

ES 106: Earth System Science III Spring 2009 SYLLABUS

Instructor: Karen Brown	Office: Natural Science 213	
Phone: (503) 838-8265	Office Hours: Mon., Tues., Thurs.: 11 AM to Noon	
www.wou.edu/~brownk	Wednesday 9:00—11:00 AM, or by appointment	
Email: brownk@wou.edu		
When sending email, in the subject of the email please reference this class: i.e. "ES 106 TuTh 2 PM", to receive a prompt reply.		

Goal: Focus on human impacts to the Earth system, including chemical and physical aspects of water pollution, oceanography, air pollution, meteorology and global climate change. This course integrates the critical concepts of chemistry, physics and geology in the context of the Earth as a system.

Textbooks:

Earth Science 12th ed., by Edward J. Tarbuck, Frederick K. Lutgens and Dennis Tasa, 2009, Prentice Hall, Pearson Education, New Jersey, ISBN-13: 978-0-13-602007-3

Conceptual Physical Science, 4th ed., by Hewitt, Suchocki and Hewitt, 2008, Pearson Education, San Francisco, ISBN 13-978-0-321-51695-4

Earth System 106 Lab Manual by the Earth Science Program Instructors of Western Oregon University

In addition, you are expected to check my web site as a resource for classes: <http://www.wou.edu/~brownk> I will post lecture notes and slides, answers to in-class activities, extra credit opportunities, midterm key, etc. for your use.

Grading: Your grade will be determined by your performance in these areas

Assessment	Value
Lab score	100 Points
In-Class Activities	30 Points
Homework	70 Points
Mid Term Exam	75 Points
Final Exam	125 Points
Total	400 Points

You will receive a grade based on the points you attain

Letter Grade‡	Points (including Lab score)
A (100-90%)	400-360
B (89-80%)	359-320
C (79-70%)	319-280
D (69-60%)	279-240
F (less than 60%)	239-0

‡ Plus and Minus Grades may be given at discretion of instructor

* Lab score will be provided as a percent by lab instructor. You must pass lab with at least 60% to pass ES 106.

Assessments:

There will be at least ten in-class activities for points in this class. The in-class activities *must be done IN CLASS to receive points*. The highest ten will count for your grade, so if you miss a few, it will not affect your grade. These are worth 3 points each, for a total of 30 points toward your grade.

There will be homework assignments handed out occasionally. These will have a due-date noted on them, and must be turned in on time to receive full credit. Generally there will be one week to complete each assignment. These will be available on the course web page, in the event that you were not present when the assignment was handed out. The due date will still apply, even if you were not present when it was assigned, or will not be present when it is due. These will be worth a total of 70 points toward your grade.

There is one midterm exam scheduled on April 30. Bring a scantron form, and expect to also complete problems similar to in-class activities and homework assignments. It will be worth 75 points. If you know ahead of time that you will not be in class for the mid-term exam, contact me ahead of time to make an arrangement. The final exam is scheduled on June 9 or 11, depending on your lecture time. In general, **no early final exams will be allowed**. Requests for final exams other than the time published by the registrar will be considered for extenuating circumstances, and shall start with your contact with the Office of Student Services or the Dean of Arts and Sciences. If you miss an exam without prior notice, please have some written evidence of your emergency situation, or use the proper University channels to communicate. I am understanding, but need verification of each case.

A 'Laboratory Grade' will be reported by your lab instructor as a percent. Your laboratory grade will be included (at a weight of 25% of your overall grade) with your lecture grade. A passing grade (>60%) must be obtained in lab to receive credit in ES 106.

Incomplete status: You must be passing when you request a report of incomplete. You must sign agreement with me about when and how you will complete this course. You may present your reason for request to me, or go through official University channels. See page 24 of the WOU 2008-09 catalog for more information.

A tentative schedule with recommended review questions is on the next page. The online syllabus has hyperlinks to the review questions, and additional catalog information.

Reading

Review Questions

ES: Earth Science 12th ed. Tarbuck and Lutgens

CPS: Conceptual Physical Science 4th ed. Hewitt, et al.

