

SYLLABUS

HONORS INTRODUCTION TO EVOLUTION BZ220-220



INSTRUCTOR: DR. JENNIFER NEUWALD

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DROP-IN office hours: Tuesdays and Thursdays, 11:15am-12pm (*additional times by appointment*).

COURSE DESCRIPTION

The honors course of Introduction to Evolution provides an overview of key concepts in evolutionary biology including the history of evolutionary thought, microevolutionary processes (how populations change over time), macroevolutionary patterns (the history and connectivity of life), and the application of evolution to topics of socioscientific interest (e.g., conservation, medicine). Honors students will engage in deeper evaluation, discussion, and application of these topics through significant active learning time during each class and reflective exercises for critical analysis and extended thinking.

COURSE LEARNING OBJECTIVES

This course will provide you with the opportunity to excel in core content and scientific competencies. I am here to facilitate your academic understanding of evolutionary biology; you are here to take charge of your academic journey and implement this knowledge. Through these collaborative efforts, students will be able to:

- compare and contrast mechanisms of evolution,
- describe how the mechanisms of evolution result in patterns of speciation and biodiversity,
- generate and evaluate evolutionary hypotheses (including phylogenies),
- explain the development of evolutionary concepts.

Students will demonstrate their competency of these objectives through the:

- development of critical thinking skills for (1) reading, analyzing, and interpreting data & research and (2) articulating and defending one's positions through writing, in-class discussions, and oral presentations.
- participation in class discussions while respecting the views of others and recognizing how the diversity of perspectives based on experienced identities can enhance our learning and understanding.

Please refer to our course Canvas site for a more detailed list of core competencies expected of students by the end of the semester.

REQUIRED MATERIALS:

1. *Evolutionary Analysis* (5th edition) by Freeman & Herron (2014) – Available on Canvas with [DayOne Access](#).
2. Calculator capable of exponent and square-root functions
3. Mobile device to participate in iClickers and other on-line collaborative activities.
 - Please follow these [iClicker instructions](#) for registering for or updating iClicker Cloud **ASAP**.

HONORS PROGRAM RECOMMEND TEXTS (OPTIONAL):

1. Hacker, D. *A Pocket Style Manual*. Boston: Bedford/St. Martin's.
2. Sprague, J. and Stuart, D. *The Speaker's Handbook*. Belmont, CA: Wadsworth/Thomson Learning.

CANVAS PLATFORM

Students are expected to regularly use Canvas to **access materials needed to prepare for class, complete assignments, receive announcements and updates, check grades, and more**. Please check the modules (i) by 6pm the night before class for any updates to material for the next day, as well as (ii) 48 hours after class for any follow-up material.

COURSE SCHEDULE: TOPICS, READINGS, AND OTHER MATERIALS

This course meets every Tuesday and Thursday from 10:00am-11:15am in Biology 134.

The lecture topics below are targeted estimates. This course is dynamic. Therefore, there may be times we extend our learning on a given topic and truncate other topics. **In addition, some class periods require you to watch videos or review material to prepare for class.** Please watch our Canvas site for details. The *asterisk* in “assignments” denotes a targeted date.

