

Course #	# Students	Program Outcome
MA 094 AA G	8	
MA 094 AB G	20	
MA 095 A C	4	
MA 095 B C	0	
MA 095 BA G	6	
MA 095 D C	0	
MA 097 A 64	9	
MA 097 A C	16	
MA 097 AA G	6	
MA 097 AB G	11	
MA 097 CA G	0	
MA 099 A 55	0	
MA 099 A C	15	
MA 099 AA G	6	
MA 099 AB G	23	

MA 099 B C	13	
MA 099 B E	12	
MA 099 C C	4	
MA 099 SA I	34	
MA 099 YA I	9	
MA 100 SA I	0	
MA 100 YA I	3	
MA 105 A C	3	
MA 105 SA I	4	
MA 105 YA I	1	
MA 107 BA G	7	
MA 107 HI I	1	
MA 107 SA I	9	
MA 107 YA I	1	
MA 110 A 33	5	
MA 110 A 64	4	
MA 110 A C	27	
MA 110 AA G	8	
MA 110 AB G	20	
MA 110 B C	23	
MA 110 C C	24	

MA 110 D C	4	
MA 110 D E	11	
MA 110 HA 38	0	
MA 110 HB 38	6	
MA 110 SA I	39	
MA 110 YA I	10	
MA 111 A C	2	
MA 111 AA G	8	
MA 111 AB G	18	
MA 111 HA 13	10	
MA 111 HA 45	2	

MA 111 HA 47	7	
MA 111 HA 48	7	
MA 112 A C	5	
MA 112 HA 01	13	
MA 112 HA 06	1	
MA 112 HA 08	7	
MA 112 HA 24	10	
MA 112 HA 35	0	
MA 112 HA 38	4	
MA 112 HA 40	10	
MA 112 HA 47	7	
MA 112 HA 53	0	
MA 112 HA 61	6	
MA 112 HA 66	0	
MA 112 HA 68	3	
MA 112 HA 69	11	
MA 112 HB 01	9	
MA 112 HB 69	0	
MA 112 HB O8	7	
MA 112 SA I	3	
MA 112 YA I	2	
MA 113 A C	2	
MA 114 A C	20	
MA 114 HA 53	2	

MA 114 SB I	8	
MA 114 YB I	5	
MA 115 A C	22	
MA 115 AA G	6	
MA 120 AA G	3	
MA 120 HA 68	5	
MA 121 A C	2	
MA 123 A E	4	

Outcome 1	1-AMS	1-TMS	1-Rec
Solve equations and inequalities of various types.	80	70	Increase the target mean score
Perform arithmetic and exponential operations,using the Order of Operations agreement, to simplify expressions with numbers up to and including rational numbers and mixed number, and estimate results.	77	70	Increase the target mean score.
1. Perform arithmetic and exponential operations, using the Order of Operations agreement, to simplify expressions with numbers up to and including rational numbers and mixed number, and estimate results.	89	70	
Evaluate and/or simplify arithmetic and variable expressions of various types.	73	75	I don't see that major changes are needed. One more correct answer would have met our goal.
Evaluate and/or simplify arithmetic and variable expressions of various types.	66	70	Assess the outcome in an earlier assignment or test. Practice/assign more problems

1. Evaluate and/or simplify arithmetic and variable expressions of various types.	65	70	
1. Evaluate and/or simplify arithmetic and variable expressions of various types.	62	70	
Use sets, set relationships, and set operations in various applications.	56	75	Perhaps more work throughout the semester to either keep the concepts fresh or to allow the students to master the concepts.
Students will demonstrate the ability to use the metric system and convert values within the metric system using the measurements and quantities encountered in the clinical setting.	86	70	
Solve equations and inequalities of various types.	80	70	Increase the target mean score
Solve equations and inequalities of various types.	31	75	Change test format during the semester to either multiple choice or open response paper and pencil tests. Change the structure of the class.

1. Solve equations and inequalities of various types.	32	70	
1. Solve equations and inequalities of various types.	56	70	
1. Solve various types of equations as listed in Core Competencies.	78	70	
Solve various types of equations as listed in Core Competencies.	63	70	The students will be offered a four hour review workshop before the beginning of the semester/assign more problems.
1. Solve various types of equations as listed in Core Competencies.	85	70	
1. Solve various types of equations as listed in Core Competencies.	85	70	
1. Solve various types of equations as listed in Core Competencies.	89	70	

1. Solve various types of equations as listed in Core Competencies.	89	70	
Understand and use trigonometric functions in various situations and applications.	68	75	Slightly more emphasis on applications. These are difficult for students, so more practice and exposure is probably needed.
1. Solve various types of equations as listed in Core Competencies.	78	70	

Work extensively with functions.	90	75	none needed!
1. Work extensively with functions.	73	70	
Demonstrate knowledge of functions and their graphs.	67	70	Increase the target mean score.
1. Demonstrate knowledge of functions and their graphs.	100	70	
Solve differential equations by various methods.	89	75	None needed!