Week	Date	Topic	Reading	Review Questions
1	30-Mar	Introduction, The nature of science, Overview of Earth	Syllabus, ES: Ch 1 p. 1-24	ES 1: 1, 2, 7, 10, 13
	2-Apr	Matter, Atoms, Chemistry	ES: Ch 2 p. 29-36, CPS: Ch 12 p. 285-298, 304-305	ES 2: 3, 4, 6 CPS 12: 7, 8, 9, 12, 26
2	7-Apr	Chemistry of water	CSP: Ch 15 p. 351-376	CPS 15: 16, 18, 19, 25, 27, 29
	9-Apr	Heat and energy transfer, Heat of water, phase changes	CSP: Ch 6 p. 141-154 CSP: Ch 7 p. 160-175	CPS 6: 1, 8, 9, 10, 11, 22, 24, 26, 27, 28
3	14-Apr	Water cycle, groundwater exploitation, water pollution	ES: Ch 5 p. 117-118, 134-148, CSP Ch 16 p. 394-404	ES 5: 1, 17-26
	16-Apr	Oceanography, sea floor sediments, Sea floor tectonics	ES: Ch 13 p. 367-387	ES 13: 1, 2, 5, 7, 8, 10, 11, 16, 17
4	21-Apr	Ocean chemistry, physics, oceanic life	ES: Ch 14 p. 392-407	ES 14: 1-4, 9-13
	23-Apr	Oceanic circulation, Coastal processes and landforms	ES: Ch 15 p. 412-439, CPS Ch 24 p. 654-659	ES 15: 1, 2, 4, 6, 7, 10, 11, 13, 15, 22
5	28-Apr	Tides, Earth-Moon relation	CSP Ch 24, p. 640-642; ES: Ch 21 p. 617-620	ES 21: 14, 15, 17
	30-Apr	MIDTERM EXAM		
6	5-May	Atmosphere--composition/structure, Earth-Sun relation	ES: Ch 16 p. 446-473, CPS Ch 24 p. 642-648	ES 16: 2, 3, 7, 10, 11, 14-15, 18, 20-21
	7-May	Atmospheric heating, moisture, humidity	ES: Ch 17 p. 478-485, CPS Ch 25 p. 664-667	ES 17: 1, 2, 7
7	12-May	Atmosphere--latent heat of water, adiabatics,	ES: Ch 17 p. 485-492	ES 17: 10, 11, 13, 16, 21, 22, 24-26
	14-May	Atmospheric stability, condensation, clouds, precipitation	ES: Ch 17 p. 492-508 CPS Ch 25 p.667-674	CPS 25: 10-17, 21, 22
8	19-May	Pressure and wind, circulation,	ES: Ch 18 p. 514-534, CPS Ch 24 p. 648-654	ES 18: 1, 4, 5, 6, 8, 9, 11
	21-May	Air masses, fronts, storms	ES: Ch 19 p. 540-565, CPS Ch 25 p. 674-683	ES 19: 1-3, 5, 8, 9, 10, 12, 17
9	26-May	Climate zones	ES: Ch 20 p. 570-584	ES 20: 1, 3, 5, 7, 8, 12, 19, 20, 21, 23
	28-May	Academic Excellence Showcase	attendance required--	worksheet provided
10	2-Jun	Glaciers, ice ages	ES: Ch 6 p. 154-159, 166-173 CPS: Ch. 23 p. 618-623	ES 6: 3-6, 13-15
	4-Jun	Climate variations	ES: Ch 20 p. 584-594	
	June 9	2 PM class	Noon	Comprehensive Final Exam
	June 11	9:30 AM class	8 AM	

Below is some collected information from Western Oregon University 2008-09 Catalog. These are included here because they are important to your success in this class. Each excerpt is noted with the page on which it appears in the catalog.

Spring Term Calendar

Classes begin	Monday, March 30
Fee payment & add/drop begin	Monday, March 30
Last day to pay fees without penalty	Friday, April 3
Last day to add courses, change grade options, elect graduate/undergraduate credit or pay fees	Friday, April 10
Last day to drop courses	Friday, May 8
Registration for next term	Monday, May 18 - Friday, May 22
Memorial Day Holiday	Monday, May 25
Final examination week	Monday, June 8 - Friday, June 12
Graduation	Saturday, June 13

(inside front cover)

University Mission Statement

Western Oregon University is a comprehensive university that creates personalized learning opportunities, supports the advancement of knowledge for the public good and maximizes individual and professional development. Our environment is open to the exchange of ideas, where discovery, creativity and critical thinking flourish, and students succeed. (p. 3)

College of Liberal Arts and Sciences Mission Statement

Dean Chair Stephen Scheck

The College of Liberal Arts and Sciences provides the central learning experience for all undergraduate students at Western Oregon University. The faculty are committed to engaging students in academic discovery and intellectual growth via the core curriculum, major and minor baccalaureate curricula, and mastery in select graduate programs.

Program Objectives

1. Engage students in scholarly pursuits that benefit their preparation for life-long learning and societal engagement.
2. Provide an environment where students may develop disciplinary competencies necessary for their chosen career fields.
3. Provide opportunities for faculty-student mentoring and out-of-classroom learning opportunities.

