ECOLOGY & EVOLUTION

BIOL 270 Spring 2018

Instructor: Dr. Sarah A. Orlofske Office: TNR 446

E-mail: Sarah.Orlofske@uwsp.edu Office Phone: 715-346-4249

Office Hours: Mon 11:30AM – 1PM, Wed 9:30-11AM, Friday 10-11AM, or by appointment
Class Meeting: Lecture TNR 460 M&W 8-9:15, Lab TNR 461 F 8-10AM

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 (tentative[a]) (Projected Minimum Points = 725 +/-)

Weekly lecture quizzes	60 (+/-)	Approximately 12 X 5 points
Lecture Exams	225 (+/-)	3 exams X 75 +/- points each
Final Lecture Exam[b]	100 (+/-)	
Practice Assignments	15	3 X 5, ungraded – completion only
Scientific Paper Discussions	60	3 X 20 (10 points each online and in class discussion)
Laboratory Assignments	90	6 X 15
Annotated Bibliography	30	
Outline	20	
First Draft + Peer Review	25	
Final Draft	50	
Oral Presentation	50	

[a]**Quizzes and Assignments can be added at any time at my discretion.**

[b]**Final exam is comprehensive**; study your old exams; exam will include any new material covered since last exam. The lowest exam in the course will be dropped from final grade calculation. In order to drop the final exam you *must attend lecture and lab through the last day of class.*

I will return graded material WITHIN 2 WEEKS from the assignment due date. If you believe I've made a mistake in grading your work, you must bring your concern to my attention within one week of receiving the graded assignment. I will not reconsider the assigned grade after one week.

A VERY IMPORTANT NOTE ON GRADING: Although I will provide feedback on student writing, students are responsible for applying that feedback to improve their writing throughout the course. More often than not, instructor's feedback quality reflects the student's assignment quality. In addition, feedback will *not* highlight every single error. *This is done purposefully*. Students that learn to find and identify their own weaknesses improve their writing much more successfully than those that do not. A typical error may be pointed out only once either through feedback given to the entire class as a group or individually, and the student will be responsible for working on or fixing that issue in different parts of the same paper *and* in subsequent assignments.

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*.

Grade Distribution: 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.)

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 will 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.

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.

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

Week	Day	Lecture Topic	Reading	Friday Lab Topic (*Assignments for the following week in Italics*; **Items Due in Bold**)
		Theme: Integration of Ecology and Evolution - Variation		
1	M 1/22 W 1/24	Course Intro; Pattern of Evolution Evolution and Ecology	HF[a]: Ch 2 BHC[b]: Ch 6	Lab Introduction: Goals and expectations *Read Losos et al. 2013*
2	M 1/29 W 1/31	Individual Variation Environmental Variation: Temp, Water and Energy	HF: Ch 5 BHC: Ch 4, 5	**Paper Discussion: Losos et al. 2013** Introduction to Scientific Communication *Complete Understanding Evolution Tutorial & Video*
3	M 2/5 W 2/7	Adaptations - form and Function Life History	HF: Ch 10 BHC: Ch 7 & HF: 13	Begin Research Projects: Evolutionary Trees and Phylogenetics *Read Dunne et al. 2015*
4	M 2/12 W 2/14	Behavior Exam 1	BHC: Ch 8 & HF: 11	**Paper Discussion: Dunn et al. 2015** Annotated Bibliographies & Outlines *Complete Molecular Data Analysis Tutorial*
		Theme: Microevolution - Population Dynamics and Genetics		
5	M 2/19 W 2/21	Pop Distribution and Abundance Pop Demography and Regulation	BHC: Ch 9 BHC: Ch 10	Research Project: Molecular Sequence Data and Alignment *H-W Practice Problems*
6	M 2/26 W 2/28	Mendelian Genetics in Populations 1: Selection and Mutation Mendelian Genetics in Populations 2: Migration, Drift and Non-random mating	HF: Ch 6 HF: Ch 7	**H-W Practice Problems DUE** Conservation Genetic Case Study

7	M 3/5 W 3/7	Population Dynamics Exam 2	BHC: Ch 11	**Conservation Genetics Lab DUE** **Sequence Data for Project DUE** Research Project: Phylogenetic Tree Construction and Inference
	Theme: Species Interactions, Natural Selection and Speciation			
8	M 3/12 W 3/14	Evolution by Natural Selection Predation	HF: Ch 3 BHC: Ch 12	**Annotated Bibliography Assignment DUE** Beach Mouse Lab *Watch Natural Selection Video*
9	M 3/19 W 3/21	Parasitism Evolution and Human Health	BHC: Ch 13 HF: Ch 1	Natural Selection Lab
10	M 3/26 W 3/28	Spring Break! Spring Break!		Spring Break!
11	M 4/2 W 4/4	Evolution and Human Health Competition	HF: Ch 14 BHC: Ch 14	**Outlines for Research Project DUE** Disease Modeling Lab - **DUE at the end of class** *Read Dunn et al. 2008*
12	M 4/9 W 4/11	Mutualism & Commensalism Mechanisms of Speciation	BHC: Ch 15 HF: 16	**Paper Discussion: Dunn et al. 2008** Writing Paper Drafts, Peer-Review and Oral Presentations
13	M 4/16 W 4/18	Species Diversity in Communities Exam 3	BHC: Ch 16, 19	Lizard Evolution Lab - **DUE at the end of class**
	Theme: Macroevolution and Current Applications			
14	M 4/23 W 4/25	Evolutionary Trees Origins of Life	HF: Ch 4 HF: Ch 17	**First Paper Drafts DUE: In class Peer-review**
15	M 4/30 W 5/2	Evolution and Fossil Record Biogeography	HF: Ch 18 BHC: Ch 18	Island Biogeography Lab - **DUE at the end of class**
16	M 5/7 W 5/9	Conservation Genetics Landscape Ecology	BHC: Ch 23 BHC: Ch 24	**Research Project Oral Presentations**
17	T 5/15	Final Exam 2:45-4:45		Final Papers DUE @ Midnight

[a]Herron, J. C., and S. Freeman. *Evolutionary Analysis*. Fifth Edition
[b]Cain, M. L., W. D. Bowman, and S. D. Hacker. Ecology. Second Edition