LECTURE TOPICS & ACTIVITIES	READINGS & RESOURCES	ASSIGNMENTS
WEEK 1: JAN 16 – 21		
<ul style="list-style-type: none"> Introduction to the Course Understanding Evolution Evidence for Evolution 	<ul style="list-style-type: none"> Ch.3, sec. 3.7 Ch.2, sec. 2.1-2.5 “Understanding Evolution” 	<ul style="list-style-type: none"> <input type="checkbox"/> Review Syllabus & Canvas site <input type="checkbox"/> Homework 1 opens (<i>due next Fri.</i>)
WEEK 2: JAN 22 – 28		
<ul style="list-style-type: none"> History of Evolutionary Thought Impact of Mendelian Genetics on Evolution 	<ul style="list-style-type: none"> Ch. 3, sec.3.6 Ch.9, sec. 9.1 	<ul style="list-style-type: none"> <input type="checkbox"/> Homework 2 opens (<i>due next Fri.</i>)
WEEK 3: JAN 29 – FEB 4		
<ul style="list-style-type: none"> Mutation Population Genetics: Hardy-Weinberg (I) ALA-1: PopGen Problem Solving (Th) 	<ul style="list-style-type: none"> Ch.5, sec. 5.1-5.5 Ch.6, sec. 6.1 	<ul style="list-style-type: none"> <input type="checkbox"/> ALA-1 Pre-activity due (<i>Wed*</i>) <input type="checkbox"/> Homework 3 opens (<i>due next Fri.</i>)
WEEK 4: FEB 5 – 11		
<ul style="list-style-type: none"> Population Genetics: Hardy-Weinberg (II) ALA-1: PopGen Problem Solving (Tu) Natural Selection (I) 	<ul style="list-style-type: none"> Ch.6, sec. 6.1 Ch. 3, sec. 3.1-3.5 Ch.9, sec. 9.3-9.6 	<ul style="list-style-type: none"> <input type="checkbox"/> ALA-1 Post-activity due (<i>Sun*</i>) <input type="checkbox"/> Homework 4 opens (<i>due next Fri.</i>)
WEEK 5: FEB 12 – 18		
<ul style="list-style-type: none"> Natural Selection (II) Mutation-Selection Balance Gene Flow 	<ul style="list-style-type: none"> Ch.6, sec. 6.3-6.4 	<ul style="list-style-type: none"> <input type="checkbox"/> Homework 5 opens (<i>due next WED.</i>)
WEEK 6: FEB 19 – 25		
<ul style="list-style-type: none"> ALA-2: Natural Selection Experiment (Tu) Genetic Drift 	<ul style="list-style-type: none"> Ch. 7, sec. 7.1-7.2 	<ul style="list-style-type: none"> <input type="checkbox"/> ALA-2 Pre-activity due (<i>Mon*</i>) <input type="checkbox"/> ALA-2 Post-activity due (<i>Sun*</i>) <input type="checkbox"/> EXAM 1 on Canvas (Thursday 12-11:59pm) <input type="checkbox"/> Homework 6 opens (<i>due next Fri.</i>)
WEEK 7: FEB 26 – MAR 3		
<ul style="list-style-type: none"> Non-random Mating & Inbreeding Evolution of Social Behavior 	<ul style="list-style-type: none"> Ch.7, sec. 7.4-7.5 Ch. 12, sec. 12.1-12.5 	<ul style="list-style-type: none"> <input type="checkbox"/> Self-Reflection (I) due (<i>Sun</i>) <input type="checkbox"/> Homework 7 opens (<i>due next Fri.</i>)
WEEK 8: MAR 4 – 10		
<ul style="list-style-type: none"> Life History Evolution Evolution of Sex 	<ul style="list-style-type: none"> Ch.13, sec. 13.1-13.5 Ch.8, sec. 8.3 	<ul style="list-style-type: none"> <input type="checkbox"/> Homework 8 opens (<i>due next Fri.</i>)
*** SPRING BREAK (MAR 11 – 17) ***		
WEEK 9: MAR 18 – 24		
<ul style="list-style-type: none"> Studying Adaptation Estimating Evolutionary Trees (I) ALA-3: Tree Thinking (Th) 	<ul style="list-style-type: none"> Ch.10, sec. 10.1-10.6 Ch.4, sec. 4.1-4.4 	<ul style="list-style-type: none"> <input type="checkbox"/> ALA-3 Pre-activity due (<i>Wed*</i>) <input type="checkbox"/> Homework 9 opens (<i>due next Fri.</i>)
WEEK 10: MAR 25 – 31		
<ul style="list-style-type: none"> Estimating Evolutionary Trees (II) ALA-3: Tree Thinking (Tu, Th) 	<ul style="list-style-type: none"> Ch.4, sec. 4.1-4.4 	<ul style="list-style-type: none"> <input type="checkbox"/> ALA-3 Post-activity due (<i>Sun*</i>) <input type="checkbox"/> Homework 10 opens (<i>due next WED</i>)
WEEK 11: APR 1 – 7		

