

BIOL 270-01 Principles of Evolution

Spring 2022

Lecture M W F @ 2:00 – 2:50 PM in CBB 261

Lab Th @ 9:00 – 10:50 AM in TNR 461

Instructor:	Dr. Daniel L. Graf	Course web	Canvas site at
Office:	CBB 344	site:	https://www.uwsp.edu/canvas/ .
Phone:	715.346.2159 (Biology Office)	Office Hours:	Tu 10 AM-noon
email:	dgraf@uwsp.edu (include "BIOL 270" in subject)		and by appointment

General Course Description. “Evolutionary processes involved in generating biodiversity and integration of molecular, cellular, organismal, ecological and evolutionary processes. Scientific method and communication emphasized in lab.” This course is required for Biology majors.

Objectives. The objectives of BIOL 270 are 1) to introduce students to the foundational concepts of evolution, and 2) to provide experience writing and speaking on biological subjects.

Learning Outcomes:

You will be able to:

1. Generalize how micro- and macro-evolutionary processes are responsible for historical and contemporary patterns of biological diversity within and among species.
2. Demonstrate the ability to write and orally present biological information that is articulate and grammatically correct with properly organized and documented data and ideas.
3. Critique your own and others’ writing and oral communication skills by providing and applying useful feedback.

Required Materials. *Evolutionary Analysis* 5th edition by Herron & Freeman (2013, Pearson, ISBN: 978-0321616678). This book is available for rent at the campus bookstore.

Optional Materials. *Writing in the Biological Sciences: A Comprehensive Resource for Scientific Communication* 4th edition by Hoffman (2021, Oxford University Press, ISBN: 978-0197543580) is available in the bookstore for purchase. It is not required.

Recommended Materials. A dedicated BIOL 270 notebook.

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Exams, Assignments, and Grading. There will be a total of 424 possible points to earn this semester through lecture quizzes, discussions, labs, writing/presentation assignments, three midterm exams, and a comprehensive final exam. *Be aware that as campus circumstances change, so might assignment schedules and grading expectations.*

	points	
midterm exams	100	24%
final exam	100	24%
lecture quizzes	54	13%
lecture discussions	25	6%
lab exercises	30	7%
communication	115	27%
TOTAL	424	100%

Lecture Quizzes. — 2-point quizzes will take place at the beginning of each lecture period. Questions will be short-answer format and emphasize recent lecture material. We are expecting 36 quizzes, but your nine lowest quizzes (i.e., 3 weeks' worth) will be dropped from the final grade calculation (54 points; 13% of the total points).

Lecture Discussions. — We will occasionally take a break from lecture to discuss articles or book chapters that supplement textbook material. Your participation during each discussion session will be assessed based on a 5-point group exercise. Your lowest discussion score will be dropped.

Lab Exercises. — Lab exercises are worth 5 points each, and your three lowest lab scores will be dropped (30 points; 7%).

Communication Projects. — These include mini-posters, oral presentations, lab reports, and other writing assignments, will make up 27% of your total grade (115 total points). The various communications assignments (including their due dates) are listed in the Lab Schedule and will be described in separate handouts.

Midterm Exams. — Every 4-5 weeks (10 lectures), we will have a 50-point exam that covers the material since the previous exam. There will be three total midterm exams, and your lowest exam score will be dropped (100 points; 24%)

Final Exam. — The cumulative final exam is worth 100 points (24%) and will cover material from the entire course.

Grades will be based upon the following percentages of the course total:

	100-93%	A	92-89%	A-	
88-87%	B+	86-83%	B	82-79%	B-
78-77%	C+	76-73%	C	72-69%	C-
68-67%	D+	66-59%	D	<59%	F

REQUESTS FOR EXTRA POINTS WILL NOT BE HONORED.

Exam and Quiz Rules. The following rules apply to exam periods as well as quizzes.

