

Instructors:

Dr. Davorka Gulisija (pre-fall break), dgulisija@unm.edu, Drop-in hours: by appointment via dgulisija@unm.edu (please aim to start scheduling 48 hours before you wish to meet), Castetter Hall, room 3566.

Dr. Chris Witt (post-fall break), cwitt@unm.edu, Drop-in hours: Tuesdays, 10:45–11:45 AM, Post-lecture (Regener Hall) to 156 Castetter Hall.

Lab Coordinator:

Moses Michelsohn mmichelsohn@unm.edu Drop-in hours: by appointment (scheduling link on Canvas)

TAs:

Shweta Agarwal (lecture TA), shwetaagarwal@unm.edu, Drop-in hours: Fridays 10-12pm via MS Teams: [Join the meeting now](#), Meeting ID: 220 122 350 072 Passcode: 6Zs6AV (please email me any questions on Thursdays).

Katerina Johnson (lab TA), kejohnson907@unm.edu, Drop-in hours: Fridays 10-12pm via Zoom Meeting ID: 829 6264 0696 Passcode:MOOSE

Chris McDaniels (lab TA), cmcdaniels1@unm.edu, Drop-in hours: Wednesdays 1-3 pm in Marron Hall 207 (Update: Wednesday December 4 my hours will be 10am-11:45am in-person)

Nawsheen T. Promy (lab TA), npromy@unm.edu, Drop-in hours: Thursdays 11-1pm at the Bio greenhouse

Shannon Rollins (lab TA), srollins1@unm.edu, Drop-in hours: Mondays and Wednesdays 5pm to 6pm over Zoom: <https://unm.zoom.us/j/96819789703> , zoom password is 583007.

Nicholas Vinciguerra (lab TA), nvinciguerra@unm.edu, Drop-in hours: Tuesdays 11am-1pm via Zoom: 976 9482 3333 Passcode: 334140

PLFs:

Lily Carman, lcarmen5@unm.edu, Drop-in Hours: Wednesdays from 1:00 - 3:30 p.m. in-person, Thursdays 6:00-8:00 p.m. on Zoom. In-person hours are located in the Castetter Basement - “round silver desk area”. Zoom link is: <https://unm.zoom.us/j/91642307247>

Anna Wampler, wampler77@unm.edu, Drop-in Hours: Mondays 3:30-5:30pm in Zimmerman Library basement (if you are having trouble finding me please email!), Tuesdays 11am-12pm and 3:30pm-4:30pm at the tables in Mitchell Hall. Days before tests there will also be a zoom meeting 7:30pm-8:30pm.

Zoom meeting: 921 9079 0295

Password: EVO300C

Link: <https://unm.zoom.us/j/92190790295>

Jonathan Shin, jshin2@unm.edu, Drop-in Zoom Hours on Wednesdays from 1p-3:30p & 7:30p-10:30p. You may need to download the Zoom app on your device. You will need to sign into zoom with your UNM email in order to access the zoom meetings.

YOU MUST BE SIGNED INTO ZOOM THROUGH YOUR UNM.EDU EMAIL. You can sign in to zoom with your UNM account through the SSO sign-in option.

Afternoon Meeting Link (Wednesdays 1:30p-3:30p): <https://unm.zoom.us/j/97578572211>

If link does not work, meeting ID for **Afternoon** session is 975 7857 2211

Evening Meeting Link (Wednesdays 7:30p-10:30p): <https://unm.zoom.us/j/98766827384>

If link does not work, meeting ID for **Evening** session is 987 6682 7384

EXAM 3 REVIEW (Nov 2nd & 4th): 226 703 2330 Passcode: BIOL300C

*This ID and Passcode is only valid for Saturday November 2nd 3:00pm - 6:00pm. and Monday November 4th 8:30pm - 10:30pm.

Saturday will be Zoom only while Monday will be Zoom and In-person at Zimmerman Library Basement room B40.

Class location and time:

Morning lecture, Tu, Th 930-1045, Regener Hall/Physics Auditorium 103

Afternoon lecture, Tu, Th 1400-1515, Mitchell Hall 101

Course Description: Basic principles, and contemporary issues in evolution. 4 credit hours.

