University of Nebraska - Lincoln
School of Natural Resources
NRES 443/883 Syllabus – Global Change & Ecosystems – Spring 2022

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Office hours: by appointment
Class location and times: Tues & Thurs, 11:00-12:15, HH 228
Course web page: Canvas & http://gamonlab.org

Course Description: This course considers global change from a biospheric perspective, examining global change impacts on terrestrial and aquatic ecosystems. Functional changes to major Earth biomes are a primary consideration, as are the methods of studying and understanding global change. Biological feedbacks (e.g. ecosystem impacts on climate and other earth system processes) along with social and economic aspects of environmental issues will also be considered.

Course objectives and learning outcomes: Students successfully completing this course will become familiar with the ways in which global change alters the biosphere, with the role of biological systems in feedback processes affecting Earth's climate and atmosphere, along with economic and social consequences of global change. Students will become familiar with the scientific literature on biological impacts of global change, will explore the methods used for studying global change, and will learn to express key findings clearly and concisely through oral and written presentations.

Prerequisites: Junior standing and above. Previous coursework in Ecology, Climate, and Spatial Sciences (e.g. NRES218) highly recommended. Students lacking this background may take the course at their own risk, but should not expect supplementary tutoring from the instructor on missed prerequisites.

Course Topics will be selected from the following list. Students may also suggest course topics for consideration. Criteria for course topics are that they must be linked to *ecosystem processes* and must be *global in scope*. A more exact of course topics to be covered will be developed in the first two weeks of the class following initial class discussions.

What is "global change"?	Biogeochemical perturbations (e.g., C, N, H_2O cycles)
What is an "ecosystem"?	Land-use change
Methods of studying global change	Agricultural impacts
Global change causes & evidence	Biodiversity
Arctic ecosystems	Biological feedbacks to Earth system processes
Boreal ecosystems	Emerging diseases
Marine/aquatic ecosystems	Social and economic concerns
Tropical ecosystems	Solutions: Mitigation and adaptation
Prairie/grassland ecosystems	Communicating science

Course Schedule: The course schedule lists topics, readings, student presentation, exam, and deadlines, including assignment dates. Updates to the schedule will be announced in class and posted on the course websites.

Required Readings and other Resources – There is no single textbook for this class. Instead, students will be expected to read, report on, and discuss the peer-reviewed scientific literature, including primary journal articles, review articles, books or book chapters, reports, and selected internet sources. The exact readings will depend upon the topic at hand, and will be announced in class and posted on the class website.

Grading (Undergraduates)	Grading (Graduate Students)

Exams (2 of 3) – 40 points Written summaries (3 of 4) – 30 points Oral presentation (1) – 20 points Class participation and attendance – 10 points Total possible points – 100 points	Exams (2 of 3) – 40 points Written summaries (3 of 4) – 30 points Oral presentation (1) – 20 points Short review paper draft (1) – 10 points Short review paper final copy (1) – 20 points Class participation and attendance – 10 points Total possible points – 130 points

Grade Evaluation - All assignments and examinations in this course will be given numerical point values. A cumulative course score will be calculated from those points, weighted as tabulated above. A final letter grade will be assigned based upon your cumulative score and my analysis of the class's cumulative score distribution. Your final letter grade will reflect a combination of your absolute achievement and relative standing in the class, but will approximate the schedule below.

Grading Sale (%)	
90.0 – 100	A
87.0 - 89.99	B+
80.0 – 86.99	B
77.0 – 79.99	C+
70.0 – 76.99	C
67.0 – 69.99	D+
60.0 – 66.99	D
59.99 and below	F

Exam format – Three in-class exams will be given during the course. Each exam will be a similar length, and will consist of short essay questions on key topics presented in lecture or discussed in class or covered in reading. Sample exam topics and questions will be posted on the class website in advance. Each exam is worth 20 points. If you take all three exams, the lowest score will be dropped. There will be no makeups for missed exams except in compelling, well-documented cases. See the Class Schedule for exam dates.

Written summaries – Each student will be expected to write short (≤2-3 page) written summaries of the scientific literature on selected course topics (see list of possible topics above). Each summary is worth 10 points. If you write all four summaries, your lowest score will be dropped. No late summaries or makeups will be allowed. See the Course Schedule for deadlines. Further guidelines for written summaries will be distributed during the second week.

Oral presentations – each student is expected to present one 20-minute presentation to the class on a topic of the student's choice from the list of course topics (topic selection must be approved by the instructor as part of the participation grade). The exact dates for each student presentation will be determined once final class topics have been assigned (at the end of the second week of class). Further guidelines on student presentations will be provided by the end of the second week of class, and students must select their topics and presentation dates by this time.

