



BIOL 823 Environmental Biology

Spring 2023 3 credit hours

23 Jan to 19 May

Instructor	<p>Dr. Pricila Iranah Pronouns: she/her/hers Bruner Hall R315 2401 11th Ave, Kearney, NE 68849 Email: iranahp@unk.edu Office phone: 308 865 8912 In-person office hours: MW 9am to noon or by appointment Virtual office hours: F 8am to 11am [Check Canvas for Zoom link]</p>
Land Acknowledgement	<p>I am currently standing and living on occupied indigenous land of the Pawnee Nation and Očeti Šakówiŋ, who were forced to leave the shores of the Platte River in the 1870s, and are now in Oklahoma. I also acknowledge that many of the spaces I visit and use are on neighboring occupied lands of the Ponca, Cheyenne and Arapaho peoples, amongst others. Learn more: https://americanindiancoc.org/native-american-tribes-the-indian-history-in-kearney-nebraska/ To support ongoing work in Native American communities in the state, visit: https://www.nuihc.com/support/ https://pawneeseed.org/ http://www.aihec.org/who-we-are/donate.htm https://ilinitiative.org/support-ili/ https://www.poncatribune-ne.org/</p>
Course description	<p>Environmental biology focuses on the interface of human activity and the natural biological world. The impacts of humans on biogeochemical cycles, ecosystems, and individual species are examined. The role of governmental policies and politics is a part of this discipline and is reviewed. Recent scientific research and reports are used to predict what the future challenges are to humans and organisms in the face of the rapid changes brought about by human activity. Offered online.</p>
Communication	<p>Preferred method: Coming to office hours is the best way to meet with me and ask questions! Equally good way: Logging in to virtual office hours! Second best way: Email. I respond to email within 24-48 hours on business days. Less likely to respond promptly during the weekend. Important: (1) Please write "BIOL 823" in the subject line, followed by what your email is about. (2) Email me from your <i>Loper</i> account or Canvas only. Third party email address may be filtered out and never get to me.</p>

Course objectives	<p>By the end of the course you should be able to:</p> <ul style="list-style-type: none"> • Use and demonstrate critical thinking in written and spoken analysis of current environmental issues • Understand and discuss the relationship between the individual, society, economy, culture and environmental issues and identify ways to minimize impact on the environment • Understand and describe the basic principles of matter and energy flows • Understand and describe the geological, meteorological and biogeochemical cycles of Earth • Understand and describe fundamental ecosystem and ecological principles • List the major sources of pollution and describe the effects on ecosystems and human populations • Understand climate as a system and understand human contributions to climate change • Understand and describe the goals of biodiversity conservation and nature preservation programs. • Understand and describe renewable vs. non-renewable energies, and natural resources including effects on climate change • Understand and apply the principles of sustainable development to current issues and everyday life
Course materials	<p>Environment, Enhanced eText Authors: David M. Hassenzahl; Mary Catherine Hager; Nancy Y. Gift; Linda R. Berg; Peter H. Raven Publisher: Wiley. 10th Ed. 2018. eText ISBN: 9781119393412, 1119393418 Available from \$ 23.10 USD as an etextbook on Vitalsource.com Selection of peer-reviewed papers and reports shared by the instructor.</p>
Copyright	<p>Materials in this course—unless otherwise indicated—are protected by United States copyright law [Title 17, U.S. Code]. Materials are presented in an educational context for personal use and study and should not be shared, distributed, or sold in print—or digitally—outside the course without permission.</p> <p>As a student your ability to post or link to copyrighted material is also governed by United States copyright law. The law allows for students to post or link to copyrighted materials within the course environment when the materials are pertinent to course work. Instructors—or other staff of the institution—reserve the right to delete or disable your post or link if in their judgment it would involve violation of copyright law.</p>
Disclaimer	<p>The instructor reserves the right to make changes to the any and all parts of the syllabus that pertain to course content and delivery, and changes to points allocation per assignment. Any such changes will be</p>

