

ECOLOGY
SPRING 2020
Biology 2400-01 3 credits
MWF 10:00-10:50

FINAL: Wednesday May 6th at 3:30-5:20

Instructor: Eric C. Atkinson

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Office Hours: M 1:00-2:00, T 12:05-2:25, W 9:00-10:00, 12:05-1:00 & other times by appointment. Also, just find me!



Text: **Ecology: The Economy of Nature 8th Edition** by Rick Relyea and Robert Ricklefs. W.H. Freeman.
ISBN [i9781319297237](https://www.wiley.com/9781319297237) with Sapling Plus

I will provide other readings for you as paper or in PDF format within our Moodle page. Many of these readings will be selections from Real, L.A. and J.H. Brown, editors. 1991. Foundations of Ecology: Classic Papers with Commentaries. University of Chicago Press, Chicago, IL. 920 pp.

Course Description: A study of ecosystems, energy flow, habitats, natural cycles, environmental influences, succession, population, and speciation. Ecology is the study of organisms and how they interact with the world around them, including other species. This course will provide an understanding of the general principles and methods of ecology as they pertain to individual organisms, populations, communities, and ecosystems. At the end of the course, you should have a good working understanding of these general principles, and a perspective on how ecological questions are approached. Both qualitative and quantitative techniques will be discussed. Additionally, you will gain writing and speaking skills that improve your ability to express complex ideas. If you are enrolled just in this lecture course (BIOL 2400 = Ecology) and not also in BIOL 2410 (Field Ecology) I urge you to consider enrolling in the latter, as it will help your ecological understanding greater through the mix of theory and applied experiences.

General Education (Physical and Natural Sciences) Outcomes

1. **Explain the principles of the scientific method**
2. **Formulate and test ideas through analysis and interpretation of data**
3. **Use scientific and quantitative logic to examine contemporary problems**
4. **Use quantitative data analysis as the basis for making critical judgments and drawing conclusion**
5. **Examine the impact of technology on science and society**

Course-Specific Learning Outcomes: A student who successfully completes this class is expected to achieve the following Biology Department outcomes:

- Be able to recognize, describe, and integrate the major biological principles. This outcome will be evaluated through exams. The lab component of the course grade is also a measure of this outcome.
- Be able to demonstrate understanding of basic scientific methodology and experimental procedures with sound scientific reasoning. Exams and in-class activities will indicate the student's ability to analyze biological phenomena using a scientific approach. The lab component of the grade is an important part of evaluation of this outcome.
- Be able to organize, analyze, and interpret data, with the ability to relate to scientific information and methodologies. Homework questions, including online discussions, will measure this outcome; analysis of data gathered in lab exercises also demonstrates the ability of the student to meet this outcome.
- Be able to communicate biological concepts clearly and accurately using biological terms correctly.

Additionally, the student should be able to acknowledge that multiple points of view exist in class discussions in which students are asked to apply knowledge of biology in evaluating social issues that have a biological dimension. The student should also recognize that different interpretations of data are *legitimate* outcomes of individual scientific studies.

To contact me: If you have any questions, need clarifications, or need to tell me something you may

- ✓ see me before or after class
- ✓ visit me during office hours (SM 254) (see above)
- ✓ stop by my office during non-office hours and see if I am in, or set up an appointment.
- ✓ call me in my office at 754-6018
- ✓ email me at eric.atkinson@nwc.edu
- ✓ there is rarely a time that I cannot be found. If you email me or call my office I will get a message.
- ✓ Just find me! I am usually on the second floor of Science & Math, either in my office (SM254), in the Microbiology Lab (SM233), Molecular Techniques Lab (SM235), or in the Microscopy Room (SM210). If it is a bad time, I'll tell you, but many times I can give you a hand to help you on your way to better understanding.
- ✓ **In the event that significant changes have occurred with regard to class meeting (i.e., illness, blizzard, etc.), I will send out an announcement via email and/or Moodle. Hence, it is prudent to check your student account each morning. I will attempt notification by 8:00 if applicable.**

Grading: The teaching of Ecology is done so at an upper division level (that means, at many universities Ecology is a 3000/300 level course) to maintain rigor for both transfer and as an introduction to the discipline itself. Grades will be based upon assessment of materials covered in lecture (50%) coupled with theory and application provided via Sapling Learning (a Learning Management System—online—that accompanies our textbook) at the remaining 50% of the course grade.

Class Portion: I cover most material via lectures but invite you to interact and make these lectures didactive and full of interest, which means I want and expect your engagement through asking questions, answering those I pose to you, and dialoguing with each other regarding our subject. Your lecture grade will be based upon 3 exams (including the final, which will be partially comprehensive) each worth 100 points (the final will be worth more at approximately 150-200 points).

