

Course Outcomes Guide (COG)

Course Title: MAT 099 Elementary Algebra

Date: June 2014

**Course Team: Rebecca Kendrick, Lead Instructor for MAT 099,
and other DEALS Math Faculty**

Expected Learning Outcomes

Upon successful completion of this course students will be able to:

1. Use computational techniques and algebraic skills essential for success in an academic, personal, or workplace setting. (Computational and Algebraic Skills)
2. Use visualization, spatial reasoning, as well as geometric properties and strategies to mode and solve problems. (Geometric Skills)
3. Use technology, where appropriate, to enhance and facilitate mathematical understanding, as well as to aid in solving problems and presenting solutions. (Technological Skills)
4. Communicate and understand mathematical statements, ideas and results, both verbally and in writing, with the correct use of mathematical definitions, terminology and symbolism. (Communication Skills)
5. Work collaboratively with peers and instructors to acquire mathematical understanding and to formulate and solve problems and present solutions. (Collaborative Skills)

Assessment: All MAT-099 Elementary Algebra students complete the same homework, quizzes, and tests. We use MyMathLab to run the course and all instructors are using the same assignments. Additionally, all students take a five question pre-test and take the same five questions again as a post-test that is incorporated into the (common) final exam. Students demonstrate achievement of Outcomes 1 – 3 on the course assignments, and more specifically on the pre/post-test. Outcome 4 is measured via three short essay questions on the final exam. Each essay question looks for a specific result: the first requires students to find and describe an error in a problem, the second requires students to give an example of how a mathematical concept can be applied in their life, and the third requires students to explain a mathematical concept. Outcome 5 is achieved through an in-class, group assignment. Every instructor is given directions on how to structure the assignment and a rubric for grading the assignment, but the actual assignment is created by each individual instructor.

Measurement	Outcome being measured	Direct or Indirect	Data Collection		
			Who	Where/When	Collected?
Pre-test	1, 2, 3	Direct	All Dev Math students	Embedded in course	Yes
Post-test	1, 2, 3	Direct	All Dev Math students	Embedded in course	Yes
In-class, group assignments	4, 5	Direct	All Dev Math students	Embedded in course	Yes (starting in 13/FA)

Validation: We use a 2-point rubric to grade the five question pre/post-test and all other tests in the course to ensure consistency in grading from section-to-section and instructor-to-instructor. We then compare results from semester-to-semester, and compare the post-test results to the final course grade. For FY14, we did not have any external validation for our assessment.

Results: Students' assessment results have been analyzed and compared to course grades to look for a correlation.

- Assessment scores were calculated by adding the following five data points:
 - Outcome #1 – Post4 – worth a max of 2 points
 - Outcome #2 – Average of Post1 and Post5 – worth a max of 2 points
 - Outcome #3 – Average of Post2 and Post3 – worth a max of 2 points
 - Outcome #4 – Average of three essay questions – worth a max of 2 points
 - Outcome #5 – Score on collaboration assignment ÷ 50 – worth a max of 2 points
- Success is defined as an assessment score of at least a 7 out of 10 points (70%).
- The data shows that, for the entire academic year, 71.1% (n=616) of students who completed the SLOA assessment fall into two categories – Pass/Pass (passing both the assessment and the course) or Fail/Fail (failing both the assessment and the course).
- The other 28.9% (n=251) of students who completed the SLOA assessment fall into a pass-fail case where they passed either the assessment or the course but failed the other. In a perfect world, all students would fall into pass-pass or fail-fail cases. Certainly, the

MAT-099 SLOA assessment is not perfect, but the results are encouraging. Only 0.9% (n=8) of students passed the assessment but failed the course. The concern lies in the fact that 28% (n=243) of students failed the assessment but yet passed the class.

While point #3 above indicates that the assessment and outcomes are well-aligned, point #4 suggests that more work needs to be done to ensure that students who do not demonstrate mastery of the outcomes (via the assessment) do not pass the course.

