BIOLOGY 130 INTRODUCTION TO ECOLOGY
CREDITS: 3
INSTRUCTOR: Dr. Jeff Stone
CONTACT INFORMATION email: mailto:jstone10@uoregon.edu

REQUIRED TEXTBOOK: M. Molles, Ecology: Concepts and Applications, 7th Ed. 2016. McGraw-Hill, Boston, MA.

ADDITIONAL REQUIRED LEARNING RESOURCES: SimBio Virtual Labs Simulations. Information on accessing and installing these will be provided.

COURSE DESCRIPTION: An overview of ecology, the study of interactions between organisms and their biotic and abiotic environments at the population, community, ecosystem, and biosphere levels of organization. This course is designed specifically as an intensive four-week online summer session course to cover the essentials of ecology for non-science majors. A very large amount of material will be covered and students should be prepared to spend a substantial amount of time on the class assignments during the four-week term.

PREREQUISITES: none

Learning outcomes

Students completing this course will be able to:

recognize and classify the levels of ecological organization
identify and explain the key ecological theories and concepts
define and employ technical terms specific to ecological science
describe the major biomes and identify their defining characteristics
discuss examples of adaptations of organisms to their physical environments
describe major biogeochemical cycles and their importance
idenitfy and explain population growth models
recognize methods used for comparing abundance and diversity
describe processes of energy flow and productivity in different ecosystems
discuss the processses of change in community composition over time

Students also will be able to relate and apply pertinent ecological principles to contemporary problems concerning policies and management of natural resources, invasive species, pollution, climate change, population growth, and other aspects of human interactions with the environment.

Course content

Canvas — This course will be delivered via Canvas, where students will interact with each other and the instructor. Within the course Canvas site you will access the syllabus, assignments, and learning materials; discuss issues; submit assignments; take quizzes and exams; and communicate with other students and the instructor.

Communication

Please make use of the Discussions and Conversations functions in Canvas for most class communication. These are very useful tools for discussing the class material and bringing in the experiences of everyone in the class. The Discussion forums are our virtual classroom. I will use the Discussions forums to post comments and some topical additional readings related to the lecture and reading assignments and want to encourage everyone in the class to participate. You may also email me directly with specific questions: mailto:jstone10@uoregon.edu. I will do my best to respond promptly to questions.

Reading assignments and Simbio modules

A set of powerpoint presentations ("lectures") is posted in the weekly modules and are intended to supplement and reinforce the concepts covered in the reading assignments and Simbio exercises. Reading assignments for each week are listed in the course syllabus and in each weekly module in Canvas. Each module has a list of "Specifics to know and understand". These are the specific learning objectives provided as a guide to the most essential topics of the reading and lecture assignments. Review quizzes and exam questions will primarily focus on these topics. Additional material for discussion on specific topics and case studies in ecology will be presented through the discussion board.

STUDENT EVALUATION

1. QUIZZES

Quizzes will be used to reinforce the important concepts covered in module. The quizzes will appear in the weekly module folders during the week they are available.

These are the rules for the quizzes: There are four quizzes (due weeks 1 – 4) accessible in the corresponding modules in Canvas. Each quiz will be available only for **three days**. You must take the quiz during the period it is available, no make-ups will be given. Students with conflicts must contact me before the week of the quiz to arrange for alternative dates. Each quiz must be completed in the same session after it is started and there is a time limit of **30 minutes**. Each quiz has questions in multiple choice, true/false, matching, multiple answer, short answer format covering the topics listed for each module. You may retake each quiz once (two attempts are allowed), and the higher score will be recorded. You may use open books and open notes, but remember there is a time limit. I strongly encourage you to complete the relevant Simbio exercise, review lecture notes and any other required material before attempting the quiz. Quizzes will count collectively as **25% (6.25% for each quiz)** of the final grade.

3. SIMULATIONS AND PROBLEM SETS

Eight SimBiolabs simulation excercises will be used as a major learning resource for this class to supplement the reading assignments. The simulations will cover quantitative aspects of population growth, nutrient cycling, ecological diversity, physiological ecology and ecosystem ecology. The simulations must be purchased separately from Simbiolabs. Instructions for downloading and installing the modules will be provided. Please complete the simulations and submit answers to all questions (both graded and ungraded questions) for each simulation set. All questions for each simulation will be graded, the percentage of correct answers will be used for grade calculations. Question sets for each simulation will collectively count as **50%** of the final grade (**6.25% for each simulation**).

