

# Biomedical Engineering Directed Research Guidelines

## BIOMED E 490

(1) Project Selection: Whereas a student goes to a particular faculty member presumably to learn more about the faculty member's area of research interest, generally it will be the faculty member who presents the student with a choice of possible research projects rather than the other way around. In certain cases the student may suggest possible projects that may be acceptable to the project director.

Projects may consist of one or more of the following: (i) an in-depth library search of an area, (ii) the design and/or construction of hardware, (iii) the collection and/or analysis of experimental data, (iv) the generation of computer software.

The project should require some creativity and/or independent work by the student. The faculty member should not expect the student to be a free helper and consequently the project should not require excessive menial work.

(2) Academic Credit: Once a project has been agreed upon, the faculty member and student should establish the credit to be received. Typically, three to four hours per week of actual "work" time is expected for each credit hour given in a normal term. In a half-term, this should be doubled. The "work" time should include the library-search time, the laboratory time, and the final report writing time.

(3) Final Report: A final report must be written by the student to complete the project. The student's report should be a minimum of two typewritten pages explaining the project and what was accomplished, but actual requirements should be negotiated with the professor. All circuit diagrams, final software, and a list of references should be included with the report. The report will be given to the professor for grading **by the last day of final exams** for the semester in which the research is being done. A copy is required for the file.

The standard report form in Appendix A is to be used to provide uniformity.

(4) Course Grade: Grades of A-E are given for 490 directed research. (If 490 is to be used as part student's concentration, then 490 is graded A-E; if 490 is to be used as part of student's unrestricted electives, then 490 is graded P/F. Since 490 is may only be set up on line as either A-E or P/F, if 490 is an elective, then the student must file a drop/add form to modify the course to P/F.)

(5) Report Form Access: The information contained in the written report is intended for use by: (1) members of the Biomedical Engineering faculty who want information about a students research experience and ability; (2) the Executive Committee for student evaluation; and (3) faculty members asked to write letters of recommendation for students. The student will receive a copy of this report.

(6) Financial Remuneration: Directed research credit will not ordinarily be given for work done for financial remuneration.

(7) Non-Faculty and Non-Biomedical Engineering Faculty Project Director: Students may wish to work with project directors who do not hold a faculty appointment (e.g., research associates and research scientists) or with a non-Biomedical Engineering faculty member. In order for proper credit to be given, however, the student must present the Undergraduate Education Committee with a petition (see Appendix B for suggested format) detailing the project to be done and with whom it is to be done. In order for the College of Engineering to accept a grade, a Biomedical Engineering faculty member must sign a grade sheet. Thus, the petition also must include the name of a Biomedical Engineering faculty member who will serve as surrogate and sign the student's grade sheet. It is expected that the faculty member will read the project report and receive from the project director a verbal recommendation before a grade is given.

(8) The final report must be returned to the Biomedical Engineering Office upon completion of the project. A student will not be granted a Bachelor's degree without a copy of the report in said student's file.