Syllabus
Fall 2023

BZ220 – Introduction to Evolution

Tuesdays & Thursdays, 12:30-1:45pm in Behavioral Sciences A101

Professor:

Dr. Jennifer Neuwald (she/her)

Drop-in Office hours in Biology 342
Tues & Thurs 2-3 PM *(right after class)*

Email:
jennifer.neuwald@colostate.edu

Guidelines for Contacting us

- Please contact us by email (not Canvas).
- Please include "BZ220" in the subject line.
- Office hours are open times when we are here to help you! No appointments are needed, but if those times don't work, please do reach out to schedule a time to meet ☺

Teaching Assistants:

Ms. Hannah Horowitz (she/her)

Drop-in Office hours in Biology 300
Wednesdays 3-4 PM & Fridays 12-1 PM

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Course Goals

Welcome to BZ220! The goals for this course are based on our mutual understanding that your learning is a collaborative effort. We are 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 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,
- evaluate evolutionary hypotheses (e.g., phylogenies),
- explain the development of evolutionary concepts.

Refer to the **"Course Learning Objectives"** section below for detailed core competencies expected of students by the end of the semester.

Course Materials

1. Textbook: *Evolutionary analysis* (5th edition) by Freeman & Herron (2014) **(ebook or hard copy).**
2. iClicker Cloud: **(no purchase necessary)** register for this cloud-based service **before Tues., Aug. 29.** iClicker instructions. You will need to bring a mobile device (such as a laptop) and connect to the "CSU-net" network to participate. *If you need a laptop, you can borrow one from Morgan Library.*
3. Simple Calculator: capable of power, exponent, and square-root functions. ***You may not use phones during exams.***
4. Course Canvas Site: course website for all lecture slides, study guides, homework, discussion materials, grades, videos, & more!

Additional Resources

1. Lecture slides, study guides, problem sets: Navigate to our Canvas site and go to the lecture pages under each week's module. These are typically posted no later than the day before class. *At the bottom of these pages, there are often a few additional resources to help with your understanding of tricky topics from the lecture.*
2. Answer keys:
   - **Homework** answers can be reviewed on Canvas in that assignment once they have been released.
   - **Exam** answers keys will be posted under that week's module on Canvas as well as through Gradescope (in Canvas).
   - **iClicker** questions and answer keys are accessible directly through your iClicker Cloud account.
3. Lecture Recordings: Echo360 recordings will be available on Canvas following each class. This service is intended to help if you miss class or want to review something from class. *This is **not** an alternative for coming to class.*

*If you miss class, you do not need to notify the professor (unless it is an exam day – see below). Instead, please access the content and materials through our Canvas site. There are **no make-up points** for in-class activities & iclickers (see below). We do encourage you to come to office hours to clarify any content or ask questions.*

Grading

Your course grades will be entered regularly into the course Canvas Gradebook. **Please check your Gradebook regularly** to track your progress in the class and identify any issues that may arise. Here is a breakdown of the points and assessments for the course:

Midterm Exams	200 points *(2 exams @ 100pts each)*
Final Exam	125 points
Homework	130 points *(12 @ 10 pts each + 2 @ 5pts each)*
iClickers	65 max points *(~80 possible pts; ~3pts per class)*
Discussions	20 points *(2 discussions & prep assignments @ 10 pts each)*
Independent RTL	30 points *(2 surveys @ 5pts total; 1 Intro @ 5pts; 2 assignments @ 10pts each))*
GRAND TOTAL	**570 points**

Grade Flexibility: To help account for situations beyond your control, all students will have up to **20 points** to apply toward missed assignments or unsatisfactory performance. This provides you more flexibility, compared to dropping assignments.