Prerequisites:

Complete 1 of the following:

A) Earned a minimum grade of C in each of the following:

BIOL2102 - Principles of Biology: Organisms to Ecosystems (3)

BIOL2103L - Principles of Biology: Introductory Laboratory (1)

BIOL2101 - Principles of Biology: Molecules to Cells (3)

B) Earned a minimum grade of C in each of the following:

BIOL304L - Plant and Animal Form and Function Laboratory (1)

BIOL304 - Plant and Animal Form and Function (3)

Course Goals:

Students will learn principles and concepts in evolution, the foundational process which underlies all of biology. There will be a strong emphasis on understanding the process of science as applied by evolutionary biologists. Your analytical and quantitative abilities will be reinforced and improved, and you will gain skills in critical thinking that will make you a more scientifically-aware participant in society. A "growth mindset" will be of great help to you while learning about evolution. Everyone can do well in this course!

Student Learning Outcomes:

Students who successfully complete this course will be able to:

1. Describe the historical development of the ideas of evolutionary change and evolution by natural selection
2. Synthesize the evidence in support of major evolutionary concepts including microevolution, speciation, macroevolution, and common descent
3. Demonstrate an ability to interpret and build phylogenetic trees, and to use them to answer evolutionary questions
4. Describe basic microevolutionary mechanisms shaping genetic variation in nature
5. Apply the framework and assumptions of Hardy-Weinberg Equilibrium to understand how and why allele frequencies shift within populations
6. Synthesize examples to describe the power and limitations of natural selection in driving adaptation in nature
7. Explain the causes and consequences of the evolution of sex, sexual selection, and inbreeding
8. Understand the evolutionary causes of behavior and other complex traits
9. Describe the landmark events in the history of life and the drivers of speciation and extinction
10. Explain how evolution has shaped and continues to shape human biology, health, culture, and society

Textbook: Futuyma & Kirkpatrick. *Evolution*. 5th Edition. 2023. Oxford University Press.

Course Schedule:

Week	Date	Topic	Reading in textbook
1	8/20	1. What is evolution? History of evolutionary thought I	Sections 1.2-1.6
	8/22	2. History of evolutionary thought II	Sections 1.7-1.8
2	8/27	3. Phylogenetics I: Tree thinking, parsimony	Ch. 2: pp. 29-47
	8/29	4. Phylogenetics II: Other tree building methods, uses for trees	Ch. 2: pp. 29-47
3	9/3	5. Evidence for Evolution	Ch. 2: pp. 47-55
	9/5	Catch up & review	-
4	9/10	Exam 1 – in class	-
	9/12	6. Microevolution: The four evolutionary processes; Hardy-Weinberg equilibrium	Section 3.4 Ch. 4: pp. 84-89
5	9/17	7. Microevolution: Types of natural selection	Ch. 7: pp. 167-174
	9/19	8. Microevolution: Genetic drift and evolution in small populations; gene flow	Ch. 6: pp. 139-147
6	9/24	9. Microevolution: Variation I: Mutation	Sections 4.3-4.5
	9/26	10. Microevolution: Variation II: Chromosome arrangements, gene copy number	Sections 10.1
7	10/1	11. Microevolution: Sex: causes and consequences (incl. sexual selection)	Sections 12.1-12.4; 12.6
	10/3	Catch up & review	-
8	10/8	Exam 2 – in class	-
	10/10	<i>Fall Break, No Class</i>	-
9	10/15	12. Microevolution: Inbreeding and genetic purging	Sections 12.6 (re-read) & 12.7 (8 p)
	10/17	13. Macroevolution: Origin & history of life	Sections 17.1–17.5 (18 p)
10	10/22	14. Macroevolution: Tempo and mode of evolution in the fossil record	Sections 19.2–19.3 (9 p)
	10/24	15. Macroevolution: Predictable evolution	Sections 19.4–19.6 (11 p)
11	10/29	16. Macroevolution: Speciation & extinction on the tree of life	Sections 9.2 & 18.5–18.8 (15 p)
	10/31	Catch up & review	-
12	11/5	Exam 3	-