Follow-up: Starting in 14/FA, several changes will be implemented:

- a. Rich Campbell will become the new lead instructor for MAT-099, while I will become the lead instructor for MAT-100.
- b. SLO will be edited to become more specific to the course (keeping a total of five outcomes). Currently, the outcomes are basically the same for MAT-098/099/100. In 14/FA, the new MAT-099 outcomes focus on specific topics and material covered in the course. Outcome 4 will remain, but be edited to remove “both verbally and in writing” as our assessment only measures the “in writing” portion. Outcome 5 will be deleted; while students will still be completing in-class assignments to accomplish this goal, we feel this is not a primary focus of the class and thus does not need to be an outcome.
- c. Over the past two academic years, students have consistently scored 0-2 points (out of 10) on the pre-test. As such, we feel that collecting this data has not been beneficial to the SLOA process. To collect more meaningful data, the pre-test will be discontinued and the data collected will come from a 10 question assessment during the last week of the course (prior to the final exam) and 2 essay questions on the final exam. If possible, the 10 questions will be pulled from a standardized exam for which the national benchmarks have been released (SAT, ACT, Praxis, etc). This will allow us to compare the results in our course to national results to determine the validity of our assessment.
- d. The grading rubric for the SLOA questions will be edited. Adjunct instructors have expressed a sentiment that the current rubric can be ambiguous.
- e. The course assessment procedures will be changed to increase the value of tests and decrease the value of homework and quizzes. Tests will now be worth 65% of the course grade (this aligns with MAT-101 and MAT-109, the two largest Gen Ed math courses) while homework and quizzes will both decrease to 10%. Having tests be at a higher weight should help with the concern listed in the Results section above (that students who fail the SLOA are passing the class).
- f. Comparing course results by method (lecture/package/web), it is quite obvious that the stand-alone web classes for MAT-099 (excluding packaged MAT-099P) have a significantly lower success rate compared to the other delivery methods. (See attachment #5.) As such, I strongly recommend that changes be immediately implemented to improve student success and retention in the web sections. My recommendations include the following:

1. In 14/FA, web students in MAT-098/099/100 should be required to complete the Guided Notebook (this is a supplement to the new textbook we will be using in the fall). This notebook guides students through definitions, examples, videos, and animations in the e-book. My experience using a similar guided notebook in my web sections of MAT-101 provided the anecdotal evidence to support this recommendation. Students in that course, over three semesters, generally said that the guided notebook was helpful, provided them a more structured format for coursework, and gave them a better sense of a lecture (rather than the typical misconception that they have to “teach themselves” in web classes).
2. Further, I suggest that the college investigate a placement procedure or requirements to determine whether students are good candidates for web courses. An example can be found at Washtenaw Community College.
<http://www.wccnet.edu/academics/classes/online/requirements-online/>
3. If improvements are not seen in the success and retention rates for web MAT-099 classes, then I recommend that we cease to offer them to students.

Budget Justification: No additional funding/resources are needed at this time.

Attachments:

1. SLO Assessment
2. SLO rubric
3. Collaboration assignment with rubric
4. Grade distribution summary
5. Spring 2014 Assessment Results by Outcome
6. Fall 2013 Assessment Results by Outcome
7. Summer 2013 Assessment Results by Outcome
8. Assessment versus Course Grade summary

SLO Assessment for MAT 099 Elementary Algebra

Please answer the following questions. Do your work in the space provided and place your final answer in the answer column.

1. Outcome #2

The National Junior College Athletic Association requires that a volleyball court have a perimeter of 177 feet. The length of the court is twice the width. **Find the dimensions of the court.**

2. Outcome #3

Divide using synthetic OR long division:
 $(6x^4 + 15x^3 + 28x + 6) \div (x + 3)$

3. Outcome #3

Divide and simplify the expression: $\frac{x^2 - x - 2}{x^2 - 1} \div \frac{x - 2}{x^2 - 6x + 5}$

4. Outcome #1

The new Museum of Contemporary Art in New York City consists of eight floors and reaches a height of 59 yards. **What is the height of the museum in inches?**

5. Outcome #2

Solve the equation: $\frac{x}{15} - \frac{4}{5} = \frac{x}{3}$

Outcome #4

Essay Question #1:

A question on John's assignment asks him to "subtract $4x - 7$ from $3x^2 + 5x - 2$." John completes his work as follows:

$$(3x^2 + 5x - 2) - (4x - 7) = 3x^2 + 5x - 2 - 4x - 7 = 3x^2 + x - 9$$

Find and explain John's mistake. Give the correct answer.