Grading Scale

A+	…	98 – 100%
A	…	90 – 97.9%
B+	…	88 – 89.9%
B	…	80 – 87.9%
C+	…	78 – 79.9%
C	…	70 – 77.9%
D	…	60 – 69.9%
F	…	≤ 59.9%

Grading Policies

- It is university policy that C-, D+, and D- grades cannot be assigned.
- All biology and zoology majors need at least a C in this course to graduate in their major.
- There is no additional curve! An A- or B- *may* be awarded to students whose final grade is a fraction of a point below the cut-off if they have demonstrated exceptional work in the class, such as actively engaging in class and office hours and having no missed assignments.
- If you discover an error in our grading, please email us within 1 week of grades being posted: (i) for quizzes & discussions, contact the TA; (ii) all other assignments contact the professor. Please describe & justify your concern.
- There is no extra credit. There are no dropped assignments. There are no make-up assignments *(except for exams, see below)*. Instead, you have 20 free points. These points will be **applied at the end of the semester**. Spend your points WISELY!
- You are responsible for regularly checking your grades on Canvas. *Tip: you can check your "what if" grade in Canvas to see what score you need to get the grade you want!*

Assessments

We have multiple ways that you can evaluate, and we can assess, your understanding of evolutionary biology.

Exams

- There are two midterm exams and one final exam that will be administered in-person *(see schedule for details)*.
- Cumulative material will be on Midterm #2 (~15% of that exam) and the Final (~30% of that exam).
- All exams are multiple-choice, true-false, and/or matching.
- Example exams and keys will be provided on Canvas for you to use for practice.
- **The final exam is scheduled for Wednesday, December 13 from 6:20-8:20 PM in Behavioral Sciences A101.**
- Make-up Exams: In the event of an emergency or university-sanctioned activity, students may ***request*** a make-up exam. Decisions about whether a make-up exam is warranted will be made at the sole discretion of the professor, and thus, are not guaranteed. **All make-up exams will be oral or short-answer essays** *(no multiple choice)*.
  - **University-Sanctioned Events**: if you participate in CSU athletics or other activities, please submit your paperwork detailing the excused absences as soon as possible. This will allow me to help support you academically.
  - **Emergencies**: All requests must be made within 24 hours of the regular exam and must provide proof of the emergency. Students are encouraged to work with Student Case Management.

Weekly Homework

- Fourteen homework assignments will be administered weekly on Canvas *(10pts each, except during exam weeks = 5pts)*
- These assignments are designed to help you study and learn. They are open-book, open-note, and open-discussion. You are encouraged to work on these with other students or even come to office hours to get help.
- However, giving or receiving answers without applied effort is a violation of the Student Conduct Code.
- **Homework assignments open on Fridays at 11:59 PM and close the following Friday at 11:59 PM.**
- Late submissions cannot be accepted. Submitting at 12:01AM will be late. Homework grades and keys will be posted before noon on Monday of the following week.
- **There is no make-up homework.** *The 20 free points could be applied to 2 missed homework assignments, for example.*

iClicker Cloud

- To participate in these graded assignments, you must (i) create an account, (2) sync to our course, (3) review how to participate in polls, (4) bring your mobile device class. You can find links to all of these at the CSU student iClicker page.
- **Students must be present in class to participate**.
- There will be ~ 3-4 iClicker questions per lecture. Most questions are worth 1 point: ½ point for responding + ½ point for a correct response. The total possible points should be ~80, however, we will apply a maximum of 65 points toward your final grade. This strategy allows students to make mistakes and learn from those mistakes.
- **There are no make-up iClicker points.** *This is where those 20 free points or the extra questions could be helpful*.
- Please contact iClicker Tech Support if you are having problems. Any issues that require the professor's attention and affect grading must be communicated within 1 week of the problem.

Reading-to-Learn (RTL)

We will be reading papers from the scientific literature this semester using a strategy called "Reading-to-Learn" (RTL) in which we break down the sections of a paper to help students identify the key elements and interpretation. Material is provided on Canvas to help teach you how to use RTL before implementing this strategy *(under the "Discussions" module).* There are 2 main components:

