ENR 4900.02 Natural Resources Management for Forestry Fisheries & Wildlife  
First Summer Term 2019 (3 credits)  

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Course Objectives:  ENR 4900.02 is a senior-level capstone course designed to provide Forestry, Fisheries, and Wildlife (FFW), and Natural Resources Management (NRM) students in the School of Environment Natural Resources at The Ohio State University with an opportunity to integrate the ideas, concepts and tools learned during their academic careers to planning, problem solving and decision-making related to natural resources. Students that complete ENR 4900.02 should be able to:  

- apply the subject matter of their previous college courses in identifying, analyzing, and solving natural resource problems that arise in practice for a land management agency, specifically the design and implementation of resource inventory analysis, and formulating plans and recommendations;  
- work as a member of an interdisciplinary team, allocate responsibilities, budget time and resources to accomplish specific missions, goals, and objectives within constraints of personnel, time, finances, and other resources;  
- prepare a written, integrated, technical report, based on the design, collection and analysis of field data that will provide a basis for recommended actions.  

Course Description:  In general, we will expose students to the effects (e.g., ecological, economic, social) of different forestry and wildlife management practices on different ecosystems. Additionally, we will provide the students with the necessary “tools” to work with other natural resource professionals by application of comprehensive Natural resources (e.g. forestry, fisheries, wildlife, recreation) inventory methods. Students will quantify and analyze Forest resources to better understand ecological, economic, and social aspects of forest ecosystems, including forest ecosystem restoration methods, and production and utilization of forest products. Wildlife resources will also be examined, focusing on quantifying the wildlife communities associated with forest ecosystems, and the potential impacts of different forest management systems on the quality of wildlife habitat. This may entail invertebrate community surveys, habitat measurements, and other techniques. Aquatic resources will be quantified in wetlands, ponds, or streams using a variety of field sampling techniques. As with the wildlife resources, the potential impacts of different forest management systems on fisheries and aquatic resources will be examined. Finally, Recreation resources will be examined, with a focus on how management decisions are likely to affect various stakeholders (e.g., local community members, recreation users). As part of this inventory, students will also determine appropriate methods for gaining information from the public to inform decision-making.
Course Format: ENR 4900.02 is taught over three weeks during the first summer session beginning with planning and development of a comprehensive multiple resource evaluation protocol (week 1, May 13—17), followed by a field session at Ohio State Mansfield campus (week 2, May 20—24), and culminating in analyses and writing and presentation of resource evaluation results and management recommendations (week 3, May 28—31). The class will meet in 333 Kottman Hall during weeks 1 and 3 of the course, and 025 Ovalwood (OSU-Mansfield) during the 2nd week.

Week 1 of the course is devoted to orienting students to the project area, its current status and future condition, and barriers and opportunities for management consistent with mission, goals, and objectives of the contracting agency (Ohio State University-Mansfield). Using a collaborative interdisciplinary team approach, the class will develop a comprehensive resource evaluation protocol during week 1 and implement the inventory during week 2. Inventory data will be analyzed and summarized during week 3, culminating with recommendations for actions that are presented in group written technical reports and incorporated into the Natural Resources Management Plan for Ohio State Mansfield. Important ecological and inventory concepts related to forestry, fisheries, wildlife, recreation management, and stakeholder values will be applied in completing all course assignments.

To illustrate by example, a crop tree release demonstration area was created in 2018 in order to reallocate growth to maples for syrup production, marketable timber, as well as wildlife- and pollinator-friendly tree species. Students selected crop trees, marked removal trees, and implemented protocols to collect pre-treatment data on the control, 2-sided, and 4-sided release plots. Following implementation in winter 2018-19, future student groups collect post-treatment data to inform future management decisions and generate materials to create outdoor laboratory capacity for students as well as outreach and extension material to educate the public.