Assigned Reading Questions & Discussion: 75-200 points; to be determined. For instance, each Classic Paper in Ecology that we read will result in an in-class discussion in which each student will be expected to contribute meaningfully. Written answers must be submitted via Moodle **before** the discussion ensues for full credit (see below). We will be reading and discussing several 'classic' papers in the field of Ecology. For each paper, I expect short answers to a variety of questions associated with the assigned reading. These answers will provide the basis for discussions in class and, hence, are due the day of the paper discussion. **Late submittals will not be accepted. Each set of questions and participation in class discussion regarding that paper or assigned reading will be worth 25-50 points (participation & written out questions total 25-50pts/paper). We will cover between 3 and 8 of papers/readings through the course of the semester.**

Online Portion: Furthermore, you are required to register for Sapling (please follow the instructions appended to this syllabus & www.saplinglearning.com/login).

I have listed the number and general timing of the exams in the schedule. However, through dialogue and assessment of the rate at which the class is covering materials, number and timing of exams may be modified.

Class Materials: 50%

Exam 1: 100 pts

Exam 2: 100 pts

Exam 3 (Final: ~150-200pts)

In-class Discussions: ~200 pts.

Sapling Portion: 50%

Generally, 1-3 assignments per chapter

Grading scale is as follows:

90-100% of total possible points = A; 80-89% = B; 70-79% = C; 60-69% = D; 59% and below = F.

Missed Exams: Absences for school activities, significant illness or true emergencies are adequate excuses.

All college sponsored activities must be excused in advance. If illness or emergency or other factors prevent you from taking an exam, you must, *before the exam*, give me a written note (so I don't forget and count you unexcused), telephone me at my office (6018), email me or phone the science secretary (6410). ***Make up exams will be available only if you have corresponded with me before the scheduled test and they will likely be essay in format.*** Please, make sure that you understand this requirement. **Only 1 exam will be allowed as makeup during the semester/student and will be given at the discretion of the instructor.**

Please, be present for our discussions. I cannot give any points for discussions for which you have not been present in class.

Classroom Behavior: Students are expected to treat all students, instructors and guests in a respectful manner. Please refer to the Student Handbook for specific policies and procedures. **Please, turn cell phones on silent and no texting.**

Cell Phones: Please turn off and *put away* cell phones when you enter class. If you are anticipating an urgent message, please inform the instructor. Please, do not use ANY personal electronic devices during class→No texting, no listening to music, etc., no talking with your friends, your mother, your cat, or your investment counselor. The use of cell phones during class is highly distracting to your colleagues, plus, if you haven't noticed, very rude and disrespectful. If you take notes on a laptop or electronic writing tablet, that is okay. Calculators may at times be handy and they are acceptable for calculations when I acknowledge their applicability.

A word about email: It has come to my attention that many members of our society have become too casual, sloppy, or at the worst, just plain rude in their correspondence, electronic or face-to-face. Hence, when communicating with me via email I ask you to follow several guidelines.

- Choose an appropriate subject line. Do not leave the subject line blank nor should you just respond to the last email correspondence between your instructor (me) and you or the class, in general.
- Make sure I know what class you are communicating about.
- Include a respectful salutation (greeting). For instance, do not start the email document directly at the first sentence or phrase but include a greeting such as "Dear Eric," or "Good morning, Professor," or "Hello," "Hi," "Greetings," or the like. Please, do not use "Hey," or some other very casual greeting.
- Articulate your information with correct grammar and syntax. Use correct spelling to make sure that your message comes across to the reader. Make sure that you communicate to me which class you are enrolled in.
- Close the correspondence with something similar to "Thanks," "I look forward to hearing from you," "Best," "I appreciate your consideration," or the like preceding your name. Yes, include your name.
- Remember that your electronic correspondence is often a representation of yourself and lives FOREVER and in many forms and places (i.e., it is propagated). Be careful of what you say and how you say it, especially electronically.

Academic Integrity: You are expected to strictly observe NWC rules regarding academic honesty:

- ✓ refrain from cheating on exams
- ✓ properly reference published material. *Take note:* this is a very serious matter in academic circles!
- ✓ submit only work that is your own
- ✓ don't let others submit your work as their own.

A grade of zero may be received for the assignment or, for particularly egregious violations, for the entire course. See the Student Handbook Academic Policies for more details. **Plagiarism is serious. If you choose to use the work of others without giving full credit, or copy and paste from sources and present the work as your own, you will fail the course. If I observe you copying off other students, or nonpermissible items, during a test you will fail the test and I reserve the right to fail you for the class. Just don't do it.** Consult <http://libguides.nwc.edu/plagiarism/> to understand what plagiarism is.

