

Biol 481/491**Biology Capstone
Spring 2001**

Text: Davis, Martha (1997) Scientific papers and presentation
Meeting Time: Wed. 5-6:30pm Room 109

Tentative Course Outline

<u>DAY</u>		<u>Text Readings</u>
Jan 10	Review expectations, etc	
Jan 17	Ethical and legal issues	Chapter 12
Jan 24	Statistics Workshop	
Jan 31	Bioethics Discussion	Chapter 13
Feb 7	Bioethics Discussion	Chapter 14
Feb 14	Outlines of presentations & Preview of Slides	Chapter 15
Feb 21	Outlines of presentations & Preview of Slides	Chapter 16
Feb 28	No class	
Mar 7	Spring Break	
Mar 14	Practice presentations (1.5 hr)	
Mar 21	Practice presentations (1.5 hr)	
Mar 28	Final prep for presentation / problem solving?	
FRIDAY MARCH 30	Capstone Presentation Day	
Apr 4	No class	
Apr 11	No class <u>or</u> Major Fields Examination	
Apr 18	Course evaluations; exit questionnaire – Final papers are due (no revisions)	

Finals week: Wed, April 25, 7:00 PM; Major Fields Examination

General policies for Biology Capstone

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 materials
 - computer literature searches
 - transportation
 - 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.

Bioethics Discussion

You are asked to research a topic in bioethics, give a brief overview of the key issues (10 minutes) and lead a class discussion (10 minutes). You are expected to have read at least two papers about your subject beforehand and be knowledgeable of the pertinent key issues.

Oral presentation of capstone projects:

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. The presentations are expected to be supplemented with suitable visual aids of professional quality. Slides may be projected from either a 35 mm slide projector or through the departmental digital projector. If you plan on preparing 35 mm projection slides, printing to film must be done by March 24 (one week before the final oral presentation).

481 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" (not 1.25"; measure them!) margins and 12 pt font, and be double-spaced.

Final papers will be turned in to the capstone instructor on Wed, April 18, by 5:00 PM. You should turn in 2 complete copies of your final paper. The evaluation of the final quality of your paper will be made by your faculty supervisor, with input from the capstone instructor. Late papers will be penalized 10% per day. Your faculty supervisor may also ask you to turn in copies of literature cited in the paper.

481 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. Make these arrangements now! You should submit reasonably polished drafts (grammar, spelling, referencing, etc) for review this semester; 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.

491 Research Project Evaluation

Your 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.

Poster Presentation (Biol 491)

Biology 491 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).

Class Participation

You are expected to come prepared to class, having read assignments, and to participate fully in class discussions. Class participation will be a factor in the final grade. This includes participating in discussions, asking questions of speakers (including student speakers), etc. Why? For the sake of greater success in your future career, it is important for you to practice being prepared and participatory and vocal and assertive (but not abrasive!) in presenting your views. It also demonstrates the level of intellectual effort that you apply to the presentations made by others.

Capstone Presentation & Poster Day will be Friday March 31. Presentations will be made from 1:00 to 4:00 PM and all senior biology capstone students are required to attend the full afternoon of presentations. A formal notice of this event will be sent to all your instructors.

Semester Grade: Your final semester grade will be evaluated on the following basis:

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Bioethics Discussion	10%	10%	Grading Scale 100-90% = A 89-80% = B 79-70% = C 69-60% = D
Presentation Outline & Slide Preview	5	5	
Practice Presentation	5	5	
Final oral presentation	25	25	
Poster	---	20	
Research project assessment	---	30	+/- grades within these limits at the discretion of the instructor.
Final paper	50%	---	
Participation	5	5	

The capstone course instructor will determine the overall course grade for the semester. Failure to turn in an assignment is grounds for failure of the entire course, at the discretion of the instructor. If you have special needs because of a documented learning disability or other disability, please see me immediately to discuss possible accommodations.

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. Starting in 1996, the Biology Department has administered this exam to graduating seniors and this test serves the following purposes: (1) It is part of the assessment plan developed by the department in response to requirements from the agency that accredits the college. We must have an assessment program and in order for it to be objective, we must have an independent test. (2) It allows us to determine areas of strengths and/or weaknesses in our curriculum, and helps us to refine our program. As the program is refined, our graduates will be better prepared for the workplace or for graduate/professional studies, and thus the value of their (and their predecessors') education increases. (3) It allows the students a chance to measure what they have learned, and to discover areas of weakness. This can be a help in applying to graduate or professional schools and in planning a graduate/professional program. (4) Although most of you will, by late spring, have already taken such tests as the GRE or MCAT, some of you will not have, and the major fields test will be useful practice. In fact, if you have taken other assessment tests, the major fields test may provide you with additional evidence of your mastery of biology.

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 during the final exam time scheduled for this course. 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 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.

Portfolio (0 pts.)

All students taking the Senior Capstone experience in biology will maintain a portfolio of selected written assignments prepared for biology classes. Each portfolio will contain examples of unrevised lab reports selected by the student from biology courses numbered 300 or higher, and the written report/poster of their Senior Capstone project. Notice that since everything in the portfolio will have already received a grade or will be graded as part of the senior capstone, no points are included for the portfolio in the grade for the senior capstone course. However, failure to put together and pass in this portfolio will result in a significant lowering of the final grade for the course. All computer files (data, Word, Excel, Powerpoint) used for the senior

capstone must also be placed in the appropriate directory on the server. Earlier versions of these files should be deleted.