communicated in a timely manner. Any change will be posted to the Announcements page on Canvas.				
Grading	Assignment 1 – Understanding Causal Loops	20		
	Assignment 2 – Case Study analysis	30		
	Assignment 3 – Sci Comm	15		
	4 online discussions (15 ea)	60		
	Quiz 1	30		
	Quiz 2	30		
	Quiz 3	30		
	Final Exam (20 MCQ, 5 T/F, 5 of 6 short answer, 2 of 3 long answer)	75		
	Total Points possible		200	
Extra Credit	There is an opportunity to earn 10 points of Extra Credit by completing 2 assessments: one at the beginning, and one at the end of the course. The Extra Credit will not affect your grade if you do not wish to do it. If you do complete them, I will have 10 points to boost your grade if you happen to have done poorly (i.e., earned <60% of possible points) in any one of the quizzes, exam or assignments.			
Grading scale	A+	97 - 100 %	B+	87 – <90 %
	A	94 - <97 %	B	84 – <87 %
	A-	90 - <94 %	B-	80 – <84 %
	C+	77 – <80 %	D+	67 – <70 %
	C	74 – <77 %	D	64 – <67 %
	C-	70 – <74 %	D-	60 - <64 %
			F	< 60 %
Grades are neither curved, nor adjusted after the fact.				
Student responsibilities	College is hard but there are simple things you can incorporate into your daily routine for this class and any others that will help you stay on top of learning, your mental and physical health and making time to build your community of friends. [1] Go through the syllabus and understand the course policies as these are there to present a timeline of work you expect to get, an overview of the workload in terms of quizzes and assignments and, importantly, those University and department policies that you need to pay particular attention to keep yourself in good academic standing. [2] It will be super useful if you use all online tools you have e.g., Outlook's Calendar, to track all your due dates. When I was in undergrad, we had to lug around a large physical diary; now everything fits in the palm of your hand via your smartphones. [3] Depending on the volume of content and the size of files in Canvas, it will be helpful to you if you download materials as and when you move onto the next module, just in case I need to remove earlier material to make space for more later in the semester. [4] I provide templates for written assignments and/or formatting guidelines so as to take the guesswork away and let you focus			

on your writing and ability to pool information together. [5] Deadlines help me manage the flow of grading I have to do; it's better to come talk to me in case you will be missing a deadline so that I can figure out something feasible for you and me. [6] You can use Canvas and your MyBlue to keep track of your grades and how you fare in this class. If you anticipate things will come up that will lower your overall grade, come and talk to me to figure out strategies that can help you. [7] I have in-person and Zoom office hours spread at different times and on different days of the week, all meant to open up options for you to come chat about how you are doing, or ask questions, or even share something cool you learned related to topics we cover. There is always free candy and chocolate on my desk, you can come just to get some sugary energy! [8] You, your peers and I, all come from different background with different perspectives. Being understanding, kind and respectful of everyone frees up your mind to new ideas and new ways of looking at things, and makes for a much more enjoyable learning environment for yourself and others. [9] I will communicate with you using your Loper email account, and will post classwide announcements on Canvas. If you have all your emails redirected to your personal email that's ok if that works for you, but be aware that emails from non-loper.unk.edu may get redirected to Spam (which I rarely check!). So it will always be best to use your Loper email when sending me messages or assignments or notices. Besides, if you use your Loper email to log onto Zoom for group discussions, you will not get that 40min time block as UNK has a business account that is available to all students, staff and faculty.

Student
Attendance
Policy Statement

Class attendance is different based on the mode of class delivery (face to face and online) and determined by the primary instructor. For face to face classes, regular attendance is desirable and expected. Depending on if online courses are synchronous or asynchronous dictates online class attendance/participation. The primary instructor has the responsibility for communicating at the beginning of each semester the schedule of class meetings and the class attendance policies which are required in the course.

If a student is absent or anticipates an absence for either class mode, the student's primary responsibility is to directly contact the primary instructor, and the student should consult with them accordingly. A student who misses a class or does not have an online presence is personally responsible for information and assignments communicated during that class session.

Instructors or other University officials who may require students, individually or collectively, to be absent from their classes due to a field trip, online activity, or similar officially recognized activity are responsible for providing adequate information to the students involved so that the students may provide notice to other instructors.

