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EVST 101 ENVIRONMENTAL SCIENCE FALL 2002

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OFFICE 101 BOT, office hrs: 10-12 Wed (usually) & by appointment

Class Goals: Provide students with opportunities to make a difference;

**Help students build: scientific literacy; skills in critical thinking, research & self-instruction;
an understanding of the scientific basis of environmental issues, policies, laws;
habits of informed, active participation in social decisions, sustainable living,
and of service to their community and the earth.**

DATE	LECTURE TOPICS	References*
9-3	Course goals & mechanics; What is Env. Science?	FP (pp 1-20), M1, www.earthcharter.org
9-5	Literacy—Scientific & Ecological	M2.1-2.2, FP-principles, processes p13-14
10	Ecosystems—energy flow, productivity	M2.3-2.7, 2.10
12	cycles, env. fate—can't throw anything away	AO part I (ch4), FP-water cycle, p22
17	ecosystem services	ER: Daily; FP- services, web, p23
19	Communities—connections--cant do just one thing	() M5.1 to 5.3 & 5.8 to 5.9
24	kinds of diversity; all creatures have a role change, disturbance, condition	M6.1-6.3 (23 rd is last day to add) M2.9
26	Populations— genetic diversity, adaptation, flexibility growth, limits, capacity	M2.8, M3.1 to M3.4
10-1	Ecofootprint – <i>Matis Wakernagel</i> , Redefining Progress <i>Susan Anderson</i> , Sus Bus Council	ER: WWF's planet report & p24b EF p1-80; FP- ecofootprint p 25
10-3	Tragedy of the Commons, wrapup	ER: Hardin
10-8	*****EXAM 1***** grades posted by Oct 11, " last day " to drop Oct 14	

	Scientific Basis of Environmental Laws & Policies	App 2 & 3 of M
10-10	Env Laws & policies, NEPA, (pop policy)	M12.5, FP-NEPA, (see web list)
15	Land (MUSY, NFMA, etc)	rest of M5 + fire ecology on web
17	Water (Clean Water Act, etc)	M10 + FP—Clean Water Act
22	Air (Clean Air Act) – <i>Garon Smith</i> , UM Chemistry	M9 + FP on global climate change
24	Life/Biodiversity (ESA, etc)	M6.4-6.7
29	Toxics (TSCA, FIFRA, etc)	M8, FP-Colborn
31	Waste/materials (RCRA, etc) -- <i>Josh Burnin</i> , UM Recycling	M11
11-5	Election Day – VOTE!!!	
	Meeting Our Needs Sustainably—Thinking Globally, Acting Locally	
7	Food — <i>Josh Slotnick</i> , PEAS	M7 esp p218-9 & 7.7
12	Shelter— <i>Steve Loken & Heather Higginbotham</i> , Loken Builders	M4 (p110-20)
14	Transportation — <i>Nancy McKiddy</i> ASUM trans & Msl in Motion rep	M3.5 –3.6
19	Energy Policy— <i>Pat Judge</i> , MEIC	M4
21	*** **EXAM 2 *****	
26	films & food	28 THANKSGIVING (Eat Locally)
12-3	Watershed CPR http://ssrl.soc.umn.edu/evst	AO part II (ch 10)
5	Protecting our sole source aquifer— <i>Peter Nielsen</i> , Msl WQD	M pp 294-5, 316-8
12 -10	Class choice or student presentations	ER—Eco Literacy
12	Living Sustainably	EF 4 & 5, M1 & 12.6-.7, App 4
17	**MAKEUP EXAM, comprehensive, by appointment only** 3:20-5:20 pm	

- FP = Facpac; M = Miller; Sustaining the Earth More ref guidance in class
- EF = Wackernagel & Rees. Our Ecological Footprint ER = <http://eres.lib.umn.edu>
- AO = Alice Outwater's Water (select one chapter from part I and one from part II)

Other important dates: see EVST's online calendar <http://www.cas.umn.edu/evst/calendar.htm>

9/13-14 Household Haz Waste Days All day River Field Trips – Sept 21, Oct 5
9/28 Public Land Day. AWR Rendezvous – Oct 11-13

Grade based on percentage of 600 points earned**HOW TO EARN POINTS (maximum possible points shown):**

