

Environment and Natural Resources (ENR) 5194
Conservation Planning and Management Practices
The Ohio State University, School of Environment and Natural Resources
May Term 2015, Three Credit Hours
Course Syllabus

Instructor

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Class meetings:

Meet in Kottman Hall parking lot most days, behind Plumb Hall and various field locations and offices, central Ohio, including Franklin SWCD.
Monday through Friday 8 AM to 5 PM

Course description:

This 14 full day May Term course will provide students hands-on experience with a broad range of conservation planning and practice tools often used by landowners and their partners. Ten days will focus on agricultural lands and operations, including cropland, livestock, and forestry operations; stream restoration/management; and oil and gas well and pipeline construction. Four days will focus on urban development and conservation. Relationships to water quality and wildlife/habitat will also be covered in each topic area.

The heart of the course, however, is allowing students to get out in the field to see the sites where agricultural, urban, and other development is occurring, and see how conservation Best Management Practices are actually planned, installed, and maintained in the “real world”. Part of this experience will be interacting with farmers, developers, and other landowners and land operators in the field as well as with consultants and agency representatives, and learning skills for how best to communicate with all of them.

However, prior to field visits, students will learn important basics about methodologies and approaches to conservation planning, including site assessments and where/how to gather relevant information for a farm/development site and the surrounding landscape and watershed that affects the site, and vice versa. Also, students will learn how to understand farmer/developer goals and constraints, and relevant laws, regulations, and any sources of assistance. Then finally, they will learn how to propose a plan that meets owner/operators needs as well as those of the community. Students will also learn basic information about approximately 50 commonly-used conservation “Best Management Practices” including practice basics and how/where/when they are best used, and where detailed practice standards and specifications may be found.

Learning objectives and outcomes:

Students will learn the basics about conservation planning and tools, including how to:

- assess development sites and farms from environment and natural resources, owner/operator/developer, and community/watershed perspectives,
- complete a nutrient management plan for farms, and
- develop and/or review a plan for use of conservation Best Management Practices that protects the environment and also allows the landowner/developer to achieve their economic and other goals – for both farm/ag and urban development sites.

They will also learn how these plans for individual sites relate to broader settings and goals, e.g. those in a watershed action plan. Students will learn how all of this relates to water resources, wildlife and habitat, land conservation, and other resource needs.

Students will learn basic information about approximately 50 conservation Best Management Practices. While learning outcomes stop short of allowing students to actually design these practices, they will learn enough to understand how, when, and where they are appropriate to use or recommend in various settings; what the advantages and disadvantages of various practices are; what the projected environmental effectiveness is; and what are costs, projected longevity, and maintenance requirements.

Students will also learn techniques for communications with the various parties involved in conservation planning and practice installation, including farms and landowners.

Text and resources:

There is no assigned textbook for the course; however, a significant amount of online and published/scanned materials will be provided students, allowing them to create a “library” of resources that will be useful “on the job” in virtually any related work setting. Such resources will typically be posted to Carmen for downloading. Students will be encouraged to create a personal “library” of references and resources for later career use.

Course format:

The course will be presented through classroom lecture and discussion sessions, often involving outside practitioners from agencies and organizations; discussion relating topics to “real world” situations will be encouraged. However the vast majority of the course will be “in the field” visiting farms and development sites, with further discussion and expert commentary at those sites and nearby shelterhouses, etc.

Additional course information and materials:

This course will utilize Carmen, a Web-based course management system at The Ohio State University. carmen.osu.edu A variety of materials and information will be provided on the course’s Carmen site; please check it regularly.

Attendance policy:

Attendance is expected and will be recorded. Therefore, students are responsible for knowing any changes to the syllabus, for all information presented and discussed in class, for announcements made in class, for materials distributed in class, and classroom exercises and assignments. Students needing to miss class should so notify the instructor via e-mail prior to the absence. Emergency absences will be dealt with on an individual case basis. The extent of in-class participation will be noted.

Late assignment policy:

No late assignment will be accepted or make-up exam given unless prior permission has been given by the instructor, except when a documented emergency was the cause. Late assignment turn-in permission will be granted only when extenuating circumstances can be documented. Failure to participate in team/group presentations will be treated similarly.

Requirements and grading:

Team project presentation Day 15	33%	team grade
Final take-home exam essay applying course to presumptive career	33%	individual grade
Attendance, participation	33%	individual grade

Grading scale for final course grade:

100 – 93%	A	79 – 77	C+
90 – 92	A-	76 – 73	C
89 – 87	B+	72 – 70	C-
86 – 83	B	69 – 67	D+
82 – 80	B-	66 – 60	D
		59 or below	E

Academic integrity:

The university states that “It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct whenever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information see the Code of Student Conduct at oaa.osu.edu. It is our intent to treat each of you as if you are honest. We assume that whatever you say or do is done in good faith. If we suspect that you have breached that trust, our intention is to report any suspected academic misconduct through appropriate channels.

