

ES 106: Earth System Science III Spring 2012 SYLLABUS

Instructor: Karen Brown	Class Time: Tu & Th 11-12:20 or 2-3:20
Office NS 213	Office Hours: Tu & Th 9:00-10:30 AM
Phone: (503) 838-8265	Wed 9:00-11:00 AM, or by appointment
Website: use MOODLE	5 Credit Hours
Email: brownk@wou.edu	Class Location NS 101

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 critical concepts of chemistry, physics and geology in context of Earth as a system.

Textbooks:

Earth Science 13th ed., by Edward J. Tarbuck, and others, 2012, Prentice Hall, Pearson Education, New Jersey, **required!**

Conceptual Physical Science, 5th ed., by Paul G. Hewitt, and others, 2012, Pearson Education, San Francisco, optional. Needed week 2—can use library reserve copy.

Earth System 106 Lab Manual by the Earth Science Program Instructors of Western Oregon University, **required!**

In addition, as resources for this class, you are expected to check the MOODLE: <http://online.wou.edu> I will post lecture notes and slides, in-class activities and homework assignments, extra credit opportunities, midterm key, and quiz alternatives to in-class activities, if you have to miss class for any reason

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

Assessment	Value
Lab score	100 Points
Daily topic quizzes	35 Points
Homework	60 Points
Mid Term Exam	80 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 daily points for topic quizzes. The topic quizzes can be done in class with a clicker, or be completed in moodle. You will need to correctly enter your V00 number to get two points in-class credit for these. If you have trouble remembering it, bring your id card. You may get one point for the topic quiz in class if you make an error in your V00 number entry. The topic quizzes will be graded in moodle. Take them there if you miss class, or suspect you made a V00 number entry error. You are encouraged to do the moodle quiz, even if you attended class, as practice working with the material. This allows you to review these activities later as study guides for exams. The grade will not affect your score if you received full points for doing them in class, and will not count as extra credit.

There will be three homework assignments for this course. 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 moodle, 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. They can be scanned and turned in by email if you are not going to be in class on the due date. These will be worth a total of 60 points toward your grade.

There is one midterm exam scheduled on May 3. Bring a scantron form, and expect to also complete problems similar to homework assignments. It will be worth 80 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 for you to take the exam early. The final exam is scheduled on June 12 at 10 AM or noon, depending on your lecture time. The final exam is worth 125 points (almost 1/3 of your grade in ES 106...more than the lab is worth).

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 attained in lab to receive credit in ES 106.

There will be some extra credit reading available throughout the term. It will be posted in moodle. Some will be chapters in *A Short History of Nearly Everything*, by Bill Bryson. There will be due dates indicated on these, and no late extra credit assignments will be accepted. There may be seminars or community events for extra credit also, as they appear to be related to course content.

Incomplete status: You must be passing when you request a report of incomplete. You must sign an 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 to authenticate your situation. See page 18 of the WOU 2011-12 catalog for more information.

A tentative schedule with recommended review questions is on the last page.

Below is some collected information from Western Oregon University Catalog, 2011-2012. 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, April 2
Fee payment & add/drop begin	Monday, April 2
Last day to pay fees without penalty	Friday, April 6
Last day to add courses, change grade options, elect graduate/undergraduate credit or pay fees	Friday, April 13
Last day to drop courses	Friday, April 27
Last day to withdraw (W on transcript)	Friday May 18
Registration for next term	Monday, May 21 - Friday, May 25
Final examination week	Monday, June 11 - Friday, June 15
Spring term ends	Friday, June 15

(inside front cover)

University Mission Statement

Western Oregon University is a comprehensive university which Provides effective learning opportunities that prepare student for a fulfilling life in a global society; supports an accessible and diverse campus community; and, improves continuously the education, financial, and environmental sustainability.. (p. 2)

College of Liberal Arts and Sciences

Dean Stephen Scheck

Mission Statement

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. 31)

Natural Sciences and Mathematics

Division of the College of LAS

Division Chair Steve 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. 32)

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. 5)

Disability Services

Director Malissa Larson

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
- Advising: 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. 24)

Veterans and active duty military personnel with special circumstances are welcome and encouraged to communicate these, in advance if possible, to the instructor.

