present the landscape of a general study in sustainability. The course attempts to synthesize linkages and commonalities of understanding through a presentation of the major elements in the field. Other specialty courses in a student's disciplinary area may give a sidebar or complete disciplinary treatment to sustainability that will help organize a more complete understanding in a particular focus area of sustainability, and thus complement this course.

Frequently Asked Questions (FAQs): A comprehensive listing of FAQs and answers regarding the course is downloadable from the course website and Canvas.

Student Learning Outcomes: Upon successful completion of this course, students will

1. Be able to demonstrate a fundamental knowledge of issues, principles, concepts, processes, and practices related to sustainability.
2. Be able to demonstrate a fundamental knowledge of the history of relationships to nature and how that has influenced the success of societies in the ancient world and the modern era; demonstrate an understanding of the major international organization efforts to advance sustainability from the late 20th Century onwards.
3. Acquire mastery with the major issues, concepts, documents, and subject areas in some of the major arenas and domains of critical concern to sustainability.
4. Acquire mastery of sourcing and synthesizing information in aspects of sustainability, especially as it related to resources management, social and economic systems, and the basic science and engineering of critical aspects of sustainable development.
5. Be able to demonstrate a high quality of knowledge about the occurrence and significance of major concerns and developments in progress towards more sustainable communities, commerce, and management of natural resources.

Learning outcomes are assessed through student papers, including the midterm exam, case study, and grad-credit topic reviews, as well as completion of homework and the final exam.

Week-to-Week Course Outline: There are a variable number of Chapter Parts assigned per week, and each doculecture Part can have an assigned homework question set that is available in UI Canvas LMS. Doculectures can be 12-50 minutes long. As these are *PowerPoint-free* presentations, there are no slide notes, and students are encouraged to take notes after/during the presentations. Video transcripts are available in Canvas. There will be prompt questions for discussion, and peer-review of postings is encouraged. The schedule below is advisory and there is significant student-driven flexibility in accommodating student workload, commitments, and crises.

Course Doculecture Schedule (*readings only)

Week 1 & 2 January 11 – January 21

Chapter 1 - The Origins of Sustainability

Part 1 - The Ancients and Nature (18:02)

Part 2 - The Great Naturalists (33:15)

Part 3 - Religion and the Environment (11:40)

Part 4 - 20th Century Awakening of Sustainability*

Part 5 - Silent Spring as a Watershed Moment (59:43)

Part 6 - A Planet in Peril (34:48)

Week 3 & 4 January 22 – February 4

Chapter 2 - Standards of Sustainability

Part 1 - Definitions of Sustainability (14:09)

Part 2 - Methods and Markers for Sustainability (17:04)

Part 3 - Sustainable Development (28:21)

Part 4 - Resilience Thinking in the 21st Century (27:56)

Part 5 - The Precautionary Principle (30:30)

Part 6 - Emergy (21:15)

Part 7 - People + Planet + Profit (15:23)

Week 5 & 6 February 5 – February 18 Chapter 3 - A Culture of Waste

- Part 1 - Solid Waste Generation in the Developed and Developing World (42:43)
- Part 2 - Solid Waste Management in the Developed and Developing World (41:50)
- Part 3 - Reduce Reuse Recycle (16:23)
- Part 4 - Hazardous Waste Management (20:19)
- Part 5 - E-Waste (22:49)
- Part 6 - Our Plastic Footprint (36:59)

Week 7 February 19 – February 25**Chapter 4 - The Built Environment**

- Part 1 - Green Urbanism*
- Part 2 - Community Sustainability (16:54)
- Part 3 - Green Building (20:25)
- Part 4 - The Urbanization of Poverty and Slums: Challenges for Sustainability (21:53)
- Part 5 - Urban Heat Island Effect*
- Part 6 - Sustainable Transportation I (17:16)
- Part 7 - Sustainable Transportation II (15:45)

Week 8 & 9 February 26 – March 10**Chapter 5 - Industrial Approaches to Sustainability**

- Part 1 - Sustainable Practices in Industry (13:25)
- Part 2 - Life Cycle Assessment (42:40)
- Part 3 - Materials Flow Analysis*
- Part 4 - Design for the Environment*
- Part 5 - Managing for Sustainability (13:22)
- Part 6 - Sustainable Agriculture (48:42)
- Part 7 - Sustainable Forestry*
- Part 8 - Principles of Green Engineering and Green Chemistry*

