

BIO 391 – Senior Projects I
Course Syllabus - Fall 2009
Dr. Kenneth Klemow

Primary Course Objective:

To serve as the first part of a capstone sequence for Senior Biology majors that will allow them to conduct an open-ended problem-based project, so as to integrate information gained during their careers at Wilkes.

Projects can be one of two types:

- a. A scientific assessment of a question that involves *hypothesis testing, data collection and data analysis*.
- b. An effort that addresses a need that results in a *deliverable*.

By virtue of completing this course, students will:

1. Work as part of a team under the direction of a faculty mentor to identify and address a study problem.
2. Identify and master existing literature that bears upon the problem.
3. Identify appropriate methodologies to address the problem.
4. Prepare a written research proposal that summarizes and properly references the appropriate literature, identifies gaps in our knowledge, states questions, poses an hypothesis, and outlines methodologies.
5. Begin to use the identified methods to collect data or prepare the deliverable.
6. Where appropriate, apply relevant statistical tests to begin to analyze the data
7. Provide periodic oral progress reports.

Ultimate objective:

To prepare students for BIO 392 in which they will complete the work initiated in BIO 391 and present their findings. Project conclusions will be in the form of a poster presented at Biology Research Night in April 2009, as well as a manuscript in the form of a journal article that will be completed during the final week of the semester. Students may also present their findings at local, regional, national, or international conferences.

Course calendar

- 31 Aug. – Course introduction
- 7 Sept. – NO CLASS
- 14 Sept. – Forming the teams, Q&A session
- 21 Sept. – Refresher on how to search and read scientific literature
- 28 Sept. – Preparing for life after Wilkes
- 5 Oct. – Student presentations: team goals
- 12 Oct. – How to prepare a proposal
- 19 Oct. – Proposal workshop
- 26 Oct. – TBA
- 2 Nov. – Student presentations: Finalized proposal
- 9 Nov. – Student presentations: Finalized proposal
- 16 Nov. – TBA
- 23 Nov. – TBA
- 30 Nov. – TBA
- 7 Dec. – Student presentations: Final semester report
- 14 Dec. – Student presentations: Final semester report

Course grading

- Presentation 1: 20 points (20 team, 0 individual)
- Presentation 2: 30 points (15, 15)
- Presentation 3: 40 points (15, 25)
- Research proposal (Due 13 Nov.): 40 points (40, 0)
- Final report (Due 18 Dec.): 20 points (20, 0)
- Mentor recommendation: 50 points (0, 50)
- Total: 200 points

Grade assignment:

180 - 200 points = 4.0	170 - 179 = 3.5	160 - 169 = 3.0
150 - 159 = 2.5	140 - 149 = 2.0	130 - 139 = 1.5
120 - 129 = 1.0	<110 - 179 = 1.0	

Note: Schedule and grading are subject to change. Students will be given appropriate notice of any changes that are implemented.

Required reference : Pechenik, J.A. 2004. *A Short Guide to Writing about Biology* (5th Edition. Little, Brown & Co. (Available at Wilkes U. Bookstore)

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Academic Honesty Policy

As with all courses at Wilkes, students are expected to adhere to the academic honesty policies outlined in the Wilkes Student Handbook. Any student found to be in violation of any policy will be subject to disciplinary action that may involve a reduced grade or expulsion from the course.

Since students will be carrying out work that may be disseminated to a wider scientific or lay audience, students will be expected to adhere to appropriate scientific conduct. In particular, students will properly cite all published sources (including those in print and online media), collect data with scrupulous honesty, and honestly report their findings. In no case should students fabricate results, merely to “have something to present.” Students found to be in violation of those standards will receive disciplinary action as determined by the Wilkes Biology Department. Should any falsification be discovered after presentation to an outside audience, students would then fall under Wilkes’s Research Misconduct Policy.

About teamwork:

Students will normally participate in their project with 1-3 other classmates. Working as part of a team reflects changes in the culture of science over the past twenty years. At a professional level, team members often have complementary experience that allows them to tackle questions that no single scientist can address.

In BIO 391-392, participants in a team will likely have differing skills that they can bring to the effort. However, as students, each member will have his / her own aptitude and motivation for the project at hand. Often, challenges will arise regarding responsibilities and accomplishments. Recognizing those dynamics, students will be graded both on their own performance and on the quality of the group effort.

Should a dispute arise among members of a team, all participants will be encouraged to resolve the issue on their own. Should efforts to solve the issue internally not be successful, students should see the faculty mentor. In those cases where the mentor cannot successfully resolve the issue, the course instructor will intervene as a last resort and apply a remedy, which may involve reconstituting the team.

Working with your mentor:

All students will pursue projects with a faculty mentor (or in some cases with more than one mentor). A successful relationship will involve open and clear communication with your mentor, typically achieved through regular meetings.

The primary role of the mentor is to provide guidance during all phases of the project, based on his / her expertise. To that end, they serve as consultants. While some mentors are more hands-on than others, the ultimate responsibility for the success or failure of the project lies with the student team. Students will be expected to meet regularly with their mentors. However, mentors will not be expected to be materially involved in the day-to-day execution of the project.