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.)
- 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), or go to the web page www.wou.edu/learning. (p. 33)

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. 25)

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:

- Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment, grade, or used as a basis for any employment or academic decision; or
- Such conduct is unwelcome and has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creates an intimidating, hostile or offensive work or academic environment..

Additional information is available at

www.wou.edu/sexualharassment.

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.

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ES: Earth Science 13th ed. Tarbuck and Lutgens
 CPS: Conceptual Physical Science 5th ed. Hewitt, et al.

	Topic	Reading	Recommended Review Questions
April 3	Introduction, The nature of science, Overview of Earth	Syllabus, ES: Ch 1 p. 1-24	ES 1: 1, 2, 7, 10, 13
April 5	Matter, Atoms, Chemistry	ES: Ch 2 p. 27-34, CPS: Ch 12 p. 294-307	ES 2: 3, 4, 6 CPS 12: 7, 8, 9, 12, 26
April 10	Chemistry of water	CSP: Ch 15 p. 379-387	CPS 15: 16, 18, 19, 25, 27, 29
April 12	Heat and energy transfer, Heat of water, phase changes	CSP: Ch 6 p. 146-158 CSP: Ch 7 p. 165-180	CPS 6: 1, 8, 9, 10, 11, 22, 24, 26, 27, 28
April 17	Water cycle, groundwater exploitation, water pollution	ES: Ch 5 p. 117-120, 138-152, CPS Ch 22 p. 589-599	ES 5: 1, 17-26
April 19	Oceanography, sea floor sediments, Sea floor tectonics	ES: Ch 13 p. 380-398, CPS Ch 24 p. 647-653	ES 13: 1, 2, 5, 7, 8, 10, 11, 16, 17
April 24	Ocean chemistry, physics, oceanic life	ES: Ch 14 p. 402-420	ES 14: 1-4, 9-13
April 26	Oceanic circulation, Coastal processes	ES: Ch 15 p. 424-441, CPS Ch 24 p. 653-660, 672-677	ES 15: 1, 2, 4, 6, 7, 10, 11, 13, 15, 22
May 1	Shoreline features, Tides, Earth-Moon relation	ES: Ch 15 p. 441-453, ES: Ch 21 p. 627-628	ES 21: 14, 15, 17
May 3	MIDTERM EXAM	Unit 1 Material above	
May 8	Composition and structure of the atmosphere, Earth-Sun relation	ES: Ch 16 p. 459-484, CPS Ch 24 p. 660-665	ES 16: 2, 3, 7, 10, 11, 14-15, 18, 20-21
May 10	Latent heat of water, humidity, cloud formation	ES: Ch 17 p. 489-499, CPS Ch 25 p. 684-686	ES 17: 1, 2, 7
May 15	Atmospheric stability, condensation, clouds, precipitation	ES: Ch 17 p. 500-519 CPS Ch 25 p.686-693	ES 17: 10, 11, 13, 16, 21, 22, 24-26 CPS 25: 10-17, 21, 22
May 17	Pressure and wind, circulation,	ES: Ch 18 p. 525-547, CPS Ch 24 p. 666-671	ES 18: 1, 4, 5, 6, 8, 9, 11
May 22	Air masses, fronts, storms	ES: Ch 19 p. 551-576, CPS Ch 25 p. 693-703	ES 19: 1-3, 5, 8, 9, 10, 12, 17
May 24	Climate zones	ES: Ch 20 p. 581-594	ES 20: 1, 3, 5, 7, 8, 12, 19, 20, 21, 23
May 29	Weather video		
May 31	Academic Excellence Showcase	attendance required--	worksheet provided
June 5	Glaciers, ice ages,	ES: Ch 6 p. 157-177 CPS: Ch. 22 p. 608-614	ES 6: 3-6, 13-15
June 7	Climatic variation	ES: Ch 20 p. 594-605	
June 12	11 AM class Exam at 10 AM 2 PM class Exam at Noon	Comprehensive Final Exam	