Essay Question #2:

Give an example of a situation in your life where you would need to make a conversion from one unit of measurement to another. Complete the conversion you have described.

Essay Question #3:

Without factoring, explain why $(x + 5)$ cannot possibly be a factor of $x^2 - 8x + 15$.

Grading Rubric for Developmental Mathematics

This general scale is to be used for all Tests and Final Exams in
MAT 098, MAT 099, and MAT 100.

All questions are worth 2 points.

2 points	Answer is completely correct, including any necessary units.
1.75 points	Work correct but one minor error was made (unless the problem is testing one of these concepts – mostly in 098): <ul style="list-style-type: none"> • missing a negative • missing units • simple arithmetic errors
1.5 points	Work is mostly correct (75% or greater) but there are two or more minor errors OR one major error.
1 point	Work is approximately 50% correct.
0.5 point	Work is approximately 25% correct AND <u><i>some basic understanding of the concept is demonstrated.</i></u>
0 points	Work is roughly less than 25% correct OR no basic understanding is demonstrated.

Rubric for grading Essay/Concept Questions

Students can earn up to 2 points for each essay/concept question on the final exam. Points are earned by meeting the following criteria:

- 1 point for accurate explanation of situation presented in problem
- 0.5 point for use of correct mathematical terminology and symbolism
- 0.5 point for use of complete sentences

Outcome #5

Collaboration Assignment

This assignment must be created with Student Learning Outcome #5 in mind. The outcome states that students will “work collaboratively with peers and instructors to acquire mathematical understanding and to formulate and solve problems and present solutions. (Collaborative Skills)” In order to reach this outcome, your group assignment must require students to a) work collaboratively to b) formulate problems, c) solve problems, and d) present solutions. The creation of this assignment is completely up to you. You can complete it at any time throughout the semester, on any course topic that you wish, and with whatever group sizes you prefer. This assignment can be completed in one class session (1 hr 15 min) or it can be split across two or more sessions.

What we ask is that you are all consistent in your grading, as much as is possible, by grading in the following manner:

Area	Possible Points	Assigning Points	Description
Formulate problems	5 points	All students in the group should probably earn the same score for this area.	Students should formulate their own application problems Examples: groups could create their own systems of equations application problem, groups could collect their own set of data for mean, median, mode, etc.
Solve problems	5 points	All students in the group should probably earn the same score for this area.	Students should the problems they formulated.
Present solutions	10 points	Students should receive a score based on their own performance.	Each student must participate in the presentation of the group’s work. Presentations do <i>not</i> need to be long, elaborative affairs.
Collaboration	5 points	Students should receive a score based on their own performance.	Assign points to each student based on their participation and collaboration efforts within their group.

Total: 25 points

MAT-099 AY 2013-2014

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
2013-2014 Summary	1149	21.1% (n=243)	19.8% (n=228)	20.2% (n=232)	0.9% (n=10)	31.7% (n=364)	14.7% (n=169)	6.3% (n=72)	61.2% (n=703)	77.4%

Full-Time Faculty vs Adjunct Faculty

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Full-time	374	19.8% (n=74)	17.9% (n=67)	26.2% (n=98)	2.7% (n=10)	28.1% (n=105)	14.7% (n=55)	5.3% (n=20)	63.9% (n=239)	79.9%
Adjunct	775	21.8% (n=169)	20.8% (n=161)	17.3% (n=134)	0.0% (n=0)	33.4% (n=259)	14.7% (n=114)	6.7% (n=52)	59.9% (n=464)	76.2%

*Completer success is defined as the success rate of students who completed the course. It is calculated by the formula (A + B + C) divided by (Total - WF - W - I - AU).

