

COURSE SYLLABUS

BIOL430/BIOL830: Grassland Ecology

Department of Biology, University of Nebraska-Kearney

Term: Spring 2021
Course Credits: 3
Course Delivery: Online - Asynchronous

Instructor

Dr. Jayne Jonas-Bratten

Zoom office hours: Wednesdays, 10 am – 11 am Central, or by appointment. See link in Canvas.

Please contact me any time with questions or concerns. If emailing outside of Canvas, please be sure to include the course number in the subject line to ensure a timely response. I generally respond to messages within 24 hours; it may take up to 48 hours if I'm receiving many messages.

Course Overview

Broadly defined, grassland ecosystems occupy approximately 40% of the terrestrial surface of the Earth. These systems evolved and have been maintained by interactions between periodic droughts, recurrent fire, and herbivory. They also have a long history of use by humans for production of food and, more recently, energy. This course is intended to provide you with an understanding of the physiological, population, community, and ecosystem processes that characterize grassland systems, as well as the roles of fire and grazing in their maintenance. You will also learn about current issues in grassland ecology dealing with land use change, species invasions, and climate change.

Course Learning Objectives

At the completion of the course, you will be able to

1. Identify factors leading to observed spatial distributions of grasslands and shrublands from landscape to global scales.
2. Apply principles of plant population and community ecology to explain functioning of grassland and shrubland systems.
3. Articulate the role of disturbance in maintaining ecosystem structure and function in grassland and shrubland ecosystems
4. Explain and predict the impacts of global change on grassland and shrubland ecosystems, including land use change, species invasions, and climate change.

Required Texts and Materials

- Gibson, D.J. 2009. Grasses & Grassland Ecology. Oxford University Press, Oxford, UK.
- Some required and optional reading materials may be provided via the Library Reserves.
- All other course readings and materials will be posted on or linked in Canvas. Please be sure to check Canvas regularly.

Required Hardware and Software

- As an online course, access to a computer and [Canvas](#) several times a week, if not daily, is required.
- To complete some assignments, you will need to use a word processing software, such as Microsoft Word, Apple Pages, or Google Docs.
 - [Microsoft 365](#) software is available to UNK students for free download.
- Ability to use search engines (for example, [Google Scholar](#) or [LoperSearch](#)) to locate scholarly works is expected. You will practice this skill during the semester if you are not already comfortable, and are encouraged to reach out to the [Natural Sciences Librarian](#) at Calvin Library for assistance if needed.

Important University Dates

- Last Day to Add/Drop Classes Without an Override: January 29, 2021
- Registration Closes: February 5, 2021
- Withdrawal Deadline: Mar 26, 2021
- Spring Break: None
- Finals Week: May 3 – 6, 2021
- See the [UNK Academic Calendar](#) for other important University dates

Course Organization

There are 14 content modules in this course. One module will be presented each week around a particular topic with content consisting of module learning objectives, a brief mini-lecture or set of mini-lectures, assigned readings, and any other assigned learning materials. Optional materials may also be provided. All materials will be posted or linked in Canvas and/or Library Reserves.

There is also a Module 0 in which students will learn the citation style used for writing assignments in this course and review plagiarism and paraphrasing. This module should take approximately 1 hour. There are no points associated with this module, but it must be completed before beginning Module 1.

Participation

As a 3-credit course, it is expected that you will spend approximately [9-12 hours per week working on course-related activities](#). I encourage you to spend at least a little time each day on this course though I recognize this is not always possible. However, the more students are engaged in a course, the more they tend to get out of it.

Course Assessments

All work is assigned to all students and due by 11:59 pm Central Time on the date listed in Canvas and on the course schedule, unless otherwise indicated.

Weekly discussions

Discussion participation: Module discussions provide students an opportunity to examine a peer-reviewed journal article or book chapter relevant to concepts presented in each module. Importantly, they also allow students to support one another in learning. Students are expected to uphold [UNK Values](#) and any principles of community identified by your group to establish the discussion board as a supportive and inclusive learning space.

You will be expected to compose at least **three posts** for each discussion (more are encouraged!): one in direct response to a question posed by the discussion leader on or before Thursday and two in response to posts from other students on or before Sunday of the assigned module week. A grading rubric and information regarding expectations for discussion participation is available in Canvas. Participation in each discussion is worth 15 points. There will be fourteen graded discussions during the semester, but the two lowest scores will be dropped (12 discussion grades will count toward the course grade).

The instructor will follow discussions throughout each module. However, being cognizant that students will be posting at different times during the week and not wanting to steer discussion, the instructor will make limited contributions to discussions unless there are areas in need of immediate attention. Following each module, a summary of group discussions will be posted in which the instructor provides feedback and insight.