▪ Sexual Selection	▪ Ch.11, sec. 11.1-11.4	<input type="checkbox"/> EXAM 2 on Canvas (Thursday 12-11:59pm) <input type="checkbox"/> Homework 11 opens <i>(due next Fri.)</i>
WEEK 12: APR 8 – 14		
▪ Mechanisms of Speciation <i>ALA-4: Speciation & Literature (Th)</i>	▪ Ch.16, sec. 16.1-16.4	<input type="checkbox"/> ALA-4 Pre-activity due (Mon*) <input type="checkbox"/> ALA-4 Post-activity due (Sun*) <input type="checkbox"/> Self-evaluation (II) (Sun) <input type="checkbox"/> Homework 12 opens <i>(due next Fri.)</i>
WEEK 13: APR 15 – 21		
▪ Origins of Life & Precambrian Evolution ▪ The Fossil Record	▪ Ch.17, sec. 17.1-17.2 ▪ Ch.18, sec., 18.1-18.5	<input type="checkbox"/> Homework 13 opens <i>(due next Fri.)</i>
WEEK 14: APR 22 – 28		
▪ Human Evolution	▪ Ch.20, sec. 20.1-20.4	<input type="checkbox"/> Homework 14 opens <i>(due next Fri.)</i>
WEEK 15: APR 29 – MAY 5		
▪ Evolution and Medicine ▪ Evolutionary Processes and Conservation <i>ALA-5: Evolutionary Applications (Tu,Th) *if time permits</i>	▪ Ch. 14, sec. 14.1-14.7	<input type="checkbox"/> ALA-5 Pre-activity due (Mon*) <input type="checkbox"/> ALA-5 Post-activity due (Sun*) <input type="checkbox"/> Self-evaluation (III) (Sun) <input type="checkbox"/> No homework this week
WEEK 16: MAY 6 – 10		
▪ FINAL EXAM – Thursday, May 9 (on Canvas, <i>not</i> in-person) ▪ Open on Canvas from 8am-11:59pm; You choose the best 2-hour time slot that fits your needs to complete the exam. ▪ Registrar scheduled time = 9:45-11:40am.		

ASSIGNMENTS

CLASS PREPARATION, PARTICIPATION, AND ENGAGEMENT

All students are expected to attend class and engage in class discussions and activities. To do this effectively, **students should prepare in advance by referencing material posted on Canvas** (posted by 6pm the night before). Students will participate in discussions, work through problems, evaluate scenarios, and more. Assessment is based on a combination of opportunities, including iClicker performance, demonstrated engagement, preparedness, etc. Unexcused absences receive a zero (0) for that week. Requests for excused absences are approved at the sole discretion of the professor.

Grading: Students can earn up to 3 points per class *(see rubric at the end of the syllabus or on Canvas)*.

APPLIED LEARNING ACTIVITIES (ALAs)

“Applied Learning Activities” (abbreviated ALA) are hands-on extended learning opportunities that will allow student to both engage more meaningfully with the content, as well as practice discipline-specific skills and higher order thinking. The **ALA Companion document** outlines the specific details and logistics of these activities. Below is a brief overview.

- ALAs are planned for every 2-3 weeks throughout the semester. They are designed to align with course content, so the target dates presented may shift depending on the pace of the course. Any changes will be communicated.
- ALA Overview pages outline specific instructions for each activity. These can be found under the appropriate Canvas module. Students should read through these pages thoroughly before beginning their assignment.
- Preparation: student will review material posted ahead of time to help them prepare for the activity.
- Pre-Activity Assignment: includes question prompts, reflections, etc. Due by 11:59pm the evening before class. This fulfills a portion of the writing components of the course. (5pts)
- In-Class Activity: students will work in small groups as they are guided through an exercise designed to enhance their understanding of a key concept in evolutionary biology. This fulfills a portion of the dialogue, presentation, communication, and collaboration portion of the course. (5pts)
- Post-Activity Assignment: includes question prompts, synthesis writing, making connections, etc.; this is also where students submit their self- and peer- evaluations for the activity (see below). Due by 11:59pm on Sunday following the completion of our in-class activity. This fulfills a portion of the writing components of the course. (5pts)

Grading: Students can earn up to 15 points for all components of the Applied Learning Activities. The written portions will be evaluated based on completion, demonstrated thoughtfulness, and critical thinking. The dialogue, presentation, and collaboration portions will be evaluated based preparation, participation, completion, and ability to engage classmates in a discussion., including defending findings and positions in a clear, professional, and respectful manner. (See rubric in the ALA Details document).

