Environment and Natural Resources Management Capstone

ENR 4900.01

Focus: Ecosystem Restoration

Spring Semester 2018

THE OHIO STATE UNIVERSITY

Contents

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Basic information

Instructor:	Dr. G. Matt Davies	Rachael Glover (TA)
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	412B Kottman Hall	
Office hours:	E-mail to schedule an appointment	E-mail to schedule an appointment
	Open door subject to other duties	

Class location: 333 Kottman Hall
Class times: Tuesdays and Thursdays 5.30pm – 6.50 pm

Course description

This section of the capstone course will focus on the development of restoration management plans. Working with a variety of stakeholders and real restoration problems, students will form mini-restoration consultancies to develop an Adaptive Management Plan. Over the course of the semester students will work through the planning process including initial scoping, identifying reference conditions, choosing restoration treatments, designing a monitoring program and budgeting for the plan. Students will prepare a written report for the stakeholders and pitch the results of their work.

There are no active prerequisites for this course but ENR 3800 and/or ENR 5560, and an additional 12 credit hours in natural resources or natural sciences; or grad standing; are recommended.

Course aims

The aims of the course are to provide students with the opportunity to:

- Experience utilizing their disciplinary knowledge in a semi-professional setting
- Explore the theoretical, practical and ecological constraints on restoration planning
- Implement their skills and knowledge to solve a real-world restoration problem
- Improve their transferable skills and collaborative working practices
- Build real-world restoration planning experience to increase career readiness

Teaching methods

The objective of a capstone course is to provide students with an opportunity to integrate the coursework, knowledge, skills, and experiential learning gained throughout their academic career. The course is an opportunity for you to demonstrate your mastery of learning across the curriculum in preparation for further career development. The primary goal of ENR 4900.01 is therefore not to increase your knowledge of a particular topic but to give you the opportunity to implement those learned skills through the development of a team project. Teaching methods in this course will include workshop activities, group and class discussion and mentored practical tasks and peer review exercises.

Please note the following carefully:

- Team members should **consider the course meetings a professional workplace** and come to class appropriately prepared and engaged. **You are not students in this class** you are project team members.
- In line with University guidelines team members should expect to spend a **minimum of six hours per week outside of class** working on their project.
- This course is semi-structured which means a substantial proportion of it will be student-led – this means **team members are responsible for identifying and requesting the information/guidance they need** to successfully complete the assessments.
- Students will be mentored through the planning process but a significant **responsibility for organization and meeting targets will falls on the project teams**. Project teams should set themselves clear objectives at the end of each meeting to ensure they stay on track. There will be consequences for failing to meet these each week

Intended Learning Outcomes

By the end of this course you will have demonstrated your ability:

1. Describe the key steps in the restoration planning process and their challenges in the context of ecosystem restoration
2. Define the elements of an effective ecosystem restoration Adaptive Management Plan
3. Develop financial and personnel budgets required to successfully implement restoration treatments
4. Work collaboratively as a member of team to create and communicate a shared understanding of a complex environmental issue
5. Communicate effectively and professionally with external agencies and stakeholders
6. Present scientific information to non-specialists
7. Prepare and pitch a realistic and well-researched restoration project plan

Course schedule

The schedule below should be taken as indicative and changes may be made subject to adequate progress being made by project teams

Wk	Project phase	Date	Class activity	Assessment
1	Introduction	9/Jan	Course overview	*Preference survey*
		11/Jan	Introduction to projects	
2		16/Jan	Understanding restoration plans	Restoration plan critique
		18/Jan	Professional peer-review	
3	Scoping	23/Jan	Working with stakeholders	Business letter
		25/Jan	Planning a scoping visit	
4		30/Jan	Researching and using reference conditions	Scoping visit report
		01/Feb	Integrating landscape design *(guest lecture from Landscape Architecture)*	
5	Setting objectives	06/Feb	Overview of logic modeling	Draft Logic Model
		08/Feb	Participatory refinement of logic model	
6		13/Feb	Site assessment – planning and reviewing	

7		15/Feb	field and lab site assessments	
		20/Feb		Draft site assessment
		22/Feb	Evaluation and refinement of objectives	
8	Communication	27/Feb	How to effectively communicate your ideas	Draft Objectives
		01/Mar	Reviewing vision statements	
9	Selecting treatments	06/Mar	Discussion and workshopping	
		08/Mar		
10	SPRING BREAK			
11	Selecting treatments	20/Mar	Discussion and workshopping	Draft treatment plan
		22/Mar		
12	Budgeting	27/Mar	Introduction to project budgeting	Draft budget
		29/Mar	Budget workshop	
13	Monitoring	03/Apr	A workable monitoring plan	Draft monitoring plan
		05/Apr	Workshop: developing a monitoring plan	
14	Group work	10/Apr	Workshops: report preparation and feedback	
		12/Apr		
15		17/Apr		Draft report
		19/Apr		
16	Final assessment	24/Apr	No class	Final report
		30/Apr	Presentations (to be held during Final Exam session)	Presentation

