

Planning and Design of a Sustainable Farm An Interdisciplinary Special Topics Course and Individual Studies Plan Spring Quarter 2008

Course Description and Objectives:

This special topics seminar, discussion and practicum course will focus on planning and designing a sustainable farm for Ohio. Immediate and severe economic pressures can encourage “tunnel vision” decision-making that disregards critical components of long-term success. For the short-term, farm profitability can be enhanced by chasing economies of scale. However, this narrow approach hampers the planning and design of farms that are sustainable in multiple dimensions. Alternative approaches to agriculture can help farms remain economically viable while enhancing their inherent ability to drive off-farm economies, enrich quality-of-life and maintain environmental health. Such approaches: a) take advantage of scope economies and ecosystem services, b) integrate farms into local communities and food systems, c) spur the development of value-added products and services, and d) reduce capital and external input needs to great effect. Far from being regressive, these approaches make use of farmer ingenuity and modern science and technology to maximize production efficiency while maintaining environmental quality, economic viability and social responsibility. *The intent of this course is to provide students with wider and more demanding visions of farm planning and design and an interactive forum in which they use their own creativity in the planning and design of a sustainable farm for Ohio.* In this course, students will gain:

- A broadened view of agriculture including field, farm, community, watershed and regional scales, and farmer-consumer linkages;
- A perspective on how Ohio farmers seek compatibility and synergism between social, economic and environmental objectives.
- Both conceptual and applied understanding of farm planning and design criteria;
- A holistic and useful framework for addressing agricultural issues; and
- Experience employing this framework in multidisciplinary teams addressing real-world issues.

In 2008, students will have the opportunity to contribute to the design of the Mellinger Farm, a 300-acre farm in Wayne County that is being donated to OARDC. The Mellinger Farm could be an excellent venue for demonstrating, developing, adapting and educating about the technology devoted to small scale, entrepreneurial and ecological approaches to farming. In future years, Ohio farmers seeking to improve the sustainability of their enterprises may be engaged so that their farms serve as the focus of student planning and design.

Credit: 2 credit hours, open to graduate students and to undergraduate students with at least junior class standing and permission of participating faculty in the student’s department.

Participating Departments, Course Numbers and Contacts:

Lead instructors: Casey Hoy (hoy.1@osu.edu) and Matt Kleinhenz (kleinhenz.1@osu.edu).

At least 14 instructors from 7 departments plan to participate in the course along with stakeholder partners. Most participating departments will offer the course as an individual study. Students from any department may sign up for individual studies with their advisor (593, 693 or 993 depending on the student’s standing and the advisor’s preference), the advisor should contact the course instructors by email to let them know that their student or students plan to participate,

also copying the students. Following are specific course and call numbers and instructors for the course in the participating departments.

Agricultural, Environmental and Development Economics 693.01 Agribusiness Management and Finance (register with your advisor's call no.): Meike Wollni, Barry Ward

Animal Sciences 693, call no. 01240-4: Francis Fluharty, Thad Ezeji

Entomology 795.05 (Ecology), call no. 21972-0: Casey Hoy, Deborah Stinner, Parwinder Grewal

Horticulture and Crop Sciences 693: Matt Kleinhenz, John Cardina, Mark Bennett

Human and Community Resource Development 693.08, call no. 18652-1: Bill Flynn, Molly Bean, Richard Moore

Plant Pathology 693, call no. 17732-6: Sally Miller

School of Environment and Natural Resources: Charles Goebel, Dave Johnston

Partners: the Agroecosystems Management Program, College of Wooster

Class Meeting Times: 2 hr/week, 3-4 pm Tuesdays and Thursdays, Kottman 244 in Columbus and Fisher 121 in Wooster by video link.

Class Schedule:

Week 1, 3/24-28/08:

1. Class logistics, introduction to farm design criteria

Instructor: Casey Hoy

Readings: The Triple Bottom Line for Ohio Farms Worksheet (provided)

Earle, R. 2005. Sustainable agriculture: an introduction. ATTRA. www.attra.ncat.org/attra-pub/PDF/sustagintro.pdf 8 pp.

McDermott, M., Horne, J. E., 72 Ways to make agriculture sustainable.

<http://www.kerrcenter.com/HTML/pub3.html>

2. Virtual Mellinger farm tour

Instructor: Casey Hoy

Special Guest: Patricia Quinby, family member and donor of the Mellinger farm

Readings: Documents describing the Mellinger farm

Optional weekend visit to the farm, to be arranged

Week 2, 3/31-4/4/08:

1. Systems integration

Instructors: Deb Stinner & Casey Hoy

Readings: Rotz, C. A., Corson, M. S., Coiner C. U., The integrated farm system model.

Reference Manual, Version 2.1 <http://www.ars.usda.gov/naa/pswmru> (pp. 1-19).