MAT-099 13/SU

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Lecture 12	37	29.7% (n=11)	16.2% (n=6)	24.3% (n=9)	0.0% (n=0)	13.5% (n=5)	0.0% (n=0)	16.2% (n=6)	70.3% (n=26)	83.9%
Lecture Summer 10	12	25.0% (n=3)	25.0% (n=3)	8.3% (n=1)	0.0% (n=0)	33.3% (n=4)	0.0% (n=0)	8.3% (n=1)	58.3% (n=7)	63.6%
Lecture Summer 8	47	14.9% (n=7)	17.0% (n=8)	17.0% (n=8)	0.0% (n=0)	46.8% (n=22)	0.0% (n=0)	4.3% (n=2)	48.9% (n=23)	51.1%
Lecture Subtotal	96	21.9% (n=21)	17.7% (n=17)	18.8% (n=18)	0.0% (n=0)	32.3% (n=31)	0.0% (n=0)	9.4% (n=9)	58.3% (n=56)	64.4%
Package Lecture	48	20.8% (n=10)	22.9% (n=11)	20.8% (n=10)	0.0% (n=0)	27.1% (n=13)	0.0% (n=0)	8.3% (n=4)	64.6% (n=31)	70.5%
Package Web	17	29.4% (n=5)	11.8% (n=2)	17.6% (n=3)	0.0% (n=0)	35.3% (n=6)	0.0% (n=0)	5.9% (n=1)	58.8% (n=10)	62.5%
Package Subtotal	65	23.1% (n=15)	20.0% (n=13)	20.0% (n=13)	0.0% (n=0)	29.2% (n=19)	0.0% (n=0)	7.7% (n=5)	63.1% (n=41)	68.3%
Web 12	21	33.3% (n=7)	9.5% (n=2)	14.3% (n=3)	0.0% (n=0)	42.9% (n=9)	0.0% (n=0)	0.0% (n=0)	57.1% (n=12)	57.1%
Web Subtotal	21	33.3% (n=7)	9.5% (n=2)	14.3% (n=3)	0.0% (n=0)	42.9% (n=9)	0.0% (n=0)	0.0% (n=0)	57.1% (n=12)	57.1%
13/SU Subtotal	182	23.6% (n=43)	17.6% (n=32)	18.7% (n=34)	0.0% (n=0)	32.4% (n=59)	0.0% (n=0)	7.7% (n=14)	59.9% (n=109)	64.9%

Full-Time Faculty vs Adjunct Faculty

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Adjunct	182	23.6% (n=43)	17.6% (n=32)	18.7% (n=34)	0.0% (n=0)	32.4% (n=59)	0.0% (n=0)	7.7% (n=14)	59.9% (n=109)	64.9%

*Completer success is defined as the success rate of students who completed the course. It is calculated by the formula (A + B + C) divided by (Total - WF - W - I - AU).