Course Materials: There is no text book for this course, although discipline-specific methods texts will be helpful. Field guides often prove useful as well as dichotomous keys for various taxa depending on each group’s project (e.g., aquatic macroinvertebrates, woody plants). Course materials (e.g., handouts, relevant readings) will be provided to each student. Copies of these materials will be posted on Carmen. Students will also be provided maps of the project area and access to computers with the appropriate software needed to complete all assignments, as needed; however, students must bring and use their own laptops (ideally, NOT tablets). If this is a barrier for any students, we will check out SENR loaner laptops for the duration of the course.
Course Exercises: The major assignment of ENR 4900.02 is to complete a professional technical report with specific management recommendations as a team (to be completed as a group assignment).

Rough drafts of written reports are due by **12:00 PM on Thursday May 30**. Final reports are due by **12:00 PM on Monday June 3**.

The technical reports with recommendations should be neat and of quality commensurate with expectation from natural resource professionals. **Students must submit the final technical report and complete data spreadsheets by email to the course instructors.** Specific information will vary for each group, but the report should follow the topical outline below:

General Outline of the Resource Evaluation and Management Plan:
- Letter of Transmittal
- Table of Contents, Lists of Tables and Figures
- Executive Summary (including project description, procedures, summary of resource inventory results, recommended actions, etc.)
- Introduction (including, goals, objectives, and actions; resource management opportunities and constraints; need for action; etc.)
- Resource Evaluation (e.g., description and maps of vegetation types, site quality, soil and water resources, forest resources, wildlife resources, fisheries resources, trails and roads, recreation and other human uses, demographics of surrounding communities)
- Recommendations
- Literature Cited
- Tables and Figures
- Appendices (specific information not included in the body of document)

Other important considerations regarding the Technical Report are to: write concisely, avoid jargon, and include highly technical analyses in appendixes. Assume that the reader is not a natural resources professional. More information on these reports will provided during the course.

**All reports prepared for this class must be written with the correct style and format specified by the instructors before they will be examined for grading.**
Grade Breakdown: Grades will be assigned for this course based on compensation you earn by completing tasks to the best of your ability. Compensation will be based on evidence of competency, quality of work, and individual and group performance:

Week 1:
   i) Inventory planning and development: Mission, goals, objectives and actions (group assignment - 10%)
   ii) Inventory preparation: Protocols, data forms, data bases, and equipment list (group assignment - 10%)
   iii) Group dynamics evaluation (individual assessment - 5%)

Week 2:
   i) Field methods proficiency evaluation (individual assessment - 10%)
   ii) Data compilation (group assessment - 10%)

Week 3:
   i) Group dynamics evaluation (individual assessment - 5%)
   ii) Group oral presentation (individual and group assessment – 15%)
   iii) Technical report and recommendations- Written portion (individual and group assessment - 30%)
   iv) Individual performance evaluation (individual assessment - 5%)

Logistics: Transportation to visit the project site at the OSU Mansfield Campus on Wednesday May 15th provided for each student at no cost. **Housing and transportation to the project site during the second week are the responsibility of each student.** Housing is offered at Molyet Village on the Ohio State Mansfield campus. Meals, towels, linens, cooking and eating wares are to be provided by each student.

Availability of Accommodations: If you need an accommodation based on the impact of a disability, you should contact one of the course instructors to arrange an appointment as soon as possible. At the appointment we can discuss the course format, anticipate your needs and explore potential accommodations. We rely on the Office for Disability Services for assistance in verifying the need for accommodations and developing accommodation strategies. If you have not previously contacted the Office for Disability Services, we encourage you to do so.

Method of Dealing with a Language Barrier: This course will be conducted in English. Students who have difficulty communicating in English are encouraged to seek assistance from sources outside the classroom. Arrangements can be made for enabling students with speech, hearing, or visual impairment to participate in the course, e.g., through assistance of transcribers or readers.

Academic Misconduct: Submitting plagiarized work to meet academic requirements, including the representation of another’s works or ideas as one’s own; the unacknowledged use and/or paraphrasing of another person’s work; and/or the inappropriate unacknowledged use of another person’s ideas; and/or the falsification, fabrication, or dishonesty in reporting research results, shall be grounds for charges of academic misconduct.