BIOL 802 Organic Evolution – Spring 2020

Instructor Information:
Dr. Dawn Simon
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Office: Bruner Hall of Sciences, Room 201C
Hours: MWF 9:00-10:00 a.m. (CST) and other times by appointment.

During the week, I check email messages at least twice a day (once in the morning and once in late afternoon) and will usually respond within 24 (weekday) hours. (For example, if you email me on a Friday afternoon, I will typically respond by Monday afternoon.) In special circumstances, responses may be delayed up to 72 hours.

Course 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.

Course Objectives:
1. Students will recognize the pattern of biological evolution.
2. Students will be able to differentiate between evolutionary mechanisms (natural selection, random genetic drift, mutation, and migration).
3. Students will appreciate different approaches (e.g., organismal, molecular) to studying evolutionary biology.
4. Students will develop critical thinking skills by identifying assumptions of alternative hypotheses and evaluating evidence.
5. Students will demonstrate the ability to form a coherent evidence-based argument and communicate this in writing.
6. Students will be able to locate and appropriately use examples from the primary literature.

Text:
Evolutionary Analysis (2014, 5th edition); Jon C. Herron & Scott Freeman; Benjamin Cummings
ISBN-10: 0321616677
ISBN-13: 978-0321616678

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 every day). Please refer to the eCampus website to make sure you meet the minimum hardware/software and internet connection speed required by all UNK eCampus students. The written portion of exams must be completed using Microsoft Office.

Mode of Instruction:
This course is entirely online and comprised of lectures, readings, and assignments. Most weeks you are required to watch two lectures (and must be connected to the internet during this time), complete the assigned readings, participate in discussion (via discussion board posts) and complete a quiz.

Grades:
The course grade is based on quizzes (12 quizzes, 10 pts each = 120 pts), discussion board posts (100 pts), and exams (3 exams, 100 pts each = 300 pts). Minor modifications to assigned points may occur and will be announced. Letter grades, using the plus/minus system, will be assigned using the standard grading scale for the Dept. of Biology, as follows: A (93-100%), A- (90-92%), B+ (88-89%), B (83-87%), B- (80-82%), C+ (78-79%), C (73-77%), C- (70-72%), D+ (68-69%), D (63-67%), D- (60-62%), and F (below 60%). Your final grade will be rounded up (so, if you finish with an 82.5% your grade will be a B).

Lectures:
Lectures will be posted by 6:00 p.m. CST each Tuesday and Thursday (when applicable). The length of these is variable (30 min – 90 min) depending on the specific topic. Most will be approximately one hour.

Weekly Assignments:
Most weeks you will need to complete reading assignments and will also have periodic written assignments in the form of discussion board posts, as well as a quiz to complete.

Reading
The schedule at the end of this document specifies assigned readings from the textbook. Please note that some weeks there will also be papers from the literature assigned and these will not be available until the week they are assigned. Reading assignments will be posted each week on Canvas.

Discussion board posts
For discussion board assignments, I will post multiple questions/topics on the reading and/or lectures. You will be required to respond to one of the original questions, as well as participate in discussions on other topics. Responses to classmates will not always require the use of a reference, but must add to the overall discussion (e.g., statements of "nice job" or "I agree" alone do not do this.) These response posts 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?). Typically, the initial questions will be assigned on a Thursday and due the Thursday of the following week. 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.

See schedule on the last page for deadlines. Except under extraordinary circumstances, late posts will not be accepted.

Quizzes:
Most weeks you will also be required to complete one short quiz over the previous week's lectures and readings. These will usually consist of 5 multiple choice questions (2 pts per question). The quizzes will be timed, but open resource. See schedule on the last page for deadlines.

Exams:
There will be three exams, each with a written portion of 2 essay questions (60 pts) and a timed portion consisting of 20 multiple choice questions (40 pts). These will also be open resource. Except under extraordinary circumstances, late submissions will not be accepted.

Academic Integrity:
This course, like all UNK courses, abides by all University policies as outlined in the 2019-20 UNK Student Handbook, which contains the UNK Student Code of Conduct. You will be expected to be familiar with and abide by all such policies. Plagiarism will not be tolerated. You must cite all sources and rephrase content in your own words. You assume full responsibility for the content and integrity of the work you submit. All written assignments (and some discussion board posts) will be scanned through plagiarism-detecting software. Students who plagiarize any part of their assignments or exams may receive at minimum a zero on that assignment, with more serious repercussions possible (e.g., failure of course, expulsion from UNK). Any materials provided to you in this course are the intellectual property of either myself or the textbook publisher. It is a violation of copyright law to share these materials without permission, either online or in person.

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 text) and lecture material. Note

that in most cases, lecture material will be derived from a clearly cited peer-reviewed publication or your text; in these cases the original source should be cited. Please see additional material available on Canvas for more guidelines.