	Undergraduate student attendance policy statement can be read at https://catalog.unk.edu/undergraduate/academics/academic-regulations/student-attendance-policy-statement/
UNK Statement of Diversity & Inclusion	UNK stands in solidarity and unity with our students of color, our Latinx and international students, our LGBTQIA+ students and students from other marginalized groups in opposition to racism and prejudice in any form, wherever it may exist. It is the job of institutions of higher education, indeed their duty, to provide a haven for the safe and meaningful exchange of ideas and to support peaceful disagreement and discussion. In our classes, we strive to maintain a positive learning environment based upon open communication and mutual respect. UNK does not discriminate on the basis of race, color, national origin, age, religion, sex, gender, sexual orientation, disability or political affiliation. Respect for the diversity of our backgrounds and varied life experiences is essential to learning from our similarities as well as our differences. The following link provides resources and other information regarding D&I: https://www.unk.edu/about/equity-access-diversity.php
Academic integrity	<p>Any student found in violation of the standards of academic integrity may be subject to both academic and disciplinary sanctions. Academic dishonesty includes, but is not limited to, the following:</p> <p>Cheating: Copying or attempting to copy from an academic test or examination of another student; using or attempting to use unauthorized materials, information, notes, study aids or other devices for an academic test, examination or exercise; engaging or attempting to engage the assistance of another individual in misrepresenting the academic performance of a student; or communicating information in an unauthorized manner to another person for an academic test, examination or exercise.</p> <p>Fabrication and falsification: Falsifying or fabricating any information or citation in any academic exercise, work, speech, test or examination. Falsification is the alteration of information, while fabrication is the invention or counterfeiting of information.</p> <p>Plagiarism: Presenting the work of another as one's own (i.e., without proper acknowledgment of the source) and submitting examinations, theses, reports, speeches, drawings, laboratory notes or other academic work in whole or in part as one's own when such work has been prepared by another person or copied from another person.</p> <p>Complicity in academic dishonesty: Helping or attempting to help another student to commit an act of academic dishonesty.</p> <p>Misrepresentation to avoid academic work: Misrepresentation by fabricating an otherwise justifiable excuse such as illness, injury, accident, etc., in order to avoid or delay timely submission of academic work or to avoid or delay the taking of a test or examination.</p>

Sexual misconduct	<p>Title IX makes it clear that violence, harassment, and discrimination based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources, both on and off campus. 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.</p> <p>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:</p> <p>Local Domestic Violence, Sexual Assault Advocacy Agency 308-237-2599</p> <p>Campus Police (or Security) 308-865-8911</p> <p>Retaliation against the student making the report, whether by students or University employees, will not be tolerated.</p> <p>As a faculty member, I am required by our institution to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide the Title IX Coordinator with relevant details such as the names of those involved in the incident, if I know them.</p> <p>UNK's Title IX Coordinator is:</p> <p>Mary Chinnock Petroski Office of Equity and Compliance Warner Hall, Suite 2113 (308) 865-8655 ; petroskimj@unk.edu</p> <p>Resources: http://www.unk.edu/about/compliance/title-ix-resources/resources.php</p>
Civility and respect	<p>A civil and respectful environment still has to acknowledge we come to our interactions with biases we have learned throughout our lives. Part of what we will do in this class is unpack those biases and try to replace them with more constructive views of the world. In addition, having a civil and respectful environment does not mean we do not have conflict. Rather, conflict is helpful and often needed for real change to take place, but purposefully trying to anger or offend others is not acceptable. Please keep the items below about expected discussion behaviors, and the elements of being a competent communicator, at the forefront at all times, and this will allow all of us to handle conflict effectively.</p> <p>At least 50% of the communication process entails listening. It is expected that each of you will be a respectful listener to whomever is</p>

	<p>speaking. Listening is an active process. Sleeping or “zoning out” are not acceptable “listening” behaviors. Our attention spans are getting shorter and shorter. However, the good news is that attention can be a learned behavior and you can train yourself to pay attention for long periods of time.</p> <p>When answering questions or sharing ideas with the class, you are expected to:</p> <ul style="list-style-type: none"> • Take others into account when formulating responses. • Share views in a respectful manner to others. • Discuss and relate ideas, extend ideas of others--do not talk just to hear yourself talk. • Clarify ideas by seeking opinions from other people. • Make comments related to topic or activity. • Avoid divisive statements. • Avoid interrupting others. • Avoid blaming others. • Use clarifying messages to check the accuracy of perceptions.
Students with Disabilities	<p>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, 175 Memorial Student Affairs Building, 308-865-8214 or by email unkdso@unk.edu</p>
Students who are Pregnant	<p>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/</p>
Canvas How-to	<p>Please visit the following webpage for information and tips on how to maximize your experience and use of Canvas as a learning tool: https://community.canvaslms.com/docs/DOC-10701-canvas-student-guide-table-of-contents</p>
Zoom How-to	<p>https://unk.zoom.us/ https://support.zoom.us/hc/en-us/articles/201362033-Getting-Started-on-Windows-and-Mac</p>
Referencing software	<p>This free software, with its word and browser plugins, will make your life and that of your instructor much easier. Download and learn how to use it. ZOTERO https://www.zotero.org/ How to use Zotero video: https://www.youtube.com/watch?v=BQL_7C-YqBk</p>

