BIOL 498 Research Seminar

Lecture Instructor: Dr. Geraldine Grant  
Credits: 2

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Office hours: M-F by appointment

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Phone #: 703-993-4292

No textbook is required for this course.

COURSE OBJECTIVES:

This course is for students enrolled in the biology research semester program. The goal is to enhance understanding of current topics in biology, especially those related to research being conducted by students in the research semester program. During this course the student will learn to read, assimilate, understand and critique basic scientific papers. The student will also learn to how to present scientific research to an audience.

COURSE FORMAT:

Current primary research articles from scientific literature will be selected either by the instructor or student. These articles will be approved (by the instructor) and posted on Blackboard (login: at https://mymasonportal.gmu.edu under the “courses” tab) and/or emailed during the semester. Every student must frequently check his/her GMU e-mail to ensure receiving messages in a timely fashion.

Students are expected to:

- Read the assigned articles and write a summary before each class session.
- Each summary should address the questions mentioned below in Article Summaries/Homework, and be at least one page (double-spaced, font size 12).

This homework is due prior to the class in which the article will be discussed. Students will receive each article at least one week before the discussion date.

Please come to class prepared to discuss the articles – you will also be asked to work in groups. Your level of participation during class will determine a significant portion of your grade. Expectations for the article summaries and an explanation of how class participation will be evaluated will be reviewed during the first class meeting.

As the semester progresses, the seminar instructor will consult with your research mentor and solicit scientific literature that you should read. On a rotating basis,
students will be asked to present and lead a discussion on papers suggested by his/her research mentor. Near the end of the semester, each student will prepare a Poster on her/his own research.

During the last week of the semester, students are required to prepare these posters to be presented at an organized “Research Day” event to take place at the Prince William campus on first Tuesday of December and at the Fairfax campus on Thursday of that week – you will be informed of the exact details closer to the event.

COURSE POLICIES:

- Abide by the honor code (see: http://academicintegrity.gmu.edu/honorcode)
- Avoid plagiarism (inadvertent or otherwise): The article summaries should be your own work.
- Late assignments will not be accepted.
- There are no extra credit assignments for this course.
- Lack of participation (either through absence or silence in class) will negatively affect your grade.
- Email your summaries to your instructor using your GMU email accounts.

GRADING:

<table>
<thead>
<tr>
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<th>Percentage of Grade</th>
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<tbody>
<tr>
<td>Homework/Summaries</td>
<td>25%</td>
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<tr>
<td>Presentations</td>
<td>65%</td>
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<tr>
<td>Group presentation</td>
<td>15%</td>
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<tr>
<td>Individual presentation</td>
<td>30%</td>
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<tr>
<td>Poster Presentation</td>
<td>20%</td>
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<tr>
<td>Participation</td>
<td>10%</td>
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Assignments/Grading

The student will be evaluated on the completion of the following assignments:

Article Summaries/Homeowrk (25% of final grade)

a) Students are required to read and submit (via assignments on Blackboard) a written summary for each paper to be presented in class – no later than 12 hours prior to the presentation. The summary must answer the following questions
o What was the Question/Hypothesis this group was trying to answer?
o How did they go about proving/disproving this hypothesis?
o What did they conclude?
o How is this work important to the scientific community and the community at large?

b) Student will also develop an abstract for a given paper which has no abstract (See schedule).

**Presentations:** (65% of final grade)

1. Student will be required to select a primary research paper which they will submit for potential presentation. You may find this article on your own, or you may choose from editorials and newspaper reports that Dr Grant will provide. All selected articles must be submitted for approval to Dr Grant. The science librarian will assist you in finding these articles if you have difficulties.

2. In weeks 5-9 students will be split into groups. Each group will be assigned a paper to present. **Students will work together as a team** to understand and breakdown this paper. Each group will generate a PowerPoint presentation of said paper. Each student within the group will be assigned one section (Introduction, Methods, Results and Discussion/Conclusion) and present as a team (15%).