Program Outcome	Outcome 2	2-AMS	2-TMS
	Factor a wide variety of expressions.	63	70
	Estimate results from calculations in Outcome1	33	70
	2. Estimate results from calculations in Outcome 1.	89	70
	Solve various types of equations and inequalities.	78	75
	Solve various types of equations and inequalities.	68	70

	2. Solve various types of equations and inequalities.	65	70
	2. Solve various types of equations and inequalities.	38	70
	Use basic ideas from logic to evaluate the truth of statements or arguments.	63	75
	Students will describe methods of safe medication administration including the "six rights" of medication administration.	86	70
	Factor a wide variety of expressions.	63	70
	Factor a wide variety of expressions.	47	75

	2. Factor a wide variety of expressions.	0	70
	2. Factor a wide variety of expressions.	0	70
	2. Solve various types of inequalities as listed in Core Competencies.	75	70
	Solve various types of inequalities as listed in Core Competencies.	54	70
	2. Solve various types of inequalities as listed in Core Competencies.	78	70
	2. Solve various types of inequalities as listed in Core Competencies.	84	70
	2. Solve various types of inequalities as listed in Core Competencies.	90	70

	2. Solve various types of inequalities as listed in Core Competencies.	90	70
	Solve various types of triangles.	100	75
	2. Solve various types of inequalities as listed in Core Competencies.	75	70

	Evaluate basic limits.	82	75
	2. Evaluate basic limits.	75	70
	Evaluate and apply limits.	83	70
	2. Evaluate and apply limits.	67	70
	Describe the qualitative behavior of solutions to differential equations.	63	75

2-Rec	Program Outcome
Make the assessment of the outcome at an earlier exam and practice/assign more problems.	
Practice more examples/assign more problems. Also give couple more problems in the final rather than one which can bring down the mean.	
None needed!	
Increase the target mean score.	

I would make the same recommendation as in outcome #1. That is, give more work during the semester to allow the students to master and retain the concepts in the first place.	
Make the assessment of the outcome at an earlier exam and practice/assign more problems.	
More emphasis on the final on factoring. Previous recommendations as well.	

none needed	
Increase the target mean score.	
This average was skewed by one student not even attempting the question. More of an emphasis throughout the semester is probably the best thing to try.	

Outcome 3	3-AMS	3-TMS	3-Rec
Perform arithmetic operations and simplify a wide variety of expressions, including but not limited to rational expressions, radical expressions, and complex numbers.	86	70	Increase the target mean score.
Use fractions, decimals, percents, ratios and proportions in applications.	58	70	practice/assign more problems
3. Use fractions, decimals, percents, ratios and proportions in applications.	89	70	
Graph linear equations, identifying the intercepts and slope, using various techniques.	23	75	Wow! We'll have to focus a lot more on this topic. Part of the problem may be the technology involved. The tool used to draw graphs is frustrating because if one draws the graph using the easiest points, the natural points, it is counted wrong. You have to use points that are far away from each other, and students may have just said "I'm not going to bother." So much more of a focus and practice next time I teach this class.
Graph linear equations, identifying the intercepts and slope, using various techniques.	55	70	Assess the outcome in an earlier assignment or test. Practice/assign more problems

3. Graph linear equations, identifying the intercepts and slope, using various techniques.	54	70	
3. Graph linear equations, identifying the intercepts and slope, using various techniques.	75	70	
Accurately compute quantities including, but not limited to, discounts, sale prices, sales tax, monthly payments and interest charges on credit card bills.	100	75	None needed!
Students will demonstrate the ability to calculate dosages for oral medications including tablets/capsules and liquids, parenteral medications, and intravenous medications.	88	70	
Perform arithmetic operations and simplify a wide variety of expressions, including but not limited to rational expressions, radical expressions, and complex numbers.	86	70	Increase the target mean score.
Perform arithmetic operations and simplify a wide variety of expressions, including but not limited to rational expressions, radical expressions, and complex numbers.	43	75	Recommendations from previous outcomes

3. Perform arithmetic operations and simplify a wide variety of expressions, including but not limited to rational expressions, radical expressions, and complex numbers.	21	70	
3. Perform arithmetic operations and simplify a wide variety of expressions, including but not limited to rational expressions, radical expressions, and complex numbers.	56	70	
3. Solve systems of equations and inequalities using various methods.	83	70	
Solve systems of equations and inequalities using various methods.	79	70	Increase the target mean score.
3. Solve systems of equations and inequalities using various methods.	82	70	
3. Solve systems of equations and inequalities using various methods.	92	70	
3. Solve systems of equations and inequalities using various methods.	96	70	

