BIOM/CIVE 533 Biomolecular Tools for Engineers

Fall 2014 Syllabus

Course Objectives: The objective of this course is to provide engineering students with the opportunity to learn cutting-edge skills in the application of biomolecular tools to biomedical engineering, environmental engineering, and related engineering disciplines. By the end of this course, students should be able to carry out and/or understand basic qualitative and quantitative biomolecular analyses, including DNA extraction, RNA extraction, gel electrophoresis, PCR, cloning, protein purification, and sequencing. This course covers molecular application for diagnostic purposes in the clinical laboratory, including microbiology, virology and genetics. Additionally, the course will cover research focused applications of biomolecular tools in engineering fields.

Prerequisites: MIP 300 or BMS 300, or a similar course

Meeting Times: Tues: Lecture and Discussion, 11:00am -1:00pm, ANSCI 135
Friday: Lab, 12:00 - 2:50 pm, Yates 314

Course website: https://ramct.colostate.edu/

Instructor: Susan De Long
Susan.de_long@colostate.edu
Office phone: 491-6606
Scott Bioengineering 248

Office Hours: TBA

TA: Bryce Schroder
bschroder1@hotmail.com


Students are required to purchase a lab notebook, lab coat, and goggles. Lab protocols will be provided and readings will be assigned.

Course Format: Tuesdays generally will be dedicated to lectures and student presentations of readings and class discussion. Each student will be assigned one article to read and present to the class during the semester. All students are expected to read the articles prior to the class period and to prepare at least three thoughtful questions for discussion. Fridays provide the opportunity to learn the methods “hands-on.” Students will be paired up into teams of two or three to conduct laboratory exercises for the semester. Students must be familiar with the protocols before the lab meeting time (there will be weekly quizzes). All students must keep a detailed lab notebook recording what is done in the lab.
**Evaluation:** There will be lab quizzes, a mid-term exam, a final exam, and lab reports. Class presentations and overall participation (more than “showing up”) will also comprise a significant portion of the final grade.

**Grading:**

<table>
<thead>
<tr>
<th>Evaluation/Participation:</th>
<th>Percent Total Grade:</th>
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<tbody>
<tr>
<td>Class Discussion/Participation:</td>
<td>10%</td>
</tr>
<tr>
<td>Class Presentation:</td>
<td>15%</td>
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<tr>
<td>Lab Quizzes (~10):</td>
<td>15%</td>
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<tr>
<td>Lab Reports:</td>
<td>25%</td>
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<tr>
<td>Mid-term exam:</td>
<td>15%</td>
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<tr>
<td>Final Exam:</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total Grade:</strong></td>
<td>100%</td>
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</tbody>
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A+ = 98-100  
A  = 94-97  
A- = 90-93  
B+ = 87-89  
B  = 84-86  
B- = 80-83  
C+ = 76-79  
C  = 65-75  
D  = 50-64  
F  = 0-49

The University is required to provide reasonable accommodations to students with disabilities, so as not to discriminate on the basis of that disability. Students with disabilities are encouraged to contact the instructors to discuss their individual needs for accommodations. Also, you may visit Resources for Disabled Students: [http://rds.colostate.edu/](http://rds.colostate.edu/) or call them at (970) 491-6385.

The course will adhere to the Academic Integrity Policy of the CSU General Catalog (page 7, [http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf](http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf)) and the Student Conduct Code ([http://www.conflictresolution.colostate.edu/conduct-code](http://www.conflictresolution.colostate.edu/conduct-code))