

# Department of Biology and Health Sciences

## Honors Thesis Guidelines

The research seminars are generally offered to majors in the Department of Biology and Health Sciences during the Spring semester of their junior year and the Fall semester of their senior year. These courses are designed to provide a comprehensive research experience in which students will demonstrate a working knowledge of research, analytical, analysis, and communication skills that are used in biological research.

### Goals

- To develop research skills in majors and concentrations that are research oriented
- To improve problem solving skills, analytical analysis skills, oral and written communication skills, information technology skills, and awareness of ethical issues in scientific research
- To increase scientific maturity and intellectual discourse
- To improve preparation for occupations in the sciences and entrance and success in graduate and professional schools

### Objectives

Students will be able to formulate a research problem, conduct a review of the literature, and apply laboratory and/or field research techniques and/or, computer and library research techniques for problem solving.

Students will be able to analyze and interpret empirical data.

Students will be able to write in the style of a scientific journal.

Students will be able to present and discuss their research with their peers and faculty at Meredith College and other colleges.

Students will be aware of ethical issues in research.

### Course Description

Under the direction of a faculty member, each student participates in a laboratory, field, or literature research project for two semesters (6 credits, at 3 credits per semester). Students are expected to commit to at least nine hours of research per week during the semester.

If it is consistent with the teaching load and if the faculty member agrees, then the student may select her mentor. Generally, the work involves original research; however, the precise nature of the project is discussed and determined by the student and the mentor. In all cases, the approval of the mentor is required. Students and mentors should meet on a regular basis throughout the semester to discuss the progress of the research.

The research project begins as soon as possible in the first semester as does a search of the literature by the student to familiarize her with the background to the problem and the current status of information on the topic. At least one search of an on-line literature database must be carried out for the project.

Each student in the seminar will give an introductory oral report at the beginning of each semester (a date in February and October will be announced). Each student will also give a more extensive final oral report in April and December. The mentor will present and explain the criteria and feedback for good oral presentations and the mentor will provide discipline-specific criteria. Assessment by the faculty of the first oral presentation will allow the student to improve the quality of the final oral presentation. A guideline for the preparation of the oral reports will be distributed to each student. Each oral report will be supported by the appropriate audiovisuals that may include but are not limited to overhead transparencies, videos, 35-mm slides, posters, and Power Point presentations.

An interim and final written report on the research conducted during each semester is to be prepared in accordance with the recommendations outlined in publications such as the *CBE Style Manual*<sup>1</sup> and the *Handbook of Biological Investigation*<sup>2</sup>. The mentor will present and explain the criteria for good writing and the mentor will provide discipline related writing instructions. The report will include an extensive review of the literature, a statement of the problem, and the methodology used to solve it, the results obtained to that point, a discussion of those results and a list of references cited. Each student will keep a notebook in which all work on the research will be recorded. The notebook will be submitted with the report at the end of the semester. The notebooks must be kept in the manner prescribed by the mentor.

### **Oral and written requirements:**

2 oral reports; interim paper and final paper, to be read by mentor and one other faculty member; notebook.

Final grades are based on evaluations of the student's oral reports (40%), written reports (40%), and the bibliography, the notebook and the student's performance and effort during the semester (20%). As the oral and written reports are technical reports, 20% of the grade for the report will be based on the student's ability to integrate information technology.

<sup>1</sup>*CBE Style Manual* (latest edition) Prepared by the Committee on Form and Style of the Council of Biological Editors. American Institute of Biological Sciences.

<sup>2</sup>Ambrose and Ambrose, *Handbook of Biological Investigation*.