

Organic Evolution

Section 2, Fall 2024: 3 credits

Dept. of Biology, College of Arts and Sciences, University of Nebraska at Kearney

| | | | |
|----------------------|------------------------------------|----------------|--|
| Instructor: | Dr. Jacob C. Cooper | Email: | cooperj2@unk.edu |
| Office hours: | M, W, F: 08:00–09:00 & 14:30–15:30 | Office: | BHS 321 |

Last updated: 23rd August 2024

Lecture meeting times and location: Asynchronous lectures each week; online.

Lecture instructor contact information:

Dr. Jacob C. Cooper, Assistant Professor, located in BHS 321.

Office hours are on M, W, F from 08:00–09:00 and from 14:30–15:30.

Contact: (308)-865-8912, cooperj2@unk.edu, and through [Canvas](#).

During the week, I check email messages at least twice a day and will usually respond within 24 hours. In special circumstances, responses may be delayed by 72 hours, but if I anticipate significant delays I will try to email you and notify you that my full response will be late. Please note that I work odd hours, so you may receive responses from me early in the morning or late in the evening depending on what is happening during the week. I would ask that you also do your best to check email regularly and respond promptly to emails, though I do not expect you to work odd hours like I do.

Course website: Course information is available via [Canvas](#). Please check this site regularly. Mobile apps for Canvas are available for iOS and Android.

Catalog description: This course is an overview of the basic concepts in evolutionary biology with a focus on pattern and process through the use of examples. Molecular and organismal data will be examined. Offered online, every Fall and Spring.

Prerequisites: None.

Instructional method: This class is entirely online and comprised of lectures, readings, and assignments. Most weeks you are required to watch 1–2 lectures per week, complete the assigned readings, participate in discussions (via discussion board posts), and complete a quiz.

Student learning outcomes: By the end of this course, students will be able to:

1. Recognize the pattern of biological evolution
2. Differentiate between evolutionary mechanisms (natural selection, random genetic drift, mutation, and migration)
3. Appreciate different approaches (e.g., organismal, molecular) to studying evolutionary biology
4. Develop critical thinking skills by identifying assumptions of alternative hypotheses and evaluating evidence
5. Demonstrate the ability to form a coherent evidence-based argument and communicate this in writing

6. Locate and appropriately use examples from the primary literature

Course requirements: Students are required to complete all textbook readings prior to the class date in which they are assigned.

Computer requirements: You are required to have frequent access to a computer with internet connectivity. Lectures will require internet access for viewing and I expect you to check the Canvas site several times per week (and preferably daily). Please refer to the [UNK Online Student Resources](#) website to make sure you meet the minimum hardware, software, and internet connection requirements required by all UNK Online students. Portions of this exam may utilize Respondus Lockdown Browser.

Attendance policy:

Lecture attendance: No formal attendance will be taken as lectures are asynchronous. Participation and attendance will be gauged through weekly grades via regular discussion posts and quizzes. If you are unable to complete your work for a given week for an excusable reason, **please notify me so I can work with you to make up the material.** I understand that life happens, and I'm happy to work with students who notify me in advance of classes that will be missed and of unforeseen circumstances.

Missed assignments or other assessments and make-up policy: Any and all assessments in this class MUST be submitted or completed by the deadlines described in Canvas. If we have not discussed missing discussion or an assignment/quiz/exam, you will receive a zero on any relevant assessments. **Please note that computer emergencies may not be considered an excuse. You should plan to have an alternative means of accessing or submitting electronic information and course work, especially during exam weeks.**

Class conduct: Firstly and foremostly, this class should be a respectful environment for us to have discussion about material and to encourage learning about the course materials. Dr. Cooper will do their best to be respectful of you, and Dr. Cooper expects you to reciprocate. Students are expected to be respectful and considerate of one another and their instructor.

