

## Department of Biology and Department of Chemistry

## Bachelor of Science in Biology-Chemistry (joint program)

Program Review	Learning Outcomes	Where are learning outcomes published?	Assessment Measurement Tools	Criteria for Success	Data Collected Over Time Period	Findings from Data Collection	Resulting Program Changes
1995-1996 2003-2004	<b>1. TEACH: Students will demonstrate a broad understanding and detailed knowledge of both biology and chemistry and know the basic processes of science.</b>	Catalog, website, course syllabi	Nationally-normed ACS exams	Group means will be at or above the national mean on each exam	2003-06 yearly	General Chemistry exam scores meet the goal. Other exams require more detailed analysis.	Continue administering the test and collecting data. Carefully monitor ACS curricular recommendations for suggested changes.
			ETS Major Field Achievement Test in Biology	Group mean will be at or above the 75th percentile and at least 50% of students will score at or above the 60th percentile, on overall test and each of the four sub-disciplines (cell, genetic and molecular, organismal, and population, ecological and evolutionary)	2001-2006, yearly, senior capstone seminar (BIO 497)	Overall scores: <b>2001</b> 86th percentile, 58% above 60th; <b>2002</b> 97th percentile, 82% above 60th; <b>2003</b> 94th percentile, 81% above 60th; <b>2004</b> 95th percentile, 83% above 60th; Sub-scores in botony area started weak, but scores improved following curricular revisions	Mike Mooring, animal behaviorist specializing in large mammals was hired Fall 1997; Curriculum strengthened in content area of ecology in BIO 120; increased frequency of offerings of courses: Invertebrate Biology, Ornithology, and Marine Plant & Microbial Life
			ETS assessment indicator for quantitative skills	Overall group mean will be at or above the 75th percentile	2005-2006, yearly, senior capstone seminar (BIO 497)	Overall scores: <b>2001</b> 91th percentile; <b>2002</b> 99th percentile; <b>2003</b> 97th percentile; <b>2004</b> 95th percentile	
	<b>2A. SHAPE: Students will demonstrate growth and mature as professionals through extensive laboratory work, through serving as teaching assistants, and as research collaborators</b>	Catalog Syllabi Website	Instrument proficiency tests	All students will demonstrate the capacity to use a core set of instruments. 30% will be certified by the faculty as expert users	2004-06 yearly	The goal has been met but the departments continue to acquire new instruments.	Continue training students on new and replacement instruments.
			Undergraduate Research projects	50% of graduates will have done an undergraduate research project	2004-06 yearly	The goal has been met.	None now. Use all assessment data in next program review.
			Present research at professional meetings	75% will attend at least one professional meeting. 50% will present at such meetings	2004-06 yearly	The goal has been met.	None now. Use all assessment data in next program review.
	<b>2B. SHAPE: Students will demonstrate a positive attitude toward faculty mentoring, integration of science and faith, and preparation for their careers in science</b>	Catalog, website, course syllabi	ETS Program Assessment Questionnaire (environment for learning, quality of teaching, faculty concern for students, student satisfaction) plus additional questions on the integration of faith and science	No more than 25% of questions will receive a score rating lower than 3 (on a 4-point scale), and 75% of questions will receive a score rating of 3 or higher	2005-2006, yearly, senior capstone seminar (BIO 497)	A need to strengthen the quality of Biology lab experiences was identified; Give attention to reducing attrition of freshmen from Biology and Biology-Chemistry majors	Ongoing effort: Faculty re-orient Biology lab experiences to make better use of down time and increase emphasis on investigative exercises that are data intensive; Freshmen career seminar instituted to increase faculty-student interaction, improve mentoring and reduce attrition
	<b>3. SEND: Students will successfully enter professional or graduate schools, or will obtain jobs in the science or health related professions</b>	Catalog, website, course syllabi	Alumni tracking of postgraduate education and professions	Success rates for alumni who apply to graduate or professional schools will be at least 75%	Yearly, survey sent to alumni 5-years out	Need for increased attention to addressing career needs of students interested in biotechnology, teaching, and other non-graduate or professional school options	Freshman career seminar was instituted in Fall 2001, associated with BIO 110
			ETS Program Assessment Questionnaire for Alumni plus questions pertaining to the integration of science and faith	ETS scores on 75% of questions will be at least 3 (on a 4-point scale), and no more than 25% of questions will receive a rating of less than 3	Yearly, survey sent to alumni 5-years out		