

California State University, Fresno
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Office of the Associate Provost

General Education Course Proposal

Proposed Course: ENSC 0001 Environmental Sciences
Prefix No. Title

Department: Earth & Environmental Sciences **College/School:** Science and Mathematics

GE Category (Indicate one category only):

Foundation: A1 ___ A2 ___ A3 ___ B4 ___
Breadth: B1 B2 ___ C1 ___ C2 ___ D ___ E ___
Integration: B ___ C ___ D ___ International/Multicultural ___

Existing Course **Revised Course** ___ **New Course**

Course Included in Current GE Program ___

New courses require the Undergraduate Course Proposal form in addition to this form.
Revised courses require the Undergraduate Course Change Request in addition to this form.

Proposed catalog description: Limit course description to 40 words using succinct phrases. Include prerequisites, limitations, lecture/lab hours. Indicate former course number, e.g., (Former Biol 105)

Enrollment limit per section: 45

Expected number of sections per semester - Year 1 3 **Year 3** _____

Attachments:

1. A statement presenting the ways in which this course meets the Specifications provided in the appropriate section of the General Education Policy as well as in the Policies for Inclusion and Evaluation of General Education Courses.
2. A statement of elements common to all sections of this course, identifying content, objectives, required student activities, grading policy, representative texts, and an approximate schedule for the course. Required student activities include such things as papers, research projects, homework, laboratory and/or studio performance, recitations, participation, attendance, and exams.
3. A typical syllabus for a particular offering of the course.
4. Any special cost factors associated with this course.

Approval for Inclusion in General Education

[Signature] 3-9-05
Department Chair Date

[Signature] 3/17/05
College/School Curriculum Committee Date

[Signature] 3/16/05
College/School Dean Date

[Signature] APR 1 2005
General Education Subcommittee Date

[Signature] APR 1 2005
Associate Provost Date

**Forward Original and TWELVE copies to:
Associate Provost for Academic Affairs, M/S TA 54**

Attachment 2
Common Elements of all sections

Contents: Human population and consumption, ecosystems, energy and natural resources, air and water pollution, solid wastes, environmental economics and laws, social and cultural aspects, and environmental solutions.

Objectives: To develop an understanding of the physical and biological components of ecosystems and particularly the role an individual can play to improve the environment.

Required student activities: reading, discussion, debating, case studies, term paper, field trip, and presentation.

Grading policy: The overall grade should be decided by attendance, homework, term paper, and exam scores.

Representative texts: comprehensive scientific text books for GE Environmental Science. See syllabus (Attachment 3).

Approximate Schedule: See syllabus (Attachment 3).

Attachment 3: Typical Syllabus

CALIFORNIA STATE UNIVERSITY, FRESNO

Department of Earth and Environmental Sciences

Environmental Science 1: Environmental Sciences

(G.E. Breadth B1, 4 units)

MWF 05:00P -6:15p, McLane Hall 280

Instructor: Dr. Zhi (Luke) Wang
Office: Science II 121
Phone: 278-4427
E-mail: zwang@csufresno.edu

Instructor: Dr. Graham Mortyn
Office: McL-Wing J 21
Phone: 278-2585
E-mail: gmortyn@csufresno.edu

Office Hours: Tuesday and Thursday: 11am -12 pm and 1-2 pm by appointments
Dept. Office: Science II 114 (Vengie Balli, Admin Coord.) Phone: 278-3086

GENERAL EDUCATION GOALS AND OBJECTIVES

Goal for Sub-Area Breadth B1: Physical Universe and Its Life Forms

The BREADTH component of the General Education Program exposes students to a variety of disciplines within the structured framework of Areas B, C, D, and E. All courses in this area include a laboratory component.

Purpose: To understand and actively explore fundamental principles in the Physical Sciences and the methods of developing and testing hypotheses used in the analysis of the physical universe.

Withdrawal Policy in the College of Science and Mathematics

Withdrawals from classes after the fourth week of classes will only be granted to students who provide verification of a "serious and compelling reason that makes it impossible for the student to complete course requirements". Serious and compelling reasons are medical, emotional, and certain other reasons acceptable to the Dean that meet the letter or spirit of University regulations.

A licensed health care professional, a certified counselor, an employer, or other individual who can certify that conditions make it impossible for the student to complete the course must provide the written verification. Additional details are available in the Dean's Office - Science II Room 301 (3rd floor, SW corner).

It is obviously to a student's advantage to DROP EARLY in the semester.

COURSE INFORMATION

Course description: This course addresses various environmental issues related to population, energy and resource use, technology, pollution and wastes, and social/economic and ethical issues. Independent writings on case studies and a term paper are required.