MAT-099 13/FA

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Lecture 15 week	231	10.0% (n=23)	21.6% (n=50)	18.2% (n=42)	0.0% (n=0)	43.3% (n=100)	22.1% (n=51)	6.9% (n=16)	49.8% (n=115)	70.1%
Lecture Subtotal	231	10.0% (n=23)	21.6% (n=50)	18.2% (n=42)	0.0% (n=0)	43.3% (n=100)	22.1% (n=51)	6.9% (n=16)	49.8% (n=115)	70.1%
Package Hybrid	85	25.9% (n=22)	24.7% (n=21)	24.7% (n=21)	0.0% (n=0)	18.8% (n=16)	5.9% (n=5)	5.9% (n=5)	75.3% (n=64)	85.3%
Package Lecture	233	33.9% (n=79)	25.3% (n=59)	23.2% (n=54)	0.4% (n=1)	15.0% (n=35)	5.2% (n=12)	2.1% (n=5)	82.4% (n=192)	88.9%
Package Web	22	31.8% (n=7)	36.4% (n=8)	13.6% (n=3)	0.0% (n=0)	18.2% (n=4)	9.1% (n=2)	0.0% (n=0)	81.8% (n=18)	90.0%
Package Subtotal	340	31.8% (n=108)	25.9% (n=88)	22.9% (n=78)	0.3% (n=1)	16.2% (n=55)	5.6% (n=19)	2.9% (n=10)	80.6% (n=274)	88.1%
Web 15 week	21	14.3% (n=3)	4.8% (n=1)	14.3% (n=3)	0.0% (n=0)	47.6% (n=10)	28.6% (n=6)	19.0% (n=4)	33.3% (n=7)	63.6%
Web Second 10	29	0.0% (n=0)	13.8% (n=4)	3.4% (n=1)	0.0% (n=0)	65.5% (n=19)	51.7% (n=15)	17.2% (n=5)	17.2% (n=5)	55.6%
Web Subtotal	50	6.0% (n=3)	10.0% (n=5)	8.0% (n=4)	0.0% (n=0)	58.0% (n=29)	42.0% (n=21)	18.0% (n=9)	24.0% (n=12)	60.0%
13/FA Subtotal	621	21.6% (n=134)	23.0% (n=143)	20.0% (n=124)	0.2% (n=1)	29.6% (n=184)	14.7% (n=91)	5.6% (n=35)	64.6% (n=401)	81.0%

Full-Time Faculty vs Adjunct Faculty

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Full-time	193	24.4% (n=47)	21.8% (n=42)	28.0% (n=54)	0.5% (n=1)	19.7% (n=38)	6.2% (n=12)	5.7% (n=11)	74.1% (n=143)	84.1%
Adjunct	428	20.3% (n=87)	23.6% (n=101)	16.4% (n=70)	0.0% (n=0)	34.1% (n=146)	18.5% (n=79)	5.6% (n=24)	60.3% (n=258)	79.4%

*Completer success is defined as the success rate of students who completed the course. It is calculated by the formula (A + B + C) divided by (Total - WF - W - I - AU).

MAT-099
14/SP

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Lecture 15 week	119	21.8% (n=26)	9.2% (n=11)	18.5% (n=22)	0.0% (n=0)	41.2% (n=49)	22.7% (n=27)	9.2% (n=11)	49.6% (n=59)	72.8%
Lecture Second 10	7	14.3% (n=1)	0.0% (n=0)	14.3% (n=1)	0.0% (n=0)	57.1% (n=4)	28.6% (n=2)	14.3% (n=1)	28.6% (n=2)	50.0%
Lecture Subtotal	126	21.4% (n=27)	8.7% (n=11)	18.3% (n=23)	0.0% (n=0)	42.1% (n=53)	23.0% (n=29)	9.5% (n=12)	48.4% (n=61)	71.8%
Package Hybrid	70	12.9% (n=9)	22.9% (n=16)	27.1% (n=19)	7.1% (n=5)	24.3% (n=17)	15.7% (n=11)	5.7% (n=4)	62.9% (n=44)	80.0%
Package Lecture	83	24.1% (n=20)	21.7% (n=18)	27.7% (n=23)	4.8% (n=4)	19.3% (n=16)	14.5% (n=12)	2.4% (n=2)	73.5% (n=61)	88.4%
Package Web	24	20.8% (n=5)	20.8% (n=5)	16.7% (n=4)	0.0% (n=0)	37.5% (n=9)	25.0% (n=6)	4.2% (n=1)	58.3% (n=14)	82.4%
Package Subtotal	177	19.2% (n=34)	22.0% (n=39)	26.0% (n=46)	5.1% (n=9)	23.7% (n=42)	16.4% (n=29)	4.0% (n=7)	67.2% (n=119)	84.4%
Web 15 week	20	0.0% (n=0)	15.0% (n=3)	10.0% (n=2)	0.0% (n=0)	70.0% (n=14)	65.0% (n=13)	5.0% (n=1)	25.0% (n=5)	83.3%
Web Second 10	23	21.7% (n=5)	0.0% (n=0)	13.0% (n=3)	0.0% (n=0)	52.2% (n=12)	30.4% (n=7)	13.0% (n=3)	34.8% (n=8)	61.5%
Web Subtotal	43	11.6% (n=5)	7.0% (n=3)	11.6% (n=5)	0.0% (n=0)	60.5% (n=26)	46.5% (n=20)	9.3% (n=4)	30.2% (n=13)	68.4%
14/SP Subtotal	346	19.1% (n=66)	15.3% (n=53)	21.4% (n=74)	2.6% (n=9)	35.0% (n=121)	22.5% (n=78)	6.6% (n=23)	55.8% (n=193)	78.8%