What's expected of you in this course:

1. Watch weekly lectures
2. Complete weekly readings and take notes
3. Take weekly quizzes
4. Participate in weekly discussions
5. Take midterm and final exams

Technology: This class requires the use of a computer and the internet for websites such as [Canvas](#) and for accessing the textbook. All electronic devices (cell phone, iPod, laptop computer, tablet, etc.) should only be used for approved class interaction or taking notes. **The use of any electronic device, including foreign language translators, on exams and quizzes is prohibited.**

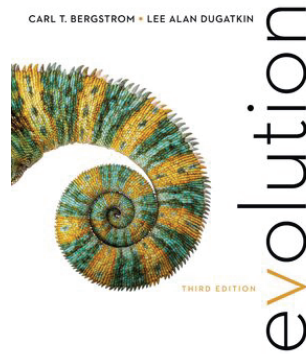


Figure 1: Bergstrom, Carl T. & Dugatkin, Lee Alan. **Evolution**. Paperback (3 Edition) ISBN: 9781324033714

Required materials: There is one required textbook for this course (Figure 1).

Technical support:

LoperTECH Service Desk: Phone: 308-865-8363; Email: support@nebraska.edu

If you are having problems or technical issues with [Canvas](#), please contact ITS. Note that [Canvas](#) is most compatible with [Firefox](#) or [Chrome](#). If you are using Edge or Safari and having issues, please try one of the aforementioned browsers before reaching out to tech support.

Mode of instruction: This course is entirely online and comprised of lectures, readings, and assignments. Most weeks you are required to watch 1-2 lectures, complete the assigned readings, participate in discussions (via discussion board posts) and complete a quiz.

Lectures: Lectures are designed to provide in-depth presentation of the studied concepts. They will be posted on Canvas by 00:00 (12:00 a.m.) Central time each Monday. (*Note* that this will change because of daylight savings time!) The length of these is variable depending on the specific topic.

Weekly assignments: Most weeks, along with viewing (and working on) the lecture(s), you will need to complete reading assignments, participate to graded discussion boards and complete a quiz.

Readings: The schedule at the end of this document specifies assigned readings from the textbook. Weekly reading assignments will also be announced on [Canvas](#), but I advise you to be proactive and complete them before viewing the lecture and entering the discussion board. *Note:* Lectures will cover only a subset of the assigned book chapter. However, I strongly advise you to read the assigned book chapter in its entirety. **The weekly quizzes and discussion board prompts may refer to material not explicitly covered in lecture, but covered in the readings.**

Weekly discussions: Discussions are a significant portion of this course. Each week, I will post a question on a new Discussion Board at the same time as the week's lecture. With the exception of personal introductions (see below), discussions will be done in smaller groups of 6-7 students (randomized periodically), allowing for more in-depth exchanges and decreased reading loads. Discussion boards will be open from Monday 00:00 (12:00 a.m.) to Sunday 23:59 (11:59 p.m.) Central

time. You will be required to respond to the question, as well as following up with your classmates' answers. You may interact with posts at any point, but to be considered for grading, interactions must be complete by the deadline. A grading rubric is available on [Canvas](#). Please consult this rubric, it is especially important for you to note the required frequency of posting and reference requirements.

The more thoughtful your comments, the better the quality of discussion will be for the entire group. Comments should be at least a few sentences and demonstrate that you are aware of the discussion that has been taking place. **Responses to classmates must add to the overall discussion** and may consist of comments, questions, or new ideas that have been generated after reading the student's answer (e.g., if you have a question, what piece of evidence prompted the question?). While you can answer (e.g.) "I agree" to someone else's statement (it is useful and fair to encourage good comments), such an answer will typically not be counted as a "valuable" contribution in the week's discussion. When needed, your comments/statements should be supported with information, file attachments or web sites, and should be relevant to the current topic of discussion. References are encouraged but shouldn't be over-utilized (be specific!). Overall, conciseness and clarity are necessary (i.e. page long postings might not be appropriate), both to keep the reading load for the class to a reasonable level and to state your reasoning as precisely and as efficiently as possible.

Finally, I expect you to be *polite, professional, and constructive* for each discussion to make discussions as useful and enjoyable as possible. Remember, we are all here to learn! Please see the schedule near the end of this document for deadlines. Except under extraordinary circumstances, late posts will not be accepted.

Quizzes: Every week, after watching the lecture, you will also be required to complete one (1) short quiz to assess your level of understanding of the week's material. These questions could vary in type (e.g., multiple choice, short answer, etc.) and number (i.e., 5–10 questions on average). Each quiz will be worth 10 points total. The quizzes will be *timed* with 10–30 minutes allowed, but they are *open resource*.