Course objectives: To develop an understanding of the physical and biological components of ecosystems and particularly the role that humans play in shaping the environment.

Textbook (required): Raven, P.H., and L.R. Berg: *Environment*, 4th Edition, John Willey & Sons, Inc. ISBN: 0-471-44452-9, 2004. The web resources are located at: <http://www.wiley.com/college/raven>.

Prerequisites: Completion of the G.E. FOUNDATION Quantitative Reasoning - B4.

Class web site: The class web page is located at <http://blackboard.csufresno.edu>. It will be an important tool in the class, so be sure to be familiar with all of the functions on it. Announcements, assignments, and links will be posted at the site. Your user name and password are the same as that of your CSU Fresno email account, but you can change this once you log into Blackboard. You should regularly check your csufresno.edu email or have it forwarded from Blackboard to another email address that you do check often.

How to submit your Homework (E-mail only): Email all your home work to your instructor(s) to prevent paper use! Type your work using any word-processing software (proof read and save the file), then copy the text and paste it into the email body (**NO attachment files**). Before sending, you **MUST exactly** type the following words in the SUBJECT area: **ENSC1-YourLastName-FirstName-AssignmentName** (e.g., ENSC1-Smith-John-CaseStudy1, NS115-Smith-J-TermPaper1). **Otherwise, your homework will not be graded.** The written homework is due one week following the day of assignment.

Grading policy:

Attendance/Quizzes	15% (1 miss = 0.5% off overall score)
Homework/Case Study	20% (use the best 8 out of 10 writings)
Term paper (on approved topic)	15% (TEXT length > 3 pages)
Midterm exam 1*	15% (chapters 1-9)
Midterm exam 2*	15% (chapters 10-18)
Final exam*	20% (emphasize on later chapters)

Final Grade will be based on 100-point scale (>90, A; 80-89, B; 70-79, C; 60-69, D; and <60, F). * **Make-up exams are not given** except in extenuating circumstances.

Attendance: Class attendance is required. Video and audio materials will be shown and quizzes will be conducted. Your active participation in classroom questions/discussions will be factored into the Attendance and Quizzes scores. **If you miss any 2 classes in the first week without personally notify the instructor by the next class meeting, you may be administratively dropped.**

Tentative Schedule: ENSC 1: Environmental Science

Week	Day	Contents	Reading	Homework (Written Assignments)
Week 1	M-lecture	Introduction to class	Table of contents	Search for topics of YOUR Term Paper . Find a most interesting topic that is site or species specific.
	W-lecture W-action	Our changing environment Using science to address environmental problems	Ch. 1 Ch. 2 <i>External Reading 1</i>	Case Study 1: Take a stand www.wiley.com/college/raven - Ch 1 - Reintroduction of wolves <i>Due at the end of next week (same for others).</i>
Week 2	M-lecture M-action	Human Population	Ch. 8	
	W-lecture W-action	Population control	Ch. 9	Case Study 2: Take a stand www.wiley.com/college/raven - Ch 9 – highly indebted poor countries (HIPC)
Week 3	M-lecture M-action	The ecosystems and the flow of energy	Ch. 4	
	W-lecture W-action	The Biosphere	Ch. 5 <i>External Reading 2</i>	Case study 3: Take a stand www.wiley.com/college/raven - Ch 5 – Biosphere
Week 4	M-lecture M-action	The physical world	Ch. 6	Case Study 4: Take a stand www.wiley.com/college/raven - Ch 6 – Human induced changes in nitrogen cycle
	W-lecture W-action	Major ecosystems on Earth	Ch. 7	
Week 5	M-lecture	Exam 1		<i>Term paper proposal due.</i>
	W-lecture W-action	Energy & Resources Fossil fuels	Ch. 10 <i>External Reading 3</i>	Case Study 5: Take a stand www.wiley.com/college/raven - Ch 10 – controversies surrounding ANWR
Week 6	M-lecture M-action	Nuclear Energy	Ch. 11	
	W-lecture W-action	Renewable Energy	Ch. 12	Case Study 6: Take a stand www.wiley.com/college/raven - Ch 12 – subsidies for alternative energy <i>Revised term paper proposal due</i>
Week 7	M-lecture M-action	Water: A Fragile Resource	Ch. 13	
	W-lecture W-action	Soils and Land Resources	Ch. 14 Ch. 17	
Week 8	M-lecture M-action	Minerals: A Non-Renewable Resource	Ch. 15	Case Study 7: Take a stand www.wiley.com/college/raven - Ch 15 – mining the ocean floor
	W-lecture W-action	Food Resources: Agriculture	Ch. 18	Case Study 8: Take a stand www.wiley.com/college/raven - Ch 18 – genetically modified food
Week 9	M-lecture M-action	Preserving Earth's Biodiversity	Ch. 16 <i>External Reading 4</i>	
	W-lecture	Exam 2		
Week 10	M-lecture M-action	Pollution Air pollution	Ch. 19	
	W-lecture W-action	Atmospheric Changes: Ozone	Ch. 20 <i>External Reading 5</i>	Case Study 9: Take a stand www.wiley.com/college/raven - Ch 20 – Kyoto Protocol
Week	M-lecture	Water & soil pollution	Ch. 21	

