## CORE COURSES MATHEMATICS MAJOR

## 126 207 224 307 325 337 350 421 427 493

SLO			-								
1	Access Higher Mathematics										
1.A	Calculus	I		I		П					
1.B	Algebra		Т		П					Ш	
1.C	Analysis								Ш		
1.D	Modeling and Differential Equations						Ξ				
1.E	Probability							П			
2	Solve Problems										
2.A	Routine problems	I	I	I	П	П	=	П	Ξ	Ш	
2.B	Non-routine and open ended problems	I		I	П	П		П			Ш
2.C	Problems involving applications to other fields	I	I	I		П	=	П		I	
2.D	Problems involving real world data	I		I		П		П			
<b>2</b> .E	Abstract problems within Mathematics								Ш	Ш	
3	Abstract and Prove										
3.A	Create, Analyse and Apply Abstraction				I				П	П	
3.B	Read and Write formal Proofs				Т				П	П	
3.C	Appreciate the standards of Mathematical Rigor				I				П	П	
4	Learn Independently			1							Ш
				1							
5	Communicate effectively										

SLO													
1	Access Higher Mathematics												
1.A	Calculus	I		I		П							
1.B	Algebra		I.		Ш						П		
1.C	Analysis								Ш				
1.E	Probability and Statistics							Ш	Ш				
1.G	Geometry						Ш						
1.H	Number Theory												
1.I	Historical, philosophical and social prospectives											Ш	
2	Solve Problems	I											
2.A	Routine problems	I	I	I	Ш	Ш	Ш	Ш	Ш	Ш	Ш		
2.B	Non-routine and open ended problems	I		I	Ш	П		П	Ш				
2.C	Problems involving applications to other fields	I	I	I		П		П	Ш				
2.D	Problems involving real world data			I		Ι		II	II				
2.E	Abstract problems within Mathematics									Ш	П		
3	Abstract and Prove												
3.A	Create, Analyse and Apply Abstraction				I					Ш	П		
3.B	Read and Write formal Proofs				I		I			Ш	П		
3.C	Appreciate the standards of Mathematical Rigor				I					Ш	П		
4	Learn Independently											III	
5	Communicate effectively												

## 126 207 224 307 325 330 350 356 421 427 463 477

## **Expected Stages of Learning**

- Knowledge and Comprehension L
- Application and Analysis П

Ш Synthesis and Evaluation

Last Name	First Name	Test	Score	Percentile	Date	Yearly	Cumulative
		Math	190	93	12/1/2011 0:12		
		Math	181	88	12/1/2011 0:12		
		Math	164	68	12/1/2011 0:12		
		Math	161	63	12/1/2011 0:12		
		Math	152	50	12/1/2011 0:12		
		Math	146	32	12/1/2011 0:12	6/7 = 86%	6/7 = 86%
		Math	172	81	4/30/2012 0:04		
		Math	161	63	4/30/2012 0:04		
		Math	123	3	4/30/2012 0:04		
		Math	198	95	12/3/2012 0:12		
		Math	167	74	12/3/2012 0:12		
		Math	161	63	12/3/2012 0:12		
		Math	148	32	12/3/2012 0:12		
		Math	139	11	12/3/2012 0:12	5/7 = 71%	11/14=79%
		Math	192	93	5/3/2013 0:05		
		Math	173	81	5/3/2013 0:05		
		Math	170	78	5/3/2013 0:05		
		Math	170	78	5/3/2013 0:05		
		Math	167	74	12/13/2013 0:12		
		Math	167	74	12/13/2013 0:12		
		Math	158	56	12/13/2013 0:12		
		Math	158	56	12/13/2013 0:12		
		Math	154	50	12/13/2013 0:12		
		Math	148	32	12/13/2013 0:12		
		Math	148	32	12/13/2013 0:12	9/11=82%	20/25 = 80%

Mathematics Program Assessment 2014 Major Fields Test Cumulative Results

Program: \_\_Mathematics (B.A. and B.S)\_

Completed by: Frank Zizza

Assessment contributors (other faculty involved in this program's assessment): \_\_\_\_

Please complete this form for <u>each undergraduate, minor, certificate, and graduate program</u> (e.g., B.A., B.S., M.S.) in your department. Please copy any addenda (e.g., rubrics) and paste them in this document, and submit it to the dean of your college/school as per the deadline established. The dean will forward it to me as an email attachment before June 2, 2014. You'll also find the form at the assessment website at <u>http://www.colostate-pueblo.edu/Assessment/ResultsAndReports/Pages/default.aspx</u>.