- 200 pts 2 Exams (100 each);
- 100 pts Service Project & proposal (10) & report & thank you letter (90)
- 100 pts Research project: proposal (10), paper (70), letter to decision maker (20),
(20 pts extra credit for a good annotated bibliography)
- 100 pts Portfolio—demonstrate your Science Literacy
- 80 pts Field trips or conferences & reports on same
- 50 pts Lecture participation (based on inclass essays)
- 50 pts Help session participation
- 40 pts Presentation (oral, poster, or web page) on service project or research paper
- 10 pts Learning Contract

HOW TO LOSE POINTS:

- Unexcused absence from field trip once signed up – drop a letter grade for course.
- Late work – lose ¼ of points on that assignment for each week late.

ASSIGNMENTS ARE DUE IN HELP SESSION during WEEK INDICATED BELOW;

Keep a copy of all assignments turned in.

WEEK OF ASSIGNMENT – INSTRUCTIONS FOR ALL ASSIGNMENTS ARE IN FAC PAC

- 9-3 Claim a place in a help session; Introduce yourself and your interests
- 9-10 Email addresses due (points lost for every week late); notify us if you change your email.
- 9-17 Proposal (10pts) due for service project (or you can do research project first)
- 9-24 Proposals returned and discussed
- 10-1 Revised Proposals or progress report due; review for exam
- 10-8 EXAM this week -- nothing due; go over exam
- 10-15 Learning Contract (10 pts) and proposal (10pts) for research project due; return exam.
- 10-22 Research Proposal returned; exam challenges due
- 10-29 Revised research proposal or progress report due;
- 11-5 Service project's final report due
- 11-12 Review for exam
- 11-19 EXAM this week. -- nothing due; review for exam
- 11-26 Help sessions do not meet this week (Thanksgiving)
- 12-3 ALL Remaining WORK DUE (papers, final reports, portfolios). Project Presentations
- 12-10 Presentations continue; All work must be picked up by end of finals week to receive full credit.
After finals week, IT WILL BE RECYCLED!

A. COMMUNITY SERVICE PROJECT—100 pts

UM wants all its graduates to develop the habit of community service and urges instructors to include community service in classes. Students can earn up to 100 pts by providing a community service (10 hr minimum) that serves to protect/restore our environment & build a more sustainable society. You may do group or individual projects. Provide your TA (help session leader) with a short proposal for your service (need/env. benefit, group served, what you will do, time required) & get approval before proceeding. To earn points for your service project, you must submit a final report that includes your proposal, your project evaluation and a letter of thanks from those served. Your evaluation of this experience should describe: what you did and learned, how you used your skills/knowledge, how project contributed to your preparation for life &/or career, your level of satisfaction in the experience, how the project could have been improved. If you worked on a group project, you must also evaluate the contribution of each group member.

Some ideas for community service projects (TAs will have more):

- Help Missoula Health Dept. with its Household Hazardous Waste Collection Sept 13-14
- Help restore an ecosystem (eg., Mt. Sentinel www.umt.edu/sentinel) on Public Land Day 9-28
- Help MontPIRG expand campus recycling program & other projects
- Help grow food for the food bank at the PEAS Community Supported Agriculture Project
- Write and record (for radio) a Field Note for Montana Natural History Center
- Assist local teachers with environmental curricula or field trips
- Help community groups (MUD, WEN, etc) with their projects (many will come to class; also see Center for WorkBased Learning web page and EVST web page for local groups)

B. RESEARCH PAPER AND LETTER TO DECISION MAKER —100pts

UM wants its graduates to be informed, active participants in our democracy. Students can earn up to 100 pts by writing a letter & research paper on a timely environmental issue. Your 1-2 page letter to a key decision maker will be based on your research paper (about 5 pages, single spaced). Give your TA a proposal (topic, why timely, target of letter). Your TA will provide you with feedback on your paper & letter, and you will mail the letter & paper to your target audience. If you develop a portfolio, include the proposal, paper, letter and any response you receive. Possible targets for your letter(s):

- elected representative (national, state, local)—comment on pending legislation &/or voting record
- executive agency decision maker (national, state, local)—comment on upcoming decision (EIS, etc)
- editor of a newspaper, magazine – note that letters to the editor have word limits

You will be graded on the quality and depth of the research in the paper, not on the opinion or values expressed. You must present verifiable scientific info on a timely environmental issue, but consider your target audience (their knowledge level & attention span). Your research paper should back up the positions in your letter (ie, cite scientific sources & discuss logic—see TA in help session if you are unsure what constitutes a scientific source and logic). You may choose to provide info only, but we urge you to draw conclusions & take a stand; support your arguments with verifiable data & accepted scientific concepts. For topic ideas, see newspapers, newsletters/websites of groups working on environmental issues.

