Course Syllabus – Fall 2025
BIOL 1214 – Life II: Evolution & Ecology
Lecture: Bolin Hall, Room 221
Lab: Bolin Hall, Room 207

Contact Information

Instructor: Joel G. Brant, PhD
Office: Bolin Hall 224A
Office hours:

- Mondays, Wednesdays, & Fridays: 9:00-11:00
- Tuesdays & Thursdays: 8:30-9:30

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Course Description

The second in a three-course sequence designed for students majoring in the natural sciences. An introduction to the principles and mechanisms of evolution and ecology. The history, evidence, patterns, and mechanisms of evolution as a unifying theme of biology, including the role of genetic recombination. Multiple levels of biological interactions within and among species and their environments will be explored.

The lecture portion of this course will refer regularly to the Hillis et al. textbook. Reading assignments for each lecture topic are provided below to help you familiarize yourself with the material. I expect you to have read the assigned chapters before class and be prepared to discuss the topic during class. Exams will cover material from both lecture and the textbook.

Course Objectives

- Students will possess an introductory level understanding of fundamental biological principles of evolution & ecology.
- Students will understand and be able to use the Scientific Method.
- Students will possess the ability to use common laboratory equipment & make biological measurements.
- Students will possess an introductory level understanding of the fundamental biological principles including the diversity of life, the principles of heredity, evolution, & the interactions between individuals/populations/species.
- Students will possess the ability to critically assess the validity of current scientific articles and popular scientific issues.

Textbook & Instructional Materials

Hillis, D. M., C. H. Heller, S. D. Hacker, D. W. Hall, M. J. Laskowski, L. A. O'Connell, & D. E. Sadava. 2020. *Life: the Science of Biology*. 12th Edition. Sinauer Associates/Macmillan, Sunderland, MA. (ISBN13 = 978-1319498535)

Carroll, Sean B. 2019. *The Story of Life*. W.W. Norton Company, New York, NY. (ISBN13 = 978-80393631562)

Course Policies

Absences

Attendance of both lecture and lab are essential for successful completion of this course. Attendance will be taken regularly and failure to attend will have consequences. Absences due to participation in college-sponsored co-curricular events or college-recognized religious observances are considered excused absences provided appropriate procedures are followed. The student must notify the instructor at the earliest possible time before the absence and will be responsible for the work and material we cover in class. A student with excessive absences may be dropped from a course by the instructor.

Make-up Work

If a student misses an exam due to a university approved absence or due to an unforeseen health or family emergency, they may make arrangements with the instructor to take a make-up exam. You are responsible for providing evidence to substantiate the reason for any absence as soon as possible. Missed exams will be recorded as a score of zero unless written documentation is received and authenticated. Missed exams must be made-up within a week of the exam date. There will be no make-ups for missed quizzes.

Desire-to-Learn (D2L)

For this course D2L will generally be used as a document repository (lecture notes, lab notes, and recorded lectures), though some assignments will be administered via this website. You can log into D2L through the MSU Homepage (or https://d2l.msutexas.edu/d2l/home). If you experience difficulties, please use links to technical help found on the D2L site.

Grade Determination

The final grade for this course will be determined by considering both your lecture grade and your lab grade. The lecture grade will comprise 75% of the final grade for the course and will consist 100 points from weekly quizzes, 100 points from short written assignments, four 100-point lecture exams, and a 100-point final exam. The lecture exams will not be comprehensive and cover material from both the reading and lecture since the previous exam. The Final Exam will be comprehensive covering material from the entire course. All exams will consist of multiple-choice questions. A total of 11 10-point quizzes will be given during the semester and will cover material from the preceding week.

The lab grade will comprise 25% of the final grade for the course and consist of 150 points from lab reports, 50 points from quizzes, a 25-point oral presentation, and 25 points for participation in labs.

Table 1: Grade determination based on 1000 points: lecture (750 points) + lab (250 points)

Grade	Points
A	≥ 900
B	800 to 899
C	700 to 799
D	600 to 699
F	< 600

Rules of Conduct

Students in this course will conduct themselves in a respectful and appropriate manner. Disorderly conduct, as defined in the student handbook, will not be tolerated. The instructor may dismiss students from lecture and lab sections due to instances of significant disorderly conduct (especially disruptive, discriminatory, or threatening behaviors). Return to class will be prohibited prior to meeting with the instructor and Biology Department Chair to discuss the incident. A second instance of dismissal will

result in permanent removal from the course and an automatic assignment of an "F" grade for lecture and lab. In cases of severe disorderly conduct (usually involving campus security) the student will immediately be removed from the course and assigned an "F" grade, regardless of the number of previous instances.