I. Discussion Groups

- Our TAs lead discussion groups on papers from the scientific literature outside of normal class time. Discussions are intended to (i) allow each student to dive deeper into evolutionary topics in small-group settings, and (ii) improve your understanding of how to read scientific papers by engaging in reading-to-learn exercises.
- Students are required to sign-up for and attend one discussion group from each half of the semester **(two total)**.
  - 1st Discussion Group = microevolutionary topics from the 1st half of the semester; sign-up by Sept. 1 (10pts).
  - 2nd Discussion Group = macroevolutionary topics from the 2nd half of the semester; sign-up by Oct. 20 (10pts).
- **Make sure to sign-up early to get spots that work with your schedule!** (and add these to your calendar)
- Discussion assignments include: (i) reading a scientific paper, (ii) completing a pre-assignment based on the paper (due @5pm the day before your discussion), and (iii) participating in the discussion.
- Discussion details are located on *Canvas* under the *Discussions* module. (e.g., schedule, how to sign up, assignments, etc.).

II. Independent RTL

- At the start and end of the course, there will be a pre-survey (2pts) and post-survey (3pts) to help gauge your understanding of how to read peer-reviewed scientific literature. These are graded solely on completion. The **pre-survey is due by Friday of the first week of class (Aug. 25)**.
- There are **three** RTL assignments in which students independently read an assigned paper and complete an assignment:
  i. **RTL 1**: Introduction to RTL & REC Tables; due Monday, Aug. 28 @5pm; 5pts.
  ii. **RTL 2**: review of Hypotheses, Claims, and Data Visualization; due Wednesday, October 11 @5pm; 10pts.
  iii. **RTL 3**: review Backing, Rebuttals, and Data Visualization; due Wednesday, December 6 @5pm; 10pts.
- All instructions, papers, and assignments are accessible on our Canvas site.
- The content of the papers you read for Independent RTL will apply to the topics we are discussing in class that week.

ACADEMIC INTEGRITY

This course adheres to the Honor Pledge of the General Catalog and the Student Conduct Code. Acts of cheating may result in a failing grade. All cases of cheating will be formally reported to Student Conduct Services at the Student Resolution Center for them to consider additional penalties.

Expectations for an Effective Learning Environment

We believe that you are here to do your best and succeed! This is a joint effort between the instructional team and you.

Instructors:

- Start and end class on time.
- Facilitate your learning to the best of our ability.
- Evaluate your learning with assessments of the material covered in class.
- Communicate in a timely manner (inc. grading).

Classmates:

- Actively engage with each other to work through problems, discussions, and in-class exercises.

You:

- Come to class on time, pay attention, and stay for the whole class.
- Do not engage in other activities during class *(web surfing, social media, playing games, etc.)*.
- Make a consistent effort to try to understand the material *(take time to study each week, participate in our class discussions and activities, use the resources provided, ask for help when needed)*.

All:

- 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.

Resources

Technical Assistance

GETTING HELP WITH CANVAS:
CSU Student Support
Canvas Student Guide

GETTING HELP WITH ICLICKER CLOUD:
CSU Student Support
Getting Started checklist

Students with Disabilities

If you have a disability that requires special accommodation in this class, then you may be eligible for accommodations/auxiliary aids under the American Disabilities Act. Please contact the ***Student Disability Center*** to determine eligibility. Getting registered with the Student Disability Center can take a long time so **do this well before the first exam**.

Support & Help

- If you are **struggling emotionally**, CSU Mental Health Services has trained professionals who can help. Contact 970-491-6053 or visit their website.
- 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.
- For more resources on **Diversity, Equity, Inclusion, and Social Justice** at CSU, visit the Office of the VP of Diversity.
- If you are sick or in quarantine, you can access lecture videos and course material on Canvas. This is also where those 20 free points can help. We can set up a virtual meeting to discuss the material. Please reach out for help.
- For the latest information about the University's COVID resources and information, please visit the CSU COVID-19 site: https://covid.colostate.edu/.

CSU LAND ACKNOWLEDGEMENT *[Discover more about this statement here]*

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.

