

# Unit Assessment Report - Four Column

## Texas Tech University Program - AS\_Mathematics (BA)

**CIP Code:** 27.0101.00

**Degree Program** Kent Pearce

**Coordinator:**

**Purpose Statement:** Flexibility of elective courses in mathematics is designed to allow the student to prepare to enter the industrial job market, graduate school or professional school, or a teaching career. Recent Texas Tech mathematics graduates have been employed by companies in aerospace (NASA, defense), electronics (computers, telecommunications), engineering, finance (banks, brokerage, insurance), government (federal agencies, offices, laboratories), petroleum (geophysical, oil), security, entertainment, and education. Some graduates have entered law school or medical school, while many have pursued graduate degrees at various universities.

Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
Program - AS_Mathematics (BA) - Strategic Outcome 1 - Increase enrollment and promote student success: We will grow and diversify our student population in order to improve higher education participation and supply a well-equipped, educated workforce for the State of Texas. (TTU 2010-2020 Strategic Plan Priority 1)  <b>Outcome Types:</b> Strategic  <b>Start Date:</b> 09/01/2009  <b>Outcome Status:</b> Inactive	<b>Assessment Method:</b> Total enrollment in the degree program.		
	<b>Assessment Method:</b> Enrollment of new students in the degree program (new freshman, new transfer students, new graduate)		
	<b>Assessment Method:</b> Mean Class Rank of entering freshmen (if available)		
	<b>Assessment Method:</b> Mean ACT/SAT scores for entering freshmen majors (if available)		
	<b>Assessment Method:</b> Ethnic diversity of the first-time entering freshman class in the major or degree		
	<b>Assessment Method:</b> Mean GRE scores for entering graduate students (if applicable and available)		
	<b>Assessment Method:</b> First-year retention rate for majors or		

Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
	<p>degree seekers</p> <p><b>Assessment Method:</b> Second-year retention rate for majors or degree seekers</p> <p><b>Assessment Method:</b> Four- and Six-Year Graduation Rates in the major or degree program.</p> <p><b>Assessment Method:</b> Master's Graduation Rate</p> <p><b>Assessment Method:</b> Doctoral Graduate Rate</p> <p><b>Assessment Method:</b> Doctoral Time to Degree Completion</p> <p><b>Assessment Method:</b> Total degrees awarded (annual Fall, Spring and Summer) in the major or degree</p> <p><b>Assessment Method:</b> For doctoral programs only, total number of Ph.D. awarded (Fall, Spring, and Summer) in the report year, number of other doctorates awarded (Ed.D.'s, DMA's, etc.).</p>		
<p>Program - AS_Mathematics (BA) - Strategic Outcome 2 - Strengthen Academic Quality and Reputation: We will attract and retain the best faculty in the world in order to enhance our teaching excellence and grow our number of nationally recognized programs. (TTU 2010-2020 Strategic Plan Priority 2)</p> <p><b>Outcome Types:</b> Strategic</p> <p><b>Start Date:</b> 09/01/2009</p> <p><b>Outcome Status:</b></p>	<p><b>Assessment Method:</b> Total enrollment in the degree program</p> <p><b>Assessment Method:</b> Enrollment of new students in the degree program (new freshman, new transfer students, new graduate)</p> <p><b>Assessment Method:</b> Mean Class Rank of entering freshmen (if available)</p> <p><b>Assessment Method:</b> Mean ACT/SAT scores for entering</p>		

Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
Inactive	majors (if available)		
	<b>Assessment Method:</b> Ethnic diversity of the first-time entering freshman class in the major or degree		
	<b>Assessment Method:</b> Mean GRE scores for entering graduate students (if applicable and available).		
	<b>Assessment Method:</b> First-year retention rate for majors or degree seekers.		
	<b>Assessment Method:</b> Second-year retention rate for majors or degree seekers.		
	<b>Assessment Method:</b> Four- and Six-Year Graduation Rates in the major or degree program.		
	<b>Assessment Method:</b> Master's Graduation Rate		
	<b>Assessment Method:</b> Doctoral Graduation Rate		
	<b>Assessment Method:</b> Doctoral Time to Degree Completion		
	<b>Assessment Method:</b> Total degrees awarded (annual Fall, Spring and Summer) in the major or degree		
<b>Assessment Method:</b> For doctoral programs only, total number of Ph.D.'s awarded (Fall, Spring, and Summer) in the report year, number of other doctorates awarded (Ed.D.'s, DMAs, etc.).			
Program - AS_Mathematics (BA) - Concepts and Applications of Differential	<b>Assessment Method:</b> Embedded questions in the Calculus 1,	09/14/2011 - Embedded assessment questions were created for inclusion in the Fall & Spring	