Please turn off any cell phones or other electronic communication devices (i.e. pagers or instant messaging devices) unless prior permission has been obtained by the instructor. Laptop computers and voice recorders may be used as note taking aids, however individuals who surf the web or play games during class will lose this privilege. Any use of electronic devices during an exam will be taken as a form of cheating and dealt with accordingly (see below).

Use of Artificial Intelligence

Generative artificial intelligence can be an effective aid for studying and the writing process. However, graded assignments are intended to assess the output of the student, not the AI. Students submitting written assignments, data, or other inputs synthesized from artificial intelligence software (ex. ChatGPT, Jasper, Google Bard, etc.) will be given a "0" on assignments and may be failed from the course in accordance with MSU's policies on academic dishonesty and plagiarism.

University Policies

Campus Carry Rules/Policies

Effective August 1, 2016, the Campus Carry law (TX Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit Campus Carry.

Active Shooter Information

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during demanding situations. For more information, visit Safety / Emergency Procedures. Students are encouraged to watch the video entitled "*Run. Hide. Fight.*" which may be electronically accessed via the University police department's webpage: *"Run. Hide. Fight."*

Smoking/Tobacco Policy

University policy prohibits the use of tobacco products in any building owned or operated by Midwestern State University. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State University are informed that strictly enforced policies are in place which prohibit the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state, and federal law for any offenses involving illicit drugs on university property or at university-sponsored activities. Please refer to the **2025-2026 Student Handbook** for further information.

Academic Dishonesty

Dishonesty within the academic community is a profoundly serious matter because dishonesty destroys the basic trust necessary for a healthy educational environment. Academic dishonesty is any treatment

or representation of work as if one were fully responsible for it when it is in fact the work of another person. Academic dishonesty includes cheating, plagiarism, theft, or improper manipulation of laboratory or research data or theft of services. A substantiated case of academic dishonesty may result in disciplinary action, including a failing grade on the project, a failing grade in the course, removal from the course, and/or expulsion from Midwestern State University. Please reference the **2025-2026 Student Handbook** for additional information.

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through **Disability Support Services**, located in the **Clark Student Center, Room 168, (940) 397-4140**. Current documentation of disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to Disability Support Services.

Grade Appeal Process

To appeal a grade, consult the Midwestern State University 2023-2024 Student Handbook and visit the following checklists: the Grade Appeal Checklist provides the timeline for appealing from the instructor to the next in line (dean of the college). The Academic Honesty Checklist describes the timeline for appealing from the instructor to the next in line (chair of department) and who must be notified of academic honesty infractions.

Tentative Lecture Schedule

Week	Date	Topic	Chapter
1	8/26 – 8/28	Introduction & Review of Life I	
2	9/2 – 9/4	Review of Genetics	12-19
3	9/9 – 9/11	Process of Evolution	20
4	**9/16**	**EXAM #1**	
4	9/18	Phylogenetics	21
5	9/23 – 9/25	Speciation	22
6	9/30 – 10/2	Evolution of Genes & Genomes	23
7	10/7	History of Life on Earth	24
7	**10/9**	**EXAM #2**	
8	10/14 – 10/16	The Physical Environment	53
9	10/21 – 10/23	Populations	54
10	10/28 – 10/30	Predator/Prey	55
	11/4	**EXAM #3**	
11	11/6	Competition	55
12	11/11 – 11/13	Community Ecology	56
13	11/18 – 11/20	Ecosystems	57
14	**11/25**	**EXAM #4**	--
15	12/2 – 12/4	Climate Change	58
16	**12/9**	**FINAL EXAM (8:00 am)**	--

Tentative Lab Schedule

Week	Date	Topic	Lab Report Due
1	8/26	**No Lab**	--
2	9/2	Lab Introduction: Safety/Academic Integrity	Signed Forms
3	9/9	Lab 1: General Statistics	
4	9/16	Lab 2: Genotype & Phenotype	Lab 1 (first draft)
5	9/23	Lab 3: Genetic Drift Simulation	Lab 2
6	9/30	Lab 4: Diversity Within & Among Species	Lab 3
7	10/7	Lab 5: Cladistics	Lab 4
8	10/14	Lab 6: Evolutionary Arms Race	Lab 5
9	10/21	Lab 7: Quadrat Sampling Methods (Indoor)	Lab 6
10	10/28	Lab 7: Quadrat Sampling Methods (Outdoor)	
11	11/4	Lab 8: Population Sampling	Lab 7
12	11/11	Lab 9: Shannon-Weiner Diversity Index	Lab 8 – Lab 1 Final Draft
13	11/18	Lab 10: The Red Queen Hypothesis	Lab 9
14	11/25	**Oral Presentations**	--
15	12/2	**Lab Final Exam**	--