Discussion leading (graduate students only): Each graduate student will be assigned two modules to lead discussion. Students are also expected to participate in and will receive a separate participation grade for discussions they are assigned to lead. Discussion leaders are expected to post a journal article relevant to the module topic, provide two to three thought-provoking questions, facilitate discussion throughout the module, and write a brief summary highlighting the main points discussed (20 points per assigned leading). Module assignment schedule, grading rubric, and expectations for discussion leading are available in Canvas.

Literature Review project

Assignments: Throughout the semester, you will research the ecology of a grassland system based primarily on published scientific literature leading to completion of a literature review paper. There will be five assignments worth 5-15 points each. Instructor feedback on these assignments should be used to aid in writing the literature review paper.

Peer review: Each student will review and provide a constructive peer-review of another students' literature review paper by the end of Module 14; undergraduate students will complete one peer-review and graduate students two peer-reviews worth ten points each.

Literature review paper: The completed paper is due by the end of Module 12 (BIOL430: 40 points; BIOL830: 50 points). Upon receiving instructor and peer feedback, students will have at least one week to submit a revision (BIOL430: 80 points; BIOL830: 100 points) due Wednesday of Finals week. Both submissions will be graded to the same standard. The literature review paper submission takes the place of a comprehensive final exam. Guidelines and rubrics for the literature review project are available in Canvas.

Weekly Quizzes

There will be a 10-point quiz in Canvas related to the specific learning objectives of each module, except in the three modules with a scheduled exam (see below). Weekly quizzes will be available Thursday through Friday during which time students can begin whenever they choose. Students will have one attempt to take each quiz and will not be able to stop then resume once started. Once started, students will have 20 minutes to complete each quiz. Of the twelve weekly quizzes, the three lowest quiz scores will be dropped (12 discussion grades will count toward the course grade).

Unit Exams

There will be three open-book, open-note exams worth 50 points (BIOL430) or 60 points (BIOL830) each (Modules 5, 10, and 15). Exams will cover material from lectures, readings, and discussions relevant to stated learning objectives of modules in each unit, including the module in which the exam occurs. Exam questions will focus on material covered in each unit, but they will be cumulative in so far as the material in the course builds upon previously-covered material.

Question formats may include multiple response, multiple choice, true/false, matching, calculations, fill-in-the-blank, short answer, and short essay questions. BIOL830 students will have one essay question to complete as part of each exam. There will *not* be a comprehensive final exam.

All exams are to be completed by each student independently (i.e., not worked on in collaboration with others). Exams will be conducted in Canvas and will not require a proctor. The first two unit exams will be available Friday (12:01 am) through Sunday (11:59 pm) of Modules 5 and 10 and the third unit exam will be available Tuesday (12:01 am) until 3:30 pm on Thursday of Module 15 when the semester ends. During these windows, students can take the exam whenever they choose. Students will have one attempt to take each exam and will not be able to stop then resume the exam once started. Once started, students will have 75 minutes to complete each exam. The instructor will be available for extended office hours during the module of an exam; these special office hours will be posted in Canvas.

Assessments and point distribution*	BIOL430		BIOL830	
	Points	%	Points	%
Module discussions	180	30%	220	31%
Participation (15 @ 15 points each, 3 dropped)	180		180	
Leading (2 @ 20 points each)	n/a		40	
Quizzes/Exams	240	40%	270	38%
Quizzes (12 @ 10 points each, 3 dropped)	90		90	
Unit exams (3 @ 50-60 points each)	150		180	
Literature Review project	180	30%	220	31%
Assignments (5 @ 10 points each)	50		50	
Peer-review (1-2 @ 10 points each)	10		20	
Paper original submission	40		50	
Paper revision submission	80		100	
Total	600	100 %	710	100%

*Adjustments may be made as deemed necessary by the instructor

Final letter grades will be assigned following a straight letter scheme (i.e., no +/-) based on the total earned points as a percentage of the total possible as follows:

A:	90 - 100%	D:	60 - < 70%
B:	80 - < 90%	F:	< 60%
C:	70 - < 80%		

Course Policies

I take my role as your instructor very seriously; I care about how well you do in this course and that you have a challenging and rewarding experience.

Grading Policy

It is my commitment to you to respond individually to the work you submit in this class and to return your work promptly. Discussions and weekly quizzes will be returned within five days, assignments and exams within seven days, and literature review papers will be returned within fourteen days. If grading will take longer than the times listed here, I will keep you informed of my progress and return your work as soon as I can.

If you think there was a grading error or do not understand the feedback you receive on graded work, please contact me as soon as possible and no more than five days after the graded work has been returned to you to be regraded. Regrading may result in a lower score.

Accommodations for cases in which an end of semester grade percentage falls within 0.5% of the next highest letter grade must be requested by the student and will be decided based on participation and engagement throughout the semester. When granted, accommodations will result in a half-letter increase (for example, instead of a B an accommodated student would

receive an A-). Accommodations will not be considered for semester grade percentages more than 0.50% from the next letter grade.

