

# INTRODUCTORY ECOLOGY (BIOE 172)

## *Fall Semester 2015*

**Professor:** Dr. Andrea Green

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**Office hours:** Monday and Wed. 5pm -6:30pm, or by appt.

**Lecture hours:** Tues. and Thurs. 12:40 – 2:00pm (HS 207)

### *Overview and Objectives*

BIOE 172, *Introductory Ecology*, is a one semester broad survey course of the fundamental principles and concepts associated with the science of ecology. In BIOE172 we will elucidate both the relationships between organisms and their environment, and the relationships among organisms. We will examine both the biotic (living) and abiotic (non-living) elements of the environment that influence the distribution and abundance of organisms. The course covers topics in the areas of individual, population, community, and ecosystem ecology, as well as humanity's effect on natural systems. An understanding of ecology thus enables students to better understand how living organisms (including themselves) function and evolve within the context of the natural world. At the end of the course, students will be able to define ecology and recognize its scope; they will also understand the systems and principles of ecology and the vocabulary needed to discuss these topics. Students will be equipped to apply these principles to problems and issues of everyday life and on the way to becoming scientifically literate citizens.

*Introductory Ecology* is a cumulative course, so that your success in grasping the material presented one week will depend on your having mastered material presented in previous weeks. It is essential for you to keep up with the readings and homework assignments. If you fall behind, it will be difficult to catch up. If you find yourself in trouble, please advise your professor as EARLY as possible. I will be better able to help you if you talk with me as problems arise; I will be less sympathetic ten minutes before an exam. If you cannot meet at any of the designated office hours, please work to schedule an appointment at another time.

Learning is not a passive activity; in BIOE 172 (and in all your coursework!) you need to take an active role. I am here to facilitate your learning, but I ask that you:

- ❖ Actively participate in the class meetings
- ❖ Be prepared to work cooperatively during class meetings
- ❖ Take responsibility for coming prepared to class meetings
- ❖ Reflect objectively on your own progress and understanding

### *Course Schedule*

In addition to material we cover in lectures, you will be responsible for readings indicated below. The schedule provided is tentative and is subject to change.

Textbook: *Ecology: Concepts and Applications*, 6<sup>th</sup> or 7<sup>th</sup> Ed. Manuel Molles

| <i>Date</i> | <i>Topic</i>   | <i>Reading (Molles, 6<sup>th</sup> ed.)</i> | <i>Unit</i>                      |
|-------------|--|---|----------------------------------|
| Sept 1      | Course Introduction                                  |   | <i>Organisms and Environment</i> |
| Sept 3      | What is ecology?                                     | Chapter 1                                   |                                  |
| Sept 8      | What's so special about H <sub>2</sub> O and carbon? | Chapter 7 and Supplemental Materials        |                                  |
| Sept 10     | Climate  | Chapter 5,6,7                               |                                  |
| Sept 15     | Evolution and Ecology                                | Chapter 4                                   |                                  |
| Sept 17     | Life Histories                                       | Chapter 12                                  | <i>Populations</i>               |
| Sept 22     | <b>EXAM I</b>  |   |                                  |
| Sept 24     | Distribution and Abundance                           | Chapter 9                                   |                                  |
| Sept 29     | Growth and Regulation                                | Chapter 11                                  |                                  |
| Oct 1       | Population Dynamics                                  | Chapter 10                                  |                                  |
| Oct 6       | Interactions: Competition                            | Chapter 13                                  | <i>Communities</i>               |
| Oct 8       | Interactions: Predation and Herbivory                | Chapter 14                                  |                                  |
| Oct 13      | Interactions: Mutualism                              | Chapter 15                                  |                                  |
| Oct 15      | Communities  | Chapter 16                                  |                                  |
| Oct 20      | Dynamics and Alternative States                      | Chapter 17                                  |                                  |
| Oct 22      | <b>Catch-up/review for Exam</b>                      |   |                                  |
| Oct 27      | <b>EXAM II</b>                                       |   |                                  |
| Oct 29      | No class after exam                                  |   |                                  |
| Nov 3       | Guest Lecture  | Ecosystem or Community Ecology              | <i>Ecosystems</i>                |
| Nov 5       | Primary Production                                   | Chapter 18                                  |                                  |
| Nov 10      | Energy Flow  | Chapter 18                                  |                                  |
| Nov 13      | Nutrient Cycling                                     | Chapter 19                                  |                                  |
| Nov 17      | Succession and Stability                             | Chapter 20                                  |                                  |
| Nov 19      | Landscape Ecology                                    | Chapter 21                                  | <i>Applied Ecology</i>           |
| Nov 17      | Biogeography   | Chapter 22                                  |                                  |
| Nov 19      | Global Ecology                                       | Chapter 23                                  |                                  |
| Nov 24      | Conservation Biology                                 | Chapter 23                                  |                                  |
| Nov 26      | <b>No Class (Happy Thanksgiving)</b>                 |   |                                  |
| Dec 1       | Global Climate Change                                | Supplemental Materials                      |                                  |
| Dec 3       | <b>In Class Discussion</b>                           | Video                                       |                                  |
| Dec 8       | <b>Catch-up/review</b>                               |   |                                  |
| Dec 10      | <b>Review</b>  |   |                                  |
| Dec 14      | <b>Exam 3:20-5:20</b>                                | Note this is a <b>Monday</b>                |                                  |

