

BIOL/NR 2220 General Ecology Fall 2017

TTh 15:00-16:15

Instructor: Dr. Becky Williams
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Office: BEERC 221B
Office Hours: 17:00-18:00 Wed **or by appointment**
Office Phone: 435 722 1787

Required Text: *Ecology: Concepts and Applications* Molles (7th edition) ISBN13: 978-0077837280, ISBN10: 0077837282. You may also use the 5th or 6th edition

SimBio/SimUText Interactive Modules. We will require 3 modules in this course, which will be purchased individually by you, the student, directly from the SimBio website <http://simbio.com>. **DO NOT BUY THE PACKAGE IN THE BOOKSTORE;** it is for a different ecology class. You will be provided instruction on the first day of class on how to access your modules. \$22

Website: This course will be broadcast. Many course materials will be available on Canvas. You may login with your A number and password. <https://canvas.usu.edu/>

Catalog Description: Study of the interrelationships among organisms and their environments, addressing where and how organisms live. Adaptation, population growth, species interactions, biodiversity, and ecosystem function are explored for a wide variety of organisms and ecosystems.

Prerequisites: BIOL 1610 (Biology I). You are expected to read at a college level and write with proper English grammar, sentence structure, and spelling. You will also use basic calculating skills that include fractions, decimals, exponents, simple algebraic expressions, and graphing. I encourage you to enroll in a statistics course as soon as possible; this will be one of the most useful classes in your professional and personal life. We will also learn and use some basic statistics in this course. BIOL 1620 is a corequisite but recommended as a prerequisite.

Main Course Goals:

1. You will develop critical thinking skills in order to make informed decisions within the realm of ecology and beyond.

Specific strategies: Review and interpret primary literature in the field, engage in discussion about current topics in the field, be able to predict or recommend actions to solve previously unfamiliar ecological problems, diagram ecological processes (article reviews, discussions, modules, final quiz questions, exams)

2. You will acquire an understanding of the basic mechanisms (facts and concepts) of ecology.

Specific strategies: Learn the terminology and facts/knowledge of the field & general ecological principles; apply this knowledge to new problems (textbook, modules, quizzes, exams)

3. You will develop your written and oral communication skills.

Specific strategies: produce written logical summaries of primary literature, engage in discussion about current hot topics in the field (discussions, article reviews)

Study Tips: This is a 3-credit course, which implies 3 hours of contact time (in class) and 6 additional hours of study time per week **on average** to learn the material and complete assignments. You may require additional time. Please plan accordingly.

Acquiring the knowledge, skills, and abilities taught in this course requires an effective study strategy. USU's Academic Success Center has materials and tips to help you learn how to learn (<http://www.usu.edu/asc/>).

1. Complete reading assignments before class lectures and take notes for the quiz.
2. Access the powerpoints before class and bring them with you to facilitate note-taking.
3. Review the material at least once a week; do not wait until the night before the exam.
4. Try to draw diagrams from lecture and the book from memory.
5. Make concept maps rather than flashcards of important terms.
6. Have a friend quiz you on the material and form a study group.
7. **Ask questions** of the instructor and your classmates whenever something is unclear.
8. Question the information you obtain in class or during your readings: *Is it logical? What are the implications? What other questions arise after considering the topic?*

Americans with Disabilities Act: I will attempt to provide reasonable accommodation for all persons with disabilities according to the recommendations of the Disability Resource Center (DRC) because I want to facilitate maximum participation in the course. If you have a disability that may require some accommodation, you must contact me **at least one week prior** to the requested accommodation and you must document the disability through the DRC (797-2444), as per university policy, preferably during the first week of class.