11	M-action W-lecture W-action	Toxicology, Pesticide	Ch. 22	
Week 12	M-lecture M-action	Solid and Hazardous Wastes	Ch. 23	Case Study 10: Take a stand www.wiley.com/college/raven - select Ch 23 – recycling in municipal plan
	W-lecture W-action	Field trip: Fresno waste water treatment plant, Fresno landfill site		8:00am – 2:00 pm (you need to miss other classes!)
Week 13	M-lecture M-action	History, Legislation, and Economics	Ch. 3	<i>Term Paper 1st draft due</i>
	W-lecture W-action	Tomorrow's World	Ch. 24	
Week 14	M-lecture M-action	No class meeting		
	W-lecture W-action	No class meeting	Holiday	
Week 15	M	Oral reporting		<i>Term Paper final draft due</i>
	W	Oral reporting		
Week 16	M	No class meeting		
	W			
Week 17	M	Final Exam		

External (non-textbook) Readings:

1. Muir, John. *The Mountains of California* (reprinted in 1997; originally published in 1894) Bergenfield, New Jersey: Penguin Nature Classic Series. Or *My First Summer in the Sierra*, A compelling description of the High Sierras, written by the founder of the Sierra Club.
2. Holland, J.S. and M.S. Quinton, **Carving out their niche – Elickers**, *National Geographic*, June 2004: 72-79.
3. Appenzeller, T. and S. Leen, **The end of cheap oil**, *National Geographic*, June 2004: 80-90.
4. McGrath, S. and M. Farlow, **Attack of the alien invaders**, *National Geographic*, March 2005: 93-117.
5. Appenzeller, T. and D. R. Dimick, **Global Warming – Signs from the Earth**, *National Geographic*, September 2004: 2-75

ADDITIONAL RECOMMENDED READINGS:

Books

Abbey, E. *Desert Solitaire* (reissued in 1991; originally published in 1968) Westminster, Maryland: Ballantine Books, Inc. Wonderfully-written essays, almost Thoreau-esque in their attitude. Angry, committed, specific--and evocative of the desert / canyon Southwestern US.

Baskin, Y. *The Work of Nature: How the Diversity of Life Sustains Us* (1997) Washington, D.C.: Island Press. A clear explanation of the consequences of declining biological diversity on our planet's basic life support services.

Cohen, J.E. *How Many People Can the Earth Support?* (1995) New York: W.W. Norton & Company. A penetrating analysis of one of the most crucial questions of our time. Douglas, M.S. *The Everglades: River of Grass* (1947) Sarasota, Florida: Pineapple Press. An environmental classic that tells of the Everglades' unique natural and cultural history.

Ehrlich, P.R., A.H. Ehrlich, and G.C. Daily. *The Stork and the Plow: The Equity Answer to the Human Dilemma* (1995) New York: Grosset/Putnam. A provocative look at the interaction between population and food supply.

Leopold, A. *A Sand Country Almanac* (1966; originally published in 1949 by Oxford University Press) New York: Ballantine Books, Inc. A philosophical examination of humanity's interrelationship with nature.

McKibben, B. *Hope, Human and Wild: True Stories of Living Lightly on the Earth* (1995) Boston: Little, Brown and Company. An extraordinary tale of a journey in search of hope for the Earth

Myers, N. *Ultimate Security: The Environmental Basis of Political Stability* (1993) New York: W.W. Norton & Company. An insightful presentation of how environmental problems can affect worldwide economies and international stability.

Shabecoff, P. *A New Name for Peace: International Environmentalism, Sustainable Development, and Democracy* (1996) Hanover, New Hampshire: University Press of New England. A thoughtful survey of international environmentalism.