3. Solve systems of equations and inequalities using various methods.	96	70	
Analyze graphs of trigonometric functions.	27	75	Apparently the main problem for this class, and somewhat puzzling for me. Part of the problem may have been in the construction of the questions, in that two of the questions asked students to identify multiple quantities. Missing one of those quantities caused students to miss the entire question. We can test that by using questions that ask for fewer quantities.
3. Solve systems of equations and inequalities using various methods.	83	70	

Compute derivatives of various types of functions, including multivariable functions.	68	75	Further analysis to see which derivatives posed the greater problem, followed by greater emphasis on those topics.
3. Compute derivatives of various types of functions, including multivariable functions.	65	70	
Evaluate and apply derivatives.	79	70	Increase the target mean score.
3. Evaluate and apply derivatives.	50	70	
Solve systems of linear differential equations.	74	75	Nothing substantial.

Program Outcome	Outcome 4	4-AMS	4-TMS
	Develop and solve basic mathematical models.	65	70
	Convert between different forms of a number (fraction, decimal, percent, mixed).	61	70
	4. Convert between different forms of a number (fraction, decimal, percent, mixed).	88	70
	Write linear equations given sufficient information.	7	75
	Write linear equations given sufficient information.	46	70

	4. Write linear equations given sufficient information.	57	70
	4. Write linear equations given sufficient information.	64	70
	Accurately compute quantities from probability, including the probability of an event, the number of permutations or combinations of a set, along with the odds for or against an event and the expected value of an event.	92	75
	Students will identify syringes by the total volume and use. Students will demonstrate the ability to read the volume of medication contained within a syringe.	86	70
	Develop and solve basic mathematical models.	65	70
	Develop and solve basic mathematical models.	49	75

	4. Develop and solve basic mathematical models.	50	70
	4. Develop and solve basic mathematical models.	65	70
	4. Work extensively with functions, including, but not limited to, arithmetic operations with functions, finding compositions of functions, describing transformations of graphs, and finding inverse functions.	47	70
	Work extensively with functions, including but not limited to, arithmetic operations with functions, finding compositions of functions, describing transformations of graphs, and finding inverse functions.	62	70
	4. Work extensively with functions, including, but not limited to, arithmetic operations with functions, finding compositions of functions, describing transformations of graphs, and finding inverse functions.	81	70
	4. Work extensively with functions, including, but not limited to, arithmetic operations with functions, finding compositions of functions, describing transformations of graphs, and finding inverse functions.	83	70
	4. Work extensively with functions, including, but not limited to, arithmetic operations with functions, finding compositions of functions, describing transformations of graphs, and finding inverse functions.	90	70

	4. Work extensively with functions, including, but not limited to, arithmetic operations with functions, finding compositions of functions, describing transformations of graphs, and finding inverse functions.	90	70
	Derive and verify trigonometric identities of various types.	40	75
	4. Work extensively with functions, including, but not limited to, arithmetic operations with functions, finding compositions of functions, describing transformations of graphs, and finding inverse functions.	47	70

	Use derivatives in applications, including analysis of graphs.	86	75
	4. Use derivatives in applications, including analysis of graphs.	83	70
	Evaluate and apply integrals.	100	70
	4. Evaluate and apply integrals.	67	70
	Use appropriate numerical techniques to approximate solutions to differential equations.		75

4-Rec	Program Outcome
<p>Measure the course outcome in an earlier test and based on the results make changes if possible like assign more problems.</p>	
<p>practice/assign more problems</p>	
<p>Again, very disappointing. We will focus much more on this topic next time I teach this class.</p>	
<p>Assess the outcome in an earlier assignment or test. Practice/assign more problems.</p>	

None needed!	
Measure the course outcome in an earlier test and based on the results make changes if possible like assign more problems.	
Same as above	

None needed!	
None	
Speed up coverage of other material a bit so that this material can be covered.	

Outcome 5	5-AMS	5-TMS	5-Rec
Perform basic tasks with functions, such as evaluation and identifying domain and range.	63	70	Make the assessment of the outcome at an earlier exam and practice/assign more problems
Solve linear equations using addition, multiplication, or both.	88	70	Increase the target mean score.
5. Solve linear equations using addition, multiplication, or both.	95	70	
Factor various types of expressions.	75	75	None needed.
Factor various types of expressions.	73	70	Increase the target mean score.