Late Work Policy

As a student enrolled in this course, one of your responsibilities is to submit course work by the due dates listed in the Course Schedule. With that said, there will be 3 discussion participation and 3 quiz scores dropped at the end of the semester because I recognize there may be times when you are unable to complete or submit these tasks on time.

Quizzes and exams: These assessments must be completed within the designated timeframe. Quizzes and exams will not be accepted late unless prior arrangements have been made or if there are documented extenuating circumstances (e.g., family emergency, professional obligations, etc.). Contact the instructor as early as possible if there is a conflict with a scheduled quiz or exam.

Discussions, Assignments, Literature Review: All other assignments submitted late will be penalized one letter grade (10% of points possible on assignment) for each day late unless arrangements have been made prior to the due date or there are documented extenuating circumstances (e.g., family emergency, professional obligations, etc.). Late assignments will be accepted up to 4 days late. If more than 4 days late, the assignment will not be accepted and a grade of 0 (zero) will be recorded for that assignment. Contact the instructor as early as possible if there is a conflict with a scheduled assignment, discussion, or exam.

Extra Credit Policy

Extra credit opportunities may be provided at the discretion of the instructor.

Final Exam Policy

Final examination week is part of the regular semester. Student attendance shall be consistent with University policy. There is no final exam for this course; the Literature Review paper takes the place of a final exam.

Professionalism Policy

Students are expected to uphold [UNK Values](#) and any principles of community identified by the class or your group to establish the course as a supportive and inclusive learning space. You are expected to be engaged in the course, conduct yourself with integrity, and treat others with respect and inclusivity. Critical questions and discussion to advance knowledge and understanding are strongly encouraged as long as they are done in a respectful way. Students who habitually disturb the class and have been warned may suffer a reduction in their final class grade.

Academic Integrity

Academic integrity is a term that encapsulates honesty, trust, fairness, respect, and responsibility among students and faculty. You are expected to follow the [University of Nebraska Student Code of Conduct](#). In particular,

“Students are expected to approach and complete their academic work with integrity. They are expected to do their own work, to be honest in the statements they make, to refrain from harming others, to refrain from improperly helping others, and to follow the rules. Students must read instructions and syllabi carefully so that they know what their instructors expect in terms of academic integrity.

Students who are unsure whether or not particular conduct is appropriate should ask their instructors or university administrators. Failing to act with integrity is a violation of the Code.” (Student Code of Conduct, Section IIA)

You will be asked to affirm the statement as true on all submitted work: ***"By submitting this test or assignment, I unequivocally state that all work is entirely my own and does not violate UNK's Academic Integrity policy."***

Plagiarism: It is of utmost importance in this course to understand and avoid plagiarism. Throughout the course, you will be reading and synthesizing works published by others for discussions and assignments. Writing a literature review and related assignments are a core feature of this course. TurnItIn will be used for writing-based assignments submitted in Canvas. For more information and tips, please visit the TurnItIn's webpage "[Preventing Plagiarism when Writing](#)" or reach out to the instructor for guidance.

If you plagiarize in your submitted work you could lose credit for the plagiarized work, fail the assignment, or fail the course. Each instance of plagiarism, classroom cheating, and other types of academic dishonesty will be addressed in accordance with the [UNK Academic Integrity policy](#).

Students with Disabilities or Who are Pregnant

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

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.

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>

BIOL430/BIOL830: Grassland Ecology

Tentative Spring 2021 Course Schedule

All work is due by 11:59PM Central Time on the date listed, unless otherwise indicated.

Additional reading and related content not listed here will be available in Canvas

Module 0: Finding Literature and Plagiarism Review

25 Jan	Module begins	
	Content	Mini-lectures (1) Other readings (2) Websites/Videos (3)
	Quiz	Must be completed before beginning Module 1
31 Jan	Module ends	

Module 1: Global Distribution and Use of Grasslands

25 Jan	Module begins	
	Content	Mini-lectures (3) Textbook Chapter 1 Other readings (BIOL430: 2, BIOL830:3) Websites/Videos (8)
28 Jan	Weekly discussion	Initial response
30 Jan	Weekly quiz	
31 Jan	Weekly discussion	Replies to groupmates
31 Jan	Module ends	

Module 2: Global Energy-Climates-Vegetation Relationships

1 Feb	Module begins	
	Content	Mini-lectures (3) Textbook Chapter 8 Other readings (BIOL430: 3, BIOL830:4) Websites/Videos (7)
4 Feb	Weekly discussion	Initial response
6 Feb	Weekly quiz	
7 Feb	Weekly discussion	Replies to groupmates
7 Feb	Lit Review Project	Assignment A
7 Feb	Module ends	

