

COURSE SYLLABUS

Lecture topics, instructor, and readings are given below. Lectures and readings from the literature will be available on the eLC site (the textbook should be purchased or rented). Supplemental readings (and lecture source materials) are not required reading but provide an opportunity to familiarize yourself with the primary literature (rather than summaries from lecture and the textbook). Although these papers tend to be older, many are "classics" and they are more accessible to a beginning ecologist than some more recent (and more quantitatively sophisticated) studies. Required readings should be done prior to lecture. Lecture slides will be available after each lecture -- to supplement, but not replace, your own notes.

WEEK	LECTURE TOPIC	REQUIRED AND SUPPLEMENTAL READINGS; ASSIGNMENTS
Week 1 Jan 5 (Osenberg)	WHAT IS ECOLOGY? <ul style="list-style-type: none"> • Introduction to ecology • The scientific method and experiments in ecology 	Required: <ul style="list-style-type: none"> • <i>Krebs</i>: Chapter 1 Assignment: <ul style="list-style-type: none"> • <i>Homework #1 handed out</i>; all HW assignments are assigned on Thursdays and due the next Tuesday in lecture.
Week 2 Jan 10 & 12 (Osenberg & Murdock)	STATISTICAL METHODS <ul style="list-style-type: none"> • Study design and statistics in ecology (Osenberg) GEOGRAPHIC DISTRIBUTIONS <ul style="list-style-type: none"> • Analyzing geographic distributions (Murdock) 	Required: <ul style="list-style-type: none"> • <i>Krebs</i>: Chapters 4, 7 Assignment: <ul style="list-style-type: none"> • <i>Homework #2 handed out (due Tuesday)</i>
Week 3 Jan 17 & 19 (Murdock)	GEOGRAPHIC DISTRIBUTIONS <ul style="list-style-type: none"> • Abiotic and biotic limitation • Evolution and ecology 	Required: <ul style="list-style-type: none"> • <i>Krebs</i>: Chapters 5-6; 2 Assignment: <ul style="list-style-type: none"> • <i>Homework #3 handed out (due Tuesday)</i>
Week 4 Jan 24 & 26 (Osenberg; Exam)	POPULATION GROWTH <ul style="list-style-type: none"> • Demography • Life tables • Projection matrices • Population growth EXAM 1 (JAN 26) 	Required: <ul style="list-style-type: none"> • <i>Krebs</i>: Chapters 8-9 & Appendix II Assignment: <ul style="list-style-type: none"> • <i>Homework - none this week</i> Other resources: <ul style="list-style-type: none"> • Populus (software that simulates population dynamics: http://cbs.umn.edu/populus/overview).
Week 5 Jan 31 & Feb 2 (Osenberg)	<ul style="list-style-type: none"> • <i>Application</i>: sea turtles POPULATION REGULATION <ul style="list-style-type: none"> • Intraspecific competition; density-dependence; regulation; equilibria 	Required: <ul style="list-style-type: none"> • <i>Krebs</i>: Chapters 17 & 14 Assignment: <ul style="list-style-type: none"> • <i>Homework #4 handed out (due Tuesday)</i>
Week 6 Feb 7 & 9 (Murdock)	<ul style="list-style-type: none"> • <i>Application</i>: amphibian declines • <i>Application</i>: fisheries management 	Required: <ul style="list-style-type: none"> • <i>Krebs</i>: Chapter 17 & 15 Assignment: <ul style="list-style-type: none"> • <i>Homework #5 handed out (due Tuesday)</i> Lectures sources: <ul style="list-style-type: none"> • Crouse et al. 1987. <i>Ecology</i> 68:1412-1423. • Crowder et al. 1994. <i>Ecol. Appl.</i> 4:437-445. • Vonesh & De la Cruz 2002. <i>Oecologia</i> 133:325-333.

