Biology 831: Biological Research (A-F) Spring, 2018

Instructor of Record

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About the Course

During this course students will develop, conduct, and write up a research project of their own design. The course is divided into six parts (one credit hour each). Students are expected to have completed Biology 820, Introduction to Graduate Studies plus at least 6 credit hours of graduate Biology credits, prior to enrollment. Each student will be paired with a UNK faculty member whose research interests most closely matches the student's project.

Course Objectives

The goal of this course is to acquaint the student with research associated with the biological sciences. After completing the BIOL 831 course sequence, the student will have developed testable hypotheses, designed a novel set of experiments, completed a thorough literature review, collected and analyzed data, and written a final report in a format agreed upon by the student and his or her research mentor. Biology 831 is offered every semester as 6 individual courses A-F, and each course corresponds to a different aspect of the research process. It is strongly recommended that students not take more than 3 credits of Biology 831 in a given semester. The student's research mentor will determine how many credits a student may take each semester. The requirements for a given credit of research must be completed during that semester. Grades of "Incomplete" are appropriate only when circumstances beyond the student's control prevent completion of the project (see below).

Six Credits, One Project

The work done for each of the BIOL 831 courses are to be part of a single cohesive project. That is, the write up in BIOL 831F must regard the hypotheses developed in BIOL 831A. The courses are to be done in order. **If a student is taking more than one course in a given semester, the student must submit and have each course approved *in order* because subsequent courses are dependent upon previous courses.** For example, if a student has signed up to take BIOL 831A and BIOL 831B the same semester, that student must have BIOL 831A (hypotheses) approved by his or her mentor *before* starting on BIOL 831B (methods) because the methods are obviously dependent upon the hypotheses. That means the student needs to have BIOL 831A completed and approved by (approximately) the midpoint of the semester. Students are required to take BIOL 831B and BIOL 831C simultaneously, but completing BIOL 831C (annotated bibliography) is not dependent on being finished with BIOL 831B. This is the only exception to the rule that students must have work for a course approved by their mentor before going on to the next course. Students should be working on their annotated bibliography during BIOL 831A and BIOL 831B. Obviously students cannot start on statistical analysis (BIOL 831E) prior to completing data collection (BIOL 831D), and the final paper (BIOL 831F) cannot be written without having the statistical analyses (BIOL 831E) approved by the mentor.

Recommended Timeline

Because of the difficulties often encountered in defining solid research hypotheses and uncertainties involved in data collection, the following timeline is *recommended*:

Semester 1: BIOL 831A

Semester 2: BIOL 831B and BIOL 831C (must take simultaneously)

Semester 3: BIOL 831D (enroll in this credit the term you will finish data collection)

Semester 4: BIOL 831E and BIOL 831F

Summary of Each Credit

By the end of:

- **BIOL 831A**: Students will identify a project to investigate, have the project approved by the most appropriate faculty member (hereafter referred to as the student's "research mentor"), develop testable hypotheses (null and alternative hypotheses), and write a referenced justification for the research. There is no set length or number of references required but the document must be thorough and referenced as necessary. References should be from primary, peer-reviewed sources.
- **BIOL 831B:** Students will develop detailed methodology to investigate their chosen hypotheses. Methods should be referenced as necessary. Students should work with their research mentor to identify the source of all materials necessary to complete the project. If possible, students should conduct preliminary trials to identify potential problems. The university offers a grant through Research Services Council (RSC) funding to support student projects. Students are not required to submit the grant, but students who want to request university support must complete the grant as part of the BIOL 831B/C courses. Information about the RSC grant will be posted on this course site. If required, students will begin the IRB (human subjects) or IACUC (animal subjects) approval process. Statistical analyses of data should also be outlined in this submission. ***Students are required to be simultaneously enrolled in BIOL 831C.***
- **BIOL 831C:** Students will conduct a complete literature review (annotated bibliography) of their topic and obtain a minimum of 50 peer-reviewed references related to their research topic. Students may need to obtain resources through interlibrary loan and will arrange them in a style appropriate for their final paper. ***Students are required to be simultaneously enrolled in BIOL 831B.***
- **BIOL 831D:** Students will conduct research as appropriate following their approved materials and methods. If IRB or IACUC approval is required, students cannot start conducting research without approval. Students will document their results using a laboratory or field notebook and photographs. Data collected during the study should be submitted in the form of spreadsheets or field notebooks as appropriate.
- **BIOL 831E:** Students will use appropriate statistics to analyze their results, construct appropriate tables and figures to visually present the results, and use text to verbally describe the results. Students will evaluate their results in the framework of their hypotheses and propose future studies.
- **BIOL 831F:** Students will submit a final report consisting of their findings and discussion of their results with respect to the literature. In most cases the research mentor will be included as the second author. The write up for this credit should pertain to the same project outlined for BIOL 831A.

Submissions and Deadlines

It is highly recommended that students regularly consult with their mentors throughout the semester. While rough drafts can be submitted at any time during the term, ***drafts* must be received by Friday, March 30th .** The mentor will then review the submissions and work with the student to revise the material until the mentor deems it acceptable. Mentors are obligated to provide feedback on drafts submitted by March 30th. If a student does not submit a rough draft by March 30th, the mentor *may not* have time to provide feedback and the final grade may be based on the quality of the unrevised material. Unrevised submissions are likely to receive lower grades than those that have been revised based on mentor's comments.