- If you arrive late for a quiz or exam, you will not be given extra time. When the rest of the class is finished, you will need to be done.
- If you arrive so late for an exam that anyone else has finished and left, you will not be allowed to take the exam at that time. You may be able to take a make-up exam (see attendance policy below). There are no make-up quizzes.
- All exams and quizzes must be completed in black or blue ink or pencil.
- Only necessary testing materials will be allowed in the testing area (e.g., no phones, no notes)
- There may be multiple forms of exams and quizzes.

Laboratory. Lab takes place in a lab room (TNR 461), so all the Biology lab rules apply: no eating or drinking, shoes, required, etc.

Attendance. YOUR COMMITMENT TO YOUR CLASSES IS AMONG THE MOST IMPORTANT THINGS IN YOUR LIFE RIGHT NOW. This is an in-person class, and you are expected to attend all scheduled lecture, lab, and exam sessions except for officially excused reasons (e.g., COVID-19 quarantine, too sick to safely attend class).

If you will miss a class to participate in a university-sanctioned event (e.g., athletics), you must notify the instructor in advance and complete the work, including exams, BEFORE the otherwise-scheduled class or due-date. Absences relating to religious beliefs will be accommodated according to [UWS 22.03](#). In either case, Dr. Graf must be notified within the first three weeks of class regarding the specific dates that you will be absent.

Make-Up Exams. You must make every effort to take exams at the scheduled times. MAKE-UP EXAMS WILL BE ALLOWED IN CASES OF EMERGENCY, FOR WHICH YOU MUST PROVIDE WRITTEN DOCUMENTATION. You must make arrangements with Dr. Graf within 24 hours of the exam to schedule a make-up exam.

- **E•mer•gen•cy** |i'mərjənsē| (noun): *a serious, unexpected, and often dangerous situation requiring immediate action.*
- A good rule of thumb: *If your situation wouldn't cause you to postpone your wedding, then it isn't a good reason to miss a scheduled exam.*

Academic Integrity. Any misrepresentation of your work, including plagiarism, or cheating of any kind will result in a zero (0) for that assignment. Students are encouraged to become familiar with the [UWS/UWSP Student Academic Standards and Disciplinary Procedures](#) governing student academic conduct. Information is available on the Dean of Students web site.

- Copying whole passages written by someone else is plagiarism. Even if you right-click in Word to use the thesaurus and replace some words.
- Cobbling together sentences from various sources and presenting them as your own is plagiarism.
- Quoting passages is not appropriate for this class. Use your own words.

Remember: PROF. GRAF IS NOT AS DUMB AS YOU THINK HE IS.

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Classroom Conduct. Student and instructor behavior should promote an environment favorable to both teaching and learning. It is disruptive to come late to class, read extra-curricular media in class, or use cell phones (and other electronic devices) during class time. Students that choose to disrespect their classmates and their instructor by disrupting lectures or labs will be asked to leave.

As long as [campus policy requires masking](#), EVERYONE in class MUST properly wear a suitable mask. Masking requirements will be strictly enforced.

Disabilities. Students with disabilities are welcome and encouraged in this class. Students with disabilities should contact the [Disability and Assistive Technology Center](#) during the first two weeks of the semester if they wish to request specific accommodations.