Weeks 10, 11 & 12 March 18 – April 7**Chapter 6 - Energy Sustainability**

- Part 1 - Fundamentals of Electricity (33:29)
- Part 2 - Electricity: Generation (40:08)
- Part 3 - Electricity: Transmission, Distribution, Economics*
- Part 4 - Fossil Fuels: Coal (18:30)
- Part 5 - Fossil Fuels: Oil (27:54)
- Part 6 - Fossil Fuels: Natural Gas (19:39)
- Part 7 - Climate Change*
- Part 8 - Alternative Energy (22:23)
- Part 9 - Energy Efficiency as a Resource (19:23)
- Part 10 - Renewable Energy (16:56)

Week 13,14 & 15 April 8 – April 28**Chapter 7 - Sustainable Solutions for Water Resources**

- Part 1 - US and Global Water Resources (19:00)
- Part 2 - Water-Related Disease (17:04)
- Part 3 - Wastewater Treatment in Developed Countries (23:32)
- Part 4 - Sanitation Challenges and Approaches in Developing Countries *
- Part 5 - Water Reuse and Recycling*
- Part 6 - Land and Water Resources for Food and Agriculture*
- Part 7 - Water Competition (12:50, 10:29, 11:30)

Week 16 April 29 – May 5

Chapter 8 - Measuring Sustainability

Part 1 - Indicators of Sustainability (29:23)

Part 2 - Environmental, Economic, and Social Carrying Capacity (12:51)

Part 3 - Sustainability: Strategies for Monitoring Progress (11:34)

Week 17 May 6 – Final Exam Week



Course Accessibility: Principles of Sustainability has been designed towards best practices for access by people with or without disabilities. Enrolled students have transcripts of doculectures on the Canvas course site. Please contact the instructor for support in accessing course materials.

Readings: As assigned on course Web site via UI Canvas LMS. Each Chapter Part has a variable-length reading assignment that can include textbooks, scholarly papers, and web-accessible resources.

Homework: As assigned on the course Web site. Delivered by Canvas LMS. Most Chapter Parts have an online homework quiz submission that will take a variable amount of time, usually 15-30 minutes if the reading and lectures have been completed.

Homework Projected Percent of Effort:

436 Homework

30% Case study report

70% (total) Doculecture Part readings, quizzes, discussion

536 Homework

20% Case study report

50% (total) Doculecture Part readings, quizzes, discussion
30% Topic review

*****IMPORTANT: All papers submitted will be electronically scanned for evidence of plagiarism or ghostwriting.**

Examinations: There are two exams in this course: one midterm exam and one final exam. The examinations are electronically delivered and electronically returned via email. The exams are individual effort, take home, and open book/open Web. The midterm exam is a written exam paper (**hard target is 4000 words and at least 12 references**), and the final exam is 50 multiple-choice questions with 2 hours of max time. The exams will take variable time to complete, depending on the individual student. Depending on your writing efficiency, the midterm writing challenge can takes days to complete (in a 7-10 day window of exam receipt/submission opportunity), but the final exam will be a timed event with a window of a few hours for completion from time of start. **The midterm writing exam is planned for the week of February 29th to March 10th. The timed, online Final Exam (Canvas multiple choice like homework) is planned to be opened and accessible in Canvas from May 3rd to May 8th at midnight.**

Case Study Report: Case Study Report: All students will be required to prepare a case study report (**hard target is 4000 words, double or single-spaced; 1-inch margins; 12 pt font; 12 references minimum**). Your case study will examine an issue in sustainability, focusing on a specific case, not a broad topic. A case study presents a challenge to be solved or has a demonstrated effort focused on the solution. The case study can be at the community, regional, national, or international level. However, it must be specific. Background research for this assignment is from the **peer-reviewed literature** (12 or more references required), scholarly publications (books/reports), and online information from reliable sources and materials targeting a professional audience (typically government, agency, NGO, or scientific society). *No advocacy group, Wikipedia, or grey literature citations; please consult the instructor if you are unsure about this.* [Zotero](#) or other reference manager and UI Library “Web of Science” article searches are strongly suggested for paper research and writing support (see course FAQs). The full paper is to be submitted no later than midnight on the evening of **April 8th**. Additional case study information and a grading rubric are presented in Canvas LMS. The specific paper style and citations format should target your discipline. **You are required to submit the paper in Word via email gmoller@uidaho.edu with the file name**

"lastname.firstinitial.SustS24casestudy.docx".

