

Bio 444H: Honors Molecular Biology

General Course Description:	Briefly describe the non-Honors version of the course (or attach syllabus). Syllabus is attached																		
Honors Contract Topic:	Summarize this project and explain how it individualizes the course. <i>I will analyze the <u>luxA</u> gene from 2 strains of glowing bacteria (pUWL500 and pUWL501). This is an extra project that I will complete in lab.</i>																		
Methodology/Approach:	List the activities the student will do to complete the project. <i>I will isolate a plasmid from two strains of glowing bacteria, pUWL500 and pUWL501, each of which contains a luxA gene located within a Sall fragment from the genome of <u>Vibrio fischeri</u>, a bacterium housed within light organs of deep-sea fishes. I will compare the plasmids using a series of restriction enzymes to produce digestion fragments, which will be separated from one another via agarose gel electrophoresis. Comparison of the gel patterns should reveal differences in the organization of the plasmids. To confirm that I have obtained the luxA gene on a Sall fragment, I will cut the Sall fragments out of the gel, clean them up, insert them into a pGEM vector, transform <u>E. coli</u> with the recombinant plasmids, and confirm that my transformants glow. If they do, I'll store the isolated Sall fragments for use in further studies, and if time allows will try to sequence the Sall fragments from the pUWL 500 and 501 strains. As part of my regular classwork, I will isolate a plasmid from a third strain of bacteria, insert <u>Vibrio</u> fragments into it, use it to transform cells, use a miniprep technique to isolate the recombinant plasmids, and run a gel on Sall digestion products of the recombinant plasmids; however, this project will take me a step further by allowing me to a) examine two other strains of bacteria and b) analyze their plasmids with a variety of restriction enzymes.</i>																		
Resources:	List specific resources for gathering information for the project. <i>My professor will be my resource for experimental design and problem-solving. My lab manual will be my resource for methods.</i>																		
Evaluation:	Explain the standards for grading the student's work and percent of the semester grade for the project. Please detail how the course grade will be determined for both non-honors and honors students.																		
Grade Distribution/Criteria:	Please list the grade breakdown for both non-honors and honors students in the course.																		
Course Component	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%; text-align: center;">Non-Honors (Points or %)</th> <th style="width: 35%; text-align: center;">Honors (Points or %)</th> </tr> </thead> <tbody> <tr> <td><u>4 exams</u></td> <td style="text-align: center;"><u>56%</u></td> <td style="text-align: center;"><u>56%</u></td> </tr> <tr> <td><u>comprehensive final</u></td> <td style="text-align: center;"><u>15</u></td> <td style="text-align: center;"><u>15</u></td> </tr> <tr> <td><u>class work and homework</u></td> <td style="text-align: center;"><u>4</u></td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td><u>lab</u></td> <td style="text-align: center;"><u>25</u></td> <td style="text-align: center;"><u>29</u></td> </tr> <tr> <td style="text-align: right;">SUM</td> <td style="text-align: center;">100%</td> <td style="text-align: center;">100%</td> </tr> </tbody> </table>		Non-Honors (Points or %)	Honors (Points or %)	<u>4 exams</u>	<u>56%</u>	<u>56%</u>	<u>comprehensive final</u>	<u>15</u>	<u>15</u>	<u>class work and homework</u>	<u>4</u>	<u>0</u>	<u>lab</u>	<u>25</u>	<u>29</u>	SUM	100%	100%
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