

BIOL 830P - Biological Implications of Climate Change

Summer 2025

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Office hours: virtual by appointment

This course is fully asynchronous and online. All course materials will be delivered in Canvas.

Catalog Description

This course explores the complexities of the global climate system (GCS) and its history with a focus on the expected impacts of climate change to biology. After an introduction to the GCS, students will gain an understanding of climate modelling, its application, and projected changes to the Earth system. The course then moves to how impacts associated with these changes affect feedback loops, ecosystems and biodiversity, agricultural productivity, human health and security. The final module covers the risks and opportunities associated with climate change.

Course Overview

You will be responsible for all material assigned in each module. This will include a mix of readings, lectures, discussions and weekly component projects culminating in a final product and presentation. There will be examinations throughout the course. Please see the course calendar at the end of this document and pay attention to due dates and information provided in Canvas.

Technical Support

LoperTECH Service Desk: Phone: 308-865-8363; Email: support@nebraska.edu

If you are having problems or technical issues with Canvas, please contact ITS. Note that Canvas is most compatible with Firefox or Chrome. If you are using Edge or Safari and having issues, please try one of the aforementioned browsers before reaching out to tech support.

Grading policy: Your grade will be based on the total accumulated points out of the total points available. You are responsible for keeping track of your grades.

The final exam may be administered in the time period scheduled during finals week in accordance with University policy (Final Exam Schedule).

Assigning letter grades at the end of the semester: Grades in this class will be assigned according to the standard UNK scoring system described below. Only by attaining these percentages can you be assured of receiving a desired grade.

A+: 97–100% A: 94–96% A-: 90–93%

B+: 87–89% B: 84–86% B-: 80–83%

C+: 77–79% C: 74–76% C-: 70–73%

D+: 67–69% D: 64–66% D-: 60–63%

F: < 60%

Please note: Grades will be rounded to the nearest whole percent. Thus, if your final grade is within 0.5% of the next highest grade, your grade will be rounded up (e.g., an 89.50% will be considered an “A-”). This is the definitive cutoff for rounding grades. There will be NO exceptions to this policy.

Policy on plagiarism and academic dishonesty: Plagiarism is defined as using more than four consecutive words from a source without a citation. You may not use another’s words directly without putting them within quotations. It is also plagiarism when either an author’s ideas or organization of concepts are used without giving a citation. Students who are caught plagiarizing will receive a failing grade for the assignment and will face additional punishments up to expulsion as outlined by University policy. I invite you to visit the online resource <http://www.plagiarism.org/> to make sure you understand what plagiarism is and how to avoid it.

Statement on the use of Artificial Intelligence (AI): Academic honesty and integrity are of vital importance at UNK, and are core to UNK’s Academic Integrity Policy. The use of AI technology in this class is expressly forbidden unless included as part of an assignment. You are not here for a grade, you are here to learn and think.

The Learning Commons

Learning Commons services are available in person and on Zoom for all online and on-campus UNK students. To request an appointment for subject tutoring, writing tutoring, success coaching, or foreign language support, please submit an Appointment Request Form on the Learning Commons website, call the Learning Commons Welcome Desk at 308-865-8905, or stop by the Welcome Desk in person on the second floor of the Calvin T. Ryan Library. To submit a draft of your writing for a tutor to review, go to the Writing Center webpage).

University Policies

All students at the University of Nebraska Kearney should be aware of the following university-wide course policies and resources. Please refer to these specific sections.

Attendance Policy

University-wide attendance policy will apply.

Graduate Student Attendance Policy

Academic Honesty Policy

Academic honesty is essential to the existence and integrity of an institution of higher education. The responsibility for maintaining that integrity is shared by all members of the academic community. To further serve this end, the University of Nebraska at Kearney has a policy relating to academic integrity.

Graduate Academic Integrity Policy

Finals Week Policy

Finals at UNK will be scheduled Monday through Thursday during the last week of the semester.

