University of Nebraska at Kearney

Principles of Ecology (BIOL 824)
Spring 2021

Instructor: Gregory Pec
Emails: pecg@unk.edu (please include "Biol 824" in the subject line of all emails)
Office: BHS 319
Office Hours: M, W, R 11 am – 12 pm or by appointment (virtual). Email should be used judiciously to address questions pertaining to course administration/scheduling or urgent matters. Direct issues related to the course content should be posted to the Canvas forum described below.

Course description: Ecology is the scientific study of interactions between organisms and their environment in a hierarchy of levels of organization: individuals, populations, communities, and ecosystems. This course will provide a comprehensive survey of general concepts that are drawn from a broad range of organisms and systems. Students will also be acquainted with approaches to the study of ecology, philosophy of science, and advances in the field.

Course objectives: This course will emphasize the importance of hypothesis-driven research and will illustrate how the mechanisms underlying ecological patterns and processes are determined using examples from classic and contemporary literature. It is my hope that students of BIOL 824 will gain an understanding of the breadth of ecology and its importance for other fields, including evolutionary biology, conservation biology, agriculture and policy. Finally, the course will train students to critically read scientific literature, assess experimental design and interpret findings from a wide range of ecological studies.

Computer requirements: Access to a computer with internet connectivity and Microsoft Office. An updated PDF reader will also be needed to read course materials. Please refer to the eCampus website for meeting minimum hardware/software and internet connection speed required by all UNK eCampus students (https://www.unk.edu/academics/ecampus/resources-info/students/index.php).

Required Text: None is required. All readings are provided on Canvas.

Canvas: For this class we will use an online course management system called Canvas. Course information, updates and related information, etc. will be posted here. I have also created a forum in Canvas for asking/answering questions about course concepts.

Course structure: This course will begin with discussions that focus on the philosophy of science, experimental design, and ways of doing and applying ecological research. During this part of the course, video seminars will also be presented on major topics/themes in ecological research. During the last third of the course, each student will give a short video seminar based on a major ecological topic that they have chosen to investigate. There is also a written assignment; each student will prepare a critique of a published paper or assess the career of a prominent researcher. All materials for each week will be posted on Canvas. This is not a self-paced course. You will be expected to keep up with the pace of the course, and the course structure is designed to help with this. If this is your first distance class, you will find that these classes can be fast paced. Everyone in these classes is busy with work, school, and family. I understand, but if you start to fall behind, it may be difficult to catch up. Please do not hesitate to contact me.

Paper discussions: Students will organize into groups of three to lead a discussion on selected reading material. Discussion leaders should briefly outline the major points of the readings and have a list of discussion points and questions ready to stimulate discussion (*see evaluation of group discussion leadership on Canvas*). Discussion boards will begin on Mondays and run through to Monday of the following week. Students will be expected to respond to one of the discussion questions posed by the discussion leaders and to other students' comments. This will allow us to talk about the topics and answer any questions that students might have. There will be a total of 8 weeks of discussion, each week being worth 50 points (350 points total). Participation marks will be based on the following criteria:

(1) For the initial post, you will reply to one of the questions posted by Wednesday (25 points).
(2) The second part of the assignment is to respond to two of your classmates' postings by expanding on what they have written. These responses are due by Friday (15 points).
(3) The third part of the assignment is to respond back to your classmates who replied to your postings. This may include clarifying or expanding on an idea that was not clear. These responses are due by the following Monday (10 points).

Further details will be provided for each paper discussion. In addition to this weekly mechanism for student participation, please become familiar with all other such policies on attendance found in the University Graduate catalog (https://catalog.unk.edu/graduate/academics/academic-regulations/expectations-in-the-classroom/class-attendance/)

Written assignment: There will be two options for the written assignment. Specific subjects for either option 1 and 2 **must** be approved by the instructor.

1. Write a critical assessment of a published paper in a format similar to a "comment" paper found in many scientific journals (these are sometimes found under "notes", "forum", or "short communications"). The paper targeted must have been published

recently (within the last 3 years) in a top-ranked ecological journal (e.g., Ecology Letters). The paper and its topic should also be of broad ecological interest. Your task is to synthesize and critique the ideas in the paper in a way that fosters scientific discussion within a diverse audience. Appropriate papers usually involve a controversial or innovative approach or opinion related to some long-standing problem or mindset in ecology. Commentaries on such papers challenge those ideas, and in turn offer new ideas of their own. This is a big-picture assignment that is useful for building critical thinking and synthetic writing skills.

2. Investigate a researcher who has been influential in a broad field of ecology and write an essay that synthesizes and critically evaluates the nature of their contributions. This person should have made several seminal contributions over their career and changed the trajectory of relevant sub-disciplines. Your task is to identify the components or questions, approaches, methods, and philosophy that have made your subject's work exceptional. Your paper should not be a simple biography or chronology. This option could help you identify the approaches and direction you may want to adopt if choosing a path down a more ecological route.