	11/7	17. Evolution of Life Histories: How reproductive strategies, developmental rates, & senescence evolve	Ch. 14 (18 p)
13	11/12	18. Evolution of behavior: kin selection, sociality, altruism, & cooperation	Sections 13.1–13.4 (15 p)
	11/14	19. Human evolution I: genes, bodies, & geography	Sections 20.1–20.4 (13 p)
14	11/19	20. Human evolution II: culture & agriculture	Sections 20.5–20.7 (10 p)
	11/21	21. Evolution and medicine: SARS-COV-2	Sections 1.1, 15.2 (14 p)
15	11/26	22. Evolution & society	Ch. 21 (23 p)
	11/28	<i>Thanksgiving Break, No Class</i>	-
16	12/3	Catch up & review	-
	12/5	Exam 4	-

Laboratory. A weekly, 3-hour laboratory will provide hands-on experiences in concepts and methods in evolutionary biology.

Resources. Course materials are on the course page in UNM Canvas.

Grading. The course grade will be on a standard grading scale (A+ ³ 99%; A 93-98%; A- 90-92%, B+ 87-89%, B 83-86%, C+ 80-82%, C 73-79%, D+ 70-72%, D 60-69%). Exams will cover all course materials (lectures, videos, readings, etc.) but will not be cumulative (i.e., Exam 4 will cover only the final quarter of the course).

	Points
Exam 1	100
Exam 2	100
Exam 3	100
Exam 4	100
Lecture Participation	100
Laboratory	200
Total points	700

Exam policy. Exams may only be taken in-person and at the indicated time associated with the section you are registered for, unless prior arrangements for a makeup exam have been made

more than one week in advance with the instructors. Exams will not be given remotely (e.g., via UNM Canvas). If you miss an exam, you must provide a documented medical or other legitimate excuse within 48 hours. Examples of excuses that are not acceptable: non-emergency appointments or family obligations, lack of knowledge of the date/time/place of the exam. If the instructors accept a documented excuse, the grade assigned to the missing exam will be the average of the other three exams.

Lecture attendance and participation points. It is required that students (1) attend lectures and (2) participate in Slido questions (answered via phone or a computer – please let the instructor know if you don't have access to either) that will be given during class periods. Information will be presented in lectures that is not in the textbook, and students that attend lecture perform better than those that do not. 14% of your grade is based on attendance and participation as indicated by Slido answers. Slido questions also help us to gauge reading comprehension, understanding, identify concepts that need further explanation, and facilitate student engagement. In the majority of classes, we will ask at least one Slido question. Responses to Slido questions will get you credit for participation; however, *correct* answers will also earn bonus points.

Laboratory Attendance Policies

- **Attendance** is required at all scheduled laboratory sessions.
- **Lateness:** Students are required to arrive on-time to their registered laboratory section. Students who arrive late will not be allowed into their scheduled laboratory session once it has begun.
- **Leaving early:** Students are expected to remain in class for the duration of their scheduled section. Students who choose to leave before they are dismissed by their Graduate Teaching Assistant will receive a zero for the Laboratory Product grade associated with that laboratory session.
- **Missing lab:** Students who miss their registered laboratory section will receive a zero for the Laboratory Product grade associated with that laboratory session. Students cannot attend other sessions during the week to make up for a missed laboratory session.
- **Late work:** All late work in BIOL 300C (Laboratory Products, Research Report assignments, and Course Surveys) will receive a zero. All assignments associated with the laboratory are completed or submitted online through UNM Learn (Canvas) and will not allow student access following their due dates.
- **Drop lowest scores:** The lowest two scores on Laboratory Products are dropped automatically for all students in BIOL 300C. This grading scheme gives students two chances to miss a laboratory session during the semester without serious implications for their course grade (zeros on Laboratory Products dropped as lowest grades). Students who miss lab without excuse do not need to contact their Graduate Teaching Assistant or the Lab Coordinator following a missed laboratory.
- **Excused absences:** Students who miss a laboratory for a potentially excused reason (Medical, Bereavement, Armed Services, UNM Athletics, Traditional Obligation, etc.) must submit an absence report to the Lab Coordinator using the link on UNM Learn (Canvas) in a timely fashion to arrange for an alternative assignment.