Site visits

The formal class times mean that it is not possible to arrange visits to the restoration sites during the classes themselves. Visiting and familiarising yourself with the site will, however, be important for developing a successful plan. The course leader will assist in organising a single visit to each site but it will be the students' responsibility to develop a set of objectives for the visit and to arrange a meeting with the relevant stakeholders. These field visits will, by necessity, be outside of class. Extra credit will be awarded for participation. Students from other groups will be welcome to participate in trips to other sites. Additional field visits organised can be organised by the project team and will also attract extra credit.

Course reading

All the texts below are freely available as web resources or as e-books which can be downloaded from the University library.

The following is the recommended text for this course:

- Rieger J., Stanley J. & Traynor R. (2014) Project Planning and Management for Ecological Restoration. Washington DC, Island Press.

The following texts will also be extremely useful:

- Apfelbaum S.I. & Haney A.W. (2010) Restoring Ecological Health to Your Land. Washington DC, Island Press.

- Williams B.K., Szaro R.C., & Shapiro C.D. (2009) Adaptive Management: The U.S. Department of the Interior Technical Guide. Washington, DC., U.S. Department of the Interior. Available from: http://permanent.access.gpo.gov/gpo15119/TechGuide.pdf
- Collaboration for Environmental Evidence. (2013) Guidelines for Systematic Review and Evidence Synthesis in Environmental Management. Version 4.2. Available from: www.environmentalevidence.org/Documents/Guidelines/Guidelines4.2.pdf

Additional reading

Additional papers, reports and multi-media resources relevant to the skills and concepts developed on the course will be provided on Carmen. You are strongly recommended to read them and to consider the results and concepts they discuss. These papers should be taken as a starting point for further reading not as an exhaustive list.

Assessment

Your final grade will consist of the elements described below. A group grade will be given for items in black, and an individual grade for those in blue.

- **Restoration plan review** **5%** **(due 19th Jan)**
  - Each student will submit a review (2 pages max) of the example restoration plan their group was assigned
- **Business letter** **(due 26th Jan)**
  - Each team will compose a formal letter of introduction to their respective key project stakeholder group. This will not count towards your final grade but a penalty will be applied for late submission.
- **Scoping visit report** **5%** **(due 2nd Feb)**
  - Each team will submit a 2-3 page report on their initial site scoping visits. This should detail key ecological problems faced, priorities for field data collection and initial ideas for restoration interventions
- **Draft Logic Model** **5%** **(due 9th Feb)**
  - Each team will submit an outline logical model describing the initial process of defining key objectives for the project. It is not expected that all specific details will be finalized and ideas may change but the model should outline the project's direction
- **Draft site assessment** **5%** **(due 23rd Feb)**
  - Each team will submit a draft of the Site Description section of their report. This should describe the current ecological structure and composition of the site, information describing appropriate reference or target conditions and the key restoration challenges identified.
- **Draft objectives** **5%** **(due 2nd Mar)**
  - Each team will submit a draft detailing the Short, Medium and Long-term objectives for their restoration project. Where appropriate these should be formatted using the SMART structure.
- **Draft treatment plan** **5%** **(due 23rd Mar)**

  - Each team will submit a draft describing and justifying the restoration treatments and giving explicit guidance on how they should be applied
- **Draft budget** **(due 30th Mar)**
  - Submission of the draft budget is required by the assigned deadline. A penalty will be applied for late submission
- **Draft monitoring plan** **(due 6th Apr)**
  - Submission of the draft budget is required by the assigned deadline. A penalty will be applied for late submission
- **Peer reviews** **15%** **(due Monday following section submitted)**
  - Each team member will be required to provide a review (max. 500 words) of the draft report sections submitted by teams working on a different project
- **Final report** **30%** **(due 24th Apr)**
  - Your complete, final plan will be evaluated by the course leader. Your collaborating stakeholder group will also be invited to provide feedback.
- **Final presentation** **20%** **(due 30th Apr)**
  - Your team will provide a final presentation of your complete restoration plan. The presentation should give a thorough overview of the background, scope, aims, objectives and recommendations detailed in the report. Stakeholder groups involved in the course will be invited to attend and provide feedback.
- **Professional practice** **5%**
  - Team members will be evaluated by the course leaders on the quality of their professional interactions. This will include timeliness, politeness, collegiality and participation. A peer evaluation will also be completed by your fellow team members. Where it is apparent that students have not made an adequate or constructive contribution, their final grade may be modified as a result.

