

ECOLOGY & EVOLUTION

Bio 270 SEM II 2016-2017

Instructor: Dr. Jamee Hubbard

E-mail: jhubbard@uwsp.edu

Office: TNR 339

Office Phone: 715-346-2498

Office Hours: Mon & Wed 12-1, Thu 10-11, or by appointment

Required Supplies

Rental Textbooks:

Herron, J. C., and S. Freeman. *Evolutionary Analysis*. Fifth Edition

Cain, M. L., W. D. Bowman, and S. D. Hacker. *Ecology*. Second Edition

Purchase Books:

Hofmann, A. H. *Writing in the Biological Sciences: A Comprehensive Resource for Scientific Communication*, Second Edition

This course introduces students to the fundamental principles of ecology and evolutionary biology. As a Communication in the Major course, oral and written communication skills will be emphasized in both lecture and lab.

Catalogue Course Description:

Ecological processes from populations to biomes; evolution and its processes involved in generating biodiversity and integration of molecular, cellular, organismal, ecological and evolutionary processes. Scientific method writing emphasized in lab.

Ecology and Evolution Learning Outcomes:

By the end of Biol 270, you should be able to:

1. Describe and apply knowledge of evolutionary processes to investigate patterns in nature, including levels of diversity within and among species.
2. Describe and apply knowledge of ecological processes that operate at the level of organisms, populations, communities, and ecosystems.
3. Demonstrate the ability to write and orally present biological information that is articulate and grammatically correct with properly organized and documented data and ideas.
4. Critique your own and others' writing and oral communication skills by providing and applying useful feedback.

Exams and Assignments, Points, Dates (tentative^a) (Projected Minimum Points = 840 +/-)

Daily lecture quizzes	70 (+/-)	Approximately 40 X 2 points, 10% of quizzes will be extra credit
Lecture Exams	400 (+/-)	4 exams X 100+/- points each
Final Lecture Exam	125 (+/-)	
Lab Participation	55	11 labs X 5 points each
Peer-reviewed summary drafts, & group summary	30	2 summaries X 10 points each
Individual Final Summary	50	2 final summaries X 25 points each
PowerPoint Presentations	50	2 PowerPoints X 25 ea. (1 presented, both hard copy)
Paper Discussions	60	4 discuss. X 15 points each (5 pts. Prep., 10 pts. participation)

- **Quizzes and Assignments can be added at any time at my discretion.**

- **Final exam is comprehensive;** study your old exams; exam will include any new material covered since last exam. If you have an A- or higher in lecture *and* lab after all points for the course are recorded, you will be notified that you may opt out of the final exam. *In order to opt out of the exam, you must also attend lecture and lab through the last day of class.*

Grades: A=93-100%, A-=90- 92%, B+=87-89%, B=83-86%, B-=80-82%, C+=77-79%, C=73-76%, C-=70-72%, D+=67-69%, D=60-66%, F=< 60%

Class Conduct: I expect good conduct and a high level of respect in the classroom, between you and your peers and between you and me.

Please turn off your cell phones, refrain from texting and casual talking during lectures, lab introductions and discussion, and exams and quizzes. I, and some of your classmates, have ADHD and anxiety, and these distractions take away from the positive learning experience I would like to have in class. Furthermore, having this respectful experience and attitude in class prepares you for the expectations of your future employers. Good conduct does make a difference in determining your final grade.

Attendance:

- Attendance for lecture and lab is mandatory, and there is a strong positive correlation between the amount of time a student spends in class and his or her final grade.
- If a quiz, exam, or other assignment is missed and you are not involved in a university-sponsored event, *I will evaluate whether or not to excuse the absence* and how to administer the assignment on a one-on-one basis. Daily quizzes, pop quizzes, and any extra credit assignments cannot be made up unless you have an official university excuse and/or I am notified ahead of time of your absence and we work out a plan, based on the reason for absence from the work. If you are truly sick and need to stay home, that is fine, but please let me know as soon as possible about your absence.
- If you are late to class, daily lecture and lab quizzes and exams must be turned in at the same time as all other students. No extra time will be given to complete the quiz or exam.
- See UWSP 22.03 in the university handbook regarding absences due to religious beliefs (and no, hunting is not considered a religious belief.)

