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BIOE 370.R01: General Ecology

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**General Ecology
BIOE 370**

Fall 2020

Instructors:

Dr. Robert Hall

Flathead Lake Bio Station (most of the time)

Health Science 416A (when on campus)

Office hours. 16:30-17:30 Tuesday on campus during weeks of 1, 8, 15, 22 Sept. and 3 October. Location is on campus or via zoom (I will let you know in Monday lecture; location will be weather dependent). Via Zoom 11:00-12:00 Thursday of those same weeks. Via zoom by appointment during those weeks or anytime during the semester.
bob.hall@flbs.umt.edu

Dr. Matthew Church

Flathead Lake Bio Station (most of the time)

Health Science 416A (when on campus)

Office hours: Thursday 1:00-2:00 PM. I will be teaching Aug. 21, and again Oct. 12-30. I will be available via Zoom during office hours and will be happy to meet outside those hours by appointment during my period of teaching.
matt.church@umontana.edu

Dr. Winsor Lowe

Health Science 410

Office hours: Wednesday, 4:00-5:00 PM. I will also be available via Zoom during office hours and will be happy to meet outside those hours by appointment.

Lectures: I will be teaching Sept. 28 – Oct. 2, and Nov. 2 – 18.

winsor.lowe@umontana.edu

Dr. John Maron

Natural Sciences Annex 102

Office hours: Tuesday, 12:00-1:00 and by appointment. I will be available via ZOOM during office hours but if office hours do not work for you, please email me and we will set up another time to chat via ZOOM.

john.maron@mso.umt.edu

Zoom link for Lectures:

<https://umontana.zoom.us/j/92418229111?pwd=V0RzVHd1ZWIMcm9xVTU0aHBMVVJzd09>

pass code is “ecology”

Zoom link for Office Hours: <https://umontana.zoom.us/s/99854473095>

Course Overview:

General Ecology (BIOE 370) is an undergraduate course offered through the Division of Biological Sciences at the University of Montana. The course meets three times a week (Mon/Wed/Fri) from 10:00-10:50 AM. For the Fall 2020, due to social distancing requirements specific to the COVID19 pandemic, this lecture class is being offered as a remote course. Although lectures will be remote, class instructors are available and we are interested in meeting with students in-person; however, meetings will need to be done in a socially distanced way, likely requiring small group interactions that will need to be scheduled in advance. The course will cover fundamental concepts in ecology, including key subdisciplines of population, community, evolutionary, and ecosystem ecology. The class will highlight key concepts from these subdisciplines, and describe methods commonly used by ecologists for quantifying species biomass, production, metabolism, and diversity.

Learning outcomes:

By the end of the course you should:

1. Understand the principles of ecology.
2. Understand how ecological knowledge is generated, via experiments, observations, modeling and theory.
3. Understand adaptation, natural selection, phenotypic plasticity, population differentiation, modes of selection in the context of ecological processes
4. Understand variations in organism life history and how this life history controls the demographics of populations.
4. Distinguish and apply models of population growth ranging from exponential to logistic and the assumptions behind these models.
5. Understand Lotka-Volterra model of competition, niche partitioning, character displacement, coexistence theory, and the empirical patterns that support these ideas.
6. Understand the mechanisms that lead to stable and unstable predator-prey interactions, and describe how predator-prey interactions affect demography, community composition, and ecosystem processes.
7. Understand how processes of disturbance and food web interactions contribute to change and stability in communities.
8. Define primary and secondary production and understand differences between gross and net production.
9. Define major processes in the nitrogen cycle and under what conditions these processes might be most active.
10. Describe environmental factors controlling rates of organic matter decomposition and understand connectivity between decomposition and nutrient cycling.
11. Understand the theoretical and empirical basis of biogeography, both historical and contemporary approaches.
12. Understand the key data sets used to document climate change and describe studies testing for effects of climate change on ecological patterns and processes.

Assessment

Two in-class exams, 25% each.

Final exam (Part will be a third exam, part will integrate course knowledge) 35%.

Homework from SimuText 15%

Exams Grades will be assigned as >93%=A, 90-92 = A-, 87-89 = B+, 83-86 = B, 80-82 = B-, 77-79 = C+, 73-76 = C, 70-72 =C-, 67-69 = D+, 63-66 = D, 60-62 = D-, < 60 =F.

We reserve the right to scale test score up, but we will not scale down, so if everyone gets >93, then all get A.

Late exams will not be given except under extraordinary circumstances discussed with an instructor prior to the exam. We encourage students with disabilities of any kind to discuss appropriate accommodations with an instructor.

Text. SimuText Ecology. You can purchase this textbook from the University of Montana Bookstore. This textbook includes a series of interactive modules, specific to each section of the class. At the end of each module is a series of questions that you are expected to answer (points earned in response to these questions will constitute part of your grade). We have selected an online text for 2 reasons: 1. Most texts do not cover all that we want to talk about. Thus we lecture on what we think is important whether or not it is in the text. 2. Texts can be boring and students do not read the text very well and rely on lecture for all of their learning. An online text allows you to interactively learn the material. It is much less encyclopedic than a book, but you will learn the smaller amount of material better because you have to work problems out for yourself while reading. As an incentive to do this we have made the homework questions worth 15% of the overall course grade.

SimuText Homework. Homework for all assigned chapter sections is due by 5 pm on Friday of the week covered. These are simply the graded questions. Take your time with these, they are not a closed book quiz.

Prerequisites. BIOB 272, Genetics and Evolution

Course format. We will teach this course remotely due to the social distancing requirements of 126 students in a lecture hall. Our plan is to have a combination of lecture and discussion during the 10:00-10:50 MWF class meeting time. We may supplement this class time with occasional video lectures for you to view.

Disabilities. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you have a disability that adversely affects your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406-243-2243. We will work with you and Disability Services to provide an appropriate modification.

Academic Honesty. All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the [Student Conduct Code](#).

Course web site. We will use Moodle as the course website. Lecture notes/slides and relevant reading material will be posted to the Moodle site. However, we will not record our lectures, so students who do not attend lectures will have difficulty making sense of these materials. In addition, the exams will be online using Moodle.