Letter grades will be returned for most assessments with scores given as follows: A (100-93%); A-(92-90%); B+ (89-87%); B (86-83%); B-(82-80%); C+ (79-77%); C (76-73%); C-(72-70%); D+ (69-67%); D (66-60%); E (below 60%).

Extra credit

Extra credit will be awarded for:

- **Attending/organizing your group field visits** (one visit to each site will be arranged by the course leader). A short report and picture of your group at the site describing your visit's outcomes must be provided for award of credit. *A 1% bonus will be provided for each supplemental site visit*.
- **Project selected for implementation**: One report for each project site will be selected to be submitted to the stakeholder for implementation. The selection will be made by the course leader and TA in consultation with the stakeholder. This will mimic the competitive tendering process all ecological consultancies are required to participate in. *A 5% bonus will be applied to the selected report's grade.*

Deadlines and penalties

Students may be granted an extension to the deadline if a good reason is given. Extensions will not be given in retrospect. No extension will be permitted for the final report. Students will receive a grade of zero for any uncompleted assessments completed.

Plagiarism

The University's degrees and other academic awards are given in recognition of a student's personal achievement. All work submitted by students for assessment is accepted on the understanding that it is the student's own effort.

Plagiarism is defined as the submission or presentation of work, in any form, which is not one's own, without acknowledgement of the sources. Plagiarism includes inappropriate collaboration with others. Special cases of plagiarism can arise from a student using his or her own previous work (termed auto-plagiarism or self-plagiarism). Auto-plagiarism includes using work that has already been submitted for assessment at this University or for any other academic award.

The incorporation of material without formal and proper acknowledgement (even with no deliberate intent to cheat) can constitute plagiarism. Work may be considered to be plagiarised if it consists of:

- a direct quotation
- a close paraphrase
- an unacknowledged summary of a source
- direct copying or transcription

With regard to essays, reports and dissertations, the rule is: if information or ideas are obtained from any source, that source must be acknowledged according to the appropriate convention in that discipline; and any direct quotation must be placed in quotation marks and the source cited immediately. Any failure to acknowledge adequately or to cite properly other sources in submitted work is plagiarism.

Plagiarism is considered to be an act of fraudulence and can result in a charge of academic misconduct. More information on avoiding plagiarism can be found here: http://library.osu.edu/projects-initiatives/copyright-resources-center/using-materials/plagiarism

Disabilities Statement

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let the instructors know immediately so that we can privately discuss options. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with the course leader as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Fieldwork safety

Safety during fieldwork is the prime responsibility of the individuals undertaking the fieldwork. Safe conduct extends to journeys to and from field locations. Responsible and careful behaviour is thus an obligation for all students at all times. Infringement of this safety code, or indulging in any activity which is prejudicial to safety during a field course, will be regarded as a very serious matter.

Specifically all students must:

1. Ensure they have read the risk assessments before fieldwork commences. Risk assessments will be available on Moodle and will be distributed at the start of the course.
2. Obey all safety instructions given by the course convener and relevant land/property owners and managers.
3. Wear appropriate clothing for the type of weather and terrain likely to be encountered. For any research in which fieldwork is conducted in the countryside the following guidelines should be followed. Wind and waterproof outer jacket and trousers are necessary. Walking boots should be worn for work off surfaced roads or paths. An appropriate number of layers of warm clothing and waterproofs should be taken.
4. When working in hot and sunny conditions, ensure you have a plenty supply of fluid, and take care to avoid exposure to strong sun – wear sunscreen and a hat
5. If instructed to do so, wear required personal protective equipment in the field until such time as the responsible party instructs that it is safe to remove them.
6. Report any injury or illness to the course convener immediately, however trivial.
7. Inform the course convener about any prior illness or medical condition which might re-occur during the fieldwork. It is the student's responsibility to ensure that they have an up-to-date record of vaccination cover (such as for tetanus).
8. Conduct themselves properly and with respect for others whilst in field residences or host organisation. Anti-social behaviour is likely to lead to deterioration in safety and will not be tolerated. Follow rules and guidelines given by property owners or managers.

Questions, advice and suggestions

I welcome suggestions for improving this course! Any questions concerning the course should be directed to Matt Davies. If this is not possible, or desirable, comments concerning the course should be raised with your academic advisor.

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