Group research papers (about 5 pages per person) may earn extra credit, but require extra work.

C. PORTFOLIO -100 points

You can earn up to 100 points by collecting together the work you've done in this class and evaluating it in a portfolio in order to demonstrate you've developed proficiency in Science Literacy. Read UM's definition of 'Natural Science Literacy' in this FacPac. This states UM's goal for science literacy among its graduates. The first section states a number of things that scientifically literate citizens can do. Write an **essay** (1) explaining how you increased your skills in each of these areas in this course; use examples from the work you did in the course (essays, letters, research papers, annotated bibliographies, field trips etc).

UM's science literacy document then lists a number of desired outcomes for students. Write a short essay on each of these demonstrating your understanding of these concepts. **Essays** should be entitled:

- 2) The most critical concepts and processes of science I learned in Environmental Science
- 3) What are basic and applied environmental science and how do they shape one another?
- 4) Science and technology—how have they harmed our environment?
How can they help restore & protect it?

Optional: The final outcome in UM's science literacy wishlist is 'engage in scientific inquiry'. This is intended to be a part of lab classes. However, if you performed original research for this course, you may write an extra credit short essay on how this increased your understanding of scientific inquiry.

Your portfolio should be a 3 ring binder with dividers that includes **the above 4 essays, all your exams, assignments, & any evaluations** of these you are told to perform, including the one on community service. For each **exam**, discuss any questions that you missed. Explain your current understanding of that question and answer. Include your reports on any **field trips or conferences** you attended. Note—to receive full credit for your portfolio, you must pick it up at the end of the semester.

FIELD TRIPS & CONFERENCES

A large number of field trips will be offered early in the semester (subject to fire closures). Space in University vehicles is limited and will be allocated to those who sign up first. If space is full, a waiting list will be made. If you decide you cannot attend a field trip, formally cancel your reservation at least 48 hours in advance so others can be notified of available space. If you do not cancel, you will lose points.

You can earn up to 10 points per hour of field trip time (not counting the first hour of travel time/trip). You must turn in a report to earn the points, and points received depend on the quality of the report. Reports should summarize the important technical info presented on the trip and relate these to concepts discussed in class. Reports should not simply say that you learned a lot and thought the trip was great. Take careful notes on a field trip to help you write a good report. Because of fires or inclement weather, some field trips may be cancelled. Hence attendance at & reporting on certain conferences may be accepted in place of field trips. To receive credit for a conference, it must be pre-approved and proof of attendance is required. **Reports are due to TA one week after the trip or conference.** Students have failed for copying reports.

E. PARTICIPATION/ATTENDANCE AT LECTURE AND HELP SESSIONS

Students who attend lecture regularly get much more out of the course (or at least earn better grades). To encourage attendance, I will periodically request that a short essay question be answered in class. Those who regularly attend & turn in thoughtful essays will receive up to 50 additional points on their final grade.

Help sessions are intended to provide students with a place to interact in smaller groups with a discussion leader (the TA). Help sessions are a good place to discuss concepts or assignments that confuse you or topics that you feel have not received enough attention in class. Help sessions will also serve as exam review sessions and places to turn in assignments and receive feedback. **Assignments will not be accepted or returned in class—this is too disruptive.** Help sessions should be used as open office hours with TAs. Students who actively participate in help sessions have earned higher grades in the past. To encourage active participation in help sessions, those who regularly participate actively in help sessions will receive up to 50 additional points.

F. PRESENTATIONS ON PROJECTS – up to 40 pts

All students are encouraged to give a presentation on your projects near the end of the semester. You may develop a poster to display and present at a minisymposium (held some evening or weekend). Or you may develop a web page on your project that can be added to or linked to a class web page. Those who demonstrate to their TA that they can give an excellent oral presentation on their project will be invited to give an oral presentation to their help session or the entire class in place of a poster.