I do not give extra credit assignments on an individual basis, so

please do not ask: I would rather you use any extra time you have toward your best effort on the assigned material. I will work with you in any way I can to help you get a better grade *on future course work assigned to the entire class.*

Students with Disabilities: Students with disabilities are welcome and encouraged in this class. You should contact the Office of Disability Services during the first two weeks of the semester if you wish to request specific accommodations. Also, if you have a medical problem (for example, serious migraine headaches that require medical attention, or depression) that may cause you to miss class or exams often, please contact the Disability and Assistive Technology Center, (609 ALB) so your professors can be notified appropriately of accommodations that should be made for you.

Student Academic Standards and Disciplinary Procedures: You can find out about the academic standards and your responsibilities as a UWSP community member at <https://www.uwsp.edu/stuaffairs/Documents/RightsRespons/SRR-2010/rightsChap14.pdf>. Any form of cheating, plagiarism, or any misrepresentation of your work, or if you are knowingly assisting someone in cheating, this will result in a grade of zero (0) points for that test, quiz, or other assignment.

Help & Resources

If you are feeling lost or overwhelmed...

1. Make an appointment with me

Come see me during my office hours or make an appointment. **I'm always happy to see my students and always willing to help in any way that I can!**

2. Go to the TLC

Head over to the Tutoring and Learning Center (TLC) in room 018 Albertson Hall (ALB) for drop-in tutoring or to sign up for one-o-one tutoring.

3. Head to the writing lab

All UWSP students can receive FREE writing, reading, and study strategies consultations at the Tutoring-Learning Center. To sign up for a tutorial, just stop in at the TLC in the basement of the University Library, ALB 018, or call 715-346-3568. Regular hours are: Monday - Thursday: 9:00 am - 8:00 pm, Friday: 9:00 am - 1:00 pm

4. See a counselor

The counseling center is located on the 3rd floor of Delzell hall, and they can assist you with test anxiety, time management, and struggles with social issues.

5. Talk to Disability Services

If you have, or think you may have, a disability that is preventing you from making it to class, studying, or being successful on exams, contact the Disability and Assistive Technology Center in 609 ALB.

TENTATIVE Overview of Lecture and Lab Topics. Subject to change at my discretion.

	Date	Lect #	Lecture topic	Reading	Tuesday Lab topic
M	1/23	1	Why study Ecology and Evolution?	Herron 1	<ul style="list-style-type: none"> • Introduction to the course & student survey • What types of papers are there? • What is in a research paper? • <i>Begin to read the two prairie chicken papers due for discussion and summary week 4</i>
W	1/25	2	Patterns of Evolution	Herron 2	
F	1/27	2	Patterns of Evolution	Herron 2	
M	1/30	3	Evolution by Natural Selection	Herron 3	<ul style="list-style-type: none"> • Hoffmann Homework (TBA) Review, typed hard copy • Follow-up on: What types of papers are there? What is in a research paper? • Summarizing a Research Paper into a short Popular Article (target: non-biologist)
W	2/1	3	Evolution by Natural Selection	Herron 3	
F	2/3	4	Reading and Estimating Evolutionary Trees	Herron 4	
M	2/6	5	Variation Among Individuals	Herron 5	<ul style="list-style-type: none"> • Follow-up on Evolutionary Trees and Variation among Individuals • Begin search for evolution paper for independent summary article & poster
W	2/8	6	Mendelian Genetics in Populations I: Selection, Mutation, and Hardy-Weinberg Equilibrium	Herron 6	
F	2/10		Exam I Review		
M	2/13	6	Mendelian Genetics in Populations I: Selection, Mutation, and Hardy-Weinberg Equilibrium	Herron 6	<ul style="list-style-type: none"> • Lecture Exam I • Open Lab After exam: Hardy-Weinberg Equation Problems, article search help and/or approval
W	2/15	7	Mendelian Genetics in Populations II: Migration, Drift, Non-random Mating	Herron 7	
F	2/17		Paper Discussion: <i>Genetic Evaluation of a Demographic Bottleneck in the Greater Prairie Chicken, AND Loss of Genetic Variation in Greater Prairie Chickens Following a Population Bottleneck in Wisconsin, U.S.A.</i>		
M	2/20	8	Evolution and Multiple Loci: Quantitative Genetics	Herron 9	<ul style="list-style-type: none"> • Group Summary of <i>Loss of Genetic Variation in Greater Prairie Chickens Following a Population Bottleneck in Wisconsin, U.S.A.</i> • Evolution article approval
W	2/22	9	Why Sex? And Sexual Selection	Herron 11, 8.3	
F	2/24		Aging and Life History Characters	Herron 13	
M	2/27	10	Aging and Life History Characters	Herron 13	<ul style="list-style-type: none"> • Evolution article summary and poster assistance
W	3/1	10	Evolution & Human Health	Herron 14	
F	3/3	11	Mechanisms of Speciation	Herron 16	
M	3/6	12	Mechanisms of Speciation	Herron 16	<ul style="list-style-type: none"> • Peer review of Evolution article and poster, bring 4 hard copies
W	3/8	12	Fossil Record & Life History	Herron 17, 18	
F	3/10		Exam Review		