## ***Grading***

Grades in this course will be assigned in the +/- system. Your grade will be based on the following:

|                             |                 |
|-----------------------------|-----------------|
| 2 Lecture Exams             | 120             |
| Final Exam                  | 100             |
| Quizzes                     | 50-80           |
| Active Learning Assignments | 125             |
| <b>Total</b>                | <b>≈ 400</b>    |
| Extra Credit                | <u>Up to 40</u> |

## ***Exams and Quizzes***

You will take two 50-minute exams and one 2-hour Comprehensive Final. Each exam will consist of multiple-choice, true/false, and matching questions whose answers will be recorded on electronically-graded Scantron forms (red narrow), which are available at the bookstore. Exams are based upon lectures and reading, but lectures are emphasized. Lecture notes will be posed, but will not cover all the material presented in lecture. It is important to attend the lectures, come on time and stay for the entire lecture. In addition, unannounced quizzes will be given during lectures. These quizzes will account for 13-20% of your final grade. On exam days all you will need to bring to class are #2 pencils and a Scantron form. As during the ascent to 10,000 feet, all electronic devices must be stowed and in the “off” position.

*Make-up exams* are possible if you have a serious personal emergency. You will receive a zero for a missed, unexcused exam. Make-up exams will be administered one week *after* the scheduled exam. Make-up exams will consist entirely of essay questions, and will include additional lecture material covered after the regularly scheduled exam. Students generally find make-ups to be more difficult than the regularly scheduled exam. Only students presenting verifiable medical or university excuses directly to Dr. Green at least 24 hours before the regularly scheduled exam will be eligible for a make-up exam.

## ***Active Learning Assignments***

BIOE 172 will emphasize active learning experiences, both in and out of the classroom. You will be asked to submit five written assignments about your participation in these experiences. You can find a list of possible active learning assignments for each unit on the course Moodle site. For each assignment completed, you must turn in a typed report with the requested information. All assignments need to be turned in before or on the week indicated on the schedule for that unit.

## ***Course Material***

You will be able to access many of the resources for this class on the course Moodle site. You can access these materials through [www.login.umt.edu](http://www.login.umt.edu). You will need your NetID and password for these. If you forgot what these are you can get more information from <https://user.umt.edu/netidlookup/>.

The official textbook for BIOE172 is Ecology: Concepts and Applications, 6<sup>th</sup> or 7<sup>th</sup> edition, which is available at the UM Bookstore (<http://www.montanabookstore.com/>). We will keep several copies of it on 3-hour reserve at the University of Montana Library.

