

Principles of Sustainability – EnvS/FS 436/536 (3 cr) – Spring 2013

(ver 01.08.13)

Doculectures: Online – Scheduled/Bundled Weekly

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

Instructor: Professor Greg Möller

Office Location: 204a Food Research Center

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Delivery: Online via SD/HD streaming video. Students are required to have modern computer hardware and software, and access to a broadband internet connection. Specific requirements are given on the course web site. Lectures are available by streaming video. The doculectures are available in streaming SD and HD (720p) embedded on the Principles of Sustainability course web site. The doculectures are available for direct streaming or download to computers, smart phones 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 video game consoles (e.g. XBOX, PlayStation, Nintendo), streaming media players (e.g. ROKU), streaming media capable Blu-Ray DVD players, or newer internet enabled televisions (Internet Protocol Television, IPTV). This approach requires accessing the Vimeo Channel for the course. Doculectures, with surround-sound and virtual elements, are optimized for headphones.

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, or in my office most anytime you wish – please contact me with any questions or concern you may have. Email/phone contact (off/on-campus) or office appointments (on-campus) are welcome. Phone/text contact via personal cell phone # given to enrolled students. We can use Skype and/or other VOIP clients; individual and small group voice conferencing available (via Skype or Google+). 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; 1 edition (February 23, 2006) 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>

Blackboard/Angel: UI BlackBoard LMS (or WSU Angel) for lecture homework and exams (linked via course website for enrolled students).

Course Abstract: **Sustainability** is a broad area of inquiry, rapidly changing as we develop new knowledge on 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.

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 in 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.

Week-to-Week Course Outline: There are a variable number Chapter Parts assigned per week and each doculecture Part can have an assigned homework question set that is available in [UI Blackboard/WSU Angel](#). 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 during the presentations. 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

Week 1 & 2 (Jan 7-Jan 19)

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 (Jan 20-Feb 2)

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 (Feb 3-Feb 16)

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 & 8 (Feb 17-Mar 2)

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 9 &10 (Mar 3-Mar 16)

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 11, 12 & 13 (Mar 17-Apr 6) *SPRING BREAK??*

Chapter 6 - Energy Sustainability

- Part 1 - Fundamentals of Energy Science
- Part 2 - Electricity: Generation
- 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 14 (Apr 7-Apr 20)

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 15 (Apr 21-Apr 27)**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)

Readings: As assigned on course Web site via [UI BlackBoard LMS \(or WSU Angel\)](#). Each Chapter Part has a variable length reading assignment that can include textbook, scholarly papers, and web accessible resources.

Homework: As assigned on course Web site. Delivered BlackBoard LMS. Most Chapter Parts have an online homework 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, problems, discussion

536 Homework

20% Case study report

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

Examinations: There are two exams in this course: one midterm and one final exam. The examinations are electronically delivered and electronically returned. The exams are individual effort, take home, and open book/open web. The midterm exam is a written exam paper (target is 4000 words and 12 references) and the final exam is 50 multiple choice questions. The exams will take variable time to complete, depending on the individual student. Depending on your writing efficiency, the midterm writing challenge can take days to complete (in a 7 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 2- hr timed final exam, online in BlackBoard, will be open for access through mid- Finals week (Apr 28 –May 8 to accommodate different UI & WSU final exam weeks). The midterm writing exam is planned for the week of March 3rd.

Case Study Report: All students will be required to prepare a case study report (*target 15 pages; maximum of 20 pages, double 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 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), scholarly publications (books/reports), and online information from reliable sources (typically government, agency, NGO, or scientific society). No advocacy group, Wikipedia, or grey literature citations. The full paper is to be submitted no later than 4/13. Additional case study information and a grading rubric are presented in the Resources section of the course web site. Specific paper style should target your discipline.

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 literature (15 or more references), scholarly publications (books), and online information from reliable sources (typically government, agency, NGO, or scientific society). 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 4/20. Additional information and a grading rubric are presented in the Resources section of the course web site. This paper should be publication quality. At least one online, telephone, or in-person instructor-graduate student interview will be scheduled after Spring Break to discuss the outline, scope, and progress of this paper.

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.

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

[‡] Homeworks, in BlackBoard, are typically 4 question assessments of lecture/reading material.

*Seed discussion prompts will be posted in **UI BlackBoard (or WSU Angel)** 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 comment/reply in the lecture discussion with **short** readable/informative/positive comments AND to peer-review the comments of others.

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.

<u>Grade Scale</u>	
>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 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.

Campus Resources: [UI Library](#); [WSU Library](#); [UI Writing Center](#); [WSU Writing Center](#)

Disability Support Services Reasonable Accommodations Statement:

UI: Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through Disability Support Services located in the Idaho Commons Building, Room 306 in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course.

- 208-885-6307
- email at <dss@uidaho.edu>
- website at <www.access.uidaho.edu>

Students should present a completed and signed Accommodation Checklist for the current semester from Disability Support Services when requesting accommodations. Students should not present the checklist before or after class, if they do, request that they see you during your office hours. If they do not have a current checklist both completed and signed, please refer them to the Disability Support Services office (Idaho Commons, Room 306) to obtain one. If you have any questions regarding a student(s) with a disability(s), or how to best work with a particular student in class, please contact our office.

WSU: Reasonable accommodations are available for students with a documented disability. WSU Online and the Access Center work together to provide reasonable accommodations for students who have documented disabilities and who are registered both with WSU Online and the Access Center. WSU Online's liaison to the Access Center will assist you in getting started. To begin this process, contact WSU Online (800-222-4978 or distance@wsu.edu). We strongly recommend that you notify us as soon as possible. All accommodations must be approved through the Access Center.

