

ENSC 410/ LRES 510 Biodiversity Survey and Monitoring Class Syllabus

CRN:24474/24447

Fall Semester: One whole week (5 full days) prior to fall semester termed “intensive class section”
3 hours per week for 1st five full weeks of semester (see below for details).

Location: The week-long intensive class section (8 am to ~ 5pm) will start each day in Willson 1115 and then travel to a field location.
Semester classes will be at 11:00-11:50 MWF in Cheever 131.

Instructors: Lisa Rew **T.A.:** TBA
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Office hours: Monday, 2-5pm or when the office door is open.

Course description: Both careers and graduate studies in land resources and conservation management require knowledge of how to design, execute, and analyze data concerning biodiversity at multiple scales in time and space. This course will provide students with the theoretical and practical skills associated with surveying and monitoring designs, sampling methods and data analysis techniques to answer questions about biodiversity. We will concentrate on applying and evaluating these methods using plants but will also gain field experience with other taxa including insects. Application of the biodiversity designs and methods will be to three main system types: agriculture, rehabilitation/restoration, and wildland.

Course objectives:

- Understand a variety of methods and techniques to measure and sample for biodiversity.
- Develop hands-on knowledge of various biodiversity sampling methods and response metrics used on plants and insects.
- Gain knowledge of sampling design, data collection methods, and basic data analysis.
- Understand how to apply methodologies to different field situations depending on goals of management or research.
- Develop individual biodiversity research project (R designated course).

Course schedule: Topic areas will be introduced using an interactive lecture format or on-line readings and quizzes. Hands-on aspects of these topics will be applied under field conditions. In order for this class structure to be possible, students will be required to take a one-week intensive class section (45 hrs) prior to the start of the fall semester. To prepare for this week there will be required readings and quizzes (3 hrs). The aim of the pre-field class quizzes is to ensure ample background knowledge is acquired to gain maximum benefit from the intensive class section. Dr. Rew will be available for consultation during this period. The remaining class time (12 hours) will be used to teach in more depth and explore data analysis techniques using data collected during the field portion of the course. Students will develop an individual project associated with questions of particular interest. As this is a co-convened 400/500 class, the expectations of 400-

level students will be to develop a biodiversity program for a system of the student's choice. This individual project, combined with field experiences, will fulfill the R component of undergraduate requirements. 500-level graduate students will develop a biodiversity sampling program for their own research project that will include more attention to power analyses and proposals for how their data will be analyzed.

Prerequisites: NRSM 240 OR BIOE 370, BIOB 318 or STAT 216. Preferred GPHY 284 and BIOO 230

Textbooks: There are no required texts for the course but the following will be available on reserve in the library: "Handbook of biodiversity methods, survey, evaluation and monitoring" by David Hill, M. Fasham, G. Tucker, M. Shewry and P. Shaw. Additional literature will be posted on the class website.

Expectations: It is expected that you:

- will perform the required reading and associated on-line quizzes prior to attending the intensive class section. You have to pass the quizzes to attend the intensive section but multiple attempts are permitted.
- attend the entire intensive section which will generally be from 8 am – 5pm though earlier starts and later finish times are possible. The intensive section will be the week directly before the start of semester. One day could be spent collecting individual project data. As part of each day will be spent outdoors you are expected to have appropriate attire and sufficient sustenance for the duration.
- attend class for the first 5 weeks of semester, during which you will develop your own research project. Class in terminate after 5 weeks.
- under all situations, will participate by asking questions and providing constructive commentary. Collecting, entering and analyzing data is also a requirement.
- are willing and capable of using various computer software packages such as word, and excel, and preferably have an understanding of R.
- will not use mobile phones and other portable electronic devices which are turned on and audible during class.
- *not plagiarize*. Plagiarism includes direct copies from websites as well as books and journals. If a student is caught plagiarizing it can lead to expulsion from the class and sometimes college.
- will have internet access and use email to communicate with the instructors and TA and that you check the course web site for updates on readings and assignments.
- will contact Dr. Rew if you are ill or have an emergency that will impact you capacity to attend and participate in class.

Grading: Your grade in the course will be based on your performance quizzes (20%), homework assignments (20)%, class and field participation (30%), and biodiversity project (30%). *Turning in assignments late is not acceptable.*

Grades are calculated as follows:

A >94	B+ 87-89.9	C+ 77-79.9	D+ 67-69.9	F <60
A- 90-93.9	B 84-86.9	C 74-76.9	D 64-66.9	
	B- 80-83.9	C- 70-73.9	D- 60-63.9	