Graduate Credit Topic Review: Students taking the course for graduate credit will be required to write a review paper using one of the doculecture Part titles of the Principles of Sustainability course. The paper will be reviewed for completeness, technical accuracy, and presentation (readability, grammar, and spelling). The paper should review the major issues and contain a bibliography of published papers. The paper should attempt to **update** the material and/or conclusions presented in the lecture with a review of current information found from the peer-reviewed recent literature (**15 or more references mostly less than 5 years old**), scholarly publications (books), and online information from high-quality professional audience reliable sources (typically government, agency, NGO, or scientific society). For completeness in this professional quality review paper, target 4000 words. The maximum length for this double-spaced (1-inch margins; 12 pt font) report is 25 pages (fully inclusive). The completed review is to be submitted no later than midnight the evening of **May 4th**. Additional information and a grading rubric are presented in the Resources section of the course website. **This graduate student paper should be publication quality, and that is the standard with which your work will be reviewed.** You may want to consider at least one online, telephone, or in-person, instructor-graduate student interview to discuss the outline, scope, and progress of this paper. **You are required to submit the paper via email gmoller@uidaho.edu with the file name "lastname.firstinitial.SustS24topicreview.docx".**

It is your responsibility to understand what plagiarism is and how to avoid it. Any paper with sections that are either entirely or partly copied is copied word-for-word or is rephrased by changing words in a sentence (or from another student's or author's work) is not acceptable. These are instances of plagiarism, which is a very serious academic offense that involves stealing another person's thoughts. Your writing will be compared electronically with millions of data-based documents and examined for copied phrases and for sentence structure rearrangements. Copying phrases or rearranging an author's sentence structure is considered plagiarism, which is a very serious academic offense with the consequences outlined in the syllabus. If you are unfamiliar with the definition and examples of plagiarism or the guidelines for avoiding plagiarism, please refer to the course syllabus and the wealth of quality plagiarism guidelines searchable on the WWW. If you use AI, please use it as an assistant only. This is your course and your development of critical thinking skills. Copy/paste of AI generated content is considered plagiarism.

*****IMPORTANT: All papers submitted will be electronically scanned for evidence of plagiarism or ghostwriting. Evidence of plagiarism, ghostwriting or AI *de novo* composition will result in an automatic grade of zero for the submitted work, and in severe cases, carries the potential for university academic dishonesty review and sanction according to university policies (see below).**

Grading Weight Breakdown:

	<u>436 Students</u>	<u>536 Students</u>	<u>Pre-Weighted Points</u>
Homework [‡] /discussion*	30% (discussion* =10%)	20% (discussion* =10%)	variable
Exam #1 Midterm	20%	15%	100
Exam #2 Final	10%	10%	100
Case Study Report	40%	25%	100
Topic Review	Not required	30%	100

[‡] Homework quizzes, in Canvas, are typically 4 or 5 question assessments of lecture/reading material.

*Seed discussion prompts will be posted in UI Canvas for a Chapter Part. Discussion participation will be graded by participation/responsiveness (5-point scale each) and totals added into the course grade weighted as above. Students are also encouraged to explore the comments of others, comment/reply in the lecture discussion with **short** readable/informative/positive comments.

Grade Distribution: The grade scale applied each semester may be curved depending on class achievement (*e.g.*, an A grade may be earned with 89% as opposed to 90%). Students enrolled in 436 or 536 are in different final course grade distribution pools, so the extent of grade curving could be different.

Grade Scale
>90% A

80-89%	B
70-79%	C
60-69%	D
≤59%	F

Relationship of Grading Strategy and Student Learning Outcomes:

1. Homework will require an understanding of lecture material and reading assignments.
2. Exams will require students to demonstrate mastery of course material and synthesize available information into practical demonstrations of sustainability concepts.
3. Course papers will require the student to demonstrate their subject matter mastery, communication skill, and ability to obtain primary sources of the best available information in an applied science interpretative challenge.
4. Grading rubrics for written papers will be available to students to link subjective assessment targets with student work submission.