Cheating (another way to state the above): During exams, use of any electronic device is grounds for the instructor to give a grade of **zero**, which cannot be dropped. If done a second time, it is grounds for receiving a failing grade in the course. **As stated above, I reserve the right to employ 'one strike and you are out' for the course.** Any other instances of cheating will result in a grade of 0 for the exam, with a second offense resulting in a failing grade for the class.

Absence Policy: Consistent attendance is important in science class; students who regularly miss class rarely do well in this course. If you know you will be gone, talk to me so we can make arrangements to prevent falling behind. See Due Dates for Assignments and Missed Exams below. *NWC has an official absence policy corresponding to 1 unexcused absence per credit hour students who exceed that level may unilaterally be dropped one letter grade/subsequent unexcused absence.* I will generally take roll and credit is given for attendance and participation.

Project Succeed: If your parents do not have a bachelor's degree, you have low income or a documented disability you may qualify for Project Succeed. It offers help with education and career planning and with study and time management. Project Succeed staff people can be found in the Student Success Center in the lower level of Colter Hall (down the ramp).

Success Tips:

TAKE NOTES! *Nothing takes the place of this important skill!!*

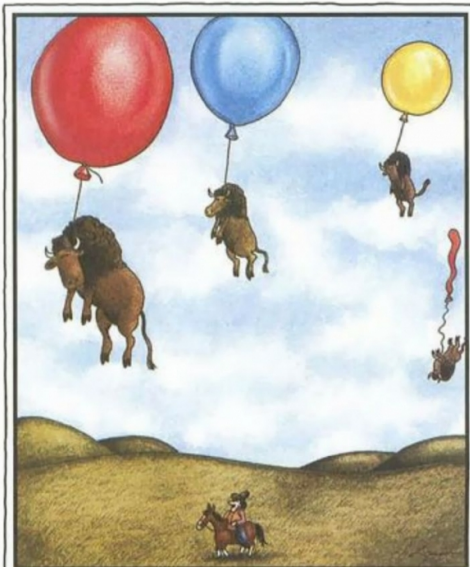
Look over the material before class. Preferably, skim the textbook chapter searching for the "Big Issues". Then, read the chapter paying special attention to the emphasized materials. Review the chapter by thumbing through the pages and identifying places that seem difficult to comprehend or obtuse. Study those sections more thoroughly.

Make sure you can meet the learning goals for each chapter.

Ask questions – either in class or after class, in person, by phone or via email.

Some people find study groups to be helpful. There is a study room (SM 243) which you can use (I like to call it the 'niche').

Finally (again), **TAKE NOTES!** *Nothing takes the place of this important skill!!*



More Facts of Nature: As part of nature's way to help spread the species throughout their ecological niche, bison often utilize a behavior naturalists have described as "ballooning."

Approximate Lecture Topic Schedule—due to many variables, this schedule is subject to change (& likely will).

~Week	Topic	Assigned Reading	Discussion Paper
1: 15 Jan	The Science of Ecology	R&R 1	
2: 20 Jan	Definition(s) of Species Intro Cont. Adaptations to Aquatic Environments	R&R 2	Kingsland (1991) Ecology as Science
3: 27 Jan	Adaptations to Terrestrial Environments	R&R 3	
4: 3 Feb	<u>Some Overarching Patterns</u> The Biome Concept	R&R 6	Simberloff & Wilson (1969)
5: 10 Feb	Landscape Ecology Conservation of Biodiversity	R&R 22 R&R 23	
EXAM I ~100 pts			
6: 17 Feb	<u>Why are there so many species?</u> Evolution & Adaptation	R&R 7	Hutchinson (1959) Kettlewell (1955)
7: 24 Feb	Life History Strategies	R&R 8	Porter & Gates (1969)
8: 2 Mar	SPRING BREAK		
9: 9 Mar	Reproductive Strategies	R&R 8	
10: 16 Mar	Social Behavior	R&R 9	
11: 23 Mar	Population Ecology	R&R 11, 12, 13	
12: 30 Mar	Population Ecology	R&R 11, 12, 13	
EXAM II ~100 pts			
13: 6 Apr	<u>Community Structuring Factors</u> Energy & Element Movement in Ecosystems	R&R 20	
14: 13 Apr	Community Structure	R&R 18	
15: 20 Apr	The Idea of Succession	R&R 19	Clements (1936)
16: 27 Apr	<u>Symbioses</u> Predation & Herbivory Parasitism & Disease Competition & Mutualism	R&R 14 R&R 15 R&R 16 & 17 Huffaker (1958)	Connell (1961) MacArthur (1958)
17: 4 May	Symbioses Wrapup	Trophic Cascades	Paine (1969)