Suzuki, D. *The Sacred Balance: Rediscovering Our Place in Nature* (1999) Seattle, Washington: Mountaineers Books. A must-read for those interested in environmental ethics. It is the story of Earth, combining science, spirituality, philosophy and poetry along with concrete suggestions for living more lightly upon Earth.

Web pages

Environmental Science Home: www.wiley.com/college/raven

Six Billion and Beyond: <http://www.pbs.org/sixbillion/library/library-links.html>

Instant world population: <http://www.cn.org/zpg/mother.htm>

The energy trends: <http://energytrends.pnl.gov/>

Environmental Career job list: <http://environmentalcareer.com>

ADMINISTRATION:

Field-trip Notice: This course includes a required one-day field trip to Fresno City Waste Water Treatment Facility (morning) and Fresno County Land Fill Site (afternoon). The specific date will be determined by appointments with the agencies. Therefore, you will be issued a University-sponsored Activity notice for excused absences from other courses.

Policy on Late Homework: Late penalty for assignments is 0 to 10% per day (i.e. Don't be late unless you have a legitimate reason, such as illness or real emergencies.)

Disability Notice: If you have special needs as addressed by the American with Disabilities Act (ADA) and need course materials in alternative formats, notify your course instructor immediately. Reasonable efforts will be made to accommodate your special needs.

Cheating, Plagiarism and Disruptive Classroom Behavior Notice: Please refer to the University's *General Catalog* and *Schedule of Courses*. All Case Studies and project report must be completed independently. Copying the work of others (e.g., from the internet) without putting in any substantial individual effort constitutes plagiarism, which will be subject to disciplinary actions in accordance with University policy.

Classroom etiquette: Please set your cell phones and pagers to vibrate or silent during classes. Please use them for emergency purposes only. If you must talk on your phone, please first leave the classroom quietly without causing any disruption. Apparent distracting behaviors in the classroom will be factored in your attendance scores. **These may include talking in class, cell phones, chewing gum, tobacco, wearing baseball caps, reading newspapers in class, eating and drinking when not permitted, and bringing visitors or guests, etc.** **Student conduct which disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class.** The classroom is a special environment in which students and faculty come together to promote learning and growth. It is essential to this learning environment that respect for the rights of others seeking to learn, respect for the professionalism of the instructor, and the general goals of academic freedom are maintained. Differences of viewpoint or concerns should be expressed in terms which are supportive of the learning process, creating an environment in which students and faculty may learn to reason with clarity and compassion, to share of themselves without losing their identities, and to develop and understanding of the community in which they live.

Subject-to-change notice: This syllabus and the class schedule are subject to change in the events of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent. Any substantive changes to this syllabus will be accompanied by the distribution of a revised syllabus

INSTRUCTIONS FOR TERM PAPER REPORTS

Text: The report should present information on the assigned topic, including:

- 1) overview of the issue,
- 2) variety of viewpoints, stakeholders,
- 3) your thoughts on the issue, and
- 4) list of references consulted.

Papers should be at least three pages typed and double-spaced. You should have at least 5 references, including at least 1 website and 1 scientific journal. The other references can be from popular news articles in magazines or newspapers (minimum of 2). The style to be used for this paper is the author and date in parentheses within the text - for example, (Smith, 1999; Smith and Wang, 2000) - and the references listed in alphabetical order in the reference section. If there are more than 2 authors, use et al. within text (Smith et al., 1999), but list all authors in the list of references. Proper credit should be given for all tables and figures taken from other sources.

Tables and Figures: Write figure caption below the figure and table notation above. **Tables and figures are not counted as text.** Source for figures and tables should also be cited and listed in the references.

References: For the reference list, follow the style examples:

- Ferris, F. G., Jack, T. R. and Bramhill, B. J. 1992. Corrosion products associated with attached bacteria at an oil field water injection plant. *Canadian Journal of Microbiology* 38: 1320-1324.
- Pullar-Strecker, P. 1987. *Corrosion Damaged Concrete: Assessment and Repair*. Boston: Butterworths, 99p.
- Tiller, A. K. 1982. Aspects of Microbial Corrosion. In: *Corrosion Processes*, ed. R. N. Parkins. London: Applied Science Publishers, pp. 115-159.
- United States Environmental Protection Agency. 1999. Global Warming. <http://www.epa.gov/globalwarming/> (last update March 29, 1999). Date visited: June 27, 2000.

Oral presentation

On **Monday and Wednesday of Week 15**, each person or group will present a 10-minute summary of their reports. In the case of group reporting, you should plan to get together with your group either in person, or by email or discussion board, to discuss the presentation. You may use overheads or do a PowerPoint presentation on the computer if you choose to do so.