For more information, see the Web site at: www.wou.edu/las. (p. 37)

Natural Sciences and Mathematics Division

Division Chair Stephen Taylor

The Natural Sciences and Mathematics Division is responsible for majors and minors in biology, chemistry, Earth science, integrated science, mathematics and natural science.

Mission

To offer quality liberal arts education in Biology, Chemistry, Earth Science, Mathematics, Physics and Pre-Professional Studies. Our students have the opportunity to acquire and assimilate mathematical and scientific knowledge, that they may broaden and refine their understanding of the ever-changing world around them, both while at Western Oregon University and throughout their lives.

Program Objectives

1. To help students internalize and apply both the scientific method and major scientific and mathematical concepts and principles.
2. To enhance students' reasoning and problem solving skills.
3. To improve students' individual and collaborative skills in preparation for the global scientific and mathematical challenges of the 21st century. More detailed program information, including program admission requirements can be obtained by contacting the division at: 503-838-8206, or on the Web at www.wou.edu/las/natsci_math/nsmdiv.html.

(p. 38)

Institutional aspirations for learning

Students at WOU will be challenged to achieve their highest potential through a rigorous and stimulating curriculum. Between 2004 and 2005, a set of educational goals called Institutional Aspirations for Learning were collaboratively developed by our faculty after focused discussions about the fundamental aims of liberal education in the 21st century. These aspirations constitute the core competencies, skills, experiences and values credited to, and expected of, WOU's educational process and its graduates. We believe that these aspirations are the basic building blocks of a high-quality education as well as the foundations for productive careers, life long development and informed citizenship on a local, national and global level.

1. Students will develop more refined critical thinking skills, including advanced analytical, logical and quantitative reasoning abilities as well as excellent problem-solving skills.
2. Students will develop effective communicative abilities, including listening, observing, speaking, writing and dialoguing.
3. Students will become active readers with an enhanced ability to carefully, closely and thoughtfully read a range of texts.
4. Students will acquire field or discipline specific knowledge and they will understand disciplinary modes of intellectual inquiry.
5. Students will develop an interdisciplinary and integrative perspective as they recognize, explore, appreciate and engage the interconnections between disciplines.
6. Students will develop advanced research abilities and they will demonstrate improvements in their information and media literacy.
7. Students will learn how to use appropriate technologies.
8. Students will acquire and demonstrate competencies, skills, attributes and values necessary for successful participation in a diverse, pluralistic and increasingly interdependent world.
9. Students will be able to work effectively in teams.
10. Students will strive to be well-balanced persons capable of making thoughtful and healthy choices.
11. Students will be able to apply theory in relevant, appropriate and reflective ways. (p. 6)

Disability Services

The Office of Disability Services facilitates appropriate accommodations on campus for students and visitors with disabilities. Services provided by the office help ensure that students with disabilities are able to participate fully in all of WOU's programs and activities. The needs of each student who has a disability are assessed on an individual basis so that each receives the most appropriate accommodations and/or support. The following list of services provided by the Office of Disability Services are the most commonly requested.

- Accessibility assistance: wheelchair accessibility to buildings and campus grounds, communication equipment (FM systems, audio-looped rooms, TTYs, closed caption decoders, amplified phones), CC-TV, Braille, scanner, voice output computer access and other technical equipment
- Accessibility aides: note takers, readers, transcribers, classroom assistants, exam proctors
- Advisement: academic, career, personal/social
- Advocacy: for appropriate accommodations, alternative testing, preferred accessibility aid
- Communication aides: Sign language interpreters who use student's preferred signed communication mode (from ASL to MCE), and oral interpreters are provided upon request for classes, school sponsored activities, and meetings with faculty and staff
- Empowerment: Through networking groups, workshops and interaction with the office staff, students learn of their rights and how to obtain services they need.
- Leisure and social activities: Accessibility assistance and aids are provided to encourage and support the students' full participation in all parts of campus life.
- On-campus housing: accessible to deaf, hard of hearing, blind students and students using wheelchairs or other assistive mobility aids
- Orientation: to the campus and services provided by the Office of Disability Services as well as general university services available

Please contact the Office of Disability Services for more information at 503-838-8250 V/TTY or e-mail ods@wou.edu. (p. 30)

Academic Advising and Learning Center

Director Karen Sullivan-Vance

Academic Advising Center

Academic advising at WOU is a developmental process designed to help students define their life and career values and goals in relation to their academic plan. Both the student and adviser have a shared responsibility in the ongoing dialogue that helps students maximize their educational experience at WOU. All undergraduate students are required to meet with their academic adviser at least once a term until a degree plan is filed with the Registrar's Office. Students are encouraged to meet with their adviser when they have questions about their educational goals. Students have access to faculty advisers in their major and minor areas of study. In addition, the Academic Advising and Learning Center's professional advisers can advise students about requirements, along with pre-education and undecided students.

