

Course Outcomes Guide (COG)

Course Title: MAT 099 Elementary Algebra **Date:** May 2013

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

Expected Learning Outcomes

STUDENT 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 model 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.

Outcomes 4 and 5 are achieved through in-class, group assignments that are created by each instructor. For FY/AY13, we did not collect any data on Outcomes 4 and 5, but pre/post-test scores were collected for Outcomes 1 – 3. (See follow-up)

Measurement	Outcome being measured	Direct or Indirection	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 Devl Math students	Embedded in course	Yes
In-class, group assignments	4, 5	Direct	All Dev Math students	Embedded in course	No

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 FY13, we did not have any external validation for our assessment. (See follow-up)

Results:

I have looked at students' course grades compared to their post-tests scores to look for a correlation. The data shows:

1. Students who passed the assessment, earning at least 7 out of 10 points, do pass the class as only 5 students passed the assessment and failed the course.
2. Many students who failed the assessment, earning less than 7 points, still passed the course (246 students fell into this category). Further inspection into these students revealed that:
 - a. 90 earned less than 5 points on the assessment. ***Concern**
 - b. 156 earned between 5 and 7 points on the assessment. Of these, only 9 earned an A in the course, 62 earned a B, and 85 earned a C.

While the first point indicates that the assessment and outcomes are well-aligned, the second point suggests that work needs to be done to ensure a better alignment to ensure those who do not demonstrate mastery of the outcomes (via the assessment) also fail the course.

Follow-up:

Starting in 13/FA, several changes to the course will be implemented:

- a. SLO will be edited to become more specific to the course (keeping a total of five outcomes). Currently, the outcomes are exactly the same for MAT 098/099/100. The main themes of the outcomes will still be the same, but, for example, the MAT 099 outcomes will narrow the focus to linear equations/inequalities.
- b. Once the outcomes are adjusted, the questions on the pre/post-test will remain the same. The textbook for MAT 099 will be changing in Fall 2014 so the pre/post-test assessment will be changed at that time. When that change occurs, the 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.
- c. We will begin to collect data for the (current) Outcomes 4 and 5, Communication Skills and Collaborative Skills, respectively.
 - a. Communication Skills – Students will be required to complete three short paragraph/essay questions on the final exam as relates to the course content. Instructors will grade the question on a rubric and the scores of each question will be submitted to the MAT 099 lead instructor.
 - b. Collaborative Skills – Students will be required to complete an in-class, GROUP assignment with three specific components:
 - i. Formulate: word/application problems
 - ii. Solve: their own problem and the problems created by other groups
 - iii. Present: present the solutions to their problem to the entire classThe score from this classwork assignment will also be graded on a rubric and will be submitted by each instructor to the MAT 099 lead instructor.
- d. Lastly, reports will be generated for each instructor, both full-time and adjunct, giving a overview of the SLO results for all of MAT 099 and how their course(s) compare. This will allow each instructor to determine where improvements need to be made in their individual instruction.

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

Attachments:

1. Pre/post-test (common assessment)
2. Grading rubric
3. Grade distribution summary
4. Assessment versus Course Grade summary

Pre/Post-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. Length: _____ ft

Width: _____ ft

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. _____

Divide using synthetic OR long division:

$$(6x^4 + 15x^3 + 28x + 6) \div (x + 3)$$

3. _____

Divide and simplify the expression:

$$\frac{x^2 - x - 2}{x^2 - 1} \div \frac{x - 2}{x^2 - 6x + 5}$$

4. _____ in

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. _____

Solve the equation:

$$\frac{x}{15} - \frac{4}{5} = \frac{x}{3}$$

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.
1.5 points	Work is approximately 75% correct. Examples include: <ul style="list-style-type: none">• missing a negative• missing units• simple arithmetic errors (unless arithmetic is what is being tested!)
1 point	Work is approximately 50%-75% correct.
0.5 point	Work is approximately 25%-50% correct AND some basic understanding of the concept is demonstrated.
0 points	Work is roughly less than 25% correct OR no basic understanding is demonstrated.