5. Factor various types of expressions.	57	70	
5. Factor various types of expressions.	40	70	
Compute basic quantities in statistics, including measures of central tendency and measures of dispersion, and use the normal distribution in basic situations.	83	75	None needed.
Students will identify differences between dosage strength and supply dosage.	88	70	
Perform basic tasks with functions, such as evaluation and identifying domain and range.	63	70	Make the assessment of the outcome at an earlier exam and practice/assign more problems
Perform basic tasks with functions, such as evaluation and identifying domain and range.	46	75	Same as above

5. Perform basic tasks with functions, such as evaluation and identifying domain and range.	25	70	
5. Perform basic tasks with functions, such as evaluation and identifying domain and range.	45	70	
5. Write the equations of various functions given sufficient information.	100	70	
Write the equations of various functions given sufficient information.	83	70	Increase the target mean score.
5. Write the equations of various functions given sufficient information.	62	70	
5. Write the equations of various functions given sufficient information.	78	70	
5. Write the equations of various functions given sufficient information.	84	70	

5. Write the equations of various functions given sufficient information.	84	70	
Solve trigonometric equations.	70	75	Nothing major seems needed here. One more question answered correctly would have met our goal.
5. Write the equations of various functions given sufficient information.	100	70	

Optimize single variable and multivariable functions, in both unconstrained and constrained situations.	64	75	More practice on these topics.
5. Optimize single variable and multivariable functions, in both unconstrained and constrained situations.	59	70	
Demonstrate knowledge of major theorems.	83	70	Increase the target mean score.
5. Demonstrate knowledge of major theorems.	62	70	
Use these tools in applications.	38	75	More of an emphasis on applications and a bit less on theory perhaps. The average was skewed by one student not even attempting either question, and another student attempting only one.

Program Outcome	Outcome 6	6-AMS	6-TMS
	Graph linear equations, inequalities, and quadratic functions, as well as find the distance between two points in the plane and their midpoint.	75	70
	Perform arithmetic operations on rational expressions.	50	75
	Perform arithmetic operations on rational expressions.	43	70

	6. Perform arithmetic operations on rational expressions.	65	70
	6. Perform arithmetic operations on rational expressions.	62	70
	Students will calculate the amount of medication to administer in order to deliver the prescribed dose. Calculations will include the number of tablets necessary to administer a given dose and the volume of liquid medications required for a given dose.	88	70
	Graph linear equations, inequalities, and quadratic functions, as well as find the distance between two points in the plane and their midpoint.	75	70
	Graph linear equations, inequalities, and quadratic functions, as well as find the distance between two points in the plane and their midpoint.	36	75

	6. Graph linear equations, inequalities, and quadratic functions, as well as find the distance between two points in the plane and their midpoint.	44	70
	6. Graph linear equations, inequalities, and quadratic functions, as well as find the distance between two points in the plane and their midpoint.	82	70
	6. Develop and solve various mathematical models.	75	70
	Develop and solve various mathematical models.	77	70
	6. Develop and solve various mathematical models.	45	70
	6. Develop and solve various mathematical models.	72	70
	6. Develop and solve various mathematical models.	72	70

	6. Develop and solve various mathematical models.	72	70
	Use inverse trigonometric functions in basic situations.	70	75
	6. Develop and solve various mathematical models.	75	70

	Use and solve systems of linear equations in various applications.	50	75
	6. Use and solve systems of linear equations in various applications.	70	70

6-Rec	Program Outcome
Increase the target mean score.	
<p>This is a difficult topic for students, especially multiplication and division. I will try using some additional work in this area to see if that helps.</p>	
<p>Assess the outcome in an earlier assignment or test. Practice/assign more problems</p>	

More emphasis on applications of these ideas.	

Students will identify equipment encountered in the hospital/clinical setting for administration of medications including syringes (and types of syringes) and intravenous lines and equipment.	88	70	
Write equations of lines, including parallel or perpendicular lines, given sufficient information.	69	70	Increase the target mean score.
Write equations of lines, including parallel or perpendicular lines, given sufficient information.	35	75	Same as above

7. Write equations of lines, including parallel or perpendicular lines, given sufficient information.	38	70	
7. Write equations of lines, including parallel or perpendicular lines, given sufficient information.	68	70	
7. Perform arithmetic operations on matrices.	100	70	
Perform airthmetic operations on matrices.	63	70	Covered at the end of the semester-offer extra help and assign more problems.
7. Perform arithmetic operations on matrices.	73	70	
7. Perform arithmetic operations on matrices.	99	70	
7. Perform arithmetic operations on matrices.	99	70	

7. Perform arithmetic operations on matrices.	99	70	
7. Perform arithmetic operations on matrices.	100	70	

Perform arithmetic operations on matrices.	50	75	A more direct assessment of this outcome.
7. Perform arithmetic operations on matrices.	94	70	

Program Outcome	Outcome 8	8-AMS	8-TMS
	Solve systems of linear equations using various methods.	25	70

	Students will explain how to set the flow rate of IV fluids in mL/hour based on the physician's orders.	89	70
	Solve systems of linear equations using various methods.	63	70
	Solve systems of linear equations using various methods.	46	75

8-Rec	Outcome 9	9-AMS	9-TMS
Assign more assignments and practice more examples in class			