Module 3: Physiological Ecology of Grassland Plants

8 Feb	Module begins	
	Content	Mini-lectures (4) Textbook Chapter 4 Other readings (3) Websites/Videos (1)
11 Feb	Weekly discussion	Initial response
13 Feb	Weekly quiz	
14 Feb	Weekly discussion	Replies to groupmates
14 Feb	Module ends	

Module 4: Morphology and Population Ecology of Grassland Plants

15 Feb	Module begins	
	Content	Mini-lectures (3) Textbook Chapters 3 and 5 Other readings (1-2) Websites/Videos (1 Optional)
18 Feb	Weekly discussion	Initial response
20 Feb	Weekly quiz	
21 Feb	Weekly discussion	Replies to groupmates
21 Feb	Lit Review Project	Assignment B
21 Feb	Module ends	

Module 5: Community Ecology of Grassland Plants

22 Feb	Module begins	
	Content	Mini-lectures (3) Textbook Chapter 6 Other readings (2-3)
25 Feb	Weekly discussion	Initial response
27 Feb	Unit Exam	
28 Feb	Weekly discussion	Replies to groupmates
28 Feb	Module ends	

Module 6: Grassland Soils and Soil Ecology (incl water-root relationships)

1 Mar	Module begins	
	Content	Mini-lectures (3) Textbook Chapter-section 7.4 Other readings (3-4)
4 Mar	Weekly discussion	Initial response
6 Mar	Weekly quiz	
7 Mar	Weekly discussion	Replies to groupmates
7 Mar	Lit Review Project	Assignment C
7 Mar	Module ends	

Module 7: Carbon cycling in Grasslands

8 Mar	Module begins	
	Content	Mini-lectures (2) Textbook Chapter-sections 7.1 and 7.3 Other readings (2-3)
11 Mar	Weekly discussion	Initial response
13 Mar	Weekly quiz	
14 Mar	Weekly discussion	Replies to groupmates
14 Mar	Module ends	

Module 8: Nitrogen cycling in Grasslands

15 Mar	Module begins	
	Content	Mini-lectures (2) Textbook Chapter-section 7.2 Other readings (3-4)
18 Mar	Weekly discussion	Initial response
20 Mar	Weekly quiz	
21 Mar	Weekly discussion	Replies to groupmates
21 Mar	Module ends	

Module 9: Biodiversity and Ecosystem Function in Grasslands

22 Mar	Module begins	
	Content	Mini-lectures (3) Textbook Chapter none Other readings (3-4)
25 Mar	Weekly discussion	Initial response
27 Mar	Weekly quiz	
28 Mar	Weekly discussion	Replies to groupmates
28 Mar	Module ends	

Module 10: Fire Ecology in Grasslands

29 Mar	Module begins	
	Content	Mini-lectures (3) Textbook Chapter-sections 9.1 and 9.2 Other readings (2-3)
1 Apr	Weekly discussion	Initial response
3 Apr	Unit Exam	
4 Apr	Weekly discussion	Replies to groupmates
4 Apr	Module ends	

Module 11: Herbivore Ecology in Grasslands

5 Apr	Module begins	
	Content	Mini-lectures (3) Textbook Chapter-section 9.3 Other readings (3-4)
8 Apr	Weekly discussion	Initial response
10 Apr	Weekly quiz	
11 Apr	Weekly discussion	Replies to groupmates
11 Apr	Lit Review Project	Assignment D
11 Apr	Lit Review Project	Paper Outline
11 Apr	Module ends	

Module 12: Invasive Species in Grasslands

12 Apr	Module begins	
	Content	Mini-lectures (3) Textbook Chapter none Other readings (3-4)
15 Apr	Weekly discussion	Initial response
17 Apr	Weekly quiz	
18 Apr	Weekly discussion	Replies to groupmates
18 Apr	Lit Review Project	Paper
18 Apr	Module ends	

Module 13: Restoration and Management of Grassland Ecosystems

19 Apr	Module begins	
	Content	Mini-lectures (3) Textbook Chapter 10 Other readings (2-3)
22 Apr	Weekly discussion	Initial response
24 Apr	Weekly quiz	
25 Apr	Weekly discussion	Replies to groupmates
25 Apr	Module ends	

Module 14: Climate and Land Use Change in Grasslands

26 Apr	Module begins	
	Content	Mini-lectures (3) Textbook Chapter none Other readings (3-4)
29 Apr	Weekly discussion	Initial response
1 May	Weekly quiz	
2 May	Weekly discussion	Replies to groupmates
2 May	Lit Review Project	Peer-Reviews (BIOL430: 1, BIOL830: 2)
2 May	Module ends	

Module 15: Final's Week

3 May	Module begins	
5 May	Final Exam	
6 May	Lit Review Project	Paper Revisions
6 May*	Module ends	

*Semester ends on Thursday, May 6