1. Final examinations for full semester classes are to be given at the regularly scheduled examination time only as published on the Office of the University Registrar website policy (Final Exam Schedule).
2. During the week prior to Finals Week, the only examinations that may be given are laboratory practical examinations, make-up or repeat examinations, and self-paced examinations.
3. If a student is scheduled to take three or more final exams in one day during the finals week, the student has the following options take all final exams as scheduled; take the exam during the allotted day and time that is open for make-up examination or resolution of conflict, which is Thursday at 3:30 pm; or take the exam during Finals Week at an agreed-upon time worked out between the student and the instructor. Students seeking accommodation are responsible for notifying their instructor at least one week before the final exam period and providing documentation proving eligibility for accommodation.
4. Projects, papers, performances, and speeches scheduled for completion during the last week of classes must have been assigned in writing by the end of the eighth week of the semester. This refers to the project and its scope, not the topic.
5. Complaints about failure to follow the above outlined procedures should be made immediately to the faculty member. If the faculty member is not responsive to the student's concerns, the appropriate department chair should be notified. If necessary, appeals can be filed with the dean of the college offering the course.
6. Any course not having an examination during Finals Week will meet under the direction of its instructor during the scheduled Finals Week time period for a continuation of regular class work.
7. The dean may grant exceptions to this policy on the basis of good and sufficient reasons submitted to the dean in writing.
8. Faculty should include a Finals Week Policy statement indicating that "The final exam will be administered in the time period scheduled during finals week in accordance with University policy (Final Exam Schedule)."

Mental Wellness

The UNK Counseling Center provides mental health services to support the academic success of students. The Counseling Center provides a full range of short-term professional mental health services. Getting help is a smart and courageous thing to do. Contact the UNK Counseling Center at 308-865-8248 or visit their website for more information:

https://www.unk.edu/offices/counseling_healthcare/counseling_care/index.php .

Military and Veteran Services

Military and Veteran Services assist veterans, service members, and their dependents with education benefits and academic and supporting resources. They serve as a liaison between students and the Veterans Administration and branches of the military. Contact the UNK Military and Veteran Services office at 308-865-8677 or visit their website for more information:

https://www.unk.edu/offices/financial_aid/veterans_services/index.php

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), to take appropriate action to prevent a recurrence of such sexual misconduct, and to protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes they 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.

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 (DSS) office, Loper Success Hub, 2nd Floor of Calvin T Library, 308-865-8214 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 the Student Health office at 308-865-8218. The following links provide information for students and faculty regarding pregnancy rights.

<https://thepregnantscholar.org/title-ix-basics/>

<https://nwlc.org/resource/faq-pregnant-and-parenting-college-graduate-students-rights/>

Course Calendar

Jun 16 – Week 1: Foundations of Climate Change Biology
Jun 23 - Week 2: Physiological Responses to Climate Stressors
Jun 30 - Week 3: Species Range Shifts and Habitat Fragmentation
Jul 7 - Week 4: Phenological Changes and Mismatches
Jul 14 - Week 5: Ecosystem-Level Responses
Jul 21 - Week 6: Evolutionary Responses and Limits
Jul 28 - Week 7: Conservation in a Changing Climate
Aug 4 - Week 8: Student Presentations + Future Directions

Course Project Overview

Title: *Climate Vulnerability and Adaptation Strategy for a Focal Species or Ecosystem*

Goal: Over 8 weeks, students will build a cumulative portfolio that explores how climate change is likely to impact a species or ecosystem of their choice and propose evidence-based management or conservation strategies.

Week	Task
Week 1	Select your species/ecosystem. Justify your choice.
Week 2	Physiological traits analysis
Week 3	Range map & distribution projections
Week 4	Phenology and trophic mismatch
Week 5	Ecosystem/community dynamics
Week 6	Adaptation potential & evolutionary limits
Week 7	Conservation/adaptation strategy
Week 8	Present your project + final report submission