Disability Support Services Reasonable Accommodations Statement:

CENTER FOR DISABILITY ACCESS AND RESOURCES REASONABLE ACCOMMODATIONS STATEMENT:

- Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through the Center for Disability Access and Resources located in the Bruce M. Pitman Center, Suite 127, in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course.
- Phone: 208-885-6307
- Email: cdar@uidaho.edu
- Website: www.uidaho.edu/current-students/cdar

UI Academic Integrity:

A-1. Academic Dishonesty. Academic honesty and integrity are core values at a university and the faculty finds that even one incident of academic dishonesty may merit expulsion. Instructors and students are jointly responsible for maintaining academic standards and integrity in university courses. In addition to any disciplinary sanctions imposed under the Code, additional consequences for academic dishonesty may be imposed by the course instructor, including issuing a grade of "F" in the course. Any grade issued by the course instructor, whether as a result of academic dishonesty or not, constitutes an academic evaluation and is not disciplinary action. All instructors must report incidents of academic dishonesty to DOS by email or using the reporting form on DOS website. Acts of academic dishonesty include but are not limited to the following:

- a. Cheating includes, but is not limited to, the following:
 - (1) using any unauthorized assistance in, or having unauthorized materials while, taking quizzes, tests, examinations or other assignments, including copying from another's quiz, test, examination, or other assignment or allowing another to copy from one's own quiz, test, examination, or other assignment;
 - (2) using sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
 - (3) acquiring, without permission, tests or other academic material belonging to the instructor or another member of the University faculty or staff;
 - (4) engaging in any behavior prohibited by the instructor in the course syllabus or in class discussion; or

(5) engaging in other behavior that a reasonable person would consider to be cheating.

b. Plagiarism includes, but is not limited to, the following:

- (1) using, by paraphrase or direct quotation, the published or unpublished work of another person without full and clear acknowledgment;
- (2) using materials prepared by another person or agency engaged in the selling of term papers or other academic materials without prior authorization by the instructor; or
- (3) engaging in other behavior that a reasonable person would consider plagiarism.

Plagiarism is dishonest and is not tolerated. If caught using all or portions of a current or former classmate's writing or other sources of information, a grade of "zero" will be given for the exercise. Additional penalties for plagiarism are possible as outlined in the University of Idaho *Student Handbook*.

Student Resources

The University of Idaho provides student support to ensure a successful learning experience.

- [Uofl Student Resources](#)
- [SI-PASS \(Peer Assisted Study Sessions\)](#)
SI-PASS provides regularly scheduled, peer-led study sessions for difficult courses.

Library Help

The Uofl Library website has many databases that will help you find relevant and reliable books, articles, images, and more. Don't hesitate to contact a librarian for research assistance.

- [Uofl Library Website](#)
- [Help - Reference Services](#)
- [Help for Distance Ed Students](#)

Technology Help

The Uofl Student Technology Center provides many technology related services to students.

- PHONE: 208-885-HELP (208-885-4357)
- [Technology Help Email](#)
- [Technology Help Website](#)

Writing Support

The Uofl Writing Center provides one-on-one assistance to student writers and other members of the campus community.

- PHONE: 208-885-6644
- [Writing Center Email](#)

- [Writing Center Website](#)

Healthy Vandals Policies

It is a longstanding tradition that Vandals take care of Vandals, and we all do our best to look out for the Vandal Family. These simple precautions go a long way in reducing the impact of coronavirus on our campuses and in our communities. With everyone engaging in these small actions, we can continue to participate in our vibrant campus culture where we are able to learn, live, and grow. Please bookmark the [University of Idaho Covid-19 webpage](#) and visit it often for the most up-to-date information about the U of I's response to Covid-19.

Course Sustainability Statement: With the possible exception of the textbook, this course is designed to be electronically available, and paper-free. Exams, homework, and students' papers are all distributed and returned electronically. Think first about printing, and please only print course material if it is necessary.