4. CLASS DISCUSSION

The Discussion board of Canvas can be used to ask general questions on material covered in the class. You may ask for explanation of concepts, quiz and exam questions, and general topics relevant to class material. Everyone is encouraged to participate in the discussion and anyone can comment on the questions posted in any of the discussion topics. I will do my best to answer questions posted the same day and no more than 24 h after the question is posted.

5. EXAMS

An online mid-term exam (**10%** of grade) will cover weeks 1 and 2. The mid-term exam will have a time limit of **90 minutes**. The final exam (**15%** of grade) will mostly cover material presented in the second half of the class, Modules 6-11, but will also include some material from the first half of the term. **Exam questions may include material from the class discussion and**

simbiolab simulations as well as the reading assignments and online lectures. The final will have a time limit of **110 minutes**. Question format will be similar to the format used in the quizzes. The exams are being provided online to facilitate rapid grading and feedback. Both exams are open book but will have time limits.

Extra Credit

No papers, projects or other supplementary student work, other than the exams and assignments, will be accepted for extra credit. Bonus points will be built into the mid term and final exams. Students who participate actively and thoughtfully in the Discussion Board forums will be given favorable consideration for increasing a borderline grade to the next higher level.

Final Grades

Final grades will be based on the cumulative weighted percentages (as listed above) at the end of the term. The following scores will be included in the calculation: mid-term exam 10%, final exam 15%, quizzes 25%, simbio exercises 50% Final grades will be assigned as follows: A, 90-100%; B, 80-89%; C, 70-79%, D, 60-69%; F, <60%.

Incompletes — A grad of "I" (incomplete) will be given only when there is a strong and compelling case for doing so. An incomplete can not be given unless the student has completed more than 50% of the course requirements, e.g. quizzes 1-4, midterm exam, and at least one Simbio assignment. If an incomplete is requested, the student must make arrangements to remove the incomplete by the end of the next regular term following the term in which the incomplete was given.

Students with disabilities
The University of Oregon is working to create inclusive learning environments. Please notify us if there are aspects of the instruction or design of this course that result in barriers to your participation. You may also wish to contact Disability Services in 164 Oregon Hall at 346-1155 or disabsrv@uoregon.edu.

Professional conduct
Academic dishonesty devalues the reputation of our institution, its faculty, its students, and your academic degree. Academic misconduct is particularly unfair for students who do their work with integrity and honor. The University Student Conduct Code (available at http://studentlife.uoregon.edu/StudentConductandCommunityStandards/

Student Evaluation of Teaching
Course evaluation results are extremely important and are used to help me improve this course and the learning experience of future students.

Course Schedule

Week	Modules	Assignments
1	1. Ecosystems, ecological organization, terrestrial, marine, and aquatic biomes	Molles Chapters 1, 2, 3 Simbio Ecosystem Ecology Due 7/25/18
1	2. Individuals, population genetics and natural selection	Molles Chapter 4
1	3. Individuals and environment, temperature, water, nutrient and energy relations	Molles Chapters 5, 6, 7 Simbio Physiological Ecology Due 7/27/18

2	**Review Quiz 1**	**due 8/1/18**
2	4. Populations, abundance and diversity	Molles Chapters 9, 10 Simbio Population Growth Due 8/1/18
2	5. Populations, dispersal and growth models Populations, competition and predation	Molles Chapters 11, 12 Simbio Keystone Predator Due 8/3/18
2	**Review quiz 2**	**Due 8/5/18**
2	**Mid term exam**	**Due 8/7/18**
3	7. Communities, abundance and diversity	Molles Chapter 16,
3	8. Communities, food webs, productivity	Molles Chapter 18 Simbio Community Dynamics Due 8/8/18
3	9. Communiites, nutrient cycling, biogeochemical cycles	Molles Chapter 19 Simbio Nutrient Cycling Due 8/10/18
3	**Review quiz 3**	**Due 8/12/18**
4	10. Communiites, succession	Molles Chapter 20 Simbio Biogeography Due 8/14/18
4	11. Landscapes and spatial ecology	Molles Chapter 21 Global ecology Simbio Climate Change due 8/17/17
4	**Review quiz 4**	**Due 8/19/18**
4	**Final Exam**	**Due 8/19/18**