Disability services:

Students with disabilities that have been certified by the Office of Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office of Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; 292-3307; TD 292-0901; ods.osu.edu. An American College Health Survey found that stress, sleep problems, anxiety, depression, interpersonal concerns, death of a significant other, and alcohol use are among the top ten health impediments to academic performance. Students experiencing personal problems or situational crises during the quarter are encouraged to contact OSU Counseling and Consultation Services at 292-5766 or ccs.osu.edu for assistance, support, and advocacy. This service is free and confidential.

ENR 5194 Conservation Practices and Planning – Ag and Urban
May 2015 (Monday, May 11 through Friday, May 29)

Day 1, Monday, May 11

Field trip, to cabin at conservation area at OSU Farm Science Review (FSR), London, Ohio

Welcome, David Hanselmann

Introductions of students and instructors; course logistics details; course content overview; grading and attendance

Role of local, state, federal agencies, NGOs, private sector, others in promoting conservation practices.

Regulatory vs. non-regulatory approaches for agricultural and urban conservation

Introduce Bob Stoll, recent NRCS retiree and Dan Crusey, recent ODNR Div. of Wildlife retiree

Overview of “conservation planning” and “inventory and evaluation” processes/procedures/tools almost always used by technical staff interacting with agricultural landowners and producers

Overview of the large number of “engineering” and “agronomic” conservation practices commonly used on farms and rural lands, and where to get additional information and standards and specifications.

Accessing conservation practice and planning technical information and standards from USDA Natural Resources Conservation Service and beyond: NRCS State Engineer, Mike Monnin, P.E.; State Soil Scientist, Steve Baker; and GIS/NRI Specialist, Jeremy Keller.

1:00 to 4:00 PM visit FSR conservation practices and ag operations and a nearby farm.

Day 2, Tuesday, May 12

Field trip, visiting farms in Union and Logan Counties NW of Columbus, to evaluate existing conservation practices on the farms, talk about planning, construction and maintenance of these practices. (Steve Robinson grain/cattle farm; Van Winkle pasture-based dairy; stream restoration discussion/overview then Darby Creek TNC restoration walk) and possibly Honda wetlands mitigation.

Day 3, Wednesday, May 13

Field trip to Delaware County, hosted by the Delaware SWCD. Brief overview of SWCD and programs at their office just east of Delaware. Visit several farms to view and discuss operations and conservation practices. One farm has a management intensive grazing operation. Also discuss the importance of sub-surface and surface drainage to agriculture and rural residents/communities and view installations.

Discuss associated environmental issues. Pre-read Rural Drainage Systems report:

http://www.dnr.state.oh.us/portals/12/CE/RuralDrainage/Drainage_Report.pdf

Tour enormous, new Columbus up-ground reservoir. View and discuss the Upper Big Walnut Creek water quality project practices, protecting Hoover Reservoir. Related PowerPoint on Carmen.

Day 4, Thursday, May 14

Field trip to Licking SWCD office in Newark. Overview of SWCD programs. Overview and basics of nutrient management planning and how/why it is so critical to protecting water quality. (Bob Mulligan, ODNR Div. of Soil and Water Resources and possibly Kirk Hines, P.E., Administrator, DSWR; SWCD technical staff) Review/reminder of conservation practices applicable to controlling nutrient runoff.

Visit at least two livestock/poultry (possibly Trillium Poultry with 20 million+ layers) operations to view and discuss operations and practices, with available landowners, producers, and technical staff. Connect to their nutrient management plans. Analyze one operation for deficiencies and propose improvements.

Discussion at Velvet Ice Cream plant/park of their effluent treatment wetlands.

Day 5, Friday, May 15

Field trip to Grand Lake St. Marys. Considerable discussion about history of water quality and other issues at GLSM and rules, programs, etc. *en route* (8 – 10 AM) Hosted by ODNR Div. of Soil and Water Resources (Terry Mescher, P.E.) and the Mercer SWCD (Frances Springer). View the lake, visit farms, discuss issues and solutions/practices. Engage community and ag leaders. Lunch at Bella’s Italian Restaurant, and view highly litigated re-built spillway and lake outlet quite nearby.

Day 6, Monday, May 18

Field trip to Dan Crusey farm in Union County. Series of exercises with landowners that are enrolled in the Conservation Reserve Program and/or the Wetlands Reserve Program. View and discuss numerous conservation practices, e.g.: wetland restoration, native warm season grass plantings, tree plantings, edge feathering; possible controlled burn of prairie planting. Meet with landowners and agency staff who deal with wildlife and water quality conservation planning on a day to day basis, including Mark Seger, P.E., ODNR Div. of Soil and Water Resources. Evaluate nearby farm for conservation needs and opportunities. Possible visit to Marysville waste water treatment facility.

