UNIT REPORT

Mathematics BS - Final Annual

Report

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Mission Statement of Math Department

Start: 07/01/2017 **End:** 06/30/2018

Providing Department: Mathematics BS Department/Unit Contact: Allan Mills

Mission/Vision/Goal Statement:

The mission of the TTU Department of Mathematics is to promote the learning of mathematics through effective teaching, research, and public service. Such learning opportunities are provided to students of all disciplines in support of the mission of the University.

Goal 1 - Average at least 10 graduates per year

Progress: Ongoing Define Goal:

The undergraduate degree program will average at least 10 graduates per year.

Goal 2 - Increase use of technology in mathematics classes

Progress: Ongoing

Define Goal:

Increase the use of technology in mathematics classes.

Goal 3 - Improve placement of incoming students

Define Goal:

Improve initial math course placement for incoming freshmen and transfer/international students by developing a placement procedure involving a mathematics test.

Goal 4 - Contribute to STEM Center mission

Progress: Ongoing Define Goal:

Contribute to the mission of the Center for Teaching and Learning in Science, Technology, Engineering, and

Assessment: Count Mathematics graduates in the previous July 1- June 30 time period

Goal/ Outcome/ Objective: Program Goal 1

Type of Tool: Graduation Rate
Frequency of Assessment: Annually

Rationale:

Each May the number of graduates earning the BS in Mathematics in the previous year is determined and trends are tracked using a 5-year average of the number of graduates

Assessment: ETS Major Field Test

Goal/ Outcome/ Objective: Student Learning Outcome 1

Type of Tool: Exit Exam

Frequency of Assessment: each fall and spring semester

Rationale:

The ETS Major Field Test in Mathematics is designed to measure student performance so that meaningful comparisons between similar schools throughout the country can be made. All graduating mathematics majors are expected to take the Major Field Test during their final semester at TTU.

Assessment: Faculty Annual Report

Goal/ Outcome/ Objective: Program Goals 2 and 4

Type of Tool: Survey

Frequency of Assessment: Annually

Rationale:

As part of their annual effort report each faculty member lists the type of technology used and STEM Center activities

Assessment: Goal 3- Improving Math Placement

Goal/ Outcome/ Objective: Goal 3

Type of Tool: Other

Frequency of Assessment: yearly

Rationale:

Each year the department chair determines if a placement procedure is in place and whether it needs to be adjusted.

Assessment: National Survey of Student Engagement

Goal/ Outcome/ Objective: Student Learning Outcome 3

Type of Tool: Survey

Frequency of Assessment: Every 2 to 3 years

Rationale:

Relevant questions on the NSSE will assess students' confidence in their mathematical abilities

Assessment: Praxis II Math Content Knowledge

Goal/ Outcome/ Objective: Student Learning Outcome 2

Type of Tool: Certification Exam

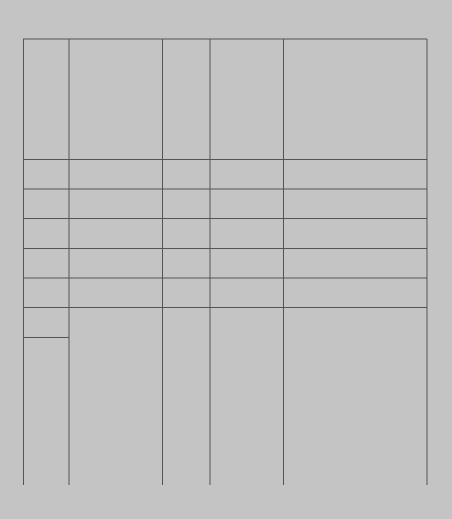
Frequency of Assessment: every semester

Rationale:

The Praxis Content Knowledge test in Mathematics is designed to assess the mathematical knowledge and competencies necessary for a beginning teacher of secondary school mathematics

Results - Goal 3- Improving Placement of Incoming Students

Goal/Objective/Outcome Number: Goal 3



earned the degree in secondary education mathematics passed the exam because passing the exam is a degree requirement. However, in recent year some students required multiple test attempts to pass the exam.

Pass Rate of TTU Students on Praxis II Math Content Knowledge Test

A cademic Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Number of Test Takers	5	8	5	5	2	1
First Attempt						

Table to project lectures	35	25	45	52	55	73
Archive lectures	10	13	9	35	40	46
Software Use						
Maple/Maxima/ Mathematica	7	0	3	2	2	0
Matlab	3	0	1	3	3	0
R	5	12	8	13	18	5
SAS	3	3	5	3		

The mathematics faculty are satisfied with the scores of our students on the ETS Major Field Test. We will discuss modifying the goal so that it is focused on the performance of all of our students rather than the best of our students.

No modification necessary at this time.

Modification for Learning Outcome 2

Goal/Objective/Outcome Number: Learning Outcome 2

Program Changes and Actions due to Results:

The NSEE data indicate that students from a variety of majors believe they are improving their ability to work with numerical and statistical information at TTU. On the other hand the PRAXIS II test results indicate that Secondary Education Mathematics students are struggling to pass the math content test.

We investigated the PRAXIS pass rate issue with Dr. Holly Anthony from the Department of Curriculum and Instruction. As a first step, we compared the content of the mathematics courses in the SEMA curriculum to the topics and skills assessed on the PRAXIS. It turns out that a lot of the mathematics assessed on the PRAXIS is precalculus material that is not in the SEMA curriculum. In addition, the department offered a special topics course for SEMA majors in spring 2018 that was a review for the PRAXIS. Ten students enrolled and three students were successful in passing the PRAXIS late in the spring or early in the summer. In spring 2019 the department plans to offer a Special Topics course based on a curriculum for future highschool mathematics teachers developed by the Mathematics Teacher Education Partnership. Over the next two years we plan to utilize that curriculum or fold the best aspects of it in with materials developed by departmental faculty to create a new upper-division mathematics course for SEMA majors.

Link to Flight Plan: Improve Undergraduate Student Experience

Modification to Goal 4: Participate in STEM Center Activities

Program Changes and Actions due to Results:

A few faculty members participate in STEM Center activities. All faculty are aware of the potential to participate in STEM Center activities. Some faculty members are involved in outreach activities that do not involve the STEM Center.

We may consider revising this goal to broaden it to include all types of outreach and professional development activities rather than those affiliated with the STEM Center.

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