

EVOLUTION (BIO 4200)
Syllabus, Fall 2020

Credits: 3
Time: T/Th 2:30-3:45
Place: ~~0146 DRY (deroy-auditorium)~~ **(via Canvas)**

Instructor: Dr. Weilong Hao (haow@wayne.edu) **(preferred)**
Biological Sciences Building, room 5107.1
Phone: 313 577 6450

Learning Objectives/Outcomes: As a result of mastering the material in the course, you will be able to:

1. Understand and study the mechanisms underlying the diversification of viruses, microorganisms, and multicellular systems by means of natural selection
2. Infer phylogenetic relationships using structural and genetic data
3. Apply comparative approaches to analyze and study patterns of genetic, organismal and cultural diversification
4. Study adaptive processes using molecular genetic tests
5. Understand the complementary nature of theoretical, modeling, and experimental studies of evolutionary change
6. Understand the role of kinship and reciprocity in the evolution of cooperative behavior
7. Apply game theoretical thinking
8. Understand the evolutionary origin of gender differences
9. Recognize the multiple levels of evolutionary change that affect the human sphere
10. Apply evolutionary insights to the development of biomedical and public policy

Office hour: Will be determined in the first lecture (or by the second lecture)

Credit requirement policy: Note that prerequisite requirements as outlined below will be strictly enforced except for cases of extreme urgency, which will be decided on at the instructor's discretion.

Requirement:

- Students are responsible for all the announcements made on canvas.

Textbook: (required)

Evolutionary Analysis, 5/e
Herron & Freeman C2014
ISBN-13: 9780321616678

Exam formats:

- The exams may include various types of questions including multiple choices, and problem solving.
- All exams will be closed book and held during class session.
- Anyone who leaves the exam room will not be allowed back in (No exceptions).
- Login into the exam will not be allowed after 30-minute into the exam. If you experience any technical difficulty during exam, please send an email to **C&IT and also cc to me** (in order for the second login attempt to be allowed).

Grading:

- Each midterm exam is worth 230 points. The best three midterm exams will be counted towards the final grade.
- The final exam covers all class materials, and is mandatory.
- Class participation and attendance are not mandatory but strongly encouraged. Bonus points on class participation can be given.
- Students with scheduling conflicts for any midterm exam must notify Dr. Hao in writing by class time by September 22, 2020. No make-up exams will be given unless Dr. Hao has been notified in writing by this date.
- Reasonable exceptions will be granted in cases of illness, which will require notification prior to the exam and must be followed up with an original signed note from a physician. Other unexpected incidents are subject to departmental approval and discussed.

Regular Students		Honors Students	
Midterm Exam 1 (220)		Midterm Exam 1 (220)	
Midterm Exam 2 (220)		Midterm Exam 2 (220)	
Midterm Exam 3 (220)		Midterm Exam 3 (220)	
Midterm Exam 4 (220)		Midterm Exam 4 (220)	
(best three midterms)	660	(best three midterms)	660
Final Exam	300	Final Exam	300
Home work/engagement	40	Home work/engagement	40
		Presentation	(Pass/Fail)
Total: 1000		Total: 1000	

Honors option: Students taking the honors classification are required to study assigned reading material and present to the class. Students need to PASS the honors requirement to earn honors credit. Students registered for honors option who failed the honor requirement will receive an "incomplete" regardless of the performance in the exams. Even though the presentation is not graded, honors students are expected to be engaged. See details below:

Honors engagement factors:

Meetings attendance: (8-10 meetings in addition to the regular classes, details to follow based on enrollments). **Participation in honor sections is mandatory. No penalty will be given if one meeting is missed. a 5% deduction will be given on (home work/engagement) if two meetings are missed. Missing three meetings will result in a "Fail" in the honors option.**

Engagement in discussions: Students are expected to make intellectual inputs during discussions in each meeting. No intellectual inputs in each meeting will be given 2% deduction on (home work/engagement).

Clicker questions:

- Any clicker-questions given during classes will be counted as bonus points.

No further adjustment for homework points.