## ***Extra credit***

You may attend up to four departmental seminars provided by the Division of Biological Sciences OBE program (Wednesdays at 4:10pm ISB 101) or Wildlife Biology Program (Fridays at 1:10 FOR 106). Hand in a single typed page within a week of attending the seminar. Late hand-ins will not be accepted. Your assignment must include: Your name, the date and title of the seminar, the name of the seminar speaker and where they are from, a paragraph summarizing the main points, the single thing that most surprised or interested you in the seminar, and how the talk related to something that we've discussed or will discuss in class.

### ***Students with disabilities***

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommasson 154. I am happy to work with you and DSS to provide appropriate accommodations for your learning and testing.

### ***Computers***

The Division of Biological Sciences maintains a computer lab that is dedicated for use in biology courses. It is located in Health Sciences 114. You need to have an account to use the computers, software, and printers. There are good black & white and color printers in the HS114 computer lab. If you don't already have an account, a lab monitor can help you set one up between 8 AM – 5 PM, Monday through Friday.

### ***A Note on Email and Spam Filters***

All email communication for the course will be sent to your official university email, and not to other email providers. If you don't normally check your university email you will miss important emails. You can have your university email forward messages to other email addresses (e.g., gmail, yahoo, etc). When we email the whole class the message will go to lots of email addresses, and some email providers will block this as spam. You will want to check the settings of your spam filters so that they allow such messages.

### ***Plagiarism and Cheating***

Although you will be encouraged to work collaboratively with others in this class and the lab, ***the work you hand in must be your own***. A good rule of thumb is that you can work together up to the point of committing words to paper (or word processor). After that, the words you put down should be your own. We remind you of the official University policy on plagiarism: "Plagiarism is the representing of another's work as one's own. It is a particularly intolerable offense in the academic community and is strictly forbidden. Students who plagiarize may fail the course and may be remanded to Academic Court for possible suspension or expulsion (See Student Conduct Code section of this catalog). Students must always be very careful to acknowledge any kind of borrowing that is included in their work. This means not only borrowed wording but also ideas. Acknowledgment of whatever is not one's own original work is the proper and honest use of sources. Failure to acknowledge whatever is not one's own original work is plagiarism." (Quotation from The University of Montana Catalog).

If you have any questions about the line between collaboration and plagiarism, see your professor before you hand in material. Assignments from two or more students that have significant overlap will be regarded as reflecting a violation of the expectation that students turn in independent work. All the students involved will be given no points for that material, and the violation will be dealt with according to the Student Conduct Code. Penalties for plagiarism and cheating can be as severe as suspension or expulsion from The University. For more information on the official UM policies on plagiarism and the Student Conduct Code you can refer to: [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php).

### ***Adds, drops, and changes of grading***

University policies on drops, adds, changes of grade option, or change to audit status will be strictly enforced. These policies are described in the 2014-15 UM course catalogue, [http://archive.umt.edu/catalog/14\\_15/](http://archive.umt.edu/catalog/14_15/). The last day to drop fall courses without the Dean's signature is 5:00PM on Monday October 30<sup>th</sup>. Thereafter, a DROP may be requested by petition, but the petition must be accompanied by documentation of extenuating circumstances. Requests to drop a course or change the

grade basis to benefit a student's grade point average will not be approved. A grade of D will not be considered passing for the P/NP option.

### ***Classroom Behavior***

You are not required to attend lecture. However, students who come to class regularly do better on the exams and quizzes than those who do not! If you choose to come, conduct yourself as a responsible, courteous adult. **Disruptive or distracting behavior such as talking, sending or receiving cell phone messages, including text messages, reading the newspaper, and eating, will not be permitted.** Anyone engaged in any of these disruptive behaviors will be dismissed from class. The second such offense will result in dismissal from BIOE 172 with a grade of F.