

FACULTY COURSE ASSESSMENT REPORT

Department of Biomedical Engineering

Academic Year: **2012-2013**

Term: **Spring 2013**

Course Code and Title: **BME50B Cell and Molecular Engineering (BME)**

Instructor: **Elliot Hui, PhD**

Background: Please review the *Accreditation background* document.

Instructions: For each student outcome performance indicator, identify (1) the assignment (which quiz, quiz problem, exam problem, or project) was used to assess that indicator, (2) the maximum score possible on that assignment, (3) the performance standard for that assignment expressed in points and also as a percentage of max, (4) the number of students who were assessed on that assignment, (5) the average score achieved by them expressed in points and percentage of max, and (6) the number and percentage of BME students who achieved the performance standard.

Performance Indicators (PIs): This course assesses the following Performance Indicators (please consult the *Proposed Remapping of BME courses to Student Outcomes* document): **a2**.

a2 — Students can apply knowledge of science to problems in Biomedical Engineering

PIs	Assignment used for assessment	Max. score	PI standard and % of maximum	Number of students tested	Average score and % of maximum	Number and % of BME students who met the standard
(a2)	Final Exam (all)	100	56 (56%)	75	61.5 (61.5%)	52 (69%)

Course Learning Outcomes: This course assesses the following Course Learning Outcomes (please consult your *Course Outline* document):

CLO1: Understand the structure and mechanics of cells and tissue **(a)**.

CLO2: Understand electrochemical membrane potentials and ion/protein transport **(a)**.

CLO3: Understand the control systems that govern the cell cycle and cell growth **(a)**.

CLO4: Apply knowledge of molecular and cell biology to human disease and therapy **(a)**.

CLOs	Assignment used for assessment	Performance standard	Number of students tested	Average score (%)	Number and % of BME students who met the standard
1	Final Exam (problem 6)	56%	75	35%	19 (25%)
2	Final Exam (problem 2)	56%	75	56%	39 (52%)
3	Final Exam (problem 3)	56%	75	52%	34 (45%)
4	Final Exam (problem 4)	56%	75	55%	35 (47%)

What changes did you make in this course based on previous assessment results?

As previously suggested, more examples of real world diseases and therapies was presented in the course, but students still had trouble with this. I think that perhaps the core issue is that the students are not learning the fundamentals well enough.

What recommendations do you have for improving the course the next time it is taught?

I think that the course should focus down and simplify more. I feel that especially with the immune system, cell mechanics and tissue sections, too much material was presented and students had trouble latching onto the basic fundamentals.

What recommendations do you have, if any, regarding prerequisite courses or other ways to improve student preparation for this course?

Add Phys 7D as a prereq to BME50B.

A foundational understanding of charge, electric fields, and voltage is critical to the treatment of cell membrane voltages and neuron action potentials that is covered in 50B. This is already a required BME course and should occur 1 full year prior to 50B in the normal recommended sequence.

Any other recommendations or comments?

PI standard was adjusted from last year based on the class average for the final exam. Low performance on CLO1 seems to be an outlier. It may not be indicative of overall understanding but may be the fault of the test question itself.