The final letter grade will be determined as follows:

Percentage	Final Grade
90.00%- 100%	A
87.00%- <90%	A-
85.00%- <87%	B+
78.00%- <85%	B
75.00%- <78%	B-
73.00%- <75%	C+
65.00%- <73%	C

62.00%- <65%	C-
60.00%- <62%	D+
57.00%- <60%	D
55.00%- <57%	D-
<55%	F

EXAM GRADE DISPUTES / CHALLENGE OPTION

- Students will have one (1) week after the return of an exam or a written assignment to challenge a grade for any question with a written note providing an explanation.
- Failure to challenge the grade within this period indicates a willingness to accept the grade as is. The challenge should consist of a written description of why the answer is correct based on other published material that you cite.

CHEATING

- A strict zero-tolerance policy for cheating will be enforced.
- Cheating-like exam answers will be subject to investigations.
- Students found to be cheating during an exam, will receive a zero for that test with no opportunity to drop or replace that score.
- A second episode of cheating will result in a grade of F for the course and may also result in initiation of university disciplinary action.

SPECIAL CONSIDERATIONS FOR INDIVIDUALS WITH DISABILITIES

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations.

RELIGIOUS HOLIDAY CONFLICTS

- If you have a conflict with any of the scheduled class or exam times due to religious reasons, you must notify Dr. Hao in writing by class time on **September 22, 2020**.
- No make-up exams will be given unless s/he is notified in writing by this date.

~~UNEXPECTED UNIVERSITY CLOSURES (not applicable)~~

~~If the University is officially closed on an exam day, the exam will be held on the next regularly scheduled class day.~~

Tentative lecture schedule (subject to change as class progresses) 2020

The chapters are according to the textbook Evolutionary Analysis by Herron and Freeman 2014.

Tue Sep 1	2:30-3:45	L01	Introduction to Evolution (chapter 1)
Thr Sep 3	2:30-3:45	L02	The Pattern of Evolution (chapter 2)
Tue Sep 8	2:30-3:45	L03	Evolution by Natural Selection (chapter 3)
Thr Sep 10	2:30-3:45	L04	Estimating Evolutionary trees 1 (chpt 4)
Tue Sep 15	2:30-3:45	L05	Estimating Evolutionary trees 2 (chpt 4)
Thr Sep 17	2:30-3:45	-	Midterm exam 1
Tue Sep 22	2:30-3:45	L06	Variation Among Individuals (chapter 5)
Thr Sep 24	2:30-3:45	L07	Selection and Mutation (chapter 6)
Tue Sep 29	2:30-3:45	L08	Migration, Drift, and Nonrandom Mating (chpt 7)
Thr Oct 1	2:30-3:45	L09	Linkage and Sex (chapter 8)
Tue Oct 6	2:30-3:45	L10	Studying Adaptation (chapter 10)
Thr Oct 8	2:30-3:45	-	Midterm exam 2
Tue Oct 13	2:30-3:45	L11	Sexual Selection (chapter 11)
Thr Oct 15	2:30-3:45	L12	Evolution of Social Behavior (chpt 12)
Tue Oct 20	2:30-3:45	L13	Aging and Life-History Characters (chpt13)
Thr Oct 22	2:30-3:45	L14	Evolution and Human Health (chapter 14)
Tue Oct 27	2:30-3:45	L15	Genome Evolution and Molecular Basis (chpt 15)
Thr Oct 29	2:30-3:45	-	Midterm exam 3
Tue Nov 3	2:30-3:45	-	Election day (no class)
Thr Nov 5	2:30-3:45	L16	Origins of Life (chapter 17)
Tue Nov 10	2:30-3:45	L17	Speciation (chapter 16)
Thr Nov 12	2:30-3:45	L18	Evolution and Development (chapter 19)
Tue Nov 17	2:30-3:45	L19	Human Evolution (chapter 20)
Thr Nov 19	2:30-3:45	-	Honors student presentations
Tue Nov 24	2:30-3:45	-	Honors student presentations
Thr Nov 26	2:30-3:45	-	Thanksgiving ! (no class)
Tue Dec 1	2:30-3:45	-	Honors student presentations
Thr Dec 3	2:30-3:45	-	Honors student presentations
Tue Dec 8	2:30-3:45	-	Midterm exam 4
Thr Dec 10	2:30-3:45	-	Review
Thr Dec 17	<u>2:45-4:45</u>	-	Final Exam