Laboratory Grade Policies. Grades for the laboratory portion of BIOL 300C are based on the following:

- **Laboratory Products (LP):** Students are required to complete a laboratory product based on the activities completed during each week's laboratory. Laboratory Products usually consist of a figure and figure caption generated in R-Studio and a short write-up of the activity. Laboratory Products must be submitted on UNM Learn (Canvas) by 11:59pm on the Sunday following each week of laboratory. The lowest two scores (of thirteen total) will be dropped automatically for each student.
- **Research Report (RR):** Students will work throughout the semester to write and revise a research report based on data collected in the laboratory. Individual Research Report assignments will be introduced each week in the laboratory, or online on UNM Learn (Canvas). A final Research Report will be submitted near the end of the semester incorporating many of the components composed and revised by students throughout the semester.
- **Course Surveys (CS):** Students will complete two course survey assignments during the semester – one at the start of the semester and one at the end of the semester. These surveys will be completed on UNM Learn (Canvas). Anonymized results of these surveys will be used by the Department of Biology to evaluate, revise, and improve the curricula of biology courses.

Accommodations. UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. As your instructors, it is our objective to facilitate an inclusive classroom setting, in which students have full access and opportunity to participate. To engage in a confidential conversation about the process for requesting reasonable accommodations for this class and/or program, please contact Accessibility Resource Center at arcsrvs@unm.edu or by phone at 505-277-3506.

Credit-hour statement. This is a four credit-hour course. Class meets for two 75-minute sessions of direct instruction (plus a 3-hour lab) for sixteen weeks during the Spring 2024 semester. Please plan for a minimum of eight hours of out-of-class work (or homework, study, assignment completion, and class preparation) each week.

Responsible Learning and Academic Honesty. “Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests or assignments; claiming credit for work not done or done by others; hindering the academic work of others...” (UNM Catalog). Students who cheat will fail the course and may be subject to disciplinary action by the University. We all have shared responsibility for ensuring that learning occurs safely, honestly, and equitably. Submitting material as your own work that has been generated on a website, in a publication, by an artificial intelligence algorithm (AI), by another person, or by breaking the rules of an assignment constitutes academic dishonesty. It is a student code of conduct violation that can lead to a disciplinary procedure. Please ask us for help in finding the resources you need to be successful in this course. We can help you use study resources responsibly and effectively. Off-campus paper writing services, problem-checkers and services, websites, and AIs can produce incorrect or misleading results. Learning the course material depends on completing and submitting your own work. UNM preserves and protects the integrity of the academic community through

multiple policies including policies on student grievances (Faculty Handbook D175 and D176), academic dishonesty (FH D100), and respectful campus (FH CO9). These are in the Student Pathfinder (<https://pathfinder.unm.edu>) and the Faculty Handbook (<https://handbook.unm.edu>).

Title IX Gender Discrimination Statement. Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please access the resources available to you on campus. Please note that, because UNM faculty, TAs, and GAs are considered "responsible employees" any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member, TA, or GA must be reported by that faculty member, TA, or GA to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct and reporting, please see: <https://policy.unm.edu/university-policies/2000/2740.html>.

Citizenship and/or Immigration Status. All students are welcome in this class regardless of citizenship, residency, or immigration status. Your professor will respect your privacy if you choose to disclose your status. As for all students in the class, family emergency-related absences from lecture are normally excused with reasonable notice to the professor, as noted in the attendance guidelines above. UNM as an institution has made a core commitment to the success of all our students, including members of our undocumented community. The Administration's welcome is found on our website: <http://undocumented.unm.edu/>

Land Acknowledgement. Founded in 1889, the University of New Mexico sits on the traditional homelands of the Pueblo of Sandia. The original peoples of New Mexico Pueblo, Navajo, and Apache since time immemorial, have deep connections to the land and have made significant contributions to the broader community statewide. We honor the land itself and those who remain stewards of this land throughout the generations and also acknowledge our committed relationship to Indigenous peoples. We gratefully recognize our history.

Connecting to Campus and Finding Support. UNM has many resources and centers to help you thrive, including [opportunities to get involved](#), [mental health resources](#), [academic support including tutoring](#), [resource centers](#) for people like you, free food at [Lobo Food Pantry](#), and [jobs on campus](#). Your academic advisor(s), staff at the [resource centers](#) and [Dean of Students](#), and your instructors can help you find the right opportunities for you.