Tips for Success in BZ220

1. **Become familiar with Canvas and the resources posted therein!**
   - The Canvas page was designed to provide resources to help you succeed in the class.
   - Can you find: ❑Lectures ❑Study Guides ❑Homework ❑Announcements ❑Exam Expectations
2. **Attend, be prepared, and be ready to engage with the material during classes.**
   - Complete any pre-class prep materials before class, including the recommended reading.
   - Bring copies of lecture slides and take notes strategically (don't try to write down everything! give yourself time to learn)
   - Be ready to think, discuss, and ask questions! Don't be a passive learner.
3. **Seek help!**
   - Office hours are open times during which we encourage students to ask questions or discuss the material.
   - Study with your classmates. Peer-learning has been proven to be highly effective improving understanding.
4. **Study effectively! Do not just memorize material. Instead, actively work to understand and apply it!**
   - Use the textbook and Canvas resources to clarify material discussed in class.
   - Review the study guides posted on Canvas at least weekly.
   - Start early rather than waiting until the day before the quiz is due.
   - Use the practice exams and study tips posted under the specific "Exam Expectation" Canvas pages.
   - Watch the ~2min videos on the "Science of Learning" page and commit to trying a new learning strategy.

HONORS BREAKOUT SECTION

Students who have registered for the honors section (BZ220-231) can find the honors syllabus on the regular course Canvas site as well as the Honors Canvas page for BZ296. In addition to the regular lecture time, the honors section meets weekly on Wednesdays from 10:00 AM-10:50 AM in Biology 134. Students will take turns presenting and leading discussions on the book, "Improbable Destinies" by Jonathan Losos (~1 chapter per week). Often, the author joins us for the final week's discussion! You will receive a grade for your performance in lecture as well as a separate honors grade (1 credit) based on your performance in the breakout section. You must also enroll in BZ296 to receive the separate honors grade and to access the Honors Canvas site.

Course Learning Objectives

By the end of the semester, students should be able to demonstrate an understanding of the following:

Content Competencies (What you know about Evolutionary Biology):

Microevolution:

1. An abundance of evidence and strong inference support evolutionary change leading to a complex tree of life with extinction, changing lineages, and common descent.
2. Evolution is a gradual process in the sense that it is the accumulation of many small changes. These changes may occur over long periods of time, but they can also occur relatively quickly.
3. Discrete and continuous variation are both important in evolution, and they both can have a genetic basis.
4. Evolution means changes in allele frequencies over time. We can detect changes in allele frequencies, and thus test whether a population is evolving, using Hardy-Weinberg predictions.
5. Natural selection is not the only mechanism for evolution. Mutation, migration, drift and selection are all evolutionary forces. Non-random mating (and other processes like linkage) does not cause allele frequency changes on its own, but it can enhance the effects of mutation, migration, drift and selection.
6. Mutation and migration alone *generally* cause little change in allele frequencies, so they are not strong evolutionary forces. However, they are important in creating and maintaining genetic variability that is necessary for drift and selection to act.
7. Drift and selection can each cause large changes in allele frequencies, so they are considered to be strong evolutionary forces. They cannot produce evolutionary change without genetic variability. In small populations, drift is the stronger force. In large populations, selection is the stronger force.
8. Conservation involves not just preserving species, but also the evolutionary processes acting on that species.
9. Incorporating evolutionary biology into medical practice can inform advances in healthcare for our society.
10. All heritable traits, including behavior and life history, are subject to the same laws of evolution.

Macroevolution:

11. Adaptive traits increase the fitness of the organisms in which they occur. They are derived, not primitive, traits.
12. Sexual reproduction imposes different selective pressures on females and males. Generally, this difference leads to competition among males for access to females, and females being choosy about which male they mate with.
13. Phylogenetic analyses are used to infer hierarchical relationships among species (and higher-level groups) using synapomorphies (shared derived character states).
14. Speciation involves isolation of populations (not always geographic) followed by divergence of the isolated populations (through genetic drift, natural selection, and/or sexual selection).
15. Life may be recognized using three criteria: it has a genotype, a phenotype, and it evolves. All extant life on earth is believed to have evolved from a single common ancestral lineage.
16. The three main lineages of life are: Bacteria, Archaea, and Eukarya. The deep evolutionary history of these domains is represented more as a web than a tree—a community of interacting species that exchanged genes.
17. The fossil record reveals major evolutionary events in history: extinctions, transitions, diversifications.
18. Evolution of the human lineage has occurred through a series of branching events, not in a linear sequence.
19. Both ancient and modern humans evolved in Africa. Human populations on other continents evolved from these African humans.