PEER- AND SELF- REVIEW

Students will self-assess and peer-evaluate performance in Applied Learning Activities. These will be based on a qualitative scale of Unacceptable through Exceeds Expectations. These will be reported in the post-activity synthesis assignment.

Grading: These evaluations will be graded as part of the post-activity synthesis assignment and are graded based on completion and thoughtfulness.

Students will complete three self-reflections on their preparation, participation, and engagement in the course to help ensure consistent performance and identify areas that may need improvement. Students should use this opportunity to connect with the professor if they find they are struggling.

Grading: Students can earn up to 5 points for each self-reflection.

HOMEWORK (FORMATIVES)

Homework assignments are designed to help students practice with the material prior to demonstrating mastery during the exams. There are 14 homework assignments which are open-book, open-note Canvas “quizzes”. The format of homework is generally multiple-choice, matching, true-false, and short answer. All homework will open on Friday evenings of that week. Most of these will be due the following Friday before midnight (11:59pm). However, in order to provide students feedback prior to taking the exams during the 6th and 11th weeks of class, the previous week’s homework will be due by **Wednesday** at 11:59pm. Students are encouraged to work in groups to enhance understanding. Students may also come to office hours with questions.

Grading: Students can earn up to 10 points per homework assignment.

EXAMS (SUMMATIVES)

There are 2 midterm exams and a final exam. Exams cover concepts and learning objectives from lecture and in-class activities. Exams will be a combination of evaluative multiple choice and short-answer and are taken remotely on Canvas.

In order to provide students with the opportunity to demonstrate their mastery in an environment and at a time that is most comfortable to them, all exams occur outside of normal class time. Students may use course materials (notes, textbook, papers referenced in class), but may not use outside resources (e.g. websites, classmates, etc.). As Honors Students, and CSU Rams, I have high expectations for the integrity you bring to your academic experience. However, I reserve the right to change the delivery of the exams in the event that trust is violated.

Details for each exam are shown below and covered more extensively on the “Exam Expectations” page on Canvas.

	Date	Material Covered	Exam Window	Duration
Midterm Exam 1	Th., Feb. 22	Module 1-5	12pm-11:59pm	75min
Midterm Exam 2	Th., Apr. 4	Modules 6-10 +15% cumulative	12pm-11:59pm	75min
Final Exam	Th., May 9	Modules 11-15 + 25% cumulative	8am-11:59pm	120min

Grading: Each midterm is worth 100 points. The final exam is worth 125 points.

EVALUATION SYSTEM

Student learning is evaluated based on:

1. Class Preparation, Participation, and Engagement
2. Oral communication (Dialogue and Presentations)
3. Writing assignments (ALAs, Reflections, Exam questions)
4. Peer-Review and Self-Assessment
5. Homework
6. Exams

GRADING – ASSIGNMENT POINT DETAILS

COURSE ASSIGNMENT	FREQUENCY	POINTS PER	TOTAL POINTS
Preparation, Participation, & Engagement (~16% of your grade)			
Preparedness, Engagement, iClickers	30	3	90
Self-Reflections	3	5	15
Applied Learning Activities (~12% of your grade)			
Pre- and Post- Activities	5	10	50
Engagement, Dialogue & Presentation	5	5	25
Homework (~22% of your grade)			
Canvas “Quizzes”	14	10	140
Exams (~50% of your grade)			
Midterm Exams	2	100	200
Final Exam	1	125	125
TOTAL			645

GRADE DISTRIBUTION (PLUS/MINUS GRADES MAY BE USED):