M	3/13	13	Fossil Record & Life History	Herron 17, 18	<ul style="list-style-type: none"> Lecture Exam II Evolution article summary due to Dr. Hubbard on D2L Dropbox by 5pm. Begin search for ecology paper for summary & poster
W	3/15	13	Introduction to Ecology & The Physical Environment (Abiotic Environment)	Cain 2	
F	3/17		Paper Discussion: <i>Reinforcement Drives Rapid Allopatric Speciation</i>		
M	3/20		Spring Break		
W	3/22		Spring Break		
F	3/24		Spring Break		
M	3/27	14	The Physical Environment, Abiotic influences on Biomes of the World	Cain 2, 3	<ul style="list-style-type: none"> Evolution Poster Presentation Continue searching for ecology paper, to be approved by next week
W	3/29	15	Species Tolerance to Environmental Extremes & Phenotypic Plasticity in Changing Environments	Cain 4-7	
F	3/31	15	Species Tolerance to Environmental Extremes & Phenotypic Plasticity in Changing Environments	Cain 4-7	
M	4/3	15	Species Tolerance to Environmental Extremes & Phenotypic Plasticity in Changing Environments	Cain 4-7	<ul style="list-style-type: none"> Evolution Poster Presentations Approval of Ecology Paper
W	4/5	16	How Age Structure, Survivorship, & Fecundity Impact Population Growth	Cain 9	
F	4/7		Exam Review		
M	4/10	17	Population Growth Models, Population Regulation	Cain 9	<ul style="list-style-type: none"> Exam III Assistance with Ecology paper summary & poster
W	4/12	18	Community Interactions, Competition, Predation, & Parasitism	Cain 11-14	
F	4/14	18	Community Interactions, Competition, Predation, & Parasitism	Cain 11-14	
M	4/17	18	Community Interactions, Competition, Predation, & Parasitism	Cain 11-14	<ul style="list-style-type: none"> Peer review of ecology paper summary & poster, bring 4 hard copies
W	4/19	19	Community Structure & Succession	Cain 15-16	
F	4/21		Paper Discussion: <i>The Evolution of Human Skin Coloration</i> (both an evolution & ecology focus)		
M	4/24	19	Community Structure & Succession	Cain 15-16	<ul style="list-style-type: none"> Ecology paper summary & poster due to Dr. Hubbard on D2L by TBA (possibly cemetery demography lab)
W	4/26	20	Energy Fixation & Energy & Nutrient flow and Balance Within & Between Ecosystems	Cain 19-20	
F	4/28	20	Energy Fixation, flow, & Balance Within & Between Ecosystems	Cain 19-20	
M	5/1	21	Habitat Loss & Introduced Species	Cain 22	<ul style="list-style-type: none"> Observation of Community Ecology & Energy & Nutrient Flow in Schmeeckle Reserve TBA (possibly cemetery demography lab follow-up)
W	5/3	22	Habitat Loss & Introduced Species, Climate Change & Anthropological Impacts	Cain 22, 24	
F	5/5		Exam Review		
M	5/8	23	Climate Change & Anthropological Impacts	Cain 24	<ul style="list-style-type: none"> Exam IV
W	5/10		Paper Discussion: The Impact of Climate Change on the World's Marine Ecosystems		
F	5/12		Exam Review, catch-up, wrap up of lecture or lab materials and assignments		
Th	5/18		FINAL EXAM, 10:15-12:15, TNR 460		