Syllabus BIOT 447: Research sections 1001-1116

Coordinator: Christie Howard  cjhoward@cabnr.unr.edu, 775-784-6243
Coordinator Office Location HMS 207
Office Hours Wednesday 3-4pm
Prerequisite: BCH 400 or BIOL 300 recommended
Credit Hours: 2-4 (can be repeated for a maximum of 9 credits)

Instructors: Faculty mentor chosen by the student with approval from the mentor and the BS-MS Biotechnology program director.

Scheduled hours: Times and days will be determined by the faculty mentor.
2 credits = 6 hours of research per week for 15 weeks (totaling 90 hours)
3 credits = 9 hours of research per week for 15 weeks (totaling 135 hours)
4 credits = 12 hours of research per week for 15 weeks (totaling 180 hours)

Catalog Description: Independent research for Biotechnology majors. Design and conduct research under the guidance of a faculty mentor. Maximum of 9 credits.

Grading Scale:
75% of the student’s grade is based on performance in the lab. 25% is based on the final report or oral presentation. See evaluation below for more information.

Student Learning Outcomes:

- Students will hone their communication skills in oral or written form. Performance will be evaluated through a 3-5 page written report or a PowerPoint presentation due prior to finals week.

- Students will learn professional conduct in a research setting. The student’s performance will be evaluated through a midterm evaluation (optional) and final evaluation.

- Silver Core Objective 14 Application: Students will be able to apply their knowledge and skills from previous classes by completing a project of practical significance. Performance will be evaluated through a 3-5 page written report or a PowerPoint presentation prior to finals week. Performance will also be evaluated using a final evaluation sheet.

Class Structure: BIOT 447 provides undergraduate students with the opportunity to design and conduct scientific research under the guidance of an approved university faculty member (faculty mentor). Your mentor will assign you to work on a specific research problem associated with the research interests of his/her laboratory. Note that this project may not be your own, but may be part of a bigger project being conducted in the laboratory. Weekly time logs should be used to keep track of student participation. A final evaluation will be used to gauge student performance. A final summary paper or oral lab presentation will be given by the student at the end of the semester.
Are You Ready to Conduct Research? Things to Consider: The student will be expected to make an effort to understand the background of the project and how to conduct the research necessary to successfully complete the project. The student will also be expected to work diligently and efficiently when in the laboratory. They will perform their own experiments and prepare their own solutions. Approximately 6-12 hours a week of laboratory time is expected (depending on the number of credits). Don't be surprised if you must allocate unscheduled time during the week to complete an experiment. Also, please be aware that students who are acting like they are just "doing their time" without playing an active role in understanding the goals of the lab, may find that the grade from their mentor is lower than expected.

Student Research Responsibilities

- Each student must work a minimum of 6-12 hrs/week in the lab during the hours designated by the mentor. You and your mentor/direct supervisor should keep a log of the hours you work each week. This will prevent any misunderstandings at the end of the semester.
- You must set up a schedule with your mentor for the days and times you will be working in his/her lab. This needs to be at times when others are in the lab to supervise you.
- You must notify your mentor or direct supervisor as soon as possible if you will be unable to work in the lab on a particular day (due to illness or accident).
- Your mentor may assign papers for you to read as homework. You must promptly read relevant papers and make every attempt to understand them.
- Obey all laboratory safety and common courtesy rules.
- The Environmental Health and Safety Laboratory Training Certification is required within the first month of starting in the lab.
- You must maintain a good work ethic throughout.
- You must maintain a clean and safe work environment and follow all cleanup guidelines. You are expected to properly clean up after yourself before leaving the lab.
- You should communicate often with people in your lab, including your mentor and/or supervisor. The average student costs the mentor between $500-$3000 in supplies alone per semester. This does not take into account the mentor’s time which is taken away from other important projects necessary to keep the lab funded by national agencies. Be an asset to your lab, not a liability.
- For more information on laboratory conduct, see the final evaluation form on the final page of this syllabus.

Plagiarism and other forms of Academic Dishonesty

Plagiarism is trying to receive credit for material that was actually written by someone else. The most common form of plagiarism involves copying sections or statements directly from the literature without proper citation. Even if citations are included, it is not appropriate to turn in work by appending direct quotations from others, including materials from the web or your laboratory partners.