90-100%	A
80-89%	B
70-79%	C
60-69%	D
<60%	F

INCOMPLETE

The grade of “I” is a temporary grade awarded to indicate that *for reasons beyond the student’s control or that the student could not have reasonably anticipated*, they could not complete the requirements for the course. When an instructor assigns an “I,” they shall specify in writing the requirements the student shall fulfill to complete the course. After one year, or at the end of the semester in which the student graduates (whichever comes first), an “incomplete” grade will automatically changed to an “F” grade unless the course has been completed and the grade change submitted. The student must be in good academic standing in the class in order to receive an incomplete. *(CSU Faculty Council policy)*

LATE ASSIGNMENTS POLICY

All assignments must be completed and submitted in class or on Canvas (as applicable) by the due date and time. Late assignments are not accepted *unless* there are genuine extenuating circumstances or other situations where arrangements have been made in advance. Students with these circumstances must contact the professor as soon as possible (no later than 24 hours after the due date) to request extensions or exceptions. Such may be granted at the professor's discretion.

ABSENCE POLICY

Students are expected to attend every class, however, I recognize that sometimes circumstances arise. If you are ill or unable to attend class, you must contact the professor as soon as possible to arrange any make-up work (*permitted at the professor's discretion*). It is your responsibility to contact a classmate to get information discussed in class.

REMOTE CLASS POLICY

In the event class needs to be moved to a remote delivery (vs. in-person), we will use MS Teams. As CSU students, you all have access to this virtual meeting software (through your Office 365 access). If this occurs, or if class needs to be cancelled, an announcement will be posted on Canvas and an email will be sent to each student. Please make sure to have your notifications turned on in the event this is a last-minute emergency. Additionally, there may be times when the university closes due to extenuating circumstances. Please watch Canvas for details on how those situations will be managed.

RESOURCES AND OTHER POLICIES

ACCOMMODATIONS FOR DISABILITIES

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 requires Colorado State University to provide academic adjustments or accommodations for students with documented disabilities. Students seeking academic adjustment or accommodations must self-identify with the Student Disability Center (SDC). You may call for an appointment at: 491-6385 or stop in at the TILT Building, room 121. After meeting with SDC staff, and based on their recommendations, students are encouraged to meet with their professor to discuss their needs, and if applicable, any course-specific accommodation concerns related to their disabilities. Please visit: <https://disabilitycenter.colostate.edu/>.

ACADEMIC AND PROFESSIONAL HONESTY POLICY

This course adheres to the Academic Integrity Policy of the [Colorado State University General Catalog](#) and the Student Conduct Code. Honors students enrolled in this course are held to high standards of integrity. Academic integrity is expected within all assignments for this course. Students will be required to make an honor pledge to complete this course. For more information about academic integrity, please visit: <https://tilt.colostate.edu/integrity>.

It is expected that students will use their own knowledge and skill for assignments unless directed to do otherwise. Incidents of cheating, plagiarism or knowingly providing false or incorrect information are considered serious and will be treated seriously. Consequences of these incidents are at the discretion of the faculty member involved and may consist of confiscation of assignments, an F grade, or reporting to the CSU Student Conduct office. It is expected that students will demonstrate concern for others, respect the confidentiality of information about, the property of and the decisions made by others.

REPORTING STUDENT DISCLOSURES OF INTERPERSONAL VIOLENCE

Your professor, as a member of the CSU faculty, adheres to CSU policies on [Discrimination and Harassment](#), including [Title IX Sexual Harassment](#). As a "Responsible Employee," faculty must report information regarding students who may have experienced any form of sexual harassment, sexual misconduct, relationship violence, stalking, retaliation, or other acts of interpersonal violence. Furthermore, Dr. Neuwald has been trained as a [Campus Security Authority](#), and thus is a university official who is federally mandated under the Clery Act with the responsibility to report crimes to the university that are reported to them. This includes information shared with faculty in person, electronic communications or in class assignments. As "Responsible Employees," faculty may refer students to campus resources (see below), together with informing the Office of

Support and Safety Assessment to help ensure student safety and welfare. **Information regarding interpersonal violence is treated with the greatest degree of confidentiality possible** while also ensuring student and campus safety.