Full-Time Faculty vs Adjunct Faculty

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Full-time	181	14.9% (n=27)	13.8% (n=25)	24.3% (n=44)	5.0% (n=9)	37.0% (n=67)	23.8% (n=43)	5.0% (n=9)	53.0% (n=96)	74.4%
Adjunct	165	23.6% (n=39)	17.0% (n=28)	18.2% (n=30)	0.0% (n=0)	32.7% (n=54)	21.2% (n=35)	8.5% (n=14)	58.8% (n=97)	83.6%

*Completer success is defined as the success rate of students who completed the course. It is calculated by the formula (A + B + C) divided by (Total - WF - W - I - AU).

STUDENT LEARNING OUTCOMES ASSESSMENT

MAT 099, Spring 2014

346 students registered

Outcome 1: Use computational techniques essential for success in an academic, personal, or workplace setting. (Computational Skills)**243 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Complete a Unit Conversion	0.88 (out of 2)	1.54 (out of 2)	74.4% (n=180)	75.2% (n=182)	24.8% (n=60)

Outcome 2: Use visualization, spatial reasoning, as well as geometric properties and strategies to mode and solve linear equations and inequalities.(Geometric And Algebraic Skills) **243 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Solve Word Problem Involving Perimeter	0.39 (out of 2)	1.03 (out of 2)	38.8% (n=94)	56.2% (n=136)	43.8% (n=106)
Solve an Equation Involving Fractions	0.15 (out of 2)	1.17 (out of 2)	54.9% (n=134)	69.7% (n=170)	30.3% (n=74)

Outcome 3: Recognize polynomials, combine polynomials through addition, subtraction, multiplication, and division, and factor simple polynomials.(Algebraic skills) **243 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Divide Polynomial Using Synthetic or Long Division	0.08 (out of 2)	1.22 (out of 2)	55.3% (n=126)	69.3% (n=169)	30.7% (n=75)
Divide Rational Expressions; Involves Factoring	0.06 (out of 2)	.99 (out of 2)	45.5% (n=111)	65.2% (n=159)	34.8% (n=85)

Outcome 4: Communicate and understand mathematical statements, ideas and results, both verbally and in writing, with the correct use of mathematical definitions, terminology and symbolism. (Communication Skills) **243 assessment results reported**

Assessment Question(s)	Assessment Average	% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
			% Pass Both or Fail Both	% Pass One, Fail One
Given problem with work shown; must find and describe error	1.50 (out of 2)	72.1% (n=162)	77.0% (n=188)	23.0% (n=56)
Describe how a problem can be applied to life	1.60 (out of 2)	76.9% (n=186)	71.1% (n=172)	28.9% (n=70)
Explain a mathematical concept	1.19 (out of 2)	55.0% (n=133)	69.0% (n=167)	31.0% (n=75)

Outcome 5: Work collaboratively with peers and instructors to acquire mathematical understanding and to formulate and solve problems and present solutions. (Collaborative Skills) **182 assessment results reported**

Assessment Question(s)	Assessment Average	% of Students Showing Success (75 or greater)	Course and Assessment Alignment	
			% Pass Both or Fail Both	% Pass One, Fail One
Varies by instructor; students must work in groups to formulate and solve problems, and present solutions.	84.8 (out of 100)	58.8% (n=107)	60.4% (n=110)	39.6% (n=72)

Pass both or fail both – We believe that students who pass the assessment have demonstrated that they have met the outcomes of the course and thus should pass the course (pass assessment = pass course). Also, students who fail the assessment have indicated that they have not met the course outcomes and thus should fail the course (fail assessment = fail course).