3. Students will also be graded on a second presentation in which they present, in 30 – 35 min their chosen paper (30%).

4. Students will be required to complete a poster of their chosen individual research (20%).

Presentation – Group and individual – will use the rubric for student presentation.
<table>
<thead>
<tr>
<th>Week</th>
<th>Details</th>
<th>Assignment</th>
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</thead>
</table>
| 1:   | Introduction/Overview  
      How to find a paper | Choose a paper by Sept 21st – must be approved by Dr Grant |
|      | **NO CLASS –** | **Labor Day** |
| 2:   | Anatomy of a paper:  
      Intro  
      Materials/Methods/Techniques | |
| 3:   | Results  
      Discussion/conclusions | |
| 4:   | Bibliography  
      Abstract | Given a paper without the abstract – write the abstract due end of semester |
| 5:   | Groups formed and papers assigned.  
      Presentation and Poster format  
      Zotero Training | |
| 6:   | Work on presentation in class as groups. | |
| 7:   | **Group 1 presents**  
      **Group 2 presents**  
      **Group 3 presents** | Summary due <12 hours before class  
      Peer evaluation – due end of class.  
      **Issues and Questions** |
| 8:   | New Groups formed and new papers assigned.  
      Work on presentation in class as groups. | Summary due <12 hours before class  
      Peer evaluation – due end of class. |
| 9:   | **Group 1B presents**  
      **Group 2B presents**  
      **Group 3B presents** | Summary due <12 hours before class  
      Peer evaluation – due end of class  
      **Issues and Questions** |
| 10:  | Individual Presentations  
      Student 1  
      Student 2  
      Student 3 | Summary due <12 hours before class  
      Peer evaluation – due end of class |
| 11:  | Individual Presentations  
      Student 4  
      Student 5  
      Student 6 | Summary due <12 hours before class  
      Peer evaluation – due end of class |
| 12:  | Individual Presentations  
      Student 7  
      Student 8  
      Student 9 | Summary due <12 hours before class  
      Peer evaluation – due end of class |
| 13:  | Individual Presentations  
      Student 10  
      Student 11  
      Student 12 | Summary due <12 hours before class  
      Peer evaluation – due end of class  
      **Posters should be printed this week. email Dr. Grant your PowerPoint.  
      Abstract assignment due to Dr. Grant by email.** |
| 15.1: | Students Present posters at PW  
      Bull Run Hall | |
| 15.2: | Students Present posters at Fairfax  
      Exploratory Hall | |
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<thead>
<tr>
<th></th>
<th>Inadequate</th>
<th>Average</th>
<th>Admirable</th>
<th>Outstanding</th>
<th>SCORE</th>
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<tbody>
<tr>
<td><strong>Knowledge and Content</strong></td>
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<tr>
<td>Organization of presentation</td>
<td>Hard to follow; sequence of information jumpy</td>
<td>Most of information presented in sequence</td>
<td>Information presented in logical sequence; easy to follow</td>
<td>Information presented as interesting story in logical, easy to follow sequence</td>
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<tr>
<td>Background content</td>
<td>Material not clearly related to topic OR background dominated seminar</td>
<td>Material sufficient for clear understanding but not clearly presented</td>
<td>Material sufficient for clear understanding AND effectively presented</td>
<td>Material sufficient for clear understanding AND exceptionally presented</td>
<td></td>
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<tr>
<td>Methods</td>
<td>Methods too brief or insufficient for adequate understanding OR too detailed</td>
<td>Sufficient for understanding but not clearly presented</td>
<td>Sufficient for understanding AND effectively presented</td>
<td>Sufficient for understanding AND exceptionally presented</td>
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<tr>
<td>Contribution of work to science and the world</td>
<td>Significance not mentioned or just hinted</td>
<td>Significance mentioned</td>
<td>Significance explained</td>
<td>Significance exceptionally well explained</td>
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<tr>
<td>Knowledge of subject</td>
<td>Does not have grasp of information; answered only rudimentary questions</td>
<td>At ease with information; answered most questions</td>
<td>At ease; answered all questions but failed to elaborate</td>
<td>Demonstrated full knowledge; answered all questions with elaboration</td>
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<tr>
<td><strong>Presentation Skills</strong></td>
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<td></td>
<td>Score</td>
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<tr>
<td>Graphics (use of Powerpoint)</td>
<td>Uses graphics that rarely support text and presentation</td>
<td>Uses graphics that relate to text and presentation</td>
<td>Uses graphics that explain text and presentation</td>
<td>Uses graphics that explain and reinforce text and presentation</td>
<td></td>
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<tr>
<td>Mechanics</td>
<td>Presentation has more than 10 misspellings and/or grammatical errors</td>
<td>Presentation has no more than 5 misspellings and/or grammatical errors</td>
<td>Presentation has no more than 2 misspellings and/or grammatical errors</td>
<td>Presentation has no misspellings or grammatical errors</td>
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<tr>
<td>Eye Contact</td>
<td>Reads most slides; no or just occasional eye contact</td>
<td>Refers to slides to make points; occasional eye contact</td>
<td>Refers to slides to make points; eye contact majority of time</td>
<td>Refers to slides to make points; engaged with audience</td>
<td></td>
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<tr>
<td>Elocution – not ability to speak English language</td>
<td>Mumbles Voice is low; difficult to hear</td>
<td>Voice fluctuates from low to clear; difficult to hear at times</td>
<td>Voice is clear with few fluctuations; audience can hear well most of the time</td>
<td>Voice is clear and steady; audience can hear well at all times</td>
<td></td>
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<tr>
<td>Length and Pace</td>
<td>Short; less than 20 min Spoke too fast or had nothing to say!!</td>
<td>long &gt;50 min OR dragging in parts</td>
<td>Adequate 30-35 min Most of the seminar well-paced</td>
<td>Appropriate (40 min) Well-paced throughout</td>
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