Academic Integrity and Misconduct: The purpose of this course is to learn the material and acquire skills such as critical thinking, not to "get a good grade." Your degree program is designed to help you acquire the applicable knowledge, skills, and abilities to help you succeed in your chosen career. If you work towards these goals, a good grade will follow. Accordingly, cheating of any sort will not be tolerated. Plagiarism is a form of cheating. All assignments must be in your own words: do not quote or copy any passages from fellow students, written sources (including the text or articles), or any other source (such as online). "Minor" offenses, such as copying a partial sentence from the text, will follow a three strikes plan: strike one = you lose 50% of the grade for that assignment, strike 2 = you lose all points for that assignment, strike three = **you fail the course**. "Major" offenses, such as copying multiple sentences, copying any length of material from a fellow student, or cheating in any form on an exam will not be tolerated even once and such infractions will result in you **failing the course** and possibly being expelled from the university. The instructor reserves the sole right to determine whether offenses are "minor" or "major." Full university policies regarding student conduct may be found in the student code:

<http://www.usu.edu/studentservices/studentcode/>

Exam format: **All exams will be comprehensive.** Questions may be multiple choice, fill-in-the blank, short answer, and short essay. No outside aids are permitted including paper or electronic resources, i.e., no notes, texts, programmable calculators, cell phones, PDAs, etc. Exams will occur during class time only. There will be no make up exams, regardless of whether you have an emergency or not. Your lowest midterm exam score will be dropped. If you miss an exam for any reason, that is the score that will be dropped.

Quizzes: Quizzes will be available on Canvas before the material is covered in lecture. This encourages you to complete the assigned readings before lecture. Reiteration of material is a critical component of learning. I will provide two additional quizzes as extra credit. Thus you have a chance to make up for questions you missed on earlier quizzes. Consequently, there will be no make up quizzes regardless of the reason that caused you to miss the quiz.

Article Reviews: There will be three article reviews worth 25 points each. Directions are available on Canvas. No late work is accepted. Due dates are given in the schedule below; please plan ahead.

SimBio/SimUText Modules: There will be three interactive modules you will work through online worth 25 pts each. These allow you to model your own experiments and have received high praise from past students. Directions are available on Canvas for these modules.

Important Information:

Overall performance is highly correlated with attendance. Participation in discussions and activities in class is part of your grade. The purpose of a discussion is to improve your critical thinking, to “think on your feet,” to incorporate the insight of others, and to generate feedback for others. During this process you will refine your on-the-spot thinking and problem solving skills. Thus, you cannot have a “discussion” by simply replying to the discussion question independently.

Because assignments build on each other and often require timely input from myself and your fellow students, **no late work** is accepted in this course for any reason, even for emergencies. I typically provide two extra quizzes and two extra discussions to cover that contingency. If you miss a lecture, please make sure you do all the readings, study the powerpoints, and ask your fellow classmates for notes as well as news that might have been relayed during classtime. Please note that if you still do not understand something, I am in my office and available via phone during office hours and if you cannot make that time, ask me for an appointment, email me, call me, or stop by at any time. I can usually fit you in. Again, in lieu of late work we have contingency points and I cannot provide replacement assignments, discussions, quizzes, or exams, etc. Discussions may be unannounced and quizzes are scheduled on Canvas. Therefore, you should check Canvas before every class and attend every class. The “attendance” policy and due dates are arranged for your maximum learning benefit; I will give you the

framework to attain the skills you need to be successful in your career. Your job is to use these resources to become a self-directed learner in order to maximize your learning in this class and become a lifelong learner, thus optimizing your future career success.

Note: You and your fellow classmates paid for the privilege of attending this course. You all have a right to a productive learning environment. Previous studies have demonstrated that off-topic use of cell phones and laptops lowers your performance by a full grade and lowers the performance of your classmates, who are not in control of your distraction, two full grade levels. Turn off cell phones before class and plan to engage yourself in the course as a productive team-member. Thanks!

Grading:

| | |
|-------------------------------|------------------------------|
| 3 Exams | 100* pts total (50 pts each) |
| Final Exam | 100 pts |
| Article Reviews (3) | 75 pts |
| SimBio/SimUText Modules (3) | 75 pts |
| Activities & Discussions (15) | 75 pts total (5 pts each) |
| Quizzes (15) | 75 pts total (5 pts each) |
| Total | 500 |

*Your lowest exam score will be dropped.

