Notes from the 2012 ABET Faculty Review Meeting

May 8, 2012

Faculty in attendance: Heys, Richards, Gerlach, Seymour, Carlson, Peyton, and Brown

Outcomes (Summative) Assessment

The following outcomes were assessed this year using the listed samples of student work.

1. ECHM 443 Lab Reports (Outcomes B and G – Design and construct experiments and ability to communicate effectively.)
    a. Outcome B: average score was 2.6 (well above acceptable, nearly exceptional)
    b. Outcome G: average score was 2.6 (well above acceptable, nearly exceptional)
2. EBIO 443 Lab Reports (Outcomes B and G – Design and construct experiments and ability to communicate effectively.)
    a. Outcome B: average score was 1.83 (just below acceptable with Safety being the biggest issue)
    b. Outcome G: average score was 2.0 (acceptable)
3. ECHM/EBIO 412 Ethics Case Studies (Outcome F – Understanding of professional and ethical responsibility)
    a. Outcome F: average score was 3.3 (well above acceptable, nearly exemplary)

Course Evaluations

EBIO 439: No major concerns were noted. Outcome C was achieve through a design project where students design a separation process. Outcome J was addressed through class discussion on recombinant protein technology discussion and drug cost discussion. There were some suggestions during the discussion that the number of current issues (Outcome J) covered in class could be expanded to include biofuel separations and genetic modification concerns.

ECHM 328: The course has a new instructor, and Outcome G (abiliaty to communicate effectively) is no longer emphasized or assessed in this course. The other outcomes were covered within this course including Outcome B (analyzing and interpreting data) through the use of problems where the students are given experimental data and they must analyze the data and obtain a model. Contemporary issues (outcome J) is largely achieved through discussion on industrial reactor accidents, run-away reactions, and safety.

EBIO 438: No concerns were noted. Outcome C is addressed through the design of various bioreactors including chemostats and plug flow reactors. Outcomes I (life-long learning) and J (contemporary issues) are addressed through the first homework assignment, which is a bioproduct report requiring a diversity of reference sources. There was some discussion regarding the use of peer reviewed versus popular articles by the students for their reports.

ECHM/EBIO 442: No concerns were noted. This is a mixed lecture/laboratory course that covers experimental design and experimental analysis. The laboratory section requires extensive report writing. Possible changes to the course including the requirement that student provided sample expected results as part of the experimental plan were discussed. Additional safety training and teaching is planned for the course.

ECHM 411: No concerns were noted. This is the first half of the capstone design course sequence. Large amounts of ethics and safety content have been added to the course over the past 4 years. The only outcomes discussion centered around Outcome K (modern engineering tools) because only Excel was required for the students (although many students use HYSYS and other tools for their design projects). However the extensive use of Excel along with Capital cost estimation software convinced the faculty that Outcome K would likely be supported by this course.

ECHM 443: This is the second half of the senior level unit operations laboratory sequence. No concerns were expressed with regards to achieving the assigned outcomes.

Course Outcomes Matrix Review

The following matrix was updated by the faculty.

Chemical Engineering (updated 5/8/12)

	EGEN 102	EMAT 251	EGEN 310	ECHM 215	ECHM 216	ECHM 307	ECHM 321	ECHM 322	ECHM 323	ECHM 328	ECHM 407	ECHM/EBIO 411R	ECHM/EBIO 412R	ECHM 424	EBIO 438	ECHM/EBIO 442	ECHM 443	ECHM 451
A: Apply Knowledge of MSE	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
B: Design and Construct Experiments										S						P	P	
C: Design System, Component, or Process			P				S	S	S	P		P	P	S	S			P
D: Multi-disciplinary teams			P													S		
E: Formulate and Solve Engineering Problems				P	P		P	P	P	P	P			P	P	S	S	S
F: Professional and Ethical Responsibility												P	P			S		
G: Communicate Effectively												P	P			P	P	
H: Global and Societal Context					S							P						
I: Life-long Learning												P	P		S			
J: Contemporary Issues		S								S		S	S		S			

K: Use modern engineering tools	P				P	S	S	P		S	S	S		P				S

P = Primary
S = Secondary

Bioengineering (update 5/8/12)

	EGEN 102	**EMAT 251**	**EGEN 310**	**ECHM 215**	**EBIO 216**	**ECHM 321**	**EBIO 324**	**ECHM/EBIO 411R**	**ECHM/EBIO 412R**	**EBIO 438**	**EBIO 439**	**ECHM/EBIO 442**	**EBIO 443**
A: Apply Knowledge of MSE	P	P		P	P	P	P	P	P	P	P	P	P
B: Design and Construct Experiments												P	P
C: Design System, Component, or Process			P			S	S	P	P	S	S		
D: Multi-disciplinary teams			P									S	
E: Formulate and Solve Engineering Problems				P	P	P	P			P	P	S	S
F: Professional and Ethical Responsibility					S			P	P				
G: Communicate Effectively								P	P			P	P
H: Global and Societal Context					S			P					
I: Life-long Learning								P	P	S			
J: Contemporary Issues		S			P			S	S	S	S		
K: Use modern engineering tools	P					S	P	S					

P = Primary
S = Secondary