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 UNK Disabilities Services for Students Office, 172 Memorial Student Affairs Building, 308-865-8988 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 Cindy Ference in Student Health, 308-865-8219. The following link provides information for students and faculty regarding pregnancy rights. http://www.nwlc.org/resource/pregnant-and-parenting-students-rights-faqs-college-and-graduate-students

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), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes she or he 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
Campus Police (or Security) 308-865-8911
Title IX Coordinator 308-865-8655
Retaliation against the student making the report, whether by students or University employees, will not be tolerated.

Course Schedule & Assignment Deadlines (subject to modification, refer to Canvas)

Week		Topic (Lec Post Day)	Assignment	Due (11:59 p.m. CST)
1	L1	Course Introduction (T)	DP - Intro[1]	Fri 1/17
	L2	Historical Perspectives (Th)	Q1[2] (L1-2)	Thurs 1/23
2	L3	Pattern of Evolution (T)	DP[3] (L2-4)	Thurs 1/30
	L4	Process of Evolution (Th)	Q2 (L3-4)	Thurs 1/30
3	L5	Phylogenetics I (T)		Thurs 2/6
	L6	Phylogenetics II (Th)	Q3 (L5-6)	Thurs 2/6
4	L7	Mutation & Genetic Variation (T)		
	L8	Intro to Pop Gen: HWE (Th)	Q4 (L7-8)	Thurs 2/13
5		**EXAM 1** (L1-8)		Thurs 2/20
6	L9	Selection and Mutation (T)	DP (L9-10)	Thurs 2/27
	L10	Migration, Genetic Drift, & Non-random Mating (Th)	Q5 (L9-10)	Thurs 2/27
7	L11	Multiple Loci: Linkage (T)		Thurs 3/5
	L12	Multiple Loci: Sex (Th)	Q6 (L11-12)	Thurs 3/5
8	L13	Molecular Evolution I (T)	DP (L11-14)	Thurs 3/12
	L14	Molecular Evolution II (Th)	Q7 (L13-14)	Thurs 3/12
9	L15	Genome Evolution (T)	Q8 (L15)	Thurs 3/19
10		**EXAM 2** (L9-15)		Thurs 4/2
11		**SPRING BREAK**		
12	L16	Adaptation (T)	DP (L16-17)	Thurs 4/2
	L17	Sexual Selection (Th)	Q9 (L16-17)	Thurs 4/9
13	L18	Evol. of Social Behavior (T)		
	L19	Species Concepts	Q10 (L18-19)	Thurs 4/16
14	L20	Speciation	DP (L18-21)	Thurs 4/23
	L21	Tree of Life	Q11 (L20-21)	Thurs 4/23
15	L22	Evol & the Fossil Record		
	L23	Evolution of Humans	Q12 (L22-23)	Thurs 4/30
16		**EXAM 3** (L16-L23)		Mon 5/4 (Take home portion) Wed 5/6 (Timed portion)

[1]Discussion board post introduction (10 pts)
[2]Quiz (10 pts)
[3]Discussion board post (18 pts)

Reading Assignments (additional readings may be assigned, refer to Canvas)

Week		Topic (Lec Post Day)	Assignment
1	L1	Course Introduction (T)	----------
	L2	Historical Perspectives (Th)	----------
2	L3	Pattern of Evolution (T)	[1]H&F, p. 37-62
	L4	Process of Evolution (Th)	H&F, p. 73-97
3	L5	Phylogenetics I (T)	H&F, p. 109-146
	L6	Phylogenetics II (Th)	H&F, p. 109-146
4	L7	Mutation & Genetic Variation (T)	H&F, p. 147-178, 594-601
	L8	Intro to Pop Gen: HWE (Th)	H&F, p. 179-191
5		**EXAM 1** (L1-8)	----------
6	L9	Selection and Mutation (T)	H&F, p. 191-232
	L10	Migration, Genetic Drift, & Non-random Mating (Th)	H&F, p. 133-255, 275-384
7	L11	Multiple Loci: Linkage (T)	H&F, p. 291-328
	L12	Multiple Loci: Sex (Th)	H&F, p. 291-328
8	L13	Molecular Evolution I (Th)	H&F, p. 255-272
	L14	Molecular Evolution II (T)	H&F, p. 255-272
9	L15	Genome Evolution (Th)	H&F, p. 581-591, 601-606
10		**EXAM 2** (L9-15)	----------
11	L16	Adaptation (Th)	H&F, p. 369-406
	L17	Sexual Selection (T)	H&F, p. 407-454
12	L18	Evol. of Social Behavior (Th)	H&F, p. 455-490
13	L19	Species Concepts (Th)	H&F, p. 609-616
	L20	Speciation (T)	H&F, p. 616-641
14	L21	Tree of Life (Th)	H&F, p. 663-683
15	L22	Evol & the Fossil Record (T)	H&F, p. 691-731
	L23	Evolution of Humans (T)	H&F, p. 769-790
16		**EXAM 3** (L16-L23)	----------

[1]Herron & Freeman, "Evolutionary Analysis" (5th Edition)