Boody, G., B. Vondracek, D. Andow, M. Krinke, J. Westra, J. Zimmerman, and P. Welle.

2005. Multifunctional agriculture in the United States. *Bioscience*. 55, 27- 38.

K.W. Belchera, M.M. Boehmb, M.E. Fultona. 2004. Agroecosystem sustainability: a system simulation model approach. *Agricultural Systems* 79: 225–241.

2. Challenges in plant agriculture

Instructors: & Matt Kleinhenz, Mark Bennett & John Cardina

Week 3, 4/7-11/08:

1. Challenges in animal agriculture
Instructor: Francis Fluharty
2. Challenges in farm energy conservation and production
Instructor: Harold Keener (tentatively scheduled)

Week 4, 4/14-18/08:

1. Challenges in marketing
Instructor: Meike Wollni
2. Challenges in community connections
Instructor: Molly Bean Smith

Week 5, 4/21-25/08:

1. Innovative Ohio farmers – interviews with stakeholders involved with agricultural sustainability issues, the Scarlet, Gray and Green Fair participants and exhibitors
Facilitator: Casey Hoy
2. Innovative Ohio farmers (continued) – interviews with farmers attempting transition to new enterprises, and others familiar with their challenges.
Possible speakers: David Kline, David Marrison, Brad Masi, Brian Gwin, Joe Hartzler, Bob Jones, Mary Holmes
Facilitator: Deb Stinner

Week 6, 4/28-5/2/08:

1. Brainstorming and initial vision – each student will provide a brief description of their vision for the redesign and use of Mellinger Farm. Students will then discuss and combine their ideas until at least two competing visions for the farm are described.
Class instructors facilitating
2. Team assignment - At least 2-3 components of the nascent farm plans and designs will be chosen and students will self-assign to interdisciplinary teams working on these components.
Class instructors facilitating

Week 7, 5/5-9/08:

1. Teamwork – literature reviews – each student will be part of a team (e.g. animal production, energy efficiency), will have chosen a contribution to the team's proposed plan (e.g. pasture raised poultry, wind power for the farmstead), and will be expected to provide a literature review on their topic (see grading details below). Each team will present a summary of the literature they plan to employ in developing their plan/design. Breadth, depth and reliability of the literature review will be rewarded. The summary will be given orally and accompanied by the list of references. Discipline-specific information should be presented by the team member representing the discipline.
Class instructors facilitating

Week 8, 5/12-16/08: Teamwork – plan/design presentation 1.

Each team will present their developing plan/design component for Mellinger Farm followed by group discussion and suggestions for improving the plan/design and its preparation and integration. Students, faculty and staff will be invited to attend and provide input.

Class instructors facilitating

Week 9, 5/19-23/08: Teamwork ... plan/design presentation 2

Each team will present their final plan/design for Mellinger Farm. Presentations to last approximately 30 min. Presentations followed by 20-minute open review session in which specific strengths and weakness of the plan/design are identified. Students, faculty and staff invited to attend presentations and participate in review session. Entire class period taped and available to teams for reference.

Class instructors facilitating

Week 10, 5/26-30/08: Teamwork ... response to review of final plan/design Each team will respond (orally and with visual aids, if necessary) to the constructive criticisms of their plan/design with information that refutes the criticism or with a proposed alteration to their plan/design.

Class instructors facilitating

Expectations of Students

Grading: S/U based on 1.) attendance, 2.) active and consistent participation in discussions, 3.) literature review, 4.) contribution to a design (3-5 page paper including literature review, proposed plans and design components and testable hypotheses or needed site-specific data).

Literature review – Each student will be expected to find 10 papers relating to their part of the farm plan and provide a brief review (1 page) describing the importance to the overall plan.

Design evaluation – Student designs will be evaluated according to how well they address energy conservation, ecological efficiency, environmental quality, economic return, and positive community relationships. Individual and team design components will be evaluated for the strength of their contribution and level of integration with the overall farm plan. Feedback will be provided to students during development of their plans and after presentations in the last week of the course.

The best plans and proposed design components may be incorporated into future improvements and activities at the Mellinger Farm.

Expectations of Instructors and other Participants

Instructors will deliver a 30-40 presentation on their topic that highlights:

1. key references, scientific challenges and opportunities (broad perspective) and
2. potential linkages of the above to Mellinger Farm (narrow perspective).

For example, production and marketing must be integrated for farm success, regardless of location, but it can be difficult for some farmers to achieve this integration. In the broad view, this principle and observation can be illustrated as in a seminar. For students in this course, instructors are also asked to connect principles and observations to Mellinger Farm whenever possible.

Other course participants not delivering a presentation will be asked to:

1. act as resource people for team members and/or
2. judges of farm plans/designs.