

ENVS 3001: The Campus and the Biosphere

Meets Tu/Th 9:30 AM-10:45 AM, in the new Earth Sciences Building, Room 265

Instructor: Will Toor; phone 492-8308; office UMC 331; e-mail toor@spot.colorado.edu
Office hours: Thursday, 2-5

This class examines resource flows, using the University of Colorado campus as a living laboratory. It will introduce students to green design and life cycle analysis. Students use basic techniques of environmental auditing to analyze the CU Boulder campus.

This class is an integrative, project-based, collaborative learning experience. The class will explore - and try to solve - complex real-world environmental problems at the University of Colorado campus.

Course Aims:

1) **How does environmental policy actually change?** There are lots of good ideas out there, but few actually get adopted. How do large institutions function? Who makes decisions, and what can organizations and institutions do to influence policy? How can you develop the skills to be an effective advocate? We will focus on the University of Colorado campus as a model system. We will discuss both collaborative decision making and outside advocacy.

2) **How does everyday life impact the environment?** How much of the environmental crisis is simply due to poor design? We will explore the life cycle impacts of consumer products and of campus practices. What type of changes will have the biggest impact?

3) **Research Skills:** Any policy proposal must be grounded in good research. We will engage in individual and group research projects. We will design questions, locate information, analyze data and propose recommendations. We will develop basic quantitative skills. We will conduct original research wherever possible.

4) **Using our findings to educate and persuade:** The best research is useless if you don't communicate your findings! We will develop skills in writing and oral communication. Everyone will give written and oral presentations, which will be constructively critiqued by the class. We will role-play presentations to administrators and the press. Students who are successful in developing new policy recommendations will present these to appropriate administrators and to the public.

Required Texts:

Campus Ecology., April Smith, 1992, Student Environmental Action Coalition (I will provide this to the class)

Ecodemia: Campus Environmental Stewardship at the Turn of the 21st Century, Julian Keniry, 1995, National Wildlife Federation

Stuff, by Alan Durning and John Ryan, 1997, Northwest Environment Watch

The Car and the City, by Alan Durning, 1996, Northwest Environment Watch

Work Required

Each student will be required to choose one area for a small group research project. Sample areas include solid waste and recycling, transportation, energy use, building systems, food services, hazardous waste or waste minimization. The students in a group will review current programs at CU, analyze their environmental impact, and recommend alternatives or improvements. The group will conduct a seminar style presentation to the class, and will submit two written reports, one designed as an academic presentation and one as a proposal to decision makers. This project will be initiated by the middle of February, and will account for 60% of the grade.

Students will also take turns leading class discussions based on the readings. 15% of the grade will be based upon class participation.

There will also be several homework exercises assigned, which will account for 15% of the grade.

Each student will also be responsible for calculating one piece of baseline data for CU (example: total greenhouse gas emissions in 1996-97) for 10% of their grade.

Campus Earth Summit: This is an annual meeting of campus decision makers to review CU's environmental progress. Students will be required to present at and participate in the Campus Earth Summit, to be held April 21 and 22.

Topical Outline :

Topics to be addressed include:

Introductory Section (1 class period) Jan. 13 Course Overview

Overview of CU environmental programs.
How did we get where we are today?

Discussion: what issues do students want to focus on?

How does change happen? Student, community, administrative perspectives **Jan. 15, 20, 22**

Jan. 15

Guest speakers:

Bill Herbstreit, Director, Financial Services - the bus pass program and the Intermediate Processing Facility

Steve Lester - the Williams Village recycling program

How do decisions get made at CU? How can students affect this? What factors influence decision makers?

Jan. 20

Guest speaker:
Hank Brusselback - the anti-CIA movement on campus - what impact did it have?

