## FACULTY COURSE ASSESSMENT REPORT

## **Department of Biomedical Engineering**

<u>Academic Year</u>: 2012-2013 <u>Term</u>: Fall 2012

Course Code and Title: BME110A Biomechanics I

## Instructor: Elliot Botvinick, PhD

Background: Please review the ABET background document.

**Instructions**: For each student outcome performance indicator, identify (1) the <u>assignment</u> (which quiz, quiz problem, exam problem, or project) was used to assess that indicator, (2) the <u>maximum</u> score possible on that assignment, (3) the performance <u>standard</u> for that assignment expressed in points and also as a percentage of max, (4) the number of <u>students</u> who were assessed on that assignment, (5) the <u>average</u> score achieved by them expressed in points and percentage of max, and (6) the number and percentage of BME students who <u>achieved</u> 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): **a1, a3.** 

- a1 Students can apply knowledge of mathematics to problems in Biomedical Engineering
- a3 Students can apply knowledge of engineering to problems in Biomedical Engineering

Pls	Assignment	Max.	PI standard	Number	Average score	Number
	used for	score	and % of	of	and % of	and % of
	assessment		maximum	students	maximum	BME
				tested		students who
						met the
						standard
(a1)	Homework 1	75	50.00 (66.67%)	109	66.30 (88.40%)	100 (91.74%)
	Homework 2	90	60.00 (66.67%)	109	69.17 (76.86%)	87 (79.82%)
	Homework 3	20	13.33 (66.67%)	109	13.70 (68.49%)	74 (67.89%)
	Homework 4	25	16.67 (66.67%)	109	16.15 (64.59%)	62 (56.88%)
	Homework 5	25	16.67 (66.67%)	109	23.30 (93.21%)	103 (94.50%)
	Average:				(78.31%)	(78.17 %)
(a3)	Midterm 2	100	66.67 (66.67%)	109	69.24 (69.24%)	52 (47.71%)
	Design Project	100	66.67 (66.67%)	109	84.49 (84.49%)	102 (93.58%)
	Final Exam	325	216.67 (66.67% <b>)</b>	109	229.54 (70.63%)	67 (61.47%)
	Average:				(74.78%)	(67.58%)

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

CLO1: Students will be able to add, multiple forces and compute moments (EAC a)

CLO2: Students will be able to determine internal forces in a structure.(EAC a)

**CLO3:** Students will be able to design experiments involving single molecule statics (EAC a)

**CLO4:** Students will be able to compute forces within anatomical joints (EAC a)

CLOs	Assignment used for assessment	Performance standard	Number of students tested	Average score (%)	Number and % of BME students who met the standard
1	Homework 1	66.67%	109	88.40%	100 (91.74%)
2	Midterm 2	66.67%	109	69.24%	52 (47.71%)
3	Homework 1	Not assessed			
4	Homework 2	66.67%	80	19.10%	78 (97.50%)

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

I shortened the number of lectures on statics and focused more time on continuum mechanics, deriving stress and strain and discussing the basics of material properties

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

In class demos using real tissue

One week of statics, then focus on mechanics

Have the class participate in measuring materials during class of synthetic and biological specimens

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

None

Any other recommendations or comments?

None