Technical Competencies (What you know about core biology skills)

from AAAS (2011) Vision and Change in Undergraduate Biology Education

1. Apply the process of science: hypothesis testing, evaluation of evidence, problem-solving
2. Use quantitative reasoning: develop and interpret graphs, apply statistics, analyze data
3. Use modeling and simulation: analyze data, understand stochasticity
4. Appreciate the interdisciplinary nature of science: understand the role of other sciences in evolution and vice versa
5. Communicate and collaborate: scientific writing, explaining concepts, collaborative learning and research
6. Understand the relationship between science and society: relate social contexts to evolutionary problems, use evolution to help address societal problems
7. Apply situational skills while coordinating with classmate colleagues during active learning opportunities and discussion.
8. Apply critical thinking to reason through problems, evaluate information, and draw appropriate conclusions.

BZ220-001/231 | Fall 2023 | Course Schedule

LECTURE TOPICS	READINGS [1]	HOMEWORK & DISCUSSIONS [2]
MICROEVOLUTION		
Week 1: Aug 21 - 25		
▪ Lec.1: Introduction to the Course & (mis)Understanding Evolution ▪ Lec.2: Evidence for Evolution	▪ *Ch.3, sec. 3.7* ▪ *Ch.2, sec. 2.1-2.5* ▪ *Geerts et al. (2015)*	❑ Review Syllabus & Canvas site ❑ **RTL**: Pre-survey *(due Fri., 8/25)* ❑ Homework 1 opens *(due next Fri.)*
Week 2: Aug 28 – Sept 1		
▪ Lec.3: History of Evolutionary Thought ▪ Lec.4: Impact of Mendelian Genetics on Evolution	▪ *Ch. 3, sec.3.6* ▪ *Ch.9, sec. 9.1*	❑ Homework 2 opens *(due next Fri.)* ❑ **RTL 1**: Introduction to RTL & REC Tables *(due Mon., 8/28)* ❑ Discussion 2A: Fri., 9/1, 4-5pm ❑ Discussion 2B: Fri., 9/1, 5-6pm
Week 3: Sept 4 - 8		
▪ Lec.5: Mutation ▪ Lec.6: Population Genetics: Hardy-Weinberg	▪ *Ch.5, sec. 5.1-5.5* ▪ *Ch.6, sec. 6.1*	❑ Homework 3 opens *(due next Fri.)* ❑ Discussion 3A: Tue., 9/5, 2-3pm ❑ Discussion 3B: Tue., 9/5, 3-4pm
Week 4: Sept 11 - 15		
▪ Lec.7-8: Natural Selection	▪ *Ch.6, sec. 6.1* ▪ *Ch. 3, sec. 3.1-3.5* ▪ *Ch.9, sec. 9.3-9.6*	❑ Homework 4 opens *(due next Fri.)* ❑ Discussion 4A: Wed., 9/13, 11-12pm ❑ Discussion 4B: Wed., 9/13, 12-1pm
Week 5: Sept 18 – 22		
▪ Lec.9: Mutation-Selection Balance & Gene Flow ▪ Lec.10: Genetic Drift	▪ *Ch.6, sec. 6.3-6.4* ▪ *Ch. 7, sec. 7.1-7.2*	❑ Homework 5 opens *(due next Fri.)* ❑ Discussion 5A: Wed, 9/20, 4-5pm ❑ Discussion 5B: Wed., 9/20, 5-6pm
Week 6: Sept 25 - 29		
▪ Lec.11: Non-random Mating & Inbreeding Depression → **EXAM 1 *(Thurs)***	▪ *Ch.7, sec. 7.4-7.5*	❑ Homework 6 opens *(due next Fri.)* ❑ Discussion 6A: Mon., 9/25, 3-4pm ❑ Discussion 6B: Mon., 9/25, 4-5pm
Week 7: Oct 2 - 6		
▪ Lec.12: Evolution of Social Behavior ▪ Lec.13: Life History Evolution	▪ *Ch. 12, sec. 12.1-12.5* ▪ *Ch.13, sec. 13.1-13.5*	❑ Homework 7 opens *(due next Fri.)* ❑ Discussion 7A: Wed., 10/4, 9-10am ❑ Discussion 7B: Wed., 10/4, 10-11am
Week 8: Oct 9 - 13		
▪ Lec.14: Evolutionary Applications in Medicine ▪ Lec.15: Evolutionary Applications in Conservation	▪ *Ch. 14, sec. 14.1-14.7* ▪ *Cubaynes et al. (2022)*	❑ Homework 8 opens *(due next Fri.)* ❑ **RTL 2**: Review of Hypotheses, Claims, & Data Visualization *(due Wed., 10/11)* *(no GTA discussions this week)*
MACROEVOLUTION		
Week 9: Oct 16 – 20		
▪ Lec.16: Studying Adaptation ▪ Lec.17: Evolution of Sex	▪ *Ch.10, sec. 10.1-10.6* ▪ *Ch.8, sec. 8.3*	❑ Homework 9 opens *(due next Fri.)* ❑ Discussion 9A: Thur., 10/19, 10-11am ❑ Discussion 9B: Thur., 10/19, 11-12pm
Week 10: Oct 23 - 27		
▪ Lec.18-19: Sexual Selection	▪ *Ch.11, sec. 11.1-11.4*	❑ Homework 10 opens *(due next Fri.)* ❑ Discussion 10A: Tue., 10/24, 9-10am ❑ Discussion 10B: Tue., 10/24, 10-11am
Week 11: Oct 30 – Nov 3		
▪ Lec.20: Estimating Evolutionary Trees (I) → **EXAM 2 *(Thurs)***	▪ *Ch.4, sec. 4.1-4.4*	❑ Homework 11 opens *(due next Fri.)* ❑ Discussion 11A: Thur., 11/2, 4-5pm ❑ Discussion 11B: Thur., 11/2, 5-6pm