BIOL 270-01 Principles of Evolution Lecture and Lab Schedule, Spring 2022

Wk	Date	Day	#	Lecture (MWF 2-2:50 PM CBB 261)	Chapter (pp.)	Lab (Th 9-10:50 AM TNR 461)
1	24-Jan	M	0	Welcome to BIOL 270!		NO LAB
	26-Jan	W	1	Evolutionary Patterns	2.1-2.5 (37-66)	
	28-Jan	F	2	Evolutionary Processes	3.1-3.7 (73-104)	
2	31-Jan	M	3	Tree Thinking	4.1-4.2 (109-123)	Th Tree Thinking
	2-Feb	W	4	Testing Hypotheses with Trees	4.3-4.4 (123-140)	
	4-Feb	F	5	Review of genotypes, phenotypes, & the Central Dogma		
3	7-Feb	M	6	Genetic Variation	5.1-5.5 (147-174)	Th Structure of a Scientific Paper
	9-Feb	W	7	Hardy-Weinberg Equilibrium	6.1 (179-191)	
	11-Feb	F	8	Selection & Mutation	6.2-6.4 (191-224)	
4	14-Feb	M	9	Genetic Drift	7.2-7.3 (240-274)	Th HWE & the Evolutionizer
	16-Feb	W	10	Migration & Non-Random Mating	7.1, 7.4-7.5 (233-239, 275-284)	
	18-Feb	F	D1	Discussion: Natural Variation		
5	21-Feb	M	11	Heritability & Adaptation	9.1-9.6 (329-60)	Th Introduction to Biostatistics
	23-Feb	W	12	Synthesis & Review		
	25-Feb	F	E1	Exam 1 (Lectures 1-12 & Discussion 1)		
6	28-Feb	M	13	Studying Adaptation	10.1-10.6 (369-397)	Th Runaway Selection Simulation
	2-Mar	W	14	Sexual Selection	11.1-11.3 (407-437)	
	4-Mar	F	D2	Discussion: Sexual Selection		
7	7-Mar	M	15	Adaptive Significance of Sex	8.3 (314-324)	Tu Methods & Results Paper due 8-Mar!
	9-Mar	W	16	Evolution of Life History: Life Spans	13.1-13.2 (491-512)	Th Proposal Writing & Data Collection
	11-Mar	F	17	Evolution of Life History: Reproduction	13.3-13.4 (513-522)	
8	14-Mar	M	18	Kin Selection & Social Behavior	12.1-12. (455-471)	Th Independent Selection Research, etc.
	16-Mar	W	19	Evolution of Social Behavior	12.3-12.5 (471-486)	
	18-Mar	F	D3	Discussion: Social Behavior		
21-Mar to 25-Mar SPRING BREAK — NO CLASSES						
9	28-Mar	M	20	Evolution & Human Health	14.1-14.7 (535-574)	Th Selection Group Presentations due in lab F Selection Research Paper due 1-Apr!
	30-Mar	W	21	Synthesis & Review		
	1-Apr	F	E2	Exam 2 (Lectures 13-21, Discussions 2 & 3)		
10	4-Apr	M	22	Species	16.1 (609-615)	Th Review Paper Research
	6-Apr	W	23	Speciation	16.2-16.4 (616-637)	
	8-Apr	F	24	Hybridization & Gene Flow	16.4 (629-637)	
11	11-Apr	M	D4	Discussion: Species & Speciation		Tu Bibliography due 12-Apr!
	13-Apr	W	25	The Origin(s) of Life	17.1-17.4 (645-683)	Th Reading the Evolution Literature
	15-Apr	F	26	The Fossil Record & Geological Time	18.1-18.2 (691-706)	
12	18-Apr	M	27	Radiation & Extinction	18.3-18.6 (707-730)	Tu Article Summary due 19-Apr!
	20-Apr	W	28	Evolution & Development	19.1-19.5 (735-765)	Th Independent Review Paper Research
	22-Apr	F	D5	Discussion: Extinction		
13	25-Apr	M	29	Human Evolutionary History	20.1-20.6 (769-807)	Th Molecular Phylogeny Reconstruction
	27-Apr	W	30	Synthesis & Review		
	29-Apr	F	E3	Exam 3 (Lectures 22-30, Discussions 4 & 5)		
14	2-May	M	31	Movie, Expelled (Part I)		Tu Phylogeny Abstract due Tu 3-May!
	4-May	W	32	Movie, Expelled (Part II)		Th Peer Evaluation of Review Paper Drafts
	6-May	F	D6	Discussion: Intelligent Design/Creationism		Complete draft due in lab!
15	9-May	M	33	Review of Microevolution		Th Review Paper Presentations due in lab! F Final Review Paper due 13-May!
	11-May	W	34	Review of Macoevolution		
	13-May	F	35	Synthesis & Review		
16	19-May	Th	FNL	Comprehensive Final Exam 12:30-2:30 PM		