The following is a breakdown of grade assignments.

| <u>Grade</u> | <u>% of Total Pts</u> | <u>Grade</u> | <u>% of Total Pts</u> |
|--------------|-----------------------|--------------|-----------------------|
| A | 93% and above | C | 73–75% |
| A- | 90–92% | C- | 70–72% |
| B+ | 86–89% | D+ | 66–69% |
| B | 83–85% | D | 60–65% |
| B- | 80–82% | F | 59% and below |
| C+ | 76–79% | | |

Please confirm that your scores are added correctly. Any disputes must be brought to my attention within one week of the assignment being returned in class or via Canvas (even if you fail to retrieve your assignment).

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Tentative Schedule of Topics BIOL/NR 2220 General Ecology Fall 2016

| Date | Topic | Q = Quiz | Readings |
|--|---|-----------------|------------------|
| Unit 1 - Natural History and Ecology of Individuals | | | |
| Aug 29 | Introduction | | optional Ch 1 |
| Aug 31 | Natural History | | Chs 2–3 |
| Sept 5 | Nat. Hist. Cont. - Pop. Gen. & Natural Selection | | Q Ch 4 |
| Sept 7 | Evolution Cont. - Temperature Relations | | Q Ch 5 |
| Sept 12 | Basic Stats - Water Relations | | Q Ch 6 |
| Sept 14 | (no class) - SimBio Understanding Experimental Design Due | | |
| Sept 19 | Ch 6 Cont., Experimental Design Wrap Up | | |
| Sept 21 | Energy & Nutrient Relations - Exam Q & A | | Q Ch 7 |
| Sept 26 | Exam # 1 (50 points) | | Chs 1–7 |
| Unit 2 – Population Ecology | | | |
| Sept 28 | Population Distribution and Abundance | | Q Ch 9 |
| Oct 3 | Population Dynamics | | Q Ch 10 |
| Oct 5 | Population Growth - Article Review #1 Due | | Q Ch 11 |
| Oct 10 | Life Histories | | Q Ch 12 |
| Oct 12 | Assessing Data Using Statistics - Exam Q & A | Q pdf on Canvas | |
| Oct 17 | (no class) - SimBio Life Histories - SimBio Life Histories Due | | |
| Oct 19 | (no class) - Friday class schedule | | |
| Oct 24 | Exam # 2 (50 points) | | Chs1–7, 9–12 |
| Unit 3 - Community Ecology & Biogeography | | | |
| Oct 26 | Competition | | Q Ch 13 |
| Oct 31 | Exploitation & Mutualism - Article Review #2 Due | skim | Chs 14–15 |
| Nov 2 | Species Abund. & Div., Species Inter., & Com. Structure | | Q Ch 16 |
| Nov 7 | Geographic Ecology - Exam Q & A | | Q Ch 22 |
| Nov 9 | (no class) - SimBio Isle Royale Due | | |
| Nov 14 | Exam # 3 (50 points) | | Chs1–7, 9–17, 22 |
| Unit 4 – Ecosystems, Landscapes, & Global Ecology | | | |
| Nov 16 | Primary and Secondary Production | | Q Ch 18 |
| Nov 21 | No Class - Article Review #3 Due | | |
| Nov 23 | Thanksgiving Break | | |
| Nov 28 | Nutrient Cycling and Retention | | Q Ch 19 |
| Nov 30 | Succession and Stability | | Q Ch 20 |
| Dec 5 | Landscape Ecology - Global Ecology | | Q Ch 21 |
| Dec 7 | Global Ecology Cont. - Exam Q & A | | EC Q Ch 23 |
| Dec 14 FINAL Exam 1:30–3:20 pm (100 points, ~1/3 new material) <u>Chapters 1–23</u> | | | |