

# Botany/Forestry/Zoology 460 • Course schedule • Spring 2007

Date	Lecture	Field exercise* or lab	Readings
<b>Introduction</b>			
Jan 22	Ecology: aims and issues	<b>Design of ecological studies and experiments – aquatic microcosms</b>	Krebs, Chap. 1 Diamond 1986
24	Global climatic patterns		
26	Biome structure and diversity, I		
29	Biome structure and diversity, II		Carpenter et al. 1995
<b>Ecology of individuals</b>			
Feb 31	Factors regulating species distributions, I	<b>Gradients in forest composition, structure, and diversity at Eagle Heights*</b>	Krebs, Chap. 3-6
2	Factors regulating species distributions, II		
5	Ecology, evolution, and components of fitness	<b>Analysis of forest gradients</b>	Krebs, Chap. 2, 7, 8 Givnish et al. 2004
7	Plant adaptation to sun vs. shade		
9	Allometry: the ecology and evolution of body size cooperative foraging		
12	Kin selection and the evolution of social behavior		
<b>Ecology of populations</b>			
14	Exponential and logistic population growth	<b>Resource use by bark-gleaning birds at Picnic Point*</b>	Krebs, Chap. 9, 11 Webster 2004
16	Density-independent and -dependent growth		
19	Demography: population size, survivorship, and fecundity	<b>Analysis of resource use by bark gleaners NOTE CHANGE</b>	Krebs, Chap. 10 World Res. Inst. 1998 Simons et al. 2000
21	Evolution of life-history parameters		
23	Competitive interactions: mechanisms		

<b>(Exam Tuesday 7:15-9:15)</b>				
Mar	26	Models for competitive coexistence ( <i>exam T pm</i> )	<b>Population dynamics simulations, I: exponential and logistic growth NOTE CHANGE</b>	Krebs, Chap. 12, 14
	28	Character displacement and adaptive radiation		Choler et al. 2001
	2	Regional competition, fugitive species, and metapopulation dynamics		
	5	Predator-prey interactions		<b>Population dynamics simulations, II: competition and predation</b>
7	Models for coexistence of predators and prey	Grant & Grant 2006		
9	Ecology of disease	Wilmers et al. 2006		
	12	Sustained yield and optimal yield	<b>Population dynamics simulations, III: Fish Banks</b>	Krebs, Chap. 15, 17
	14	Optimal foraging theory		DeWalt et al. 2004
	16	Coevolution of plants and herbivores		
	19	Ecology and evolution of mutualism	<b>Life underground: extremophile biology and ecosystem processes (Finalize aquatic microcosm data)</b>	Krebs, Chap. 18, 19
	21	Plant-pollinator interactions		Davey et al. 2006
	23	Multi-trophic level interactions		

## Ecology of communities, ecosystems, and landscapes

	26	Gradient analysis and the nature of communities	<b>Analyze aquatic microcosm data</b>	Krebs, Chap. 20
	28	Ecology of temperate forests		Asner & Vitousek 2005
	30	Ecology of tropical coral reefs		
SPRING BREAK				
Apr	9	Succession ( <i>Exam Tuesday 7:15-9:15</i> )	<b>Analysis of landscape pattern Organisms and Landscape Pattern</b>	Krebs, Chap. 21, 22
	11	Patch dynamics		Swetnam 1993
	13	Fire and landscape dynamics		
	16	Species diversity	<b>Landscape dynamics</b>	Krebs, Chap. 23, 24
	18	Island biogeography		Leach & Givnish 1996
	20	Conservation biology		Damschen et al. 2006
	23	Primary and secondary productivity	<b>Diversity of leaf-litter invertebrates in Muir Woods*</b>	Krebs, Chap. 25-27
	25	Nutrient cycling in terrestrial systems		Chadwick et al. 1999
	27	Nutrient cycling in aquatic systems		Rollett & Diamond 2004
	30	Florida Everglades: productivity, nutrient cycling, hydrology, diversity, and human impacts		

## Ecology of the biosphere

May	2	Global trends in climate, atmosphere, and oceans	<b>Abraham's Woods, Muralt Prairie: ecology of temperate forests and prairies*</b>	Krebs, Chap. 28
	4	Effects of elevated CO <sub>2</sub> , ozone, and acid rain		Cardinale et al. 2006 Wackernagel et al. 2002
	7	Human population growth, resource use, and habitat destruction	<b>Baxter's Hollow: heterotrophic stream communities, forest succession, effects of fragmentation*</b>	Vitousek et al. 1997
	9	Invasions, extinctions, homogenization		Davies et al. 2006
	11	Our shared destiny		

#**First midterm exam** (120 min): 7:15 pm Tuesday, Feb. 27. **Second midterm exam** (120 min): 7:15 pm Tuesday, April 10. **Final exam** (120 min): 12:25 pm Thursday, May 17.

\*Dress appropriately for these outdoors exercises.