Please describe the 2013-2014 assessment activities for the program in Part I. Use Column H to describe improvements planned for 2014-2015 based on the assessment process. In Part II, please describe activities engaged in during 2013-2014 designed to close-the-loop (improve the program) based on assessment activities and the information gathered in 2012-2013. Thank you.

I. Program student learning outcomes (SLOs) assessed in this cycle, processes, results, and recommendations.

A. Which of the	B. When	C. What	D. Who was	E. What is	F. What	G. What were the	H. What
program SLOs	was this	method was	assessed?	the	were the	department's	changes/improvements
were assessed	SLO last	used for	Please fully	expected	results of the	conclusions about	to the <u>program</u> are
during this	assessed?	assessing the	describe the	achievement	assessment?	student	planned based on this
cycle? Please	Please	SLO? Please	student	level and		performance?	assessment?
include the	indicate	include a copy	group(s) and	how many			
outcome(s)	the	of any rubrics	the number	or what			
verbatim from	semester	used in the	of students	proportion			
the assessment	and year.	assessment	or artifacts	of students			
plan.		process.	involved.	should be at			
				it?			
		l	l	1	l	l	

Due: June 2, 2014 Date: May 26, 2014

SLO's 1 and 2 were assessed for this review: (1)Students will have facility in the core mathematical content areas: calculus, algebra, and other additional topics. (2)Students will formulate and solve problems using mathematics, working alone or with others at the three cognitive levels: routine problems, non- routine problems and applied problems. They will also be able to formulate and solve applied problems involving applications to other fields and problems	Spring 2013 (This assessment will be performed every spring semester.)	The assessment tool is a standardized examination, the Major Fields Test in Mathematics.	All students in the program must take this assessment instrument at the conclusion of their Math 421 and 427 sequence.	Overall and in the content and cognitive breakdown areas of the MFT, ninety percent of CSU – Pueblo mathematics majors will score at or above the 50 <sup>th</sup> percentile on the MFAT standardized exam.	For the most recently available MFT results, 82% (9/11) students met the expected achievement level. Cumulatively, for the past 3 years 80% (20/25) majors have met the expected achievement level.	Although the desired achievement level of 90% of our students making the 50 <sup>th</sup> percentile, has not been satisfied, the results are not bad. We are close to our target, and the target seems within grasp. But the small number of majors each year will make it a challenge.	None at this time.
problems involving applications to other fields and problems involving real-world data							

Comments:

II. Follow-up (closing the loop) on results and activities from previous assessment cycles. In this section, please describe actions taken during this cycle that were based on, or implemented to address, the results of assessment from previous cycles.

A. What SLO(s)	B. When was this	C. What were the	D. Were the	E. What were the results of the
did you address?	SLO last assessed?	recommendations for change	recommendations for	changes? If the changes were not
Please include	Please indicate the	from the previous	change acted upon? If not,	effective, what are the next steps or
the outcome(s)	semester and year.	assessment?	why?	the new recommendations?
verbatim from				
the assessment				
plan.				

Comments:

The mathematics program is developing modifications to its remedial mathematics offerings. The curriculum for Math 098 is under review by a team of five faculty this summer (Summer 2014) and the course will be delivered in a new format starting Spring 2015. Math 099 will be under a similar review in the Spring of 2015 and is planned for a new deliverly format starting in Fall 2015.

College Algebra has had a pilot program underway for two semesters, Fall 2013 and Fall 2014. The results have been encouraging and the plan is to move the pilot into the regular rotation starting Fall 2016. The change to College Algebra is more substantial, follows State of Colorado guidelines for the incorporation of Supplemental Academic Instruction, and will require action by the Curriculum and Academic Programs Board following the new course proposals.

Changes to Math 156, the introductory statistics course, and Math 109, the general education course for liberal arts students are also under review, including a change in the placement cut scores.

All of these revisions have kept and will keep the departmental curriculum committee very busy. New assessment instruments should be added now to these programs, remedial mathematics and gateway mathematics. We plan to engage in these important activities in the coming semesters.