WEEK	LECTURE TOPIC	REQUIRED AND SUPPLEMENTAL READINGS; ASSIGNMENTS
Week 7 Feb 14 & 16 (Murdock)	BEHAVIORAL ECOLOGY <ul style="list-style-type: none"> Foraging & territoriality Life history evolution 	Required: <ul style="list-style-type: none"> <i>Krebs</i>: Chapter 3 Assignment: <ul style="list-style-type: none"> <i>Homework #6 handed out (due Tuesday)</i>
Week 8 Feb 21 & 23 (Osenberg; Exam)	SPECIES INTERACTIONS <ul style="list-style-type: none"> Predation Phase planes EXAM 2 (FEB 23)	Required: <ul style="list-style-type: none"> <i>Krebs</i>: Chapter 11-12, and Page 185 Assignment: <ul style="list-style-type: none"> <i>No homework this week.</i>
Week 9 Feb 28 & Mar 2 (Osenberg; Murdock)	<ul style="list-style-type: none"> Competition Coexistence Herbivory Mutualism 	Required: <ul style="list-style-type: none"> <i>Krebs</i>: Chapters 10 & 12 Assignment: <ul style="list-style-type: none"> <i>Homework #7 handed out (due Tuesday)</i> Lecture sources: <ul style="list-style-type: none"> Tilman, D. 1980. <i>American Naturalist</i> 116:362-393. Tilman, D. 1981. <i>Ecology</i> 62:802-815.
<i>Spring Break!</i> Mar 7 & 9	<i>no classes</i>	None
Week 11 Mar 14 & 16 (Murdock)	<ul style="list-style-type: none"> Disease and parasitism COMMUNITY ECOLOGY <ul style="list-style-type: none"> Succession 	Required: <ul style="list-style-type: none"> <i>Krebs</i>: Chapters 13 & 18 Assignment: <ul style="list-style-type: none"> <i>Homework #8 handed out (due Tuesday)</i>
Week 12 Mar 21 & 23 (Murdock; Osenberg)	<ul style="list-style-type: none"> Food webs Indirect effects Higher order interactions 	Required: <ul style="list-style-type: none"> <i>Krebs</i>: Chapter 20 Knight et al. 2005. <i>Nature</i> 437:880-883 Assignment: <ul style="list-style-type: none"> <i>Homework #9 handed out (due Tuesday)</i> Lecture sources: <ul style="list-style-type: none"> Schmitt, R.J. et al. 1983. <i>J. Exp. Mar. Biol. Ecol.</i> 69:267-281. Schmitt, R.J. 1987. <i>Ecology</i> 68:1887-1897 Wootton, J.T. 1994. <i>Ecology</i> 75:151-165. Shurin et al. 2002. <i>Ecology Letters</i> 5:785-791. Mittelbach et al. 1995. <i>Ecology</i> 76:2347-2360.
Week 13 Mar 28 & 30 (Osenberg; Exam)	<ul style="list-style-type: none"> Measure biodiversity Patterns of biodiversity EXAM 3 (MAR 30)	Required: <ul style="list-style-type: none"> <i>Krebs</i>: Chapter 15 Assignment: <ul style="list-style-type: none"> <i>No homework handed out</i>
Week 14 Apr 4 & 6 (Osenberg)	<ul style="list-style-type: none"> Non-equilibrium dynamics Maintenance of biodiversity Biodiversity and ecosystem function 	Required: <ul style="list-style-type: none"> <i>Krebs</i>: Chapter 21 & Appendix III Assignment: <ul style="list-style-type: none"> <i>Homework #10 handed out (due Tuesday)</i>

WEEK	LECTURE TOPIC	REQUIRED AND SUPPLEMENTAL READINGS; ASSIGNMENTS
Week 15 Apr 11 & 13 (Osenberg)	ECOSYSTEM ECOLOGY <ul style="list-style-type: none">• Primary production• Secondary production	Required: <ul style="list-style-type: none">• Krebs: Chapters 22 & 23 Assignment: <ul style="list-style-type: none">• Homework #11 handed out (due Tuesday)
Week 16 Apr 18 & 20 (Murdock)	<ul style="list-style-type: none">• Nutrient cycles• Climate change	Required: <ul style="list-style-type: none">• Krebs: Assignment: <ul style="list-style-type: none">• Homework #12 handed out (due Tuesday)
Week 17 Apr 25 (last lecture day) (Murdock)	<ul style="list-style-type: none">• Ecosystem health• Human population growth• Human impacts	Required: <ul style="list-style-type: none">• Krebs: Assignment: <ul style="list-style-type: none">• No homework handed out
Week of finals May 02	EXAM 4 (MAY 2) (during finals time slot)	