

# NR 151 - Ecological Basis for Natural Resource Management

Fall 2019 12:00-12:50 M and W Rm 170 TNR

**Purpose:** Unlike most introductory ecology courses, the purpose of this course is to introduce you to the **principles** of ecology that underlie the **practice** of natural resource management. The 2-hour weekly lab exercises will give you hands-on experience with measurement and data collection, preparation of technical reports, use of library resources, use of computer models, and development of your critical thinking skills. The course is challenging and covers a wide range of topics.

As faculty, our purpose is to help you learn and understand the material as far as possible. Regardless of how we offer it, the material is meaningless unless you actively engage in the learning process. Attendance in lecture and lab is crucial, but seeking to know and understand is more than just showing up each week. To do well in this course, you will need to be attentive, do assigned reading, think critically, and ask questions. If you don't ask questions, you can be sure that we will!

**Lecture staff:** Dr. Riddle will coordinate the course, but both Drs. Werner and Riddle will share the lecture schedule. Please contact Dr. Riddle if you have questions or problems.

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**Dr. Les Werner**, Forestry  
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**Office Hours:** TBA

**Lab staff :** Sabine Berzins, Sophie Demchik, Matthew Hanneman, William Konieczki, and Ross McLean

**Grading:** Your grade for the course is based on the following split between lecture and lab:

LECTURE (60%)	LAB (40%)
Exam I ..... 30%	Reports
Exam II ..... 30%	Library exercise
	Lab final

**Lab:** We will be out in the field for at least 3 labs. Although we've scheduled them toward the beginning of the semester, we could still have poor weather. Field trips will go regardless of the weather, so be sure to dress accordingly. Your lab instructor will provide additional information on lab reports and exams. There will be no labs during the first week of classes.

**Text:** Smith, T.M., and R.L. Smith. 2012. Elements of ecology. 8th ed. Benjamin Cummings, Boston.

Material in the text is meant to supplement and extend the lecture concepts. Generally, approximately 10% of exam questions come from the reading material.

**PowerPoint:** We use PowerPoint for the lecture, and it can be a powerful learning aid, but unfortunately it has led to some problems in the course (see **Attendance** below). We will post our PowerPoints on **CANVAS** prior to lectures, but they generally contain only images and graphs – with very little text. They should not be considered an adequate replacement for attending lecture.

**Lecture Reviews:** We will post review questions prior to exams. We also try to run a review session in the evening just prior to the scheduled exams.

**Attendance:** As with any course, attendance and all course materials are your responsibility. Hopefully, your attendance will be motivated by your desire to learn. If you miss an exam, you must have a doctor's note to verify your illness. Additionally, since some of the lecture material will be published in **CANVAS**, there may be a temptation to sometimes “skip” a lecture. **Don't!** You simply will not get the understanding of the material by just reviewing the illustrations provided by PowerPoint.

**NR 151 - Tentative Lecture Schedule**  
Fall 2019

<b>Date</b>	<b>Topic</b>	<b>Text*</b>	<b>Lecturer</b>
W 4 Sep	<b>Introduction.</b> Key concepts and principles	Pages 1-14	Werner / Riddle
M 9 Sep	Ecosystem development: primary succession	Pages 358-372	Werner
W 11 Sep	Ecosystem development: primary succession		Werner
M 16 Sep	Ecosystem development: primary succession		Werner
W 18 Sep	Ecosystem maintenance: secondary succession		Werner
M 23 Sep	Ecosystem development: secondary succession		Werner
W 25 Sep	Ecosystem development: succession and soil development	Chapter 4	Werner
M 30 Sep	Ecosystem development: succession and soil development	Chapter 21	Werner
W 2 Oct	Energy Transfer		Werner
M 7 Oct	Energy Transfer		Werner
W 9 Oct	Open – No Class		
M 14 Oct	Biogeochemical Cycling	Chapter 22	Werner
W 16 Oct	Biogeochemical Cycling		Werner
M 21 Oct	Biogeochemical Cycling		Werner
W 23 Oct	<b>EXAM I</b>		Werner
M 28 Oct	Exam 1 Review/ Introduction to Populations	Pages 150-163	Werner / Riddle
W 30 Oct	Populations	Pages 150-163	Riddle
M 4 Nov	Population growth and carrying capacity	Pages 165-178; 198-199; 202-220	Riddle
W 6 Nov	Population growth and carrying capacity	Pages 165-178; 198-199; 202-220	Riddle
M 11 Nov	Natural selection and fitness	Pages 70-90	Riddle
W 13 Nov	Natural selection and fitness	Pages 70-90	Riddle
M 18 Nov	Predation	Pages 274-289	Riddle
W 20 Nov	Predation	Pages 274-289	Riddle
M 25 Nov	Herbivory	Pages 289-295	Riddle
W 27 Nov	Herbivory	Pages 289-295	Riddle
M 2 Dec	Competition	Pages 239-249; 252-270	Riddle
W 4 Dec	Parasitism	Pages 299-305	Riddle
M 9 Dec	Parasitism	Pages 299-305	Riddle
W 11 Dec	Mutualism	Pages 305-315	Riddle
M 16 Dec	<b>EXAM II– Room 170 TNR 10:15AM – 12:15PM</b>		Riddle

\* Smith, T.M., and R.L. Smith. 2012. Elements of ecology. 8th ed. Benjamin Cummings, Boston.

**NR 151 – Tentative Laboratory Schedule**  
Fall 2019

Dates	Topic	Location
Sept. 2-6	<b>NO LAB</b>	
Sept. 9-13	<b>Introduction to lab. Set up greenhouse competition study.</b>	Meet in lab
Sept. 16-20	<b>Community structure and soil survey Sampling vegetation and litter invertebrates</b>	Meet in lab FIELD TRIP: Schmeckle Reserve
Sept. 23-27	<b>Data analysis and interpretation of biotic diversity</b>	Meet in Lab
Sep 30 - Oct. 4	<b>Succession: Intermediate Disturbance Hypothesis</b>	COMPUTER LAB
Oct. 7-11	<b>Biotic index for assessing water quality of Plover River</b>	FIELD TRIP: Plover River
Oct. 14-18	<b>Data analysis and interpretation of aquatic invertebrates</b>	Meet in lab
Oct. 21-25	<b>Library exercise</b>	Meet in lab
Oct. 28 - Nov. 1	<b>Population growth and wolves of Isle Royale</b>	COMPUTER LAB
Nov. 4-8	<b>Conclude greenhouse experiment. Graphing in EXCEL</b>	Meet in lab
Nov. 11-15	<b>Species concept and Squirrel Mapper</b>	Lab/COMPUTER LAB
Nov. 18-22	<b>Foraging behavior</b>	Health Enhancement Center (HEC)
Nov. 25-29	<b>NO LAB-THANKSGIVING</b>	
Dec. 2-6	<b>Keystone Predator</b>	COMPUTER LAB
Dec. 9-13	<b>Lab Final</b>	Meet in lab

Section	Time	Day	Room	Instructor
1	8-9:50AM	Thursday	153	Ross McLean
2	9-10:50AM	Tuesday	153	Ross McLean
3	9-10:50AM	Friday	153	Ross McLean
4	11AM-12:50PM	Friday	153	Sabine Berzins
5	12-1:50PM	Tuesday	153	William Konieczki
6	1-2:50PM	Monday	153	Sophie Demchik
7	1-2:50PM	Wednesday	153	Matthew Hanneman
9	2-3:50PM	Tuesday	153	Sophie Demchik
10	3-4:50PM	Thursday	153	Sophie Demchik