

BME 499 – Independent Research

Course Description: An independent research project with faculty supervision, including experimental, analytical, or numerical simulation research.

Prerequisites: B average in all science courses; permission of instructor and department.

This course can be taken for 1-3 credits. 1 credit equals 3 hours per week spent in the lab.

BME 499 Outcomes (ABET):

- (a) an ability to apply knowledge of advanced mathematics, science, biology, physiology, biotechnology, and engineering
- (b) an ability to design and conduct experiments from living and non-living systems, as well as to analyze and interpret data
- (d) an ability to function on multi-disciplinary teams
- (g) an ability to communicate effectively

Outcome Measures:

Laboratory Notebook. Each student must maintain a laboratory notebook that follows the standards for that laboratory (e.g., for computational/numerical simulations projects, a periodic progress may be required). With Research Supervisor approval, that book may be copied by the student; however, the book is retained by the laboratory (b).

End of Semester report. This report will be 5 pages in length for each credit hour enrolled. The end of semester report will include a detailed description of the project, including an abstract, background introduction to the problem, methodology or approach taken (a,b,g), the progress the student made independently and the progress of the total project (d), as well as a final summary statement of the student's perceived experience. This report will be due by the last day of regular classes, otherwise a grade of I, incomplete, will be assigned. A copy of this report will be sent to both the Undergraduate Program Director and Undergraduate Program Coordinator. Note that this report is not intended to be a finished summary of the science, but instead a documentation of work done in the lab and research experience gained by the student.

Other Outcome Measures. Attendance/Promptness, Level of Engagement In Laboratory Projects, Behavior / Teamwork, General Knowledge (a,b,d).

Grading:

At the end of the semester, the faculty supervisor for the independent research will grade the laboratory notebook, laboratory performance, and the written report based on a rubric. For each of 6 items, the instructor will assign a numerical score of 1 through 4 where 1 is unsatisfactory, 3 is satisfactory and 4 is exemplary. Thus a total of 24 points are available. The grading rubric is attached.