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<p>Integral Calculus - Students will understand the basic concepts of differential and integral calculus of one and several variables, and will be able to solve basic problems using these concepts.</p> <p><b>Outcome Types:</b> Student Learning</p> <p><b>Start Date:</b> 07/01/2006</p> <p><b>Outcome Status:</b> Active</p>	<p>Calculus 2 and Calculus 3 finals will be utilized to assess differentiation and integration skills and mastery of techniques for solving multi-step and application problems.</p> <p><b>Assessment Method Category:</b> Course Level Assessment</p>	<p>departmental exams. Results are reported in the document "Calculus Competency 2011".</p> <p><b>Result Type:</b> Criterion Not Met</p> <p><b>Action Status:</b> Action In Progress</p> <p><b>Related Documents:</b> <a href="#">Calculus Competency 2011</a></p>	
		<p>05/31/2010 - Embedded assessment questions were created for inclusion in the Spring departmental exams. Partial results (Calculus II and Calculus III) are reported in the document "Calculus Competency 2010".</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action In Progress</p> <p><b>Related Documents:</b> <a href="#">Calculus Competency 2010</a> <a href="#">Embedded Assessment for Calculus Issues - Spring 2010</a></p>	<p>11/04/2010 - Review the appropriateness of embedded assessment for Calculus using content questions -- see repository document AS_Mathematics (BA): Embedded Assessment for Calculus Issues - Spring 2010</p> <hr/> <p>05/31/2010 - Proposed 4 credit hour calculus courses: Calc I, Calc II &amp; Calc III with Problem Solving for Arts &amp; Sciences majors</p>
		<p>12/31/2009 - Embedded assessment questions were created for inclusion in the Fall departmental exams. Results are reported in the document "Calculus Competency 2009".</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action In Progress</p> <p><b>Related Documents:</b> <a href="#">Calculus Competency 2009</a></p>	<p>12/31/2009 - Administer the MPE to all students who enroll in Calc I and change the prerequisites for Calc I so that they require PreCalculus and MPE of 5, or Trigonometry and MPE of 5, or AP AB of 3 and MPE of 5.</p> <hr/>
		<p>12/31/2008 - Embedded assessment questions were identified in the Fall departmental exams. Results are reported in the document "Calculus Competency 2008".</p> <p><b>Result Type:</b> Criterion Not Met</p>	<p>12/31/2008 - Review syllabi for calculus courses: Calc I, Calc II &amp; Calc III. (Review material)</p> <hr/>

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		<p><b>Action Status:</b> Action In Progress</p> <p><b>Related Documents:</b> <a href="#">Calculus Competency 2008</a></p> <p>12/31/2007 - Embedded assessment questions were identified in the Fall departmental exams. Results are reported in the document "Calculus Competency 2006".</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">Calculus Competency 2007</a></p> <p>12/31/2006 - Assessment exams were included with the Fall departmental exams. Results are reported in the document "Calculus Competency 2006".</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">Calculus Competency 2006</a></p>	
<p>Program - AS_Mathematics (BA) - Logic, Rigor and Proof - Students will gain and demonstrate a mastery of logic, rigor and proof.</p> <p><b>Outcome Types:</b> Student Learning</p> <p><b>Start Date:</b> 07/01/2006</p> <p><b>Outcome Status:</b> Active</p>	<p><b>Assessment Method:</b> Surveys of instructors teaching the courses Math 3310, Math 3360, Math 4350</p> <p><b>Assessment Method Category:</b> Post-Evaluation</p>	<p>09/14/2011 - Instructors of Math 3310, Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Logic, Rigor &amp; Proof 2011" for results.</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action In Progress</p> <p><b>Related Documents:</b> <a href="#">Logic, Rigor &amp; Proof 2011</a></p> <p>12/31/2009 - Instructors of Math 3310, Math 3360 and Math 4350 were surveyed as to their students</p>	

Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
		<p>competency. See attached document "Logic, Rigor &amp; Proof 2009" for results.</p> <p><b>Result Type:</b> Criterion Not Met</p> <p><b>Action Status:</b> Action In Progress</p> <p><b>Related Documents:</b> <a href="#">Logic, Rigor &amp; Proof 2009</a></p>	<p>12/31/2009 - Review text book and syllabus for Math 3310.</p> <hr/>
		<p>12/31/2008 - Instructors of Math 3310, Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Logic, Rigor &amp; Proof 2008" for results.</p> <p><b>Result Type:</b> Criterion Not Met</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">Logic, Rigor &amp; Proof 2008</a></p>	
		<p>12/31/2007 - Instructors of Math 3310, Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Logic, Rigor &amp; Proof 2007" for results.</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">Logic, Rigor &amp; Proof 2007</a></p>	
		<p>12/31/2006 - Instructors of Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Logic, Rigor &amp; Proof 2006" for results.</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">Logic, Rigor &amp; Proof 2006</a></p>	

Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
	<b>Assessment Method:</b> Review of student portfolios of formal technical writings from MATH 3360 and MATH 4350 <b>Assessment Method Category:</b> Portfolio Review		
Program - AS_Mathematics (BA) - Oral and Written Communication Skills - Students will be able to communicate technical mathematics. <b>Outcome Types:</b> Student Learning <b>Start Date:</b> 07/01/2006 <b>Outcome Status:</b> Active	<b>Assessment Method:</b> Review of students' portfolio of formal technical writings from Math 3310, Math 3360 and Math 4350 will be conducted and surveys of instructors teaching the courses. <b>Assessment Method Category:</b> Portfolio Review	09/14/2011 - Instructors of Math 3310, Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Undergraduate Communication Skills 2011" for results. <b>Result Type:</b> Criterion Met <b>Action Status:</b> No Action Needed <b>Related Documents:</b> <a href="#">Undergraduate Communication Skills 2011</a>	
		12/31/2009 - Instructors of Math 3310, Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Undergraduate Communication Skills 2009" for results. <b>Result Type:</b> Criterion Not Met <b>Action Status:</b> Action In Progress <b>Related Documents:</b> <a href="#">Undergraduate Communication Skills 2009</a>	11/04/2010 - Review with faculty assigned to writing intensive courses department goals for the course writing components, construction and collection of writing portfolios, and provide models for writing assignments.
		12/31/2008 - Instructors of Math 3310, Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Undergraduate Communication Skills 2008" for results. <b>Result Type:</b> Criterion Not Met <b>Action Status:</b>	

Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
		<p>Action To Be Defined</p> <p><b>Related Documents:</b>  <a href="#">Undergraduate Communication Skills 2008</a></p> <p>12/31/2007 - Instructors of Math 3310, Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Undergraduate Communication Skills 2007" for results.</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b>  <a href="#">Undergraduate Communication Skills 2007</a></p> <p>12/31/2006 - Instructors of Math 3360 and Math 4350 were surveyed as to their students competency. See attached document "Undergraduate Communication Skills 2006" for results.</p> <p><b>Result Type:</b> Inconclusive</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b>  <a href="#">Undergraduate Communication Skills 2006</a></p>	
<p>Program - AS_Mathematics (BA) - Trends of Industry, Govt, and Education - Students will demonstrate knowledge of mathematical materials that reflect the needs and trends in industrial, governmental, and educational environments.</p> <p><b>Outcome Types:</b> Student Learning</p> <p><b>Start Date:</b></p>	<p><b>Assessment Method:</b> Assessment will be based on surveys of employers conducted 1 year after graduation.</p> <p><b>Assessment Method Category:</b> Employer Survey</p>		



Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
09/15/2011 <b>Outcome Status:</b> Active			
Program - AS_Mathematics (BA) - Familiarity with the Use of Computer Algebra Systems - Students will become familiar with the use of computer algebra systems and be able to use them in problem solving. <b>Outcome Types:</b> Student Learning <b>Start Date:</b> 07/01/2006 <b>Outcome Status:</b> Active	<b>Assessment Method:</b> Assessment will include a review of archived course worksheets and group projects from MATH 3430, Computational Techniques for Science and Mathematics, course portfolios from Math 4371, Basic Computer Literacy and Programming, and surveys of instructors teaching the courses <b>Assessment Method Category:</b> Capstone Assignment/Project		
Program - AS_Mathematics (BA) - Understanding K-12 Grade - Prospective teachers (K-12) will develop a broad understanding of basic mathematics and be able to satisfy the certifications requirements for the State of Texas. <b>Outcome Types:</b> Student Learning <b>Start Date:</b> 07/01/2006 <b>Outcome Status:</b> Active	<b>Assessment Method:</b> Student performance on the TExEX exam will be surveyed. <b>Assessment Method Category:</b> Standardized Test <b>Criterion:</b> Of those students taking the TExEX exam, 75% will pass	05/31/2009 - For 2008-2009, 44 candidates took the TExEX exam (Math 4-8, Math 8-12 & Math/Sci 4-8). The reported success rate for certification of these students was 93%. <b>Result Type:</b> Criterion Met <b>Action Status:</b> No Action Needed	
Program - AS_Mathematics (BA) - Understanding K-12 Grade - Prospective teachers (K-12) will develop a broad understanding of basic mathematics and be able to satisfy the certifications requirements for the State of Texas. <b>Outcome Types:</b> Student Learning <b>Start Date:</b> 07/01/2006 <b>Outcome Status:</b> Active	<b>Assessment Method:</b> Student performance on the TExEX exam will be surveyed. <b>Assessment Method Category:</b> Standardized Test <b>Criterion:</b> Of those students taking the TExEX exam, 75% will pass	05/31/2008 - For 2007-2008, 42 candidates took the TExEX exam (Math 4-8, Math 8-12 & Math/Sci 4-8). The reported success rate for certification of these students was 82%. <b>Result Type:</b> Criterion Met <b>Action Status:</b> No Action Needed	
Program - AS_Mathematics (BA) - Understanding K-12 Grade - Prospective teachers (K-12) will develop a broad understanding of basic mathematics and be able to satisfy the certifications requirements for the State of Texas. <b>Outcome Types:</b> Student Learning <b>Start Date:</b> 07/01/2006 <b>Outcome Status:</b> Active	<b>Assessment Method:</b> Student performance on the TExEX exam will be surveyed. <b>Assessment Method Category:</b> Standardized Test <b>Criterion:</b> Of those students taking the TExEX exam, 75% will pass	05/31/2007 - For 2006-2007, 60 candidates took the TExEX exam (Math 4-8, Math 8-12 & Math/Sci 4-8). The reported success rate for certification of these students was 55%. <b>Result Type:</b> Criterion Not Met <b>Action Status:</b> Action To Be Defined	

Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
<p>Program - AS_Mathematics (BA) - Exceeding National Performance - Graduating students will demonstrate a basic knowledge and understanding of mathematics that exceeds performance as measured by national comparative data.</p> <p><b>Outcome Types:</b> Student Learning</p> <p><b>Start Date:</b> 07/01/2006</p> <p><b>Outcome Status:</b> Active</p>	<p><b>Assessment Method:</b> Seniors will take the online Major Field Exam designed by the Educational Testing Service.</p> <p><b>Assessment Method Category:</b> Standardized Test</p> <p><b>Criterion:</b> Of those students who take the Major Field Exam, 80% will score in the top quartile.</p>	<p>09/14/2011 - The Educational Testing Service Field exam was administered to seniors. The results are contained in the attached file "ETS Field Exam 2010b".</p> <p><b>Result Type:</b> Criterion Not Met</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">ETS Field Exam 2010b</a></p>	
		<p>05/31/2010 - The Educational Testing Service Field exam was administered to seniors. The results are contained in the attached file "ETS Field Exam 2010a".</p> <p><b>Result Type:</b> Criterion Met</p> <p><b>Action Status:</b> Action Complete</p> <p><b>Related Documents:</b> <a href="#">ETS Field Exam 2010a</a></p>	
		<p>12/31/2009 - The Educational Testing Service Field exam was administered to seniors. The results are contained in the attached file "ETS Field Exam 2009".</p> <p><b>Result Type:</b> Criterion Not Met</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">ETS Field Exam 2009</a></p>	<p>12/31/2009 - Increase the number of students taking the Fields Exam. Allow Fields Exam to replace GRE Exam for admission qualification to the graduate program.</p> <hr/>
		<p>12/31/2008 - The Educational Testing Service Field exam was administered to seniors. The results are contained in the attached file "ETS Field Exam 2008".</p> <p><b>Result Type:</b> Criterion Not Met</p>	

Outcomes	Means of Assessment & Criteria / Tasks	Results	Action for Improvement & Documentation of Action for
		<p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">ETS Field Exam 2008</a></p> <p>12/31/2007 - The Educational Testing Service Field exam was administered to seniors. The results are contained in the attached file "ETS Field Exam 2007".</p> <p><b>Result Type:</b> Criterion Not Met</p> <p><b>Action Status:</b> Action To Be Defined</p> <p><b>Related Documents:</b> <a href="#">ETS Field Exam 2007</a></p>	
<p>Program - AS_Mathematics (BA) - Problem Solving in Physical Sciences and Engineering - Students will be able to apply mathematics to problem solving in the physical sciences and engineering.</p> <p><b>Outcome Types:</b> Student Learning</p> <p><b>Start Date:</b> 07/01/2006</p> <p><b>Outcome Status:</b> Inactive</p>	<p><b>Assessment Method:</b> Surveys of instructors teaching the courses</p> <p><b>Assessment Method Category:</b> Post-Evaluation</p>		