Writing and
Formatting

Errors to avoid:

<https://undergrad.stanford.edu/tutoring-support/hume-center/resources/student-resources/grammar-resources-writers/top-twenty-errors-undergraduate-writing>
<https://writingcenter.tamu.edu/Students/Writing-Speaking-Guides/Alphabetical-List-of-Guides/Grammar-Mechanics/Common-Grammar-Errors>

Reach out to people at the Writing Center on campus; they are there to help make sure your work is error-free, polished and professional. See http://www.unk.edu/offices/learning_commons/writing-center.php

Formatting for written assignments that need to be uploaded:

File naming: *Lastname-Assignment-mmddyy.doc/docx*

Font Arial throughout

Font size 12 throughout (even for page numbers)

Citation and referencing style: APA 6th format

Page numbers on bottom right hand corner

Page margins 1 inch on all sides

Line spacing 1.5

Alignment: Left

Headings and subheadings: bold only

Leave a blank space between paragraphs

Avoid the following:

1. Cover page
2. Widows - single lines of text at the top of a page
3. Orphans - first lines of paragraphs at the bottom of a page
4. Tombstones - headings or subheadings alone at the bottom of a page
5. Split lists – lists that are divided between two pages (if possible)

The reference list comes at the end of the assignment, and should start on a new page labelled 'References'.

Taking care of
yourself

Student Health and Counseling info:

<https://catalog.unk.edu/graduate/general-information/student-health-counseling/>

If you have questions about services you have access to, contact Kim Graham, the Student Health Office Assistant, by email grahamks@unk.edu or by phone on (308) 865-8218.

Tips for looking after yourself while studying:

Sleep - Getting the right amount of sleep (between 7 to 9 hours a day) is very important for studying.

Healthy eating – Ensuring you are having a balanced diet, drinking lots of water (coffee, sugary drinks don't count!) as well as eating plenty of fruits and vegetables is key to keep your mind and body healthy.

<https://www.tasteofhome.com/collection/easy-meal-prep-ideas/>

Smoothies are not a fix-all food solution, and here's why:

<https://nutritionstudies.org/are-smoothies-good-or-bad/>, but you can add a scoop of protein powder (regular or plant based) to increase energy content.

Take a break - Make sure you are taking regular breaks to give your body a stretch and grab some fresh air or a snack. In high school, I learnt to organize my days in 2 hour slots with 15-20min breaks in between. Use the timer app on your phones to stick to your time slots, it will help you stay on track.

Exercise – This can't be said enough. Do some exercise to get those endorphins flowing. Research has shown that even exercising for just 15 minutes a day can reduce stress and help you be more productive. Rope skipping, jumping jacks, HIIT workouts...whatever works for you!

Keep a journal - Keeping a journal can be a creative way to deal with thoughts that are spinning in your head. Write down your thoughts, doodles, draw, lists, to-dos, anything that can help declutter your mind. Your journal is yours; not for anyone else to see. You do not have to hold yourself to any standard in it.

Make sure you plan – Productivity increases when you set daily routines and rituals. Paper calendars, phone apps, diary..find a way that works for you.

Create a study space – Contrary to what you might think, your bed and couch are not ideal study/work spaces. Create yourself a designated area away from distractions, and where you can maintain good posture (seated or standing). More info:

<https://www.utep.edu/extendeduniversity/utepconnect/blog/april-2017/7-ways-to-organize-your-study-space-for-success.html>

Build and use your network – You are not alone! Other enrolled in this class likely face the same challenges you do. Reach out to them, make friends, build a study group and check in with each other to hold yourselves accountable. You can run your ideas and thoughts past your friends and family to see if they can help you. You can also always talk to me!

Relaxation – Dedicate time in your weekly calendar/to-do list for relaxing and doing something you enjoy (hobby). It will ensure you come back refreshed and motivated.

