

BIOL 820: Introduction to Graduate Study

Department of Biology, University of Nebraska at Kearney

Term: Fall 2023

Course Credits: 3

Course Delivery: Online - Asynchronous

Instructor

Dr. Gregory J. Pec, UNK Department of Biology, pecg@unk.edu, office: 308.865.8410

Office hours (zoom link available in Canvas): Mondays 10 AM – 12 PM, Wednesdays 12 PM – 1 PM and Fridays 10 AM – 12 PM Central Time, or by appointment.

Please take advantage of office hours to check-in, ask questions, or follow-up on anything you would like to understand better. Email should be used judiciously to address questions pertaining to course administration/scheduling or urgent matters. I respond to messages as quickly as I can, generally within 24-48 hours. Direct issues related to the course content should be posted to the Canvas forum described below.

Course Description

An introduction to graduate study and requirements at UNK with emphasis on research methods and biological techniques for the professional teacher and biologist. Students will gain an appreciation for the scientific method by formulating scientific questions including null and alternative hypotheses, design experimental methods addressing the hypotheses and propose appropriate statistical tests for evaluation of results. Students will practice the art of locating and understanding scientific literature. In addition, students will engage in scientific writing, which will include the submission of a research proposal. Per the [UNK Graduate Course Catalog](#).

Course Learning Objectives

At the completion of the course, students will be able to: (1) understand the requirements for the degree program (thesis and non-thesis) and complete plausible plans for completion of the degree requirements; (2) effectively apply appropriate formatting, style, and language in professional electronic communications; (3) develop scientific questions and develop testable hypotheses to answer a specific aspect of a scientific question; (4) effectively search for scientific literature using open-source

databases and UNK Library resources; (5) design methods to test a scientific hypothesis with an understanding of the interdependence of data collection and statistical methods; (6) effectively read scientific literature; (7) appreciate the role of the IACUC and IRB in research projects; (8) complete a generic application for funding and have familiarity with common funding sources; (9) write a well-developed scientific review paper on a chosen topic; and (10) use proper citation methods and understand the importance of academic honesty.

Important University Dates

- First day of the session: August 21, 2023
- Last day of the session: December 14, 2023
- See the [UNK Academic Calendar](#) for other important University dates

Recommended Texts and Materials

Recommended Text: Hoffman, Angelika H. Writing in the Biological Sciences. Fourth Edition. 2022. ISBN: 9780197543580.

Whitlock, M.C., Schluter, D. The Analysis of Biological Data. Second Edition (2015). ISBN: 9781936221486 or Third Edition (2020). ISBN:9781319226237. ***Textbook for BIOL827***

Readings are assigned from the textbook to complement the lectures and discussions.

Required Technology

- As an online course, access to an up-to-date computer and Canvas several times a week is required (checking in daily is encouraged).
- An updated PDF reader will also be needed to read course materials.
- You may need to use software, such as Microsoft Word, Excel, or PowerPoint or another equivalent.
- Microsoft365 software is available to UNK students for free download.
- Ability to use search engines (for example, [Google ScholarLinks to an external site.](#) or [the Calvin Library search engine](#)) to locate scholarly works is expected of graduate students. If you are not already comfortable with this, I encourage you to reach out to me or the [Natural Sciences Librarian](#) at Calvin Library for assistance.
- For issues with Canvas or other technologies associated with your university account, please contact the [University technology help desk](#).

Course Organization

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 information.

Participation

The more students are engaged in a course, the more they tend to get out of it. I encourage you to spend at least a little time each day with course material or activities though I recognize this is not always possible.

Communication

Please check course announcements in Canvas frequently. This the primary way I will communicate. Please feel free to reach out to me at any time via Canvas messages, email, or office phone. I will respond as quickly as possible, usually within 24-48 hours. Emails sent after 3 pm (CST) on Fridays will be answered by the following Monday. If sending an email or leaving a voicemail, please be sure to include BIOL 820 in the subject (email) or message (voicemail) so I can prioritize responding to it.

Course Structure and Assessment

All work is due by 11:59 PM Central Time on the date listed in Canvas and on the course schedule, unless otherwise indicated. This course consists of recorded information sessions, reading assignments, and online discussion boards. 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. Understandably, everyone in this class has several commitments other than this class. Nonetheless, as a student who has registered for this class, it is your full responsibility to ensure that you can meet the requirements and commit the needed time for this course. Students are responsible for all material covered, even for assignments that are missed. If you start to fall behind, it may be difficult to catch up. Please do not hesitate to contact me.

Information Sessions: Audio/video information sessions, accompanying presentations, and supplementary resources will be posted on Tuesdays to Canvas.

Assignments:

Discussion Boards (D): Discussion boards will begin on Tuesdays and run through to Monday of the following week. Students will be expected to respond to the discussion question(s) and to other students' comments. This will allow us to talk about the information sessions and answer any questions that students might have. There will be a total of 4 weeks of discussion, each week being worth 10 points (40 points total). Participation marks will be based on the following criteria:

- For the initial post, you will reply to the question(s) posted by Friday (5 points).

- The second part of the assignment is to respond to another of your classmates' postings by expanding on what they have written. These responses are due by the following Monday (5 points).

