Major Field Assessment:
Evaluation and Outcome
B.S. Physics 2003-2005

The purpose of the B. S. in physics is to prepare students for graduate study in physics or in other fields that require considerable scientific knowledge and laboratory experience or for employment in industry. To achieve this purpose the physics curriculum has three goals: to provide students with knowledge in the field of physics, to develop in students a comprehensive understanding of the professional aspects of physics, and to prepare students for career-based employment or graduate study.

Evaluation

Goal 1 To provide students with knowledge in the field of physics

It is expected that students completing the undergraduate program in physics will compare very favorably on a national basis with other seniors graduating in physics in their ability to demonstrate problem-solving and laboratory skills in the areas of classical mechanics, thermodynamics, electricity and magnetism, optics, special relativity, quantum mechanics, and statistical mechanics. To assess the success of the curriculum in producing this outcome, the Educational Testing Services physics field assessment was administered to graduating senior physics majors. The standards for student achievement were set in three-tiers based on a student's cumulative grade point average (GPA). In the lowest tier (2.00-2.75 GPA), the expectation was that 50% of the students in this tier would perform above the 33rd percentile nationwide. The result for this reporting period is that the 1 student in this tier performed below the 33rd percentile. In the second tier (2.75-3.5 GPA), the expectation was that 50% of the students would perform above the 50th percentile nationwide. The result for this reporting period is that the 2 students in this tier did not perform above the 50th percentile. In the highest tier (3.5-4.0 GPA), the expectation was that 75% of the students would perform above the 50th percentile nationwide. The result for this reporting period is that the 1 student in this tier performed above the 50th percentile. In summary, the student in the highest tier performed as expected, while the students in the lower tiers did not meet expectations. This result was discussed by the physics faculty in the Summer of 2005. The conclusion of this discussion is that these results do not indicate an immediate need for change to the physics program for two reasons: the number of graduates in this class is very small, making statistical analysis unreliable; and the average major GPA of this graduating class, 2.8, is much lower than in previous years.

It is also expected that graduates will respond favorably to the physics curriculum and overall learning environment. To assess the success in producing this outcome, the Southeastern Exit Survey was administered to graduating senior physics majors. The expected outcome was that 90% of the graduates would indicate satisfaction. The result for this reporting period are unavailable as of the deadline for reporting.

The only recommended change with respect to this assessment is to adjust the GPA tiers as follows: the lowest tier becomes (2.00-2.99 GPA), and the second tier becomes (3.00-3.49 GPA).

Goal 2 To develop in students a comprehensive understanding of the professional aspects of physics

It is expected that students completing the undergraduate program in physics will demonstrate awareness of the diverse nature of physics and its applications as a body of knowledge and the importance of participation in professional societies, professional meetings and undergraduate research in the field of physics. To assess the success in producing this outcome, the Southeastern Exit Survey was administered to graduating senior physics majors. The expected outcome was that 80% of the graduates would indicate that they were given opportunities and support for attending professional physics meeting while at Southeastern. The result for this reporting period is that 3 out of 4 students (75%) were presented with such opportunities. This is essentially consistent with expectations. No changes are planned with respect to this assessment.

Goal 3 To prepare students for career-based employment or graduate study

It is expected that one year after graduation, the majority of graduates will have career-based employment or will be in graduate school. To assess the success in producing this outcome, a survey was taken one year after the students' graduation. The expected outcome was that 60% of the graduates would be enrolled in graduate school or would bin employed in a technical industry. The result for this reporting period is that 1 out of 4 (25%) of the graduates are enrolled in graduate school or employed in a technical industry. This result was also discussed by the physics faculty. The conclusion of this discussion is that these results do not indicate an immediate need for change to the physics program for the reasons given above. No changes are planned with respect to this assessment.

Outcome

As a result of this assessment, the faculty are satisfied that the physics curriculum is meeting its goals of provide students with knowledge and understanding of the science and profession of physics and to prepare students for scientific or technical careers. Failures to meet expectations in this reporting period are due to the unreliability of statistical analysis of the small number of students in this graduating class and the fact that the major GPA of this particular class is anonymously low. No changes in the curriculum are planned at this time.

GOAL ATTAINMENT FRAMEWORK

B.S., Physics
Department of Chemistry and Physics

For Academic Years 2003-2004, 2004-2005

Expected Outcome	Much Less than Expected	Less than Expected	Expected	More than Expected	Much More than Expected
% of graduates with a cumulative GPA of 2.00-2.75 scoring above the 33rd percentile on the ETS Major Field Achievement Test in Physics		0% (0/1)	*50%*		
% of graduates with a cumulative GPA of 2.75-3.50 scoring above the 50th percentile on the ETS Major Field Achievement Test in Physics		0% (0/2)	*50%*		
% of graduates with a cumulative GPA above 3.50 scoring above the 50th percentile on the ETS Major Field Achievement Test in Physics			*75%*	100% (1/1)	
% of graduates satisfied with their physics instruction, as indicated on the Southeastern Exit Survey			*90%*		
% of graduates who feel they were given opportunities and support for attending professional physics meetings while a student at Southeastern as evidenced by the Southeastern Exit Survey		75% (3/4)	*80%*		
% of graduates who have career employment or will be enrolled in graduate school as evidence by the Southeastern Physics Post Exit Survey		25% (1/4)	*60%*		