Exams: There will be two exams (week 7/8 and week 16/17; see schedule). There will be two sections, a written portion (100 points) and a multiple choice portion (50 points). Both sections will be timed and Lockdown Browser *may* be required. You are allowed to use your own notes and textbooks on these exams. They will be made available Mondays at 12:00 p.m. (US Central Time) and will be due the following Tuesday at 11:59 p.m. (23:59; US Central Time). Except under extraordinary and justified circumstances, late submissions will **not** be accepted.

Finals week policy: The final exam will be administered in the time period scheduled during finals week in accordance with University policy. More information about UNK's Finals Week Policy can be found in the University Policies portion of the syllabus.

Grading policy: Your grade will be based on the total accumulated points out of the total points available. You are responsible for keeping track of your grades. Due dates for all assignments must be followed.

Below is a *rough* estimated breakdown of the assignments and points for the course. Please note that these points may be subject to change but that those changes will be communicated with you in a timely fashion. Regardless of how many points are earned in any category due to small changes in assignment structure, the category proportions will remain the same, such that quizzes will always account for the same proportion of the final grade. Grades will be corrected and adjusted to the proportions shown below.

| Grade item | Points |
|---|------------|
| Quizzes (13 · 10 points each) | 130 |
| Discussion boards (13 · 10 points each) | 130 |
| Exams (2 · 150 points each) | 300 |
| Total | 560 |

Assigning letter grades at the end of the semester: Grades in this class will be assigned according to the standard UNK scoring system described below. Only by attaining these percentages can you be assured of receiving a desired grade.

| | | |
|-------------|-----------|------------|
| A+: 97–100% | A: 94–96% | A-: 90–93% |
| B+: 87–89% | B: 84–86% | B-: 80–83% |
| C+: 77–79% | C: 74–76% | C-: 70–73% |
| D+: 67–69% | D: 64–66% | D-: 60–63% |
| | F: < 60% | |

Please note: Grades will be rounded to the nearest whole percent. Thus, if your final grade is within 0.5% of the next highest grade, your grade will be rounded up (e.g., an 89.50% will be considered an “A-”). This is the definitive cutoff for rounding grades. There will be NO exceptions to this policy.

Policy on plagiarism and academic dishonesty: Plagiarism is defined as using more than four consecutive words from a source without a citation. You may not use another’s words directly without putting them within quotations. It is also plagiarism when either an author’s ideas or organization of concepts are used without giving a citation. Students caught plagiarizing will receive a failing grade for the assignment and will face additional punishments up to expulsion as outlined by University policy. I invite you to visit the online resource <http://www.plagiarism.org/> to make sure you understand what plagiarism is and how to avoid it. If you have any questions, please feel free to come talk to me!

In a similar vein, copying another student’s work and claiming it as your own is considered a similar form of academic dishonesty. In this class, I encourage students to work together on homeworks, however your exams should be done on your own as an assessment of *your* knowledge. However, if you collaborate with someone, your submissions should reflect your own efforts and not the efforts of a classmate or classmates. Your learning and grade are your own and should be earned by you, even when collaborating with others.

Statement on the use of Artificial Intelligence (AI): Academic honesty and integrity are of vital importance at UNK, and are core to [UNK’s Academic Integrity Policy](#). **The use of AI technology**

in this class is expressly forbidden unless permission is obtained from Dr. Cooper. If AI is used, its use must be declared just as a different source would be cited. Using AI for any assignments, discussion posts, exams, etc. will be considered cheating in this course. If a student is found to have used AI to substantially assist with their assignment, quiz, or exam, the following penalties will be enacted:

1. First offence: zero on any question(s) or portion(s) where AI was found to be used. A warning will be issued.
2. Second offence: zero on the entire assignment where AI was used.
3. Third offense: student will receive an F in the course.

When it comes to these courses, **the most important thing in this class is that students learn the material being presented.** If you are unsure of what a question is asking or what to do in a certain situation, email Dr. Cooper. If you are participating in a discussion and you are unsure of the prompt or of concepts being presented, you *may* receive full credit for changing your initial post to be a query of your fellow students *if* you demonstrate evidence of trying to clarify the material and your post is both coherent and of comparable length to other students' initial posts.