Pass one, fail one – An area of concern is where students fail the assessment, unable to demonstrate achievement of course outcomes, but pass the course. The flip of that is also an area of concern – where students pass the assessment, demonstrating achievement of course outcomes, but fail the course.

To demonstrate an alignment between the course assessment and the course outcomes, it is expected that the percentage of students who “pass both or fail both” would be high while the percentage of students who “pass one, fail one” would be low.

STUDENT LEARNING OUTCOMES ASSESSMENT

MAT 099, Fall 2013

621 students registered

Outcome 1: Use computational techniques essential for success in an academic, personal, or workplace setting. (Computational Skills)**495 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Complete a Unit Conversion	0.88 (out of 2)	1.64 (out of 2)	79.4% (n=393)	79.0% (n=391)	21.0% (n=104)

Outcome 2: Use visualization, spatial reasoning, as well as geometric properties and strategies to mode and solve linear equations and inequalities.**(Geometric And Algebraic Skills) 495 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Solve Word Problem Involving Perimeter	0.41 (out of 2)	1.10 (out of 2)	47.3% (n=234)	58.6% (n=290)	41.4% (n=205)
Solve an Equation Involving Fractions	0.12 (out of 2)	1.22 (out of 2)	57.2% (n=283)	69.7% (n=345)	30.3% (n=150)

Outcome 3: Recognize polynomials, combine polynomials through addition, subtraction, multiplication, and division, and factor simple polynomials.**(Algebraic skills) 495 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Divide Polynomial Using Synthetic or Long Division	0.07 (out of 2)	1.35 (out of 2)	63.0% (n=312)	74.7% (n=370)	25.3% (n=125)
Divide Rational Expressions; Involves Factoring	0.28 (out of 2)	1.11 (out of 2)	51.5% (n=255)	67.7% (n=335)	32.3% (n=160)

Outcome 4: Communicate and understand mathematical statements, ideas and results, both verbally and in writing, with the correct use of mathematical definitions, terminology and symbolism. (Communication Skills) 495 assessment results reported				
Assessment Question(s)	Assessment Average	% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
			% Pass Both or Fail Both	% Pass One, Fail One
Given problem with work shown; must find and describe error	1.53 (out of 2)	77.6% (n=384)	80.4% (n=398)	19.6% (n=97)
Describe how a problem can be applied to life	1.62 (out of 2)	77.6% (n=384)	77.2% (n=382)	22.8% (n=113)
Explain a mathematical concept	1.31 (out of 2)	62.2% (n=308)	73.5% (n=364)	26.5% (n=131)

Outcome 5: Work collaboratively with peers and instructors to acquire mathematical understanding and to formulate and solve problems and present solutions. (Collaborative Skills) 393 assessment results reported				
Assessment Question(s)	Assessment Average	% of Students Showing Success (75% or greater)	Course and Assessment Alignment	
			% Pass Both or Fail Both	% Pass One, Fail One
Varies by instructor; students must work in groups to formulate and solve problems, and present solutions.	94.3 (out of 100)	96.2% (n=378)	83.0% (n=326)	17.0% (n=67)

Pass both or fail both – We believe that students who pass the assessment have demonstrated that they have met the outcomes of the course and thus should pass the course (pass assessment = pass course). Also, students who fail the assessment have indicated that they have not met the course outcomes and thus should fail the course (fail assessment = fail course).

Pass one, fail one – An area of concern is where students fail the assessment, unable to demonstrate achievement of course outcomes, but pass the course. The flip of that is also an area of concern – where students pass the assessment, demonstrating achievement of course outcomes, but fail the course.

To demonstrate an alignment between the course assessment and the course outcomes, it is expected that the percentage of students who “pass both or fail both” would be high while the percentage of students who “pass one, fail one” would be low.

