

# Western Michigan University

## ENVS 410 Spring 09: Appropriate Technologies & Sustainability:

### Ecological Design & the Campus as a Living, Learning Laboratory

**Instructor:** Dr. Harold Glasser  
3936 Wood Hall  
387-2713

**Class Meeting Place:** 1718 Wood Hall

**Class Meeting Time:** MW: 2:00-3:15

**Office Hours:** M: 11:30-1:30  
W: 11:00-12:00 or by appointment

“Never doubt the power of a small group of committed individuals to change the world. Indeed, it is the only thing that ever has.”

— Margaret Mead

“You must be the change you want to see in the world.”

— Mahatma Gandhi

**Required Course Materials:** *Four* books—available from the Campus Bookstore in the Bernhard Student Center, plus additional readings to be provided.

1. Barlett, Peggy F., and Geoffrey W. Chase, eds. (2004). *Sustainability on Campus: Stories and Strategies for Change*. Cambridge, MA: MIT Press.
2. Edwards, Andres R. (2005). *The Sustainability Revolution: Portrait of a Paradigm Shift*. Gabriola Island, BC Canada: New Society.
3. Meadows, Donella H. (2008). *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green.
4. Todd, Nancy Jack (2005). *A Safe and Sustainable World: The Promise of Ecological Design*. Washington, DC: Island Press.
5. Additional readings to be selected by the instructor and students.

**Course Description:** Through our values and our behavior/actions/policies, we shape both the places where we live and those quite distant from us (in both space and time). This course focuses on learning how to see and understand our *campus* as an ecocultural system. Our goals are fourfold. We will: (1) identify significant “problems”—campus practices and policies that are currently unsustainable; (2) learn how better understand the causes (drivers) of the problem and evaluate its impacts/significance (see the “problem” in the context of WMU as a *system*); (3)

research opportunities for improvement, and (4) develop levers and strategies for positive change—reports, analyses, surveys, media events, teach-ins, pilot projects, new policies, etc.

We will begin the course with a review of the “WMU Environmental Mission Statement” that was passed by the Faculty Senate and the WSA in December 2003 [other relevant WMU resources include: the WMU Master Plan and the WMU Campus Design Charrette, May 19, 2006—available at: <http://www.cf.wmich.edu/planning/>; reports from the new President’s Universitywide Sustainability Committee (and other materials on the WMU Sustainability Website <http://www.wmich.edu/sustainability/>) and reports from previous 410 classes].

We will follow this up with a short review, discussion, and critique of the various definitions of “sustainability” and “sustainable development” that appear in the literature (see Edwards). Our goal is to develop a working definition of sustainability that the entire class finds acceptable.

Next, we will develop a working knowledge of “systems thinking” (see Meadows). Our goal is to apply this knowledge to so that we can better understand WMU as a living system. This will be crucial to our semester-long project—as you will see below.

Finally, for historical perspective and context, we will look at the appropriate technology (AT) movement—which, perhaps, represents the first large-scale effort to examine how social values influence technological choice—and explore AT’s relationship to the current “Ecological Design” movement (see Todd). The focus of the AT movement was, for the most part, to create small-scale, decentralized technologies with “human faces” that served both people and the environment. We will use the AT movement as a launching pad for a thorough questioning of contemporary technologies, the concept of technology as an “autonomous” entity, and the potential for redirecting technology. We will move on to both a theoretical and practical exploration of ecological design—the idea of creating a marriage of nature and technology in service of the planet. Along the way we will also consider tools and techniques for creating environmental management systems (such as Campus Sustainability Assessment, “Life-cycle Analysis,” John Lyle’s Regenerative Design Principles, ISO 14,000, and the CERES Principles) and strategies for individual, social, institutional and economic transformation (Social Learning, Earth Charter, Natural Step, Natural Capitalism, Next-Industrial Revolution ideas regarding cradle to cradle production/consumption, and systems/organizational learning).

As a case study, we will consider environmental/sustainability management systems in the context of Western Michigan University. The remainder of the class will focus on a semester-long project (individual *or* group). Students will be responsible for developing a *formal research proposal* to analyze one or more aspects of Western’s *ecocultural wake* (e.g., waste, curriculum, GHG emissions, buildings, endowment, water, energy, materials, purchasing, paper use, etc.) with an eye toward identifying:

- (1) Problems/issues that represent “*low hanging fruit*” (defined as an existing problem/issue on campus that is ripe and ready to be addressed) and
- (2) Problems/issues that are likely to *leverage resources toward future sustainability initiatives on campus* (i.e. the projects must be *feasible*, changes can be made relatively quickly and cost-effectively, AND the changes should be viewed as both *highly visible* and very *positive*).

