**Course Schedule**

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| Day | Lect | Topic | Readings |
| Mon | **1** | What is Ecology? How is it studied? |  |
| Wed | **2** | How does evolution impact ecology? | **Evolutionary Ecology**  1: Evolution and Ecology are Intertwined  2: The Logic of Evolution by Natural Selection |
| Fri | **3** | How are genetics, evolution, and management linked? | **Evolutionary Ecology**  3: Genetics and Evolution  4: Managing the Evolution of Resistance |
| Mon | ***Labor Day - No class*** | | |
| Wed | **4** | How do temperature and precipitation affect distribution?  How do organisms respond to change? | **Physiological Ecology**  1: Trade-offs and Species Distributions  2: Adaptation and Acclimation |
| Fri | **5** | How do organisms maintain their temperature and water budgets? | **Physiological Ecology**  3: Homeostasis |
| Mon | **6** | Why do some plants rely on C3 photosynthesis while others use C4 or CAM? | **Physiological Ecology**  4: Plant Metabolism |
| Wed | **7** | How many different ways can one "win" the game of life?  What are demographics? Age pyramids? | **Life History**  1: Life Cycles and Life Histories  2: Life-History Parameters |
| Fri | **8** | What are the trade-offs that drive variation in life history strategies? | **Life History**  3: Life Tables and Survivorship Curves  4: Trade-Offs and Life-History Evolution |
| Mon | **9** | What drives global patterns in species richness?  What can islands tell us about immigration and extinction? | **Biogeography**  1: Species Richness and the Extinction Crisis  2: Ecological Biogeography |
| Wed | **10** | How do evolutionary patterns affect species distributions?  What drives global biome distribution? | **Biogeography**  3: Historical Biogeography  4: Global Patterns in Physical Conditions |
| Fri | **11** | How should the growth of a population that is not limited by resources be modeled? | **Population Growth**  1: Geometric Growth  2: Exponential Growth |
| Mon | **12** | How does resource limitation affect population growth?  What determines metapopulation persistence? | **Population Growth**  3: Logistic Growth  4: Dispersal and Metapopulations |
| Wed | **13** | Why do some populations fluctuate over time? | **Population Growth**  5: Variability in Populations |
| Fri |  | ***EXAM 1*** | |

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| Day | Lect | Topic | Readings |
| Mon | **14** | What is resource limitation? How does it affect intraspecific competition? | **Competition**  1: Limited Resources and Competition  2: Intraspecific Competition |
| Wed | **15** | How can interspecific competition be modeled?  Why does environmental complexity matter? | **Competition**  3: Interspecific Competition  4: Competition in Complex Environments |
| Fri | **16** | How many ways can two species interact?  Why do predator and prey populations cycle? | **Predation, Herbivory, and Parasitism**  1: Natural History of Exploitation  2: Predator-Prey Dynamics |
| Mon | **17** | What do Lotka and Volterra have to say about predator-prey interactions? | **Predation, Herbivory, and Parasitism**  3: Lotka-Volterra and Beyond |
| Wed | **18** | Why does it matter how a predator finds its food?  What does the Red Queen have to say about parasitism? | **Predation, Herbivory, and Parasitism**  4: Functional Responses to Exploitation  5: The Evolutionary Arms Race |
| Fri | **19** | What affects where a wise animal forages?  How much time it spends foraging?  And what food it gathers? | **Behavioral Ecology**  1: So Many Choices  2: Behavior in the Marketplace |
| Mon | **20** | What can you learn from a prison cell? | **Behavioral Ecology**  3: Playing Games |
| Wed | **21** | Why are there so many mating strategies? Why is cooperation common even though it’s costly? | **Behavioral Ecology**  4: Family Matters  5: Cooperation |
| Fri | **22** | What is an ecological community?  How might it change over time?  What happened when Yellowstone burned? | **Community Dynamics**  1: Communities, Disturbance, and Succession |
| Mon | **23** | On wolves, beaver, and trophic cascades. Or, what drives community structure? | **Community Dynamics**  2: Food Chains and Indirect Effects  3: Top-Down vs. Bottom-Up Control |
| Wed | **24** | When does the song remain the same? | **Community Dynamics**  4: Community Stability |
| Fri | **25** | What causes infectious diseases?  What determines how a disease spreads? | **How Diseases Spread**  1: Pathogens and Infectious Disease  2: Modeling Epidemics |
| Mon | **26** | How can a disease's spread be slowed? Why are vector-borne diseases different? Why does evolution matter? | **How Diseases Spread**  3: Controlling Disease Spread  4 & 5: Vector-Borne and Evolving Nature of Disease |
| Wed | **27** | What can ecology tell us about the spread of Lyme Disease? | No readings: case study |
| Fri | ***EXAM 2*** | | |

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| Day | Lect | Topic | Readings |
| Mon | **28** | Why do ecosystems need a constant supply of energy?  How are primary production and respiration related? | **Ecosystem Ecology**  1: Energy Powers Ecosystems  2: Primary Production and Respiration |
| Wed | **29** | Why are there so few predators? | **Ecosystem Ecology**  3: Secondary Production |
| Fri | **30** | How does energy flow through an ecosystem?  What do people gain from ecosystem processes? | **Ecosystem Ecology**  4: Ecosystem Energetics  5: Ecosystem Services |
| Mon | **31** | What determines decomposition rates? How do local conditions affect decomposition? | **Decomposition**  1: Decomposition Rates  2: Physical Environment |
| Wed | **32** | What is high-quality detritus?  How do decomposer organisms affect decomposition? | **Decomposition**  3: Litter Quality  4: Decomposer Organisms |
| Fri | **33** | Why do nutrients cycle if energy flows? What are the key components of the C-cycle?  Of the P-cycle? | **Nutrient Cycling**  1: Nutrient Cycling Fundamentals |
| Mon | **34** | Who drives the nitrogen cycle and why? What can we learn from small watersheds? | **Nutrient Cycling**  2: Ecosystem-Level Nutrient Cycles |
| Wed  & Fri | ***Thanksgiving Break - No Class*** | | |
| Mon | **35** | What can nutrient budgets tell you?  How have people altered global biogeochemical cycles? | **Nutrient Cycling**  3: Nutrient Budgets 4: Global Biogeochemical Cycles |
| Wed | **36** | What's the big deal about temperature? How do we know the world is warming? | **Climate Change**  1: Why Does Climate Change Matter? 2: Detecting Climate Change |
| Fri | **37** | How do models help us understand Earth's climate? | **Climate Change**  3: Earth’s Climate and Climate Models |
| Mon | **38** | How do we know that humans are responsible for modern climate change? | **Climate Change**  4: Humans and Climate Change |
| Wed | **39** | What are the consequences of a changing climate? | **Climate Change**  5: Biological Consequences of Climate Change |
| Fri | **40** | Wrap up. |  |

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