FINAL: Wednesday May 6st at 3:30-5:20

Northwest College Universal Syllabus Information

(Last Updated 8/20/18)

I. Northwest College ADA Statement

Northwest College is dedicated to removing barriers and opening access for students with disabilities in compliance with ADAAA and Section 504 of the Rehabilitation Act. It is the student's responsibility to make an appointment with the Disability Support Services (DSS) Coordinator to provide documentation of a disability (whether it is psychiatric, learning, mobility, health related, or sensory) and to inquire about accommodations for courses each semester. To contact the DSS Coordinator, call 754-6135 or stop by the Student Success Center located in the lower level of Colter Hall.

II. Northwest College Title IX Policies

Title IX (Title IX of the Education Amendments of 1972) is a federal law that prohibits discrimination on the basis of sex or gender identity in any federally-funded education program or activity.

The law states, "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance" (The United States Department of Justice).

Many people think of Title IX in terms of sports equality, but Title IX expands beyond sports. The Know Your IX site explains that Title IX "addresses discrimination against pregnant and parenting students and women in STEM (science, technology, engineering, and math) programs. It also addresses sexual harassment, gender-based discrimination, and sexual violence. Sexual violence includes attempted or completed rape or sexual assault, as well as sexual harassment, stalking, voyeurism, exhibitionism, verbal or physical sexuality-based threats or abuse, and intimate partner violence" (Know Your IX). You can read more about NWC's Title IX policies at: <https://www.nwc.edu/title9/understanding-title-ix/title-ix>

Mandatory Reporting Notice - It is important to note that all NWC employees (whether faculty, staff [including Resident Assistants], or administrators) are required to report incidents of sexual harassment, discrimination, or sexual misconduct to the Title IX Coordinator if we become aware of these situations.

III. Northwest College Nondiscrimination Notice

Northwest College does not discriminate on the basis of race, color, national origin, sex, disability, age, religion, sexual orientation, gender identity, genetic information or veteran status in its programs and activities. We are an Equal Opportunity Employer and Institution (EOE/EOI). Student inquiries concerning disability services shall be directed to the Disability Support Services Coordinator, Student Success Center, 231 W 6th ST BLDG 4, Powell, WY 82435-1860; 307.754.6227. All other compliance inquiries shall be directed to the Compliance Officer, Orendorff Building, 231 W 6th ST BLDG 1, Powell, WY 82435-1898; 307.754.6098, or the Office of Civil Rights, U.S. Department of Education, Federal Building, 1244 Speer Blvd. #310, Denver, CO 80204-3582; 303.844.5695; FAX: 303.844.4303; TDD: 308.844.3417; OCR Denver@ed.gov. Title IX inquiries: Title IX Coordinator, Orendorff Building, W 6th ST BLDG 1, Powell, WY 82435-1898; 307.754.6100; Title9@nwc.edu.

IV. Northwest College Respect for Diversity Statement

The Northwest College community includes a rich mix of individuals who, through their distinctive viewpoints, personalities, and life experiences, contribute to an intellectually stimulating and supportive culture. Northwest College's commitment to diversity is central to understanding and learning through the promotion of free and open inquiry and discussion.

We recognize that our success as an institution depends on an environment where all individuals are included in Northwest College's community regardless of, but not limited to race, age, gender identity, ethnicity, sexual orientation, gender, nationality, citizenship, religious affiliation, or disability.

V. Northwest College Course Withdrawal Procedure and Schedule

If you find that you no longer wish to remain in this class, you should officially drop or withdraw from it. Only you, the student, can initiate this process, and you are strongly encouraged to consult first with your academic advisor with regard to the effect on your program of study, financial aid status, etc. In order to drop or withdraw from class, you must meet certain deadlines and follow specific procedures:

- **To drop:** you can do this by the deadline listed below and no record will appear on your transcript. You can drop a class by logging onto WebAdvisor through your student

portal, or your academic advisor can do it for you as well. You can also go to the Admissions Office and complete the appropriate form.