Day 7, Tuesday, May 19

Field trip to a 450-acre site in Logan County that was recently obtained through the Ohio Public Works Program with Clean Ohio Funds and is under a permanent conservation easement. This day will be both interactive with conservation planners from the U.S. Fish and Wildlife Service and the Ohio Division of Forestry along with a landowner committed to forestry and wildlife practices on his land including control of invasives, tree plantings, and pollinator plots, and observation of before/after sites. Students will also observe/engage in some hands-on demonstrational work such as cut and treatment of invasives; direct spray of herbicides of invasives; increment bore of trees showing age; pruning of trees to improve value; crop tree selection. Visit pasture-based cattle operation. Discuss Indian Lake watershed management efforts.

Day 8, Wednesday, May 20

Field trip to Hocking and Vinton Counties to learn about forestry and the BMPs used during timber harvest and other operations. Hosted by the ODNR Division of Forestry (Greg Guess and others), at and near Hocking State Forest. Meet at Hocking State Forest cabin first for overview of issues and practices (pre-read BMPs for Erosion Control for Logging Practices) then visit past and hopefully current logging sites, and meet with loggers, landowners, and technical staffs.

Day 9, Thursday, May 21

Field trip to visit oil and gas drilling sites and pipeline construction, and discuss the range of related conservation practices, in Harrison and surrounding counties. Hosted by MarkWest mid-stream energy company and site/conservation practice contractor.

Day 10, Friday, May 22

Field trip touring several stream restoration sites in various stages of completion using natural channel design, self-forming channel design and two-stage channel design techniques. Benefits and applicability of each method will be presented and new trends in stream restoration will be discussed. Learn about partnerships with regulatory agencies, research institutions, municipalities and metro parks that shape new regulations and promote restoration and conservation of stream resources. Led by Kyle Wilson Conservation Program Manager with Franklin SWCD and Jessica D'Ambrosio, P.E. formerly with OSU Dept. of Food, Agricultural, and Environmental Engineering. Classroom overview of stream management and restoration practices and options from 8 to 9 AM.

Monday, May 25, Memorial Day, no class

Day 11, Tuesday, May 26

Urban conservation overview, at Franklin Soil and Water Conservation District office. Urban planning and practice overview. Municipal roles and programs (Barb Cox, P.E., City of Dublin). Federal and state regulations/permits, programs and urban conservation practices and planning, A to Z, largely from the Ohio DNR Division of Soil and Water Resources Rainwater and Land Development 500-page “manual”. John Mathews, Stormwater Manager, ODNR DSWR. Lunch. View practices at next-door park project. Private sector roles and the typical steps followed to successfully complete a project and achieve stormwater regulatory compliance. Miles Hebert, P.E., EMH&T.

Day 12, Wednesday, May 27

Field trip departing from Kottman Hall to various development sites and green infrastructure projects in Franklin and Union Counties, coordinated by David Reutter, CESSWI, Urban Conservationist, Franklin SWCD. View rain garden installations near Griggs Reservoir. Meet presenters at Battelle Darby Metro Park Discuss Darby Accord partnership with Tracy Hatmaker, Prairie Township Administrator, and Erin Sherer, Ohio EPA Environmental Engineering Supervisor. Early lunch at the park. Visit development sites in Hilliard in the Darby watershed, with City Planner John Talentino, AICP. Wrap up at Dublin Methodist Hospital which utilizes numerous conservation practices, with site designer Scott Sonnenberg, P.E., Eco-Design and Engineering, Ltd.

Day 13, Thursday, May 28

Field trip day including walking tours of green infrastructure installations in downtown Columbus and at OSU. Starting with green roof on Howlett Hall with Megan Meir, Ohio’s green roof expert. View 5th Ave. dam removal site and Olentangy River restoration efforts on campus. Depart by 9:40 for site visit at new quintessentially green John Maloney Southside Health Center (Daimler Group project), and meet with MKSK design team and health center CEO. Walking tour of downtown green infrastructure practices and Main St. dam removal and Scioto River restoration projects. Can buy lunch from food trucks at Columbus Commons Park. Arrive at Parkwood, new M/I Homes subdivision near Gahanna, by 1:30, and meet with EMH&T design team and conservation practices site contractor.

Day 15, Friday, May 22

Meet at Franklin SWCD office. Q & A/discussion of urban conservation (~30 minutes). Break into teams of 5-6 students to analyze site needs and requirements to convert a parcel of cropland, woods, and streams into a sub-division. Develop site plan that meets developer’s needs, complies with permit requirements, and maximizes environmental values. (~8:30 to 11:30 AM) Lunch. Four team presentations, noon to 2 PM; graded. Course wrap-up: UN Millennium Ecosystem Assessment; World Business Council for Sustainable Development Vision 2050; 3-4 PM. Course evaluation. Go forth and practice good conservation, sustainability, and business.