BIOL 498: Biology Independent Research

Biological research by arrangement with instructor. Literature review, design, and execution of biological experimentation. *Prerequisite: BIOL405.*

"It is the glory of God to conceal a matter; to search out a matter is the glory of kings." Proverbs 25:2

Meeting Time: This course meets as needed or as arranged between the instructor and the student.

Instructor: Chad Heins • Meyer Hall 209 • 507.344.7327 • chad.heins@blc.edu

Office hours: See below After Hours: (until 10 p.m.): 507.469.3445
Please feel welcome to visit with me about any concerns you may have.

Materials

There is no textbook for this course. The student will be responsible for finding research papers that are pertinent to the research question/experiment and also providing their own experimental journal. Materials for experimentation will be acquired as needed by the instructor and student.

Evaluation of Students

Students will be evaluated on the following and rubrics are available on the course website:

- Experimentation (50)
- Paper (85 pts)
- Seminar (50 pts)
- Self Assessment (15)

%	Grade	%	Grade
100-96	A	75-73	C
95-90	A-	72-70	C-
89-86	B+	69-66	D+
85-83	B	65-63	D
82-80	B-	62-60	D-
79-76	C+	59-0	F

Attendance Policy

Students in this course do not have a regularly scheduled time to meet with the supervising professor. However, students are expected to work diligently and complete their experimentation in a timely fashion and meet regularly with their instructor.

Academic Integrity

"A good name is more desirable than great riches;
to be esteemed is better than silver or gold." Proverbs 22:1

With these words and your reputation in mind:

- I expect that students are familiar with Bethany's Academic Honor Code (https://www.blc.edu/honor-code).
- I recommend visiting the Memorial Library's information page about plagiarism: http://libguides.blc.edu/c.php?g=687524&p=4859212.
- I expect you to understand what plagiarism is or to ask me for clarification.
- I expect that all assignments bearing your name will represent your work and express your understanding of the material, not someone else's. You have been assigned the work so that by doing it you will develop independent thinking skills.
- I expect that all ideas, words, and pictures that are not your own will be credited to those persons who deserve such credit.
- I expect that any help that you offer to a fellow student does not go so far as to do their work for them or provide them with the answers. Help them to think independently as well.
- During quizzes/tests, written materials should be place in your bag or out of sight and your cell phone should be in your bag or face-down on the desk in front of you. Do not let your reputation be called into question. If your phone is found in your lap or somewhere else where it can be accessed during a quiz/test, you will receive a score of zero.
- Written assignments that include plagiarized material (either from classmates or other sources) will receive a zero.
- I expect you to accept the consequences of any dishonest actions in the manner of a responsible adult.
- Instances of plagiarism/cheating may result in failure of the assignment/ quiz/test or even the course. Such occurrences are also reported to the Office of the Vice President of Academic Affairs which may take further action if it is warranted.

Objectives of Bethany Lutheran College

By graduation, a Bethany Lutheran College student will:

1. Recognize that the historic Christian faith professes that God the Holy Trinity is the source of all knowledge and truth, and that His wisdom is most clearly revealed in the life, death, and resurrection of Jesus Christ.

2. Demonstrate intellectual, creative, and problem-solving skills.

3. Demonstrate an understanding of personal and public responsibility.

4. Develop habits of thinking that apply to a fulfilling life of learning.

Biology Major Program Goal

To provide a solid framework of biological knowledge from molecular, cellular, organismal, and ecological content areas that will enable graduates to pursue additional study of biology or a vocation in the biological sciences or related fields.

Learning Outcomes of the Biology Major

1. Exhibit knowledge of the basic structures, fundamental processes and relationships of life at the molecular, cellular, and organismal levels.

2. Demonstrate proficiency in the language and terminology of biology and effectively communicate biological knowledge, and ideas.

3. Find and evaluate various types of scientific information such as quantitative data, qualitative data, and that found within research journals, mass media, and the world-wide web.

4. Demonstrate proficiency of basic lab techniques and use of scientific instrumentation.

Course Objectives *(with learning objectives in parentheses)*

By the end of this course, you should be able to do the following:

- Conduct experimentation to test a hypothesis (3, 4)
- Solve problems that arise during execution of an experiment (3, 4)
- Clearly communicate results of an experiment using written and oral means (2)

Students with Disabilities

The Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) require that "no qualified person shall, solely by reason of disability, be denied access to, be excluded from participation in, or the benefits of services, programs or activities or subjected to discrimination under any program or activity receiving federal assistance." If you have a disability, or feel you are in need of accommodations, please contact Kristi Ringen in the Academic Resource Center (kringen@blc.edu, 507-344-7730).

Office Hours

Office hours are when I am available to meet with students. If I have no commitments, I may use that time to run errands or work on my research. It is best practice to set up an appointment by leaving a message on my voicemail (leave your phone number) or by talking to me face-to-face.

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00	OFFICE	OFFICE	OFFICE	BIOL151	OFFICE
9:00	BIOL151	OFFICE	BIOL151	LAB A	BIOL151
10:00	**Chapel**	**Chapel**	**Chapel**	**Chapel**	**Chapel**
10:30	OFFICE	OFFICE	OFFICE	BIOL151	OFFICE
11:30	LUNCH	LUNCH	LUNCH	LAB B	LUNCH
12:30	BIOL370	BIOL405	BIOL370	LUNCH	BIOL370
1:30	OFFICE	MEETINGS	OFFICE	MEETINGS	OFFICE
2:30	OFFICE	BIOL370	OFFICE	OFFICE	OFFICE
3:30	OFFICE	LAB	OFFICE	OFFICE	OFFICE
4:30	Lab Prep		Lab Prep	OFFICE	OFFICE
5:00	Home	Home	Home	Home	Home

I reserve the right to modify, amend, or change the syllabus as the curriculum and/or program requires. Students will be informed of any changes made.