When the mentor and student have agreed on a final copy of the work, the student is responsible for submitting the final copy to the instructor of record (Dr. Reichart) by uploading the appropriate final documents to the appropriate assignment link on Canvas. As an instructor of record I will then contact your mentor and request your mentor to recommend a grade for your work. **It is the student's responsibility to submit the final copy by email to the mentor AND upload the final copy on Canvas, no later than 5 PM Friday, April 27th.** Documents received after this deadline will not be accepted. If your file is not named correctly, your grade will be lowered by one-third of a letter grade (example: from A^- to B^+). If multiple documents are required (for example, BIOL 831E requires a written document and a spreadsheet), a full letter grade deduction will be made for each missing document.

It is perfectly acceptable (and encouraged) to submit materials early. For example, some students may be completely finished with the requirements for a particular credit by the mid-point of the semester. There is no reason to wait until the deadline to submit materials. If you are taking multiple credits, however, you *must* work on and submit them in order. That is, there is really no way you can effectively work on methodology (BIOL 831B), without approved hypotheses (BIOL 831A). Similarly, there is no way you can write up your final paper (BIOL 831F) without having your data analysis (BIOL 831E) approved by your mentor.

Please save and look over this syllabus before asking questions to which the answer can be found in this syllabus. If the answer to your question can be found in the syllabus, I will simply ask you to read the syllabus. For example, students commonly ask about submission deadlines, and those deadlines are clearly listed above.

Incomplete Grades

A grade of "incomplete" will be considered only if circumstances completely beyond the student's control prevent the student from finishing the required work on time. For example, the weather was simply too wet to perform a prescribed burn prior to the end of the term so the student cannot complete his or her data collection for BIOL 831D. If a grade of "incomplete" is granted, the student will be required to sign a contract and must rectify the "incomplete" grade before permission will be granted to enroll in additional BIOL 831 credits. The contract will specify the length of time the student has to rectify the incomplete grade, and this period of time can be no more than 1 year as dictated by the registrar's office. The contract must be obtained from the instructor of record.

Students with Disabilities or Those Who are Pregnant

Students with disabilities or those who are pregnant are encouraged to contact me for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities or those who are pregnant. To receive accommodation services for a disability, students must be registered with UNK Disabilities Services Coordinator, David Brandt, in the Academic Success Office, 163 Memorial Student Affairs Building, 308-865-8214 or by email brandtdl@unk.edu. For those needing accommodation due to pregnancy, you need to visit with Student Health. The following link provides information for students and faculty regarding pregnancy rights. https://nwlc.org/resources/pregnant-and-parenting-students-rights-faqs-college-and-graduate-

students/

Veterans Services

UNK works diligently to support UNK's military community by providing military and veteran students and families with resources and services to help them succeed. Veterans Services assists with the GI Bill process and acts as a liaison between the student and the Veterans Administration. If you need assistance or would like more information, please contact Lori Weed Skarka at 308-865-8520 or unkveterans@unk.edu.

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) 308-627-4811
Title IX Coordinator 308-865-8655

Copyright Law and Compliance

The materials on the course website are only for the use of students enrolled in this course for purposes associated with this course and may not be retained or further disseminated. The materials on this course website may be protected by copyright, and any further use of this material may be in violation of federal copyright law.

Plagiarism

Plagiarism is defined as taking any sequence of more than three words without proper citation. Taking an idea or image (photograph, table, or graph) without proper citation is also plagiarism and may violate copyright laws. The UNK graduate catalog http://catalog.unk.edu/graduate/academics/academic-regulations/expectations-in-the-classroom/ gives the UNK perspective on this. There are levels of plagiarism:

a. Simple plagiarism: Copying sentences verbatim or taking figures without citation is the most blatant form of plagiarism. Using the ideas of another to support an argument without citing the source of those ideas is another form of simple plagiarism, regardless of whether the wording is verbatim or has been paraphrased.

b. Under-citation:

   i. If you write a paragraph and only cite the last sentence but used more than one source for that paragraph, you have under-cited.

   ii. If you include a source in the list of references at the end of the paper but do not cite that source within the text (within the sentence where the material was used), you have under-cited.

c. Mis-citation:

   i. Indirect citation is when you cite a source that was cited by the source you actually read.

   ii. Citing the wrong source is when you state that some material came from Jones (2004) but it really came from Smith (2003).

iii. Incorrectly citing the source is when you give an incomplete or inaccurate reference that, if followed, does not lead the reader to the source material. Citing web pages requires very careful listing of the URL. One misplaced character can lead to a dead end rather than the correct source. If you direct the reader to a web page that LEADS to the source, that web page *is not* your source; the ultimate page *is*. That is the URL you should use.

If it is found that you have committed plagiarism, you will receive a zero for the assignment, which in BIOL 831 means that you will fail the class. We will maintain a list of offenders and if plagiarism occurs in another class it will be considered a repeat offense. The Senior Vice-Chancellor of Academic Affairs also keeps records of students who commit academic dishonesty.