STUDENT LEARNING OUTCOMES ASSESSMENT

MAT 099, Summer 2013

182 students registered

Outcome 1: Use computational techniques essential for success in an academic, personal, or workplace setting. (Computational Skills)**129 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Complete a Unit Conversion	0.81 (out of 2)	1.64 (out of 2)	79.8% (n=393)	81.4% (n=105)	18.6% (n=24)

Outcome 2: Use visualization, spatial reasoning, as well as geometric properties and strategies to mode and solve linear equations and inequalities.(Geometric And Algebraic Skills) **129 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Solve Word Problem Involving Perimeter	0.51 (out of 2)	1.10 (out of 2)	53.5% (n=69)	64.3% (n=83)	35.7% (n=46)
Solve an Equation Involving Fractions	0.12 (out of 2)	1.22 (out of 2)	57.2% (n=283)	69.7% (n=345)	30.3% (n=150)

Outcome 3: Recognize polynomials, combine polynomials through addition, subtraction, multiplication, and division, and factor simple polynomials.(Algebraic skills) **129 assessment results reported**

Assessment Question(s)	Assessment Average		% of Students Showing Success (1.5 pts or greater)	Course and Assessment Alignment	
	Pre-Test	Post-Test		% Pass Both or Fail Both	% Pass One, Fail One
Divide Polynomial Using Synthetic or Long Division	0.17 (out of 2)	1.46 (out of 2)	66.7% (n=86)	76.0% (n=98)	24.0% (n=31)
Divide Rational Expressions; Involves Factoring	0.19 (out of 2)	1.32 (out of 2)	60.5% (n=78)	65.1% (n=84)	34.9% (n=45)

Outcome 4: Communicate and understand mathematical statements, ideas and results, both verbally and in writing, with the correct use of mathematical definitions, terminology and symbolism. (Communication Skills) 495 assessment results reported

Not assessed

Outcome 5: Work collaboratively with peers and instructors to acquire mathematical understanding and to formulate and solve problems and present solutions. (Collaborative Skills) 393 assessment results reported
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Not assessed

Pass both or fail both – We believe that students who pass the assessment have demonstrated that they have met the outcomes of the course and thus should pass the course (pass assessment = pass course). Also, students who fail the assessment have indicated that they have not met the course outcomes and thus should fail the course (fail assessment = fail course).

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To demonstrate an alignment between the course assessment and the course outcomes, it is expected that the percentage of students who “pass both or fail both” would be high while the percentage of students who “pass one, fail one” would be low.

MAT 099 – Assessment versus Course Grade – AY13-14

Entire Year 2013-2014

Course	Assessment	
	Passed	Failed
	Passed	Failed
	53.2% (n=461)	28.0% (n=243)
	0.9% (n=8)	17.9% (n=155)

- 1149 total enrollment
- 867 assessments were completed and reported (75.5%)
- 283 assessments were not completed due to students who were NSF,W, AU or I (24.6%)

Summer 2013*

Course	Assessment	
	Passed	Failed
	Passed	Failed
	62.0% (n=80)	22.5% (n=29)
	3.1% (n=4)	12.4% (n=16)

*only measured Outcomes 1-3

- 182 total enrollment
- 129 assessments were completed and reported (70.9%)
- 53 assessments were not completed due to students who were NSF,W, AU or I (29.1%)

Fall 2013

Course	Assessment	
	Passed	Failed
	Passed	Failed
	54.9% (n=272)	26.1% (n=129)
	0.6% (n=3)	18.4% (n=91)

- 621 total enrollment
- 495 assessments were completed and reported (79.7%)
- 126 assessments were not completed due to students who were NSF,W, AU or I (20.3%)

Spring 2014

Course	Assessment	
	Passed	Failed
	Passed	Failed
	44.9% (n=109)	35.0% (n=85)
	0.4% (n=1)	19.8% (n=48)

- 346 total enrollment
- 243 assessments were completed and reported (70.2%)
- 103 assessments were not completed due to students who were NSF,W, AU or I (29.8%)