

Biol 480/490 Biology Capstone

Instructor: McShaffrey

General policies

1. For the most part, the Biology Department will pay all **reasonable costs** for supplies and equipment. However, students are responsible for all costs associated with photocopying, film and development, presentation material, computer literature searches, transportation, other non-technical supplies.
2. Attendance at class meetings is mandatory. Attendance will be taken during each meeting; each unexcused absence will cause a deduction of 5% on the final grade. Participation (or lack thereof) in class discussions will be considered when final grades are assigned.
3. Students are personally responsible for planning and progress of their capstone research project. You are expected to consult with your faculty supervisor on a regular basis.
4. Assignments are assumed to be the exclusive work of individual students--plagiarism will be rewarded with a significant grade penalty or a '0', at the instructor's discretion. Plagiarism includes, but is not limited to, having someone else write any portion of your capstone paper, and extracting text with little or no paraphrasing from other sources, even for cited sources. In general, direct quotation from published sources should be kept to a bare minimum.

Oral presentation of capstone projects:

All students will make oral presentations of their senior capstone projects to the Department. The presentations should be 20 min in length, to be followed by 5 - 10 minutes of questions. Visual aids for the presentations will be prepared using PowerPoint.

480 paper drafts

You must make arrangements with your faculty supervisor to have drafts reviewed. You should arrange dates that allow enough time for the paper to be reviewed and returned to you for revision. You should submit reasonably polished drafts (grammar, spelling, referencing, etc; crudely crafted drafts are a waste of your supervisor's time, and may be returned without review. If required by your supervisor, you should turn in the prior draft(s) with the final paper.

480 final papers

Your paper should draw upon the primary literature to address the research question you selected last semester. Your final paper must be at least 30 pages long and include 30 references, half of which must be from the primary literature and of direct relevance to your research topic. Papers with less than these minimums should not expect a grade higher than a 'C'. You are expected to cite references using the "(author, year, page)" format, and the reference format must follow a convention agreed upon by you and your faculty supervisor. The paper must be typed using a microcomputer word processor using 1" margins and 12 pt Times New Roman font, and be double-spaced.

490 Research Project Evaluation

You faculty supervisor and the capstone instructor will develop an overall evaluation of your research project based upon the following criteria:

- 1) Quality of experimental design, e.g.,: Did the project have a testable hypothesis and proper controls? Were the experiments properly designed to evaluate the hypothesis? Was the scientific literature adequately reviewed and consulted to allow successful completion of the project?
- 2) Sufficiency of data collection, e.g.,: Was adequate data collected to evaluate the hypothesis? Did experiments include sufficient replication? Were experiments repeated and/or redesigned when necessary?
- 3) Appropriateness of data analysis and interpretation, e.g.,: Were results carefully assessed and interpreted? Did interpretation include sufficient consideration of relevant published literature?
- 4) Time management, e.g.,: Was sufficient time given to the completion of the project, unavoidable delays due to experimental contingencies notwithstanding.

490 Poster Presentation

Biology 490 students will prepare a poster presentation of the capstone projects. The poster should be of professional quality (i.e., this is not a "Science Fair"-type display) and must fit onto a 30"w x 40"h poster board (provided by Department). More details about posters will be given during the spring semester.

Class Participation

You are expected to come prepared to class and to participate fully in class discussions. This includes participating in discussions, asking questions of speakers, etc.

Grading Policy Your final grade will be determined for work performed over the course of the Fall and Spring semesters. Although interim grades will be posted, students will receive an 'I' at the end of the Fall semester.

Your final grade will be determined on the following basis:

| Assignment | Points | % of total | Due date | Comments |
|---------------------------------|--------|------------|-------------|---------------------------------------------------------------------------------------------------------------------------------|
| Presentation of project status | 25 | ~3% | mid Sept. | = or <5 PowerPoint slides |
| Project summary (1 page) | 25 | ~3% | mid Sept. | What's done?, Goals, Timeline |
| Mid-semester presentation | 50 | ~6% | mid Oct. | 480—organizing paper around a question and assessment of literature. 490—discussion of experimental design and data analysis |
| End of semester presentation | 75 | ~9% | mid. Nov. | ~10 minute presentation on your research (with audience) |
| Key paper presentation | 50 | ~6% | mid. Jan. | |
| Practice final presentation | 25 | ~3% | late Feb. | |
| Final presentation | 150 | ~19% | early April | |
| Project summary | 300 | ~37% | mid. April | 480—research paper 490-poster and research evaluation |
| Participation (25 pts/semester) | 50 | ~6% | | |
| Progress reports (3 @ 20 pts) | 60 | ~7% | | |
| Total: | 810 | | | |

- If for some reason not exactly 810 points are assigned, then the final grade will be calculated on the basis of the points actually assigned.

Capstone Progress Reports. These will be an evaluation by your project supervisor of the progress you have made to date. Due dates will be:

1st Sept 17

2nd October 22

3rd November 19

Failure to turn in a progress report will result in the loss of 20 Points from your final grade. It is fully your responsibility to assure that you can meet with your faculty supervisor early enough to have the progress report completed and turned in on time.

The "Major Field Achievement Test"

As part of the Assessment Plan for the Biology Department at Marietta College, the "Major Field Achievement Test" in Biology is administered to all senior biology majors. The format of this exam includes sections in "Cellular and Subcellular Biology", "Organismal Biology", and, "Population Biology: Ecology and Evolution" which are closely aligned with how the biology program is organized. Since 1996, the Biology Department has administered this exam to graduating seniors as part of the Departmental assessment plan.

You are required to take the major fields exam. Although the results of this exam will not in any way be used as a factor in the grade for this course, failure to take the exam could result in a significantly lower grade for the course. This exam will be administered near the end of the Spring semester. There is no cost to you for taking the exam –the college pays for it. You must, however, follow very strict rules for taking the test. These rules are given to us by the company that produced the exam, and are every bit as serious as those for the MCAT and GRE's, and just as inflexible. You **MUST** attend the session when the exam is given. This test period has to take top priority over any other activity, just as would the GRE or MCAT if you were taking one of them. Although this test is designed to test what you have learned over the four years of your college education in biology, not what you have crammed in at the last minute, this does not mean that you cannot study for this exam. You would be well advised to review relevant materials during this semester before taking the exam.

Why should you try to do your best on this exam? First, as a matter of personal, professional and institutional pride. Second, because the results are used to modify the curriculum for students in the future. In both cases, having Marietta College do well (both now and in the future) reflects well on you as a graduate and may have a tangible effect in your getting a job or promotion someday. The faculty do see the individual scores as well, and can also use that information in writing future letters of recommendation for you as you apply for jobs or to graduate schools. Finally, the results might help you identify weak areas in your education that you might want to strengthen or review before graduate school.