Appropriate references: For the purposes of this course, an appropriate reference is defined as a peer-reviewed journal article or book chapter, assigned reading material (including your textbook) and lecture material. Note that in most cases, lecture material will be derived from a clearly cited peer-reviewed publication or your textbook; in these cases the original source should be cited. Please see additional material available on [Canvas](#) for more guidelines.

The learning commons: Learning Commons services are available in person and on Zoom for all online and on-campus UNK students. To request an appointment for subject tutoring, writing tutoring, success coaching, or foreign language support, please submit an [Appointment Request Form on the Learning Commons website](#), call the Learning Commons Welcome Desk at 308-865-8905, or stop by the Welcome Desk in person on the second floor of the Calvin T. Ryan Library. To submit a draft of your writing for a tutor to review, go to the [Writing Center webpage](#).

Acknowledgment and Copyright: This syllabus is based on information made available by Dr. Mellisa Wuellner, Dr. Dawn Simon, Dr. Letty Reichart, Dr. Joe Dolence, Dr. Jacob C. Cooper, and the UNK department of biology. This syllabus may not be reproduced or distributed without the express permission of Dr. Jacob C. Cooper.

Please see university specific policies on the following page.

University policies

Attendance Policy: Your instructor may have indicated on their syllabus an attendance policy specific to their class. If so, that is the policy with which you must comply. If no other policy is stated, the University-wide attendance policy will apply.

[Undergraduate Student Attendance Policy](#)
[Graduate Student Attendance Policy](#)

Academic Honesty Policy: Academic honesty is essential to the existence and integrity of an institution of higher education. The responsibility for maintaining that integrity is shared by all members of the academic community. To further serve this end, the University of Nebraska at Kearney has a policy relating to academic integrity.

[Undergraduate Academic Integrity Policy](#)
[Graduate Academic Integrity Policy](#)

Finals Week Policy: Finals at UNK will be scheduled Monday through Thursday during the last week of the semester.

1. Final examinations for full semester classes are to be given at the regularly scheduled examination time only as published on the Office of the University Registrar website policy ([Final Exam Schedule](#)).
2. During the week prior to Finals Week, the only examinations that may be given are laboratory practical examinations, make-up or repeat examinations, and self-paced examinations.
3. If a student is scheduled to take three or more final exams in one day during the finals week, the student has the following options take all final exams as scheduled; take the exam during the allotted day and time that is open for make-up examination or resolution of conflict, which is Thursday at 3:30 pm; or take the exam during Finals Week at an agreed-upon time worked out between the student and the instructor. Students seeking accommodation are responsible for notifying their instructor at least one week before the final exam period and providing documentation proving eligibility for accommodation.
4. Projects, papers, performances, and speeches scheduled for completion during the last week of classes must have been assigned in writing by the end of the eighth week of the semester. This refers to the project and its scope, not the topic.
5. Complaints about failure to follow the above outlined procedures should be made immediately to the faculty member. If the faculty member is not responsive to the student's concerns, the appropriate department chair should be notified. If necessary, appeals can be filed with the dean of the college offering the course.
6. Any course not having an examination during Finals Week will meet under the direction of its instructor during the scheduled Finals Week time period for a continuation of regular class work.
7. The dean may grant exceptions to this policy on the basis of good and sufficient reasons submitted to the dean in writing. Faculty should include a Finals Week Policy statement

indicating that “The final exam will be administered in the time period scheduled during finals week in accordance with University policy ([Final Exam Schedule](#)).”

Mental Wellness: The UNK Counseling Center provides mental health services to support the academic success of students. The Counseling Center provides a full range of short-term professional mental health services.