BIOL 823 Environmental Biology - Schedule			
<i>WEEK of</i>	<i>TOPIC</i>	<i>Required Reading/Viewing</i>	<i>Work Due</i>
23 Jan	Mod 1 - Earth as a System	Chapters 3 and 4 from the eText Introduction to Systems Thinking McAlpine, C. A., Seabrook, L. M., Ryan, J. G., Feeney, B. J., Ripple, W. J., Ehrlich, A. H., & Ehrlich, P. R. (2015). Transformational change: creating a safe operating space for humanity. <i>Ecology and Society</i> , 20(1).	Assignment 1 due by 30 Jan
30 Jan	Mod 2 – The Natural World (I)	Chapters 5 and 6 from the eText Folke, C., Polasky, S., Rockström, J., Galaz, V., Westley, F., Lamont, M., ... & Walker, B. H. (2021). Our future in the Anthropocene biosphere. <i>Ambio</i> , 50(4), 834-869.	
6 Feb	Mod 3 – The Natural World (II)	Chapters 16 and 17 from the eText Mbizah-How community-led conservation can save wildlife Ted talk WWF Community-based Conservation – Gender equality and women empowerment	Discussion 1: Due by 11 Feb
13 Feb	Mod 4 - Water	Chapters 13 and 21 from the eText Fielding, K.S., Dolnicar, S., Schultz, T. (2019) Public acceptance of recycled water, <i>International Journal of Water Resources Development</i> , 35:4, 551-586, DOI: 10.1080/07900627.2017.1419125	Quiz 1 (Mods 1,2,3,4): Due by 19 Feb
20 Feb	Mod 5 – Humans	Chapters 7 and 8 from the eText UNDP Technical Report 2022 on Environmental Justice	
27 Feb	Mod 6 – Agriculture	Chapter 18 from the eText Brown, M.E., J.M. Antle, P. Backlund, E.R. Carr, W.E. Easterling, M.K. Walsh, C. Ammann, W. Attavanich, C.B. Barrett, M.F. Bellemare, V. Dancheck, C. Funk, K. Grace, J.S.I. Ingram, H. Jiang, H. Maletta, T. Mata, A. Murray, M. Ngugi, D. Ojima, B. O'Neill, and C. Tebaldi. 2015. Climate Change, Global Food Security, and the U.S. Food System. 146 pages. Available online at http://www.usda.gov/oce/climate_change/FoodSecurity2015Assessment/FullAssessment.pdf	
6 Mar	Mod 7 - Urbanization	Chapter 9 from the eText	Discussion 2: Due by 11 Mar
13 Mar		OECD (2018) Rethinking Urban Sprawl: Moving Towards Sustainable Cities https://doi.org/10.1787/9789264189881-en	

		(Read-only access enabled though UNK; login through using your Loper email and password - https://www.oecd-ilibrary.org/environment/rethinking-urban-sprawl_9789264189881-en)	
20 Mar	Mod 8 - Energy	Chapters 10 and 11 from the eText ETIP – Advanced Bioenergy article	
27 Mar	Mod 9 – Pollution	Chapter 19 from the eText Brusseau 2019 article	Quiz 2 (Mods 5,6,7,8): Due by 2 Apr
3 Apr		Chapter 21 and 23 from the eText	
10 Apr	Mod 10 - Climate Change	Chapter 20 from the eText	Discussion 3: Due by 11 Apr
17 Apr		Climate change and environmental justice Naomi Klein: Capitalism and Climate video Cannone, N., Malfasi, F., Favero-Longo, S. E., Convey, P., & Guglielmin, M. (2022). Acceleration of climate warming and plant dynamics in Antarctica. <i>Current Biology</i> , 32(7), 1599-1606.	Assignment 2: Due by 22 Apr
24 Apr	Mod 11 - Sustainability	Chapter 24 from the eText The SDGs: https://www.un.org/sustainabledevelopment/sustainable-development-goals/	Discussion 4: Due by 30 Apr
1 May		Sustainability and Business	Quiz 3 (Mods 9,10,11) Due by 6 May
8 May	Review		
15 May	Final Exam due by 19 May Assignment 3 due by 20 May		

Discussion 1 – Understanding offsets

Discussion 2 – Fashion waste

Discussion 3 – Homes and living conditions of the future

Discussion 4 – When ending drug trade justifies pollution

Case Study – Replicating the Orkney Islands model in US