

## HONORS SUPPLEMENTAL SYLLABUS

**COURSE/TITLE/UNITS: BIOL 180 Principles of Biological Science: Molecules, Cells, and Genetics - FALL 2014**

**INSTRUCTOR: Daniel Gilison**

**CRN 10318 Credits 4**

**In addition to the regularly assigned coursework on the syllabus, the student will complete the following:**

### DESCRIPTION OF HONORS REQUIREMENTS

1. **Prepare a Research Proposal:** Honors students will be required to demonstrate the ability to perform the process of scientific inquiry within the realm of molecular biology, cellular biology, or genetics. The student will be required to develop a falsifiable hypothesis and develop a research proposal, similar to what is done for a qualifying exam in a graduate school program.
2. **Office Brainstorming Hours:** The student will arrange to meet with the instructor a minimum of 4 times during the semester in order to obtain guidance in: 1) creating a hypothesis, 2) developing an appropriate research proposal, and 3) research and literature review.
3. **Review of Scientific Literature:** A thorough review of the scientific literature will be conducted in order to: 1) gain information about the current knowledge of the topic being investigated, and 2) obtain ideas for experimental design development. Evidence of a complete review of the scientific literature will be demonstrated by incorporating citations into the background, methods, and conclusions sections of the required manuscript. Between 8 – 10 peer-reviewed research articles from respected scientific journals will be used.
4. **Writing Requirements:** A research proposal stating the hypothesis and describing the research design must be submitted prior to conducting the experiment (10 – 12 pages). This will be done in the format of research proposals (abstract, specific aims, background and significance, research design and methods, conclusions and discussion, references).
5. **Presentation of Research Proposal:** The student must prepare a power point (or equivalent) presentation for the class (15 minutes). The presentation must follow the format used by investigators who present their findings at national and international scientific conferences.

**OBJECTIVES:** Upon successful completion of the course the student will be able to accomplish the learning objectives stated in the regular syllabus and the objectives listed below for the Honors contract:

1. Discuss primary research literature and understand how science is performed and described. (ILO4)
2. Demonstrate the ability to think like a scientist by coming up with a valid experimental design. (ILO2)

## REGULAR COURSE REQUIREMENTS

Examinations (4)	480 Points
Comprehensive Final	150
Lab Exam	110
Paper discussions (4)	80
Lab Worksheets (10)	100
Lab Reports (6)	180
<b>Total Regular Points:</b>	<b>1100 Points</b>

## HONORS SUPPLEMENTAL COURSE REQUIREMENTS

4 Office hour meetings	20
1 Study Proposal Manuscript	220 total Honors Points
Abstract	20
Specific Aims	20
Background and Significance	65
Research Design and Methods	65
Conclusions and Discussion	20
References	30
1 Presentation	50
<b>Total Honors Points:</b>	<b>290</b>
<b>Maximum points achievable:</b>	<b>1,390 Points</b>

**Honors Points:  $290/1100 = 26\%$  extra course work**

***\*\* NOTE: Please assess your class schedule, workload, and non-school related responsibilities prior to signing the Honors contract. Performing science- is a serious endeavor that will require a considerable time investment. Once you sign the Honors Contract you must complete the semester as an Honors Student, you cannot switch back to the Non-Honors course.***