Further details will be provided for each discussion board assignment. 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](#).

Mini-Assignments (mA): There will be 6 small assignments done throughout the semester to reinforce introduced concepts and provide an opportunity to practice skills. Instructions will be posted on Canvas.

Assignments (A): There will be 5 assignments done throughout the semester that are more detailed and rigorous than mini-assignments. Instructions will be posted on Canvas.

Exams (E): Exams will be time-limited, single attempt, "closed book" (no reference to notes or books). There will be two parts to each exam. Part A will be 50 multiple choice questions, worth 75 pts (timed at 1 hour) and Part B will be 5 short answer questions worth 25pts (timed at 1 hour). Instructions will be posted on Canvas.

Basis for final grade

Assessment	Points
Discussions (4 @ 10 points)	40
Mini-assignments (6 @ 5 points each)	30
Assignments	
A1: Project Ideas	10
A2: Annotated Bibliography	20
A3: Draft and peer-review	20
A4: Mini-Proposal	60
A5: Lightning Talk	20
A6: Review Paper	70
Exams (2 @ 100 points each)	200

Total	470
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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%).

Course Policies and Resources

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. It is my commitment to you to respond individually to the work you submit in this class and to return your work promptly.

Grading Policy

Scores for each assignment will be posted on the course Canvas page. 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. If you would like me to regrade your work, requests should be made within three days after the graded work has been returned to you. Regrade requests may result in a lower grade.

Late Work Policy

As a student enrolled in this course, one of your responsibilities is to submit course work on time. With that said, I recognize there may be times when you are unable to complete or submit these tasks by their due dates. To accommodate this, late assignments will be accepted up to 3 days late. If more than 3 days late, the submission will not be accepted and a grade of 0 (zero) will be recorded for that assignment. Course work will not be accepted late unless prior arrangements have been made due to documented professional or extenuating personal circumstances (e.g., family emergency, participation in university-sanctioned activities, religious observation, etc.). Please contact me as soon as possible to discuss alternative arrangements.

All students at the University of Nebraska Kearney should be aware of the following university-wide course policies and resources.

Attendance Policy

Your instructor may have indicated on their syllabus an attendance policy specific to their class. If so, that is the policy with which you must comply. If no other policy is stated, the University-wide attendance policy will apply.

[Undergraduate Student Attendance Policy](#)

[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.

[Undergraduate Academic Integrity Policy](#)

[Graduate Academic Integrity Policy](#)

Finals Week Policy

The final exam will be administered in the time period scheduled during finals week in accordance with University policy ([Final Exam Schedule](#)). More information about UNK's Finals Week Policy, including when it is appropriate to ask for special accommodations to move a course's final exam, can be found here: [Finals Week Policy](#).

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 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, 175 Memorial Student Affairs Building, 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/Links to an external site.](https://thepregnantscholar.org/title-ix-basics/Links%20to%20an%20external%20site)
[https://nwlc.org/resource/faq-pregnant-and-parenting-college-graduate-students-rights/Links to an external site.](https://nwlc.org/resource/faq-pregnant-and-parenting-college-graduate-students-rights/Links%20to%20an%20external%20site)

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>

Distribution of course materials: Audio or video recording, digital or otherwise, of lectures, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructors or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s). Any further use or dissemination of this material may be in violation of Federal copyright law and University sanctions including failure in the course.

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

Tentative Fall 2023 Course Schedule

All work due by 11:59PM CT unless otherwise indicated. Required content not listed here may be provided in Canvas.

Week	Topic	Recommended Reading	Assessment
1	Introduction	Syllabus	D1
	Why graduate school?		mA1
2	Fields in biology	UNK Biology website Graduate Catalog	mA2
	UNK biology faculty		mA3
	MS degree requirements		
3	What is Science?	Ch.1&10	
	Experimental design and the scientific method		
	What is a Journal Club?	Ch.7&10	D2
	Parts of a scientific paper		
4	Library skills	Ch.4	
	How to properly cite scientific literature		D3
	Best practices for presenting data (Poster/Oral)		Ch.13&14
5	Research proposals and how to write them	Ch.9&15	D4
	Research and regulations		mA4
6	Exam week		E1
7	Introduction to experimental design	Ch.5	mA5
	Introduction to statistical analyses	Part1 (Whitlock & Shluter)	A1
8	Peer review of proposals and manuscripts	Ch.10&11	mA6
		Ch.8	
9	Fall semester break		
10	Job applications - Writing a resume/CV and cover letter	Ch. 16	A2
	Interview skills and your online presence		
	AI and higher education		

	Mini-research proposal prep	
	Review paper prep	
	Optional meetings	
	Mini-research proposal prep	
11	Review paper prep	
	Optional meetings	
	Peer review of proposals cont.	
12	Review paper prep	A3
	Optional meetings	
	Mini-research proposal revisions	
13	Review paper prep	
	Optional meetings	
	Mini-research proposals	
14	Lightning talk and review paper prep	A4
	Optional meetings	
	Lightning talks	
15	Review paper prep	A5
	Optional meetings	
16	Review papers	A6
17	Exam Week	E2

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