Safety:

Washington State University is committed to maintaining a safe environment for its faculty, staff, and students. Safety is the responsibility of every member of the campus community and individuals should know the appropriate actions to take when an emergency arises. In support of our commitment to the safety of the campus community the University has developed a Campus Safety Plan, <http://safetyplan.wsu.edu> It is highly recommended that you visit this web site as well as the University emergency management web site at <http://oem.wsu.edu/> to become familiar with the information provided.

Course Honor Code:

Terms and conditions for students taking this course (EnvS/FS 436/536). By enrolling in this course, you agree to the following terms and conditions:

1. I will not use or represent the work of another as my own. This specifically includes the use of other students' work, WWW resources, and published works. I understand that attribution of source is encouraged and a part of the ethical practice of science and learning.
2. I will abide by the instructions on exams, tests, quizzes and homework assignments when they are labeled or assigned as closed book, individual effort or other such designation of assistance or period of performance. I further understand that it is my ethical duty, on my honor, that I abide by these instructions even in the absence of an instructor or exam proctor.

UI Academic Integrity:

University of Idaho, Faculty Staff Handbook: ARTICLE II--ACADEMIC HONESTY. *[section renumbered 8-07]*

1. Cheating on classroom or outside assignments, examinations, or tests is a violation of this code.
2. Plagiarism, falsification of academic records, and the acquisition or use of test materials without faculty authorization are considered forms of academic dishonesty and, as such, are violations of this code.
3. Because academic honesty and integrity are core values at a university, the faculty finds that even one incident of academic dishonesty seriously and critically endangers the essential operation of the university and may merit expulsion. *[rev. 7-98]*
4. The operation of UI requires the accuracy and protection of its records and documents. To use, make, forge, print, reproduce, copy, alter, remove, or destroy any record, document, or identification used or maintained by UI violates this code when done with intent to defraud or misinform.

5. All data acquired through participation in UI research programs is the property of the university and must be provided to the principal investigator. In addition, collaboration with the University Research Office for the assignment of rights, title, and interest in patentable inventions resulting from the research is also required [see 5400 A through E].
6. Entrance without proper authority into any private office or space of a member of the faculty, staff, or student body is a violation of this code.
7. It is also a violation to hack or make unauthorized use of any computer or information system maintained by the university or a member of the faculty, staff, or student body. [rev.7-05]
8. Instructors and students are responsible for maintaining academic standards and integrity in their classes. Consequences for academic dishonesty may be imposed by the course instructor. Such consequences may include but cannot exceed a grade of "F" in the course. The instructor should attempt to notify the student of the suspected academic dishonesty and give the student an opportunity to respond. The notice and the opportunity may be informal and need not be in writing. Penalties for any disciplinary infraction must be judicially imposed. [See 1640.02 C-5] [rev. 7-98]
9. Instructors may report incidents of academic dishonesty to the dean of students. Upon receiving such a report, the dean of students shall provide the student with written notice that a report has been made and an opportunity to meet with the dean to discuss the report. The dean of students shall maintain the report and any record of the meeting for a period of time deemed appropriate by the dean. The dean of students may file a complaint against the student after the meeting has taken place or the student has elected, either affirmatively or through inaction, not to meet with the dean. [add. 7-98]

WSU Academic Integrity:

WSU expects all students to behave in a manner consistent with its high standards of scholarship and conduct. Students are expected to uphold these standards both on and off campus and acknowledge the university's authority to take disciplinary action. The purpose of these standards and processes is to educate students and protect the welfare of the community. The standards of Conduct for Students can be found at <http://conduct.wsu.edu> University instructors have the authority to intervene in all situations where students are suspected of academic dishonesty. In such instances, responsible instructors retain the authority to assign grades to students considering, from an academic standpoint, the nature of the student action. More information regarding responding to academic integrity violations can be found at <http://conduct.wsu.edu>. Feel free to contact the Office of Student Standards and Accountability (335-4532) if you would like more specific information about the process. Writing Programs (335-7959) can assist with proactive assignment design that minimizes intentional or unintentional academic dishonesty.

Plagiarism:

Plagiarism is defined by Webster's Dictionary as, "*to steal and pass off the ideas or words of another as one's own.*" There are two general forms of plagiarism:

(a) Unintentional: the use of other writers' words, phrases, sentences, paragraphs as though they were your own *without understanding* the need to cite the original source. Unintentional plagiarism normally occurs when the individual does not understand the conventions of scientific writing and the need to cite sources of information.

(b) Intentional: the use of other writers' work and claiming it as your own. Intentional plagiarism includes *knowingly copying* or incorporating sections of books, articles, or other sources into your work without citation.

To avoid plagiarism, you must acknowledge the source of information. In scientific writing, this can be performed in the text of your work through the use of surnames of authors and the year of publication or by using numbers enclosed by parentheses which correspond to specific citations in the reference section. In addition to employing citations in the text, plagiarism can be avoided by applying special techniques when writing about information obtained from a source:

(a) Paraphrase: rewording information in which you accurately present the main ideas from the source but do so using your own organization, words, and sentence structures.

(b) Summary: a concise statement of the main idea from a section within a source.

(c) Direct quotation: use of quotes surrounding the passage written by another author.

In general, paraphrasing (a) and the use of summary statements (b) are very common techniques used in scientific writing. Use of quotations (c) in scientific writing is rare and should be avoided.

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 and/or Washington State University Student Handbook](#).

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