The student will also refrain from other forms of academic dishonesty including, but not limited to, cheating, fraudulently obtaining grades, forgery, and threats. For more details go to the NSHE Standards of Conduct (6.2.2) in the UNR academic catalog.
If an instructor feels that there is an instance of academic dishonesty, the student involved will be given a zero on the assignment along with a further demotion of one letter grade in the course. The student will also be reported to UNR Department of Judicial Affairs. A second instance of plagiarism or dishonesty will result in automatic failure in the course.

**Students with Disabilities**
The Biotechnology Program and the Department of Biochemistry and Molecular Biology are committed to equal opportunity in education for all students, including those with documented physical disabilities or documented learning disabilities. The instructor will meet with the student and staff members of the Student Services Center to formulate a written plan for appropriate accommodations, if required.

**Academic Success Services**
If you have difficulty finding references, please contact Amy Shannon or another reference librarian at the Knowledge Center. For difficulties in writing and structure, contact the Writing Center at 784-6030 or [http://www.unr.edu/writing-center](http://www.unr.edu/writing-center) and ask for a tutor that specializes in the sciences.

**Statement on Audio and Video Recording:** Surreptitious or covert video-taping of an instructor or unauthorized audio recording is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record discussions. Therefore, students should understand that their comments may be recorded.
STUDENT FINAL EVALUATION - BIOT 447

Semester and Year ______________

Due at the end of the semester. This final evaluation form is confidential. The mentor should meet with the student at the end of the term to discuss this evaluation one-on-one. The mentor should keep this record on file for a minimum of two years. If there are any problems, please feel free to contact Dr. Christie Howard at 784-6243 or cjhoward@cabnr.unr.edu.

Name of Student________________________________

Name of Faculty Mentor (Professor)_______________________ Date of Evaluation _______________

75% of total grade: Use the ranking scale below to answer each question.
Performance with 5=100%, 4=90%, 3=80%, 2=70%, 1=60%, and 0=50% or lower.

5 4 3 2 1 0 (A) The ability of the intern to learn and adapt to each assignment.
5 4 3 2 1 0 (B) The efficiency at which the intern meets goals and expectations.
5 4 3 2 1 0 (C) The ability of the intern to perform responsibly in the lab.
5 4 3 2 1 0 (D) The ability of the intern to interact favorably with other employees.
5 4 3 2 1 0 (E) The honesty and/or reliability of the intern.
5 4 3 2 1 0 (F) The ability of the intern to pay attention to detail.
5 4 3 2 1 0 (G) The degree of intellectual curiosity and initiative expressed by the intern.
5 4 3 2 1 0 (H) The ability of the intern to maintain a regular schedule.
5 4 3 2 1 0 (I) Other issues________________________________

___________Average score and percentage for sections A-I

Please use the back of this form to add comments about student performance for future reference.

25% of total grade

________________Letter grade on written report or oral presentation

Overall Grade
Please circle the grade that best summarizes the overall performance of the student based on the grading scales above.

A (100-90%)  B (89-80%)  C (79-70%)  D (69-60%)  F (below 60%)

Mentor's Signature ________________________________ Date___________
STUDENT MIDTERM EVALUATION - BIOT 447

This midterm evaluation is optional, but can be a useful way to provide a student with feedback so that he/she can make improvements before the end of the semester. Please fill out the form and meet one-on-one with the student.

NOT A GRADED DOCUMENT

Semester and Year ________________

Name of Student_______________________________

Name of Faculty Mentor (Professor)_______________________ Date of Evaluation ________________

5 4 3 2 1 0 (A) The ability of the intern to learn and adapt to each assignment.

5 4 3 2 1 0 (B) The efficiency at which the intern meets goals and expectations.

5 4 3 2 1 0 (C) The ability of the intern to perform responsibly in the lab.

5 4 3 2 1 0 (D) The ability of the intern to interact favorably with other employees.

5 4 3 2 1 0 (E) The honesty and/or reliability of the intern.

5 4 3 2 1 0 (F) The ability of the intern to pay attention to detail.

5 4 3 2 1 0 (G) The degree of intellectual curiosity and initiative expressed by the intern.

5 4 3 2 1 0 (H) The ability of the intern to maintain a regular schedule.

5 4 3 2 1 0 (I) Other issues________________________________

Please use the space below to add comments about the student’s overall performance.

Please give a copy of this form to the student so he/she can obtain written feedback and know where to make improvements prior to the final evaluation.