Students will be responsible for preparing initial drafts (that will be peer evaluated) and, later after the proposals are revised, for a formal evaluation of *each* proposal—by each member of the class and myself. These evaluations will be used by the class as a whole to assess the merit of the proposals and to choose several projects to focus on throughout the remainder of the semester. The groups will then refine the proposals and work collaboratively to research/evaluate the problem, make prioritized recommendations for responding to or solving the problem (with cost estimates and time frames for implementation), and create a professional report documenting their results. The “end-goal” will be to create a highly professional report that can both be delivered to the appropriate campus decision maker(s) and be used to craft new and improved campus policies and practices (or facilitate the implementation of existing, more sustainable policies and practices),

Students will learn valuable interdisciplinary problem solving skills, environmental/sustainability assessment skills, social learning for sustainability skills, and have the opportunity to engage in a hands-on, action-research project to improve the campus environment.

“Lectures” will incorporate videos and in class projects/discussions. Outside speakers with expertise in campus policy, planning, and practice will also be invited to class to give student a “real world” understanding and appreciation of the practical issues related to “greening” a university campus. Additional lectures will be created, as needed, to address the needs of the students and provide information relevant to the completion of the specific semester projects that have been chosen.

*We may also have several outside speakers to discuss different sustainability/environmental initiatives on campus—please let me know well in advance if there is a particular aspect of the campus that you would like to focus on!*

## **Grading:**

Draft proposal review	10%	(Approximate due date, 1/26)
*Draft proposal due 1/19		
Project Proposal	20%	(Approximate due date, 1/28)
Proposal Evaluations	10%	(Approximate due date, 2/4)
Semester-Long Project	30%	(Approximate due date, 4/15)
Class Participation and Attendance (may include in-class presentations)	10%	
Oral Final	20%	(To be arranged—15 minutes each)

- Class participation is CRITICAL! You might increase your grade from a B to an A or a B from a C by actively participating in class discussions and in-class projects.

**Class Protocol:** Each class meets for one hour and fifteen minutes. Attendance for the complete meeting period is mandatory. Remember you are responsible for *any* and *all* information that is discussed during this period. Critical information for assignments, projects, and tests may be discussed only once.

**WMU Sustainability Committee:** Harold Glasser (chair), Evie Asken, Wayne Fuqua, Richard Gershon, Dave Lemberg, Carl Newton, Carolyn Noack, Christopher Pyzik, Bob White, Ryan Teelander (student), Peter Voice (g. Student), Robert Beam (ex officio), Paul Pancella (ex officio)

## **Proposed WMU “Environmental Mission Statement” (121503)**

Approved by the WMU Faculty Senate and the Western Students Association

### **Commitment:**

We, the Western Michigan University community, are dedicated to creating a safe, healthy, aesthetically pleasing, and sustainable campus. Consistent with the University’s mission to “advance responsible environmental stewardship,” we affirm our commitment to foster:

- environmental awareness,
- understanding of and responsibility for the physical environment,
- just and ecologically sustainable resource use,
- sensitivity to the needs and aspirations of future generations, and
- global thinking with local action.

As a learning institution, we appreciate that planning for sustainability will be an ongoing, intellectually engaging process.

We establish this “Environmental Mission Statement” to identify general goals and strategies for implementing our commitment to environmental responsibility. By enacting and implementing this Mission Statement, Western Michigan University will set a positive example and confirm its role as a leader in promoting environmental stewardship on campus and beyond.

### **Goals and Strategies:**

To meet its commitment to advance responsible environmental stewardship, the Western Michigan University community will:

- Recommend that the President sign the Talloires Declaration;
- Make environmentally sound practices a core value of our teaching, research, service, and operations;
- Create opportunities for all students, faculty, and staff to become environmentally literate;
- Prepare graduates to have the knowledge, skills, tools, and values to become leaders in the worldwide effort to promote just and ecologically sustainable communities;
- Conduct our business practices in accordance with this Environmental Mission Statement;
- Build on existing programs and initiatives in energy management, recycling, waste management, water conservation, transportation planning, ecological landscaping, and sustainable design as well as create and promote new programs to fully implement this Environmental Mission Statement throughout the University;
- Develop a plan for assessing the University’s current strengths and weaknesses. Perform this assessment and prepare a WMU “Sustainability Strategic Plan.” This plan will include recommendations, achievable goals and targets, and an ongoing monitoring and reporting strategy; and
- Allocate the fiscal and human resources necessary to implement this Environmental Mission Statement.