Getting help is a smart and courageous thing to do. Contact the UNK Counseling Center at [308-865-8248](tel:308-865-8248) or visit their website for more information:
https://www.unk.edu/offices/counseling_healthcare/counseling_care/index.php

Military and Veteran Services: Military and Veteran Services assist veterans, service members, and their dependents with education benefits and academic and supporting resources. They serve as a liaison between students and the Veterans Administration and branches of the military. Contact the UNK Military and Veteran Services office at [308-865-8677](tel:308-865-8677) or visit their website for more information: https://www.unk.edu/offices/financial_aid/veterans_services/index.php

Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault: Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), to take appropriate action to prevent a recurrence of such sexual misconduct, and to protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes they may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:

- **Local Domestic Violence, Sexual Assault Advocacy Agency** [308-237-2599](tel:308-237-2599)
- **Campus Police (or Security)** [308-865-8911](tel:308-865-8911)
- **Title IX Coordinator** [308-865-8655](tel:308-865-8655)

Retaliation against the student making the report, whether by students or University employees, will not be tolerated.

Students with Disabilities: It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services for a disability, students must be registered with the UNK Disabilities Services for Students (DSS) office, 175 Memorial Student Affairs Building, [308-865-8214](tel:308-865-8214) or by email unkdso@unk.edu

Students Who are Pregnant: It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students who are pregnant. To receive accommodation services due to pregnancy, students must contact the Student Health office at [308-865-8218](tel:308-865-8218). The following links provide information for students and faculty regarding pregnancy rights.

<https://thepregnantscholar.org/title-ix-basics/>
<https://nwlc.org/resource/faq-pregnant-and-parenting-college-graduate-students-rights/>

UNK Policy for Inclusive Excellence: At UNK, inclusive excellence is rooted in our values.

- **People matter.** The diversity of our students, faculty and staff is essential to our educational mission. Our backgrounds, identities, and lived experiences enrich our learning community.

- **The learning environment matters.** We are committed to an inclusive and equitable student-centered learning environment. In our classrooms we exchange ideas and opinions with respect

for one another.

- **Learning matters.** Preparing students to value critical thinking, mutual respect, and open communication is essential for lifelong learning. We are building a community that protects and fosters intellectual inquiry and embraces diverse perspectives.

The following link provides information for students regarding UNK's commitment to inclusive excellence and procedures for improving classroom experience with inclusion and belonging:
<https://www.unk.edu/about/dei/inclusive-excellence-in-the-classroom.php>.

Please see calendar on following pages.

Tentative course calendar

Please note that this schedule may be subject to change. All times are based on those in [Kearney, Nebraska](#). Lectures will be posted by 00:00 (12:00 a.m.) on Mondays. Quizzes and discussion boards open at the same time (Monday, 00:00 / 12:00 a.m.) and are due the following Sunday at 23:59 (11:59 p.m.). Exams will be available no later than Monday at 00:00 (12:00 a.m.) and will be due the following Tuesday (eight [8] days later) at 23:59 (11:59 p.m.). Please pay attention to **Chapter numbers**. **There will be a quiz and a discussion every week *except* for Exam weeks and Thanksgiving.**

| Week | Date | Topic |
|------|----------------|--|
| 1 | 26th August | Pattern of Evolution (Ch. 1, 2; pp. 45-54) |
| 2 | 2nd September | Evolution by natural selection (Ch. 3) |
| 3 | 9th September | Evolutionary trees (Ch. 4-5) |
| 4 | 16th September | Variation (Ch. 6) |
| 5 | 23rd September | Population genetics, selection, & mutation (Ch. 7-7.4) |
| 6 | 30th September | Migration, drift, & non-random mating (Ch. 7.5-7.7, 8-8.2) |
| 7 | 7th October | EXAM 1 (Ch. 1-7) |
| 8 | 14th October | Molecular evolution (Ch. 8.3-8.5) |
| 9 | 21st October | Evolution at multiple loci (Ch. 9-9.2) |
| 10 | 28th October | Major transitions (Ch. 12) |
| 11 | 4th November | Sex & sexual selection (Ch. 16) |
| 12 | 11th November | Sociality (Ch. 17) |
| 13 | 18th November | Speciation (Ch. 14) |
| 14 | 25th November | Thanksgiving Break (No material or assns.) |
| 15 | 2nd December | Human evolution (Ch. 19) |

| Week | Date | Topic |
|------|---------------|---|
| 16 | 9th December | Final Exam Assigned |
| 17 | 16th December | Final Exam Due: 10th December at 23:49 (11:00 p.m.) |

Note: This schedule is subject to change pending events during the semester.