Review paper (graduate students only) – each graduate student will be required to complete a short (minimum 5 page) review paper on a topic related to the course, based on the published scientific literature. Topics must be chosen by the end of the second week (as part of the participation grade) and can be aligned with the oral presentation topic. The review is expected to be a critical analysis of a global change topic involving the biosphere, and must consider at least three primary, peer reviewed papers. The paper will be submitted first as a draft (for initial review) and then as a final paper (due at the end of the semester) See further guidelines for review papers and the class schedule for exact dates [final guidelines and schedule to be posted following course approval and enrollment numbers]

Student expectations, including participation and attendance – Students are expected to maintain a campus email address to regularly check email and the course website for updates. Class participation will form 10% of the grade, and will be based on attendance, timely selection of class topics (and review paper topics, for graduate students), online completion of presentation reviews, and active participation in class discussion, typically focused on readings related to the course topics. To facilitate participation, students are invited to bring laptops or cell phones to class, with the expectation that these will allow students to access course materials, submit presentation reviews, and participate in class surveys and discussions mediated by internet (however personal use of phones and computers during class time will be discouraged and prohibited during exams). Points will be assigned for class attendance and participation. Students will be allowed to miss up to 2 classes without penalty (further absences will result in a lowering of the participation grade). Since writing, reading, and speaking are an important part of the course, students are expected to have command of the English language suitable for university level work. Please contact the instructor promptly with any questions regarding expectations for participation, attendance, or use of course material. Note that participation via Zoom, if necessary due to COVID or other absence, will count as class participation.

Missed Exams and Assignments – There will be no makeups for missed exams or assignments. Note that each student may miss up to one exam and one written assignment without penalty (however, it is to the student's advantage to complete all assignments). Students who cannot meet a scheduled oral presentation date due to incapacitating illness, severe domestic affliction, or other compelling reason can apply for a deferred presentation. Deferral is a privilege and not a right; there is no guarantee that a deferral will be granted. Instructors may request adequate documentation to substantiate the student request.

Academic Integrity (plagiarism) – Academic honesty is the foundation of intellectual inquiry and academic pursuit. If you use the ideas of someone else or directly quote any part of a text, article or website (even if not word for word), it needs to be cited. Presenting someone else's work (even one sentence or an idea) as your own is considered plagiarism, please be very aware of university policies and punishments if you fail to heed this warning.

Students are encouraged to contact the instructor to seek clarification of these guidelines whenever they have questions and/or potential concerns.

Care should also be taken not to violate copyrights, and to give full attribution to sources used in completing assignments or projects, including web sources.
First offense: fail that assignment. Second offense: fail the assignment and we must speak to your advisor. A third offense will result in a grade of F for the course. Students are encouraged to contact the instructor for clarification of these guidelines if they have questions or concerns. The SNR policy on Academic Dishonesty and procedures for appeals are available here http://snr.unl.edu/undergrad/undergraduatehandbook.aspx.

Further Exam requirements - Electronic equipment cannot be used. Written materials (notebooks, textbooks, or electronic documents) are not to be brought to exams unless explicitly cleared in advance by the instructor.

Cell phones - Cell phones are to be turned off during class time, unless they are being used for class participation. While cell phones and laptops may be used to facilitate class participation, they are not to be used during exams.

Academic Success – Students are encouraged to seek the advice of the instructor on a regular basis with question regarding course materials, expectations, and academic performance. Students who require additional accommodation in this course are advised to discuss their needs with the instructor in advance. Additional resources are listed below.

ADA Statement - The University strives to make all learning experiences as accessible as possible. If you anticipate or experience barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can discuss options privately. To establish reasonable accommodations, I may request that you register with Services for Students with Disabilities (SSD). If you are eligible for services and register with their office, make arrangements with me as soon as possible to discuss your accommodations so they can be implemented in a timely manner. SSD contact information: 117 Louise Pound Hall Bldg.; 402-472-3787

Mental Health and Wellbeing Resources - UNL offers a variety of options to students to aid them in dealing with stress and adversity. Counseling and Psychological & Services (CAPS) is a multidisciplinary team of psychologists and counselors that works collaboratively with Nebraska students to help them explore their feelings and thoughts and learn helpful ways to improve their mental, psychological and emotional well-being when issues arise. CAPS can be reached by calling 402-472-7450. Big Red Resilience & Well-Being provides one-on-one well-being coaching to any student who wants to enhance their well-being. Trained well-being coaches help students create and be grateful for positive experiences, practice resilience and self-compassion, and find support as they need it. BRRWB can be reached by calling 402-472-8770.

Emergency procedures
Consult UNL emergency planning site for current emergency procedures: https://emergency.unl.edu/

Disclaimer - Any typographical errors in this Syllabus are subject to change and will be announced in class.

Note - Recording is permitted only with the prior written consent of the professor or if recording is part of an approved accommodation plan.

[Current Statement on Mask Mandate to be added for final syllabus]