Students may struggle in other realms, too, and so the resources below are provided as a starting point for help:

- If you are **struggling emotionally**, CSU Counseling Services has trained professionals who can help. Contact 970-491-6053 or visit [CSU Counseling](#).
- If you are **concerned about a friend or peer**, tell someone by calling 970-491-1350 to discuss your concerns (*anonymously, if you'd like!*) or visit [Tell Someone](#).
- If you have **food insecurity**, contact the [Rams Against Hunger](#) to gain access to resources, find a food pantry, or talk to someone about getting help.
- If you witness or are a **victim of bias**, visit CSU's [Bias Reporting System](#).
- There are many other resources for students, faculty, and staff of diverse identities who may experience (or fear experiencing) **discrimination, harassment, violence, or other actions that are taken against them**. Students may find additional information at the website for the [Office of Inclusive Excellence](#).
- Any student who may be the **victim of sexual harassment, sexual misconduct, relationship violence, stalking or retaliation** is encouraged to report to CSU through one or more of the following resources:
 - Emergency Response 911
 - Deputy [Title IX Coordinator](#)/Office of Support and Safety Assessment (970) 491-1350
 - Colorado State University Police Department (non-emergency) (970) 491-6425

CSU LAND ACKNOWLEDGEMENT STATEMENT

[Colorado State University acknowledges](#), with respect, that the land we are on today is the traditional and ancestral homelands of the Arapaho, Cheyenne, and Ute Nations and peoples. This was also a site of trade, gathering, and healing for numerous other Native tribes. We recognize the Indigenous peoples as original stewards of this land and all the relatives within it. As these words of acknowledgment are spoken and heard, the ties Nations have to their traditional homelands are renewed and reaffirmed.

CSU is founded as a land-grant institution, and we accept that our mission must encompass access to education and inclusion. And, significantly, that our founding came at a dire cost to Native Nations and peoples whose land this University was built upon. This acknowledgment is the education and inclusion we must practice in recognizing our institutional history, responsibility, and commitment.

EXPECTATIONS FOR AN EFFECTIVE LEARNING ENVIRONMENT

THE PROFESSOR WILL DO HER BEST TO:	<ul style="list-style-type: none"> • Start and end class on time and communicate in a timely manner. • Facilitate your learning of the material to the best of our ability. • Evaluate your learning with assessments of the material covered in class.
YOU AND YOUR CLASSMATES SHOULD DO YOUR BEST TO:	<ul style="list-style-type: none"> • Come to class on time, pay attention, and stay for the whole class. • Make a concerted effort to actively engage with each other to work through problems, discussions, and in-class exercises. • Do not engage in other activities during class (<i>web surfing, social media, playing games, watching movies, etc.</i>). • Adhere to the CSU Code of Conduct and practice strong academic integrity.
WE ALL SHOULD DO OUR BEST TO:	<ul style="list-style-type: none"> • Adhere to the CSU Principles of Community (Inclusion, Integrity, Respect, Service, Social Justice). This includes using preferred pronouns, honoring the value of diverse perspectives and experiences, acting civilly, etc. Essentially, BE KIND.

RUBRIC FOR PREPARATION, PARTICIPATION, & ENGAGEMENT

Preparedness		
(1pt) Fully reviewed material posted on Canvas prior to coming to class	(0.5pt) Partially reviewed or quickly scanned through the material posted on Canvas prior to coming to class.	(0pts) Did not review the material posted on Canvas prior to coming to class.
Participation		
(1pt) Actively participates in discussions; contributions are thoughtful; works collaboratively	(0.5pt) Discussion participation is limited to listening only (or) contributions lack substance (or) dominates the conversation; is not collaborative	(0pts) Does not participate in discussions
Engagement with iClickers		
(1pt) Responds to all iclicker questions; Gets 75% or more correct.	(0.5pts) Skips some iclicker questions (or) gets <75% correct	(0pts) Does not respond to iclicker questions
NOTE: Students with excused absences or university-sanctioned events may communicate with Dr. Neuwald to request make-up options.		