WEEK 12: NOV 6 - 10		
▪ Lec.21-22: Estimating Evolutionary Trees (II)	▪ *Ch.4, sec. 4.1-4.4*	❑ Homework 12 opens *(due next Fri.)* ❑ Discussion 12A: Fri., 11/10, 2-3pm ❑ Discussion 12B: Fri., 11/10, 3-4pm
WEEK 13: NOV 13 - 17		
▪ Lec.23: Mechanisms of Speciation	▪ *Ch.16, sec. 16.1-16.4*	❑ Homework 13 opens *(due next Fri.)* ❑ Discussion 13A: Wed., 11/15, 1-2pm ❑ Discussion 13B: Thur., 11/16, 9-10am
***** FALL BREAK (NOV 20-24) *****		
WEEK 14: NOV 27 – DEC 1		
▪ Lec.25: Origins of Life ▪ Lec.26: The Fossil Record	▪ *Ch.17, sec. 17.1-17.5* ▪ *Ch.18, sec., 18.1-18.5*	❑ Homework 14 opens *(due next Fri.)* ❑ Discussion 14A: Fri., 12/1, 10-11am ❑ Discussion 14B: Fri., 12/1, 11-12pm
WEEK 15: DEC 4 - 8		
▪ Lec.27-28: Human Evolution	▪ *Ch.20, sec. 20.1-20.4* ▪ *Barr et al. (2022)*	❑ **RTL 3:** Review of Backing, Rebuttals, and Data Visualization *(due Wed., 12/6)* ❑ **RTL:** Post-survey *(due Fri., 12/8)* (*no GTA discussions this week*)
WEEK 16: FINALS WEEK		
▪ **FINAL EXAM (in Behavioral Sciences A101)** – Wed., Dec 13 from 6:20-8:20pm ▪ *Please refer to the Registrar's website for complete and most current schedule for finals*		

[1] *Additional reading, videos, URLs, etc. may be posted on Canvas for you to review before class. All material will be posted no later than 5pm the evening before class.*

[2] *Students are responsible for attending the discussion group they signed up for on Canvas. You have one discussion during microevolution and one discussion during macroevolution.*