The Academic Advising and Learning Center works with:

- Students to identify their life and career goals in relation to possible academic programs
- Undecided students who are exploring different majors
- Students transferring into WOU from another institution
- Students on academic warning, probation or suspension
- Academic requirements for graduation, including the Liberal Arts Core Curriculum (LACC)

For more information, call 503-838-8428 V/TTY, e-mail advising@wou.edu or go to the Web page www.wou.edu/advising.

Learning Center

Academic skills, including study skills and time management, are essential for college success. The Learning Center helps students assess their current academic skills and develop new skills to help them become successful. Services are provided to WOU students at no charge.

Services at the Learning Center include:

- Peer tutoring in most academic subjects by appointment
- Drop-in math tutoring hours
- Tutor-assisted study groups
- Individual study skills assessment and assistance (time management, test taking, note taking, listening, textbook reading, etc.)
- Study skills resource library (videos, books, software and handouts)
- Resource study material for tests (CBEST, Praxis, GRE)
- Student computer lab

Tutoring assistance is offered in most academic subjects by peer tutors who have been recommended by faculty. The tutor's goal is to help students improve their knowledge and develop better study habits. Students must be currently enrolled in the requested class at WOU for tutoring. For more information, call 503-838-8501, (503-838-8428 TTY), e-mail turnerj@wou.edu, or go to the web page www.wou.edu/learning. (p. 39)

Standards of Conduct

The following list of prohibited forms of conduct is not all inclusive since it is not possible to list all potential violations.

1. Academic Dishonesty, which includes but is not limited to:
 - a. *Cheating* - intentional use, or attempted use of artifice, deception, fraud, and/or misrepresentation of one's academic work;
 - b. *Fabrication* - unauthorized falsification and/or invention of any information or citation in any academic exercise;
 - c. *Facilitating dishonesty* - helping or attempting to help another person commit an act of academic dishonesty. This includes students who substitute for other persons in examinations or represent as their own papers, reports, or any other academic work of others;
 - d. *Plagiarism* - representing without giving credit the words, data, or ideas of another person as one's own work in any academic exercise. This includes submitting, in whole or in part, prewritten term papers of another or the research of another, including but not limited to the product of commercial vendors who sell or distribute such materials, and the appropriation and/or use of electronic data of another person or persons as one's own, or using such data without giving proper credit for it; or
 - e. *Any use or attempted use of electronic devices* in gaining an illegal advantage in academic work in which the use of these devices is prohibited, and such devices include but are not limited to cell phones, PDAs, laptops, programmable calculators, removable disk drives, etc. (p. 30-31)

Statement on discrimination, including sexual harassment

Western Oregon University is committed to cultivating an educational and work environment in which all individuals are treated with respect and dignity. Each individual has the right to learn and work in an atmosphere that promotes equal educational and employment opportunities and prohibits discriminatory practices, including harassment. Western Oregon University expects relationships across campus will be free from bias, prejudice and harassment.

This policy statement is intended to reaffirm Western Oregon University's prohibition against discrimination and harassment, clarify types of prohibited conduct, and provide an effective complaint procedure to individuals who believe they have observed or have been subject to prohibited conduct.

Discrimination

Discrimination, for the purposes of this policy, is defined as any act or practice, in form or operation, whether intended or unintended, that unreasonably differentiates among persons on the basis of race, color, religion, national origin, age, sex, marital status, sexual orientation, veteran status or disability or any other status protected under the law.

Harassment

Harassment, for the purposes of this policy, is defined as conduct that creates an intimidating, hostile, or degrading environment that would interfere with the work or academic performance of a reasonable person of the complainant's protected status.

Sexual Harassment

Sexual Harassment, whether or not it be by direct physical attack, as defined below. Sexual harassment includes, but is not limited to, sexual advances, requests or suggestions to engage in sexual conduct, and other physical and expressive behavior of a sexual nature when:

- 1.) Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or education; or
- 2.) Submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting the individual; or
- 3.) Such conduct has the purpose or effect of substantially interfering with an individual's academic or professional performance or creates an intimidating or hostile employment, educational, or living environment. (p. 4)

Additional information is available at

http://www.wou.edu/admin/hr/sh_taskforce/index.php

To request a complete hard copy of the discrimination and harassment policy and complaint procedure; to discuss a sexual harassment, harassment or discrimination concern; or to file a sexual harassment, harassment or discrimination complaint, contact Judy Vanderburg at

503-838-8131 or vanderj@wou.edu. (p. 4)