- **To withdraw:** after the “drop” deadline, your remaining option is to “withdraw” from this course. A mark of “W” will appear on your transcript, but it will not affect your GPA. Again, you can withdraw from a class by the deadline listed below by logging onto WebAdvisor through your student portal, or your academic advisor can do it for you as well. You can also go to the Registration and Records Office and complete the appropriate form.
- If you merely stop logging onto this class, or cease submitting work even if you still logon, but do not officially remove yourself from class, then you will be subject to “Administrative Withdrawal” from the course, at the discretion of the instructor, up to the official “Withdrawal” deadline mentioned above. Otherwise you shall definitely receive an “F.”

Drop/Add/Withdrawal deadlines are available on the Academic Calendar that can be found here:

<https://calendar.nwc.edu/site/academics/>

VI. Northwest College Statement on Academic Dishonesty

(*NOTE – This language is adapted from the NWC Student Handbook Academic Code of Conduct – please refer to that document for more information.)

Northwest College is committed to creating and maintaining an environment of academic honesty. It is the faculty’s responsibility to affirm the importance of academic integrity and to try to educate students as to standards of academic behavior. Students, too, bear the responsibility for academic integrity. Northwest College expects each student to learn and comply with academic expectations, display appropriate conduct in classroom situations, accept Northwest College’s “Student Academic Rights” and “Student Academic Responsibilities,” and preserve academic integrity by upholding the spirit and letter of the Academic Code of Conduct. Violations of academic integrity include but are not limited to the following: plagiarism, cheating, trafficking, copyright infringement, and interfering with the learning of other students.

VII. Northwest College Final Exam Schedule

The Final Exam Schedule for the current semester can be found here:

<https://nwc.edu/academics/finals.html>

VIII. Northwest College Student Resources

Northwest College offers a multitude of resources to increase student success including:

1. Northwest College Student Success Program
 - a. Contact Person – Ty Barrus (Ty.Barrus@nwc.edu)
 - b. Location – Lower level of Coulter Hall
 - c. Phone – (307) 754-6135
 - d. Website - <http://nwc.edu/services/success.html>
2. Northwest College Tutoring Center
 - a. Contact Person – Jen Schneider (jen.schneider@nwc.edu)
 - b. Location – 2nd Floor of Hinkley Library
 - c. Phone – (307) 754-6137
 - d. Website - <https://nwc.edu/tutoring/>
3. Northwest College Children’s Learning and Care Center
 - a. Contact Person – Autourina Mains (autourina.mains@nwc.edu)
 - b. Location – Children’s Learning and Care Center (beside the Fagerberg Building)
 - c. Phone – (307) 754-6188
 - d. Website - <https://nwc.edu/services/childcare/>
4. Hinkley Library
 - a. Contact Person – Nancy Miller (nancy.miller@nwc.edu)
 - b. Location – Hinkley Library
 - c. Phone – (307) 754-6207
 - d. Website - <http://nwc.edu/library/>
5. Project Succeed/Trio
 - a. Contact Person – Terri Meyer (terri.meyer@nwc.edu)
 - b. Location – Frisby Building 101
 - c. Phone – (307) 754-6224
 - d. Website - <https://nwc.edu/trio/>

6. Net-Tutor (on-line tutoring services)

a. Website - <http://nwc.edu/tutoring/online.html>

IX. Northwest College Emergency Procedures Guide (including evacuation assembly areas)

<https://nwc.edu/security/documents/Emergency%20Response%20Guide%202015.pdf>

DRAFT

Instructions for SaplingPlus:

STUDENT INSTRUCTIONS

- 1) Go to www.saplinglearning.com/login to create an account. If you already have a Macmillan Learning account you can log in with your existing credentials and skip to step 3.
- 2) Create your password and set all three security questions.
- 3) Start typing in your institution to select from the options that appears in the Primary Institution or School name field. If your institution does not appear you can add it by typing in the full name.
- 4) Accept the terms of use and click "Sign Up".
- 5) Check your email for the confirmation link to complete your registration and return to the login page.
- 6) Set your institution by searching using your institution's full name and selecting the appropriate option from the menu that appears.
- 7) Under Enroll in a new course, you should see Courses at [Your College].
- 8) Click to expand this list and see courses arranged by subject. Click on a subject to see the terms that courses are available.
- 9) Click on the term to expand the menu further (note that Semester 1 refers to the first course in a sequence and not necessarily the first term of the school year).
- 10) Once the menus are fully expanded, you'll see a link to a specific course (BIOL 2400 Ecology). If this is indeed the course you'd like to register for, click the link.
- 11) If applicable, to access your ebook click on the image of the cover on the right sidebar of your course site. Create an account or log in with an existing Macmillan Learning eBook account.

Need Help?

Our technical support team can be reached by phone, chat, or by email via the Student Support Community. To contact support please open a service request by filling out the webform:
<https://macmillan.force.com/macmillanlearning/s/>