Class discussion

Jan. 22 Strategic Planning
Know who makes the decisions! How can you influence them?
Strategy charts

Environmental Impacts of Everyday Life (2 weeks) Jan. 27, 29
Feb. 3,5

Readings: Stuff, Alan Durning
Sustainability: the Dutch Challenge

First Homework :
Environmental impact analysis of a consumer product
Self audit

Class critique of impact analyses

Overview of Institutional Environmental Impacts: energy, water, solid
and hazardous waste, transportation and land use planning (2 weeks)
February 10, 12, 17, 19

Where does our energy, water, food, paper,...come from? Where do our waste
products go?

Choose group research projects and begin developing outlines. Choose campus
clients who will be served by your research. We may invite clients in to discuss
their needs.

Present initial research proposals to class for feedback

readings: Ecodemia
Campus Earth Summit web pages
Campus Ecology

Methods and Skills February 24, 26 March 3, 5

Back of the Envelope Calculations - is that number reasonable?

Some useful economics: present value, risk of investments

**Using public records - internet searches, freedom of information act, state
open records act**

Guest speaker: Adrienne Anderson, former Western field organizer, National
Toxics Coalition

Legal compliance: National Environmental Policy Act, Clean Water Act requirements

Guest speaker: Spense Havlick, Professor, Environmental Design

Second homework set

Life Cycle Analysis (1 week) March 10, 12

-Examining the environmental impacts of the entire life cycle of a product, including obtaining the resources, manufacturing, use, and disposal. How useful are the results of such studies?

Case Study: the recycling debate

Readings: The Case Against Recycling, Lave et al, Technology Review, 1996
Recycling is Garbage, John Tierney, 1996, The New York Times Magazine
Advantage Recycling, Environmental Defense Fund web site, 1996
Myths About Recycling, Environmental Defense Fund web site, 1996

Pricing: Does our pricing system encourage environmental destruction?
(1 week) March 17, 19

case study: transportation

Guest speaker: Debra Basket, City of Boulder Congestion Pricing Study

Readings: The Car and the City, Durning, 1996
The High Cost of Free Parking, Shoup, Journal of Planning Education and Research, 1997
The Economics of Traffic Congestion, Arnott and Small, American Scientist, 1994

Discussion: how could price structure on campus be modified to lower environmental impacts?

Spring Break

Topics Section (6 class periods) March 31, April 2, 7, 9, 14, 16

This will be based upon the student projects chosen. During this time period the whole class will examine research results, go on tours or field trips related to the topic, and critique preliminary reports.

Here are some sample topics.

Campus Land Use Planning

The fate of the south campus

Tour of the site

Master Plan Update

Open space, transportation, and housing

potential guest speakers: Ruth Blackmore, community activist
Jim Baily, campus planner

Solid Waste

History of CU recycling

The potential of waste minimization.

What works for encouraging waste diversion: voluntary vs. regulatory vs. pricing approaches.

Case study of solid waste management: Boulder County 's 50% landfill diversion goal

What are the challenges facing CU recycling?

potential guest speakers: Jack Debell, CU Recycling
John Madsen, CU Facilities Management

Transportation

Transportation demand management at universities

Survey of student attitudes

Case study : CU Boulder

Case study of municipal transportation plan: Boulder, Colorado

Transportation Master Plan

Building systems

Energy use for building systems: heating, lighting, cooling and mechanical systems

Materials used in building: embodied energy, recycled content

Timber harvesting, "sustainable" forestry programs

Life cycle analysis of buildings

Campus building standards

Water Use

Water supplies: groundwater vs. surface water sources, biological impact of water diversions

Water conservation: engineering solutions, economic tools

Water quality

Case study: University of Colorado irrigation system

**Energy and Utilities; Dining Services; Hazardous Waste Generation;
Campus Purchasing Policies; Campus Investments; Pesticide Use on campus;
Campus Landscaping: native plants, wildlife habitat**

Campus Earth Summit

April 21, 22 - student presentations at Campus Earth Summit

No class April 23

Seminar section (4 class periods) April 28 , 30

Final papers are due. Presentations by students of their research projects . Each group presents a plan to get policy makers to adopt their recommendations