Further details will be provided for this assignment. This assignment must be submitted as a .docx or pdf file format through the Canvas Turnitin function.

Student seminars: Each student will present a seminar on a concept or area of ecology (e.g., recent developments in landscape ecology). Seminar topics **must** be approved by the instructor and can expand upon a topic presented by one of the instructor's video seminars (please see class schedule for a list of those topics). Each seminar presenter must choose one relevant reading that other class members can consult prior to the seminar. This reading should be emailed to the instructor ~1 week prior to the seminar so that it can be made available for the class. Further details will be provided for this assignment.

Grading Evaluation: Grades will be assigned using the standard grading scale for the Department 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%).

Assignment	**Points**
Paper discussion (includes leading discussion) (7 wks @ 50 points)	350
Written assignment	200
Seminar presentation	200
Class total	750

Student Responsibilities:

Email: You must use your UNK email to receive any updates associated with the course. As email is a preferred mode of communication for online courses, I make an effort to be timely in my responses. Since I may not always have access to email or be in my office, emails will be answered within 24 hours on weekdays. Emails sent after 3 pm (CST) on Fridays will be answered by the following Monday.

Marks: Marks will be posted on the course Canvas page when available. Grading errors must be brought to the attention of the instructor within five days of the marks being released to the class.

Late Assignments: Without a valid excuse, any assignment not turned in on time is a late assignment. Late assignments will be docked 10% of the total possible points per day, holidays and weekends excluded.

Academic Integrity and Academic Honesty: This course, like all UNK courses, abides by all University policies as outlined in the UNK Student Handbook, which contains the UNK Student Code of Conduct. More information can be found in the University Graduate catalog (https://catalog.unk.edu/graduate/academics/).

Plagiarism and Cheating: Anyone found plagiarizing or cheating will receive a 0 for that assignment; subsequent violations will result in referral to the Vice Chancellor for Academic Affairs. Cheating (at any level) is an intolerable behavior that has no place in any scientific, educational, or social activity.

Policy on Withdraw (W) and Incomplete (I) grades: Students may not withdraw past the mid-point of a class (i.e. end of the 7th week of a 15-week spring class) unless extenuating circumstances exist, in which case the student may receive a “W”. Extenuating circumstances are defined as circumstances that occur AFTER the mid-point of the course and beyond the control of the student which in the judgment of the Vice Chancellor for Academic Affairs, in consultation with the Exceptional Withdrawal Committee, constitute appropriate cause for withdrawal.

Students will receive a "W" on their transcript (which indicates a withdrawal) for classes dropped on or after the first day of the class. A failing grade of “F” will be recorded on the transcript if a student stops attending class and neither officially withdraws from the course prior to the appropriate deadline nor establishes, prior to the end of the class and to the satisfaction of the instructor, that extenuating circumstances prevented completion of the course.

To be considered for an incomplete, a mark of “I” is reserved for conditions in which a student has been unable, due to circumstances beyond his or her control, to complete the course by the end of the term. Unless an extension of time is granted in writing by

the Office of Student Records and Registration, an incomplete must be removed within twelve calendar months. If the course work is not completed during this time, then the "I" will convert to an "F" on the student's transcript and cannot be changed other than by re-registering for the course.

If an extension is desired, the student must initiate a written request for a specific time of extension, must exhibit extenuating circumstances beyond his/her control, and must make the request in advance of the twelve-month expiration. The request must be supported by a written endorsement from the course instructor, or the department chairperson in the absence of the instructor and submitted to the Registrar's Office prior to the expiration of the twelve-month period.

OER statement: This course is part of UNK's Open Educational Resource (OER) textbook cost reduction initiative. All of the course readings are available online for no additional cost. OER courses are any teaching, learning, and research materials that are free for people everywhere to use and repurpose. This not only includes textbooks, but also videos, images, lectures, and even entire course outlines.

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 the 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.

If you have questions regarding the information in this email please contact **Mary Chinnock Petroski, Chief Compliance Officer (petroskimj@unk.edu or phone 8400).**

Disclaimer: Any typographical errors in this Course Outline are subject to change and will be announced on the course Canvas page.

Tentative course schedule

Week	Topic
1	Introductions, scheduling & video seminar: Introduction to ecology
2	Discussion: Ecology as a science (Pec)
2	Video seminar: Ecology of individuals
3	Discussion: Are there general laws in ecology?
4	Video seminar: Ecology of populations
5	Discussion: Study design challenges: Pseudo-replication
6	Video seminar: Ecology of interactions
7	Discussion: Experiments in ecology: from microcosms to ecosystem experiments
8	Video seminar: Ecology of communities
8	Discussion: Statistical approaches & pitfalls (Pec)
9	Video seminar: Ecology of ecosystems
10	Discussion: Evaluating environmental impacts: The Exxon-Valdez (as a case study)
11	Discussion: Models in ecology
12	Discussion: Policy issues and ecology
13	Student seminars
14	Student seminars
15	Student seminars