Institutional Effectiveness
2019-2020

Program:

College and Department:

Contact:

Mission:

Program Goal 4 - Provide opportunities for all physics majors to gain experience in authentic basic or applied research.

Student Learning Outcome 5 - Students graduating in physics will have received an introduction to a range of common technological tools appropriate to physics and related disciplines.

Student Learning Outcome 6 - The TTU physics program will give students sufficient preparation in content and skills/techniques to continue to graduate school or obtain suitable employment.

Student Learning Outcome 7 - Students graduating in physics will demonstrate the skills and techniques needed to engage in planning and carrying out basic or applied research.

Assessment Methods:

PG 1: The Department will recruit and retain sufficient majors for a thriving educational program.

Department Records:

PG 2: The Physics Department will contribute to the mission of the Millard Oakley Center for Teaching and Learning in Science, Technology, Engineering, and Mathematics (STEM).

Department Records:

PG 3: Ensure the use of effective and innovative pedogeological methods within the classroom.

Annual Faculty Reports:

SLO 3: Students graduating in physics will demonstrate the skills and techniques necessary to engage in authentic experimental investigation.

PHYS 4710/4711 Capstone Course:

Alumni Surveys:

Program Goal 2 -

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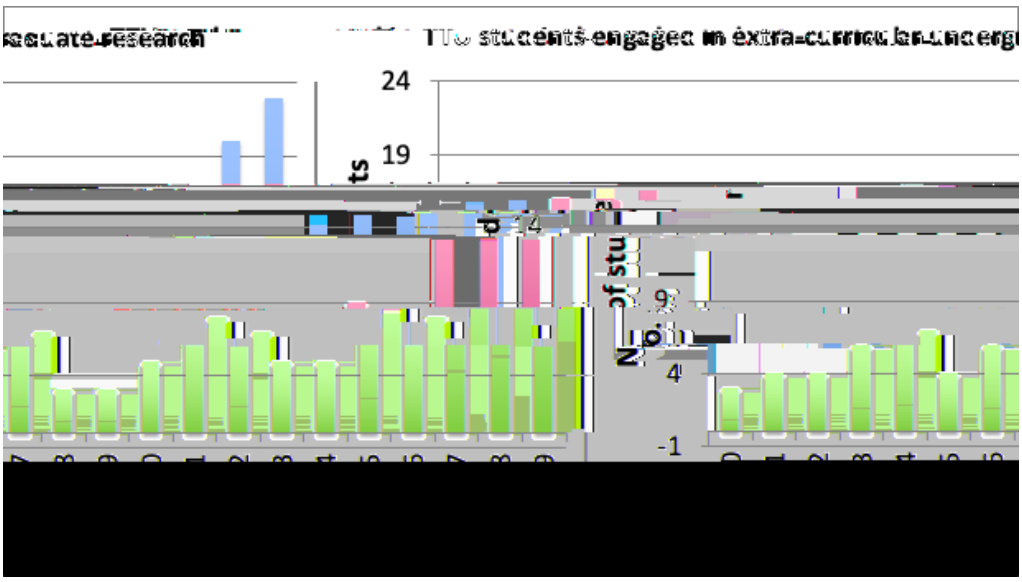
Program Goal 4 - Provide opportunities for all physics majors to gain experience in authentic basic or applied research.

All faculty engaged in research in suitable fields will seek support to engage interested physics majors in their work. Opportunities at other institutions and in other fields will also be made known to physics majors. The targeted outcome is that all physics majors will have the opportunity to engage in such opportunities as many times as they wish during their TTU career. At a minimum, any interested student should engage in at least one such opportunity.



Student Learning Outcome 1 - Students completing calculus-based and algebra-based introductory physics courses will demonstrate increased understanding of foundational basic concepts in mechanics.

Students will achieve an average normalized gain score of at least 45% on a standard diagnostic test. For many years the targeted goal was a gain of 40%, but with recent improved

Student Learning Outcome 2 - Students graduating in physics will demonstrate an understanding of the basic principles and foundations of physics.

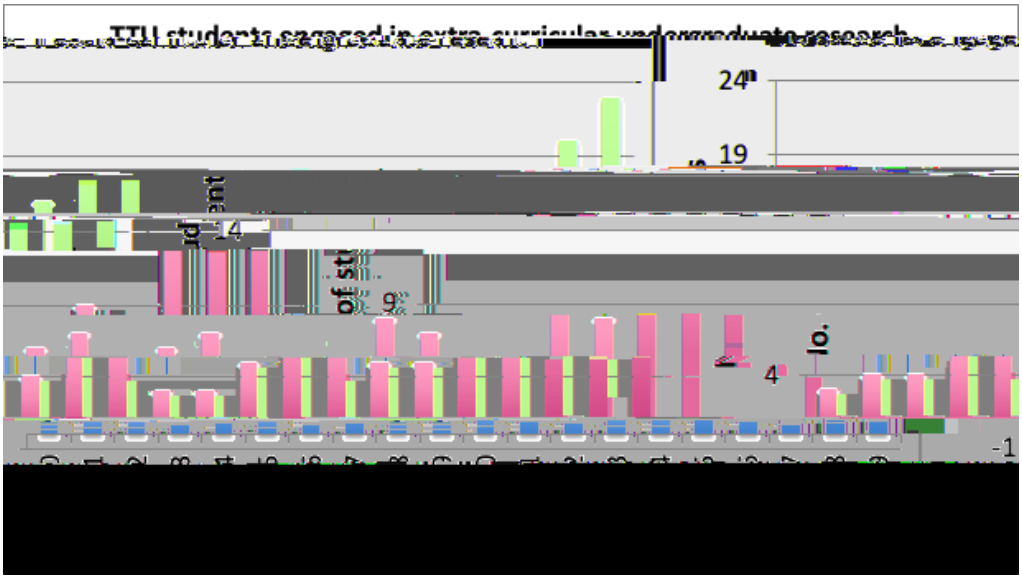
> *Graduating seniors will score, on average, at or above the 75th percentile on the ETS Major Feld Test in Physics. The threshold of acceptability is to have all seniors score at or above the 50th percentile, thus maintaining a claim that TTU physics graduates are 'above average'.*

Student Learning Outcome 3 - Students graduating in physics will demonstrate the skills and techniques necessary to engage in authentic experimental investigation.

> *Students will demonstrate their ability to engage in experimental investigations by meeting or exceeding the minimum standards of the capstone Advanced Experimental Physics course (Po t i P coit001 T8oPed*

Student Learning Outcome 7 - Students graduating in physics will demonstrate the skills and techniques needed to engage in planning and carrying out basic or applied research.

Students will demonstrate competency by completing a research project in PHYS 4730 (Research Planning) and PHYS 4740 (Research) courses taken as seniors. Students will meet or exceed the minimum standards of the research course (PHYS 4730 or PHYS 47140). The targeted outcome is that at least 75% of students should meet or exceed the minimum standards.



Modifications for Improvement:

Program Goal 1

Appendices

Appendix 1: Physics BS Curriculum Map

Goals/Learning Outcomes