MAT-099 AY 2012-2013

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
2012-2013 Summary	1133	17.4% (n=197)	21.0% (n=238)	21.8% (n=247)	0.3% (n=3)	33.8% (n=383)	19.2% (n=218)	5.7% (n=65)	60.2% (n=682)	80.2%

Full-Time Faculty vs Adjunct Faculty

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Full-time	401	19.5% (n=78)	22.9% (n=92)	22.7% (n=91)	0.0% (n=0)	30.4% (n=122)	16.7% (n=67)	4.5% (n=18)	65.1% (n=261)	82.6%
Adjunct	732	16.3% (n=119)	19.9% (n=146)	21.3% (n=156)	0.4% (n=3)	35.7% (n=261)	20.6% (n=151)	6.4% (n=47)	57.5% (n=421)	78.8%

*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 12/FA										
	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Lecture 15 week	299	15.7% (n=47)	16.1% (n=48)	22.7% (n=68)	0.0% (n=0)	36.5% (n=109)	15.4% (n=46)	9.0% (n=27)	54.5% (n=163)	72.1%
Lecture Second 10	20	15.0% (n=3)	5.0% (n=1)	20.0% (n=4)	0.0% (n=0)	55.0% (n=11)	50.0% (n=10)	5.0% (n=1)	40.0% (n=8)	88.9%
Lecture Subtotal	319	15.7% (n=50)	15.4% (n=49)	22.6% (n=72)	0.0% (n=0)	37.6% (n=120)	17.6% (n=56)	8.8% (n=28)	53.6% (n=171)	72.8%
Package Hybrid	151	18.5% (n=28)	18.5% (n=28)	20.5% (n=31)	1.3% (n=2)	35.8% (n=54)	26.5% (n=40)	5.3% (n=8)	57.6% (n=87)	84.5%
Package Lecture	224	24.1% (n=54)	29.9% (n=67)	23.2% (n=52)	0.0% (n=0)	21.4% (n=48)	15.2% (n=34)	1.3% (n=3)	77.2% (n=173)	92.5%
Package Subtotal	375	21.9% (n=82)	25.3% (n=95)	22.1% (n=83)	0.5% (n=2)	27.2% (n=102)	19.7% (n=74)	2.9% (n=11)	69.3% (n=260)	89.7%
Web 15 week	25	24.0% (n=6)	12.0% (n=3)	12.0% (n=3)	0.0% (n=0)	48.0% (n=12)	20.0% (n=5)	4.0% (n=1)	48.0% (n=12)	63.2%
Web Subtotal	25	24.0% (n=6)	12.0% (n=3)	12.0% (n=3)	0.0% (n=0)	48.0% (n=12)	20.0% (n=5)	4.0% (n=1)	48.0% (n=12)	63.2%
12/FA Subtotal	719	19.2% (n=138)	20.4% (n=147)	22.0% (n=158)	0.3% (n=2)	32.5% (n=234)	18.8% (n=135)	5.6% (n=40)	61.6% (n=443)	81.4%

Full-Time Faculty vs Adjunct Faculty

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Full-time	245	23.3% (n=57)	23.3% (n=57)	22.4% (n=55)	0.0% (n=0)	28.2% (n=69)	15.9% (n=39)	2.9% (n=7)	69.0% (n=169)	84.9%
Adjunct	474	17.1% (n=81)	19.0% (n=90)	21.7% (n=103)	0.4% (n=2)	34.8% (n=165)	20.3% (n=96)	7.0% (n=33)	57.8% (n=274)	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		13/SP						Completer
	Total	A	B	C	D	F	WF	W/I/AU	Success	Success
Lecture 15 week	92	8.7% (n=8)	23.9% (n=22)	18.5% (n=17)	0.0% (n=0)	40.2% (n=37)	16.3% (n=15)	8.7% (n=8)	51.1% (n=47)	68.1%
Lecture Subtotal	92	8.7% (n=8)	23.9% (n=22)	18.5% (n=17)	0.0% (n=0)	40.2% (n=37)	16.3% (n=15)	8.7% (n=8)	51.1% (n=47)	68.1%
Package Hybrid	109	11.9% (n=13)	24.8% (n=27)	25.7% (n=28)	0.0% (n=0)	33.0% (n=36)	20.2% (n=22)	4.6% (n=5)	62.4% (n=68)	82.9%
Package Lecture	125	20.0% (n=25)	20.8% (n=26)	22.4% (n=28)	0.0% (n=0)	34.4% (n=43)	17.6% (n=22)	2.4% (n=3)	63.2% (n=79)	79.0%
Package Web	20	45.0% (n=9)	20.0% (n=4)	5.0% (n=1)	0.0% (n=0)	30.0% (n=6)	25.0% (n=5)	0.0% (n=0)	70.0% (n=14)	93.3%
Package Subtotal	254	18.5% (n=47)	22.4% (n=57)	22.4% (n=57)	0.0% (n=0)	33.5% (n=85)	19.3% (n=49)	3.1% (n=8)	63.4% (n=161)	81.7%
Web 15 week	46	6.5% (n=3)	17.4% (n=8)	26.1% (n=12)	0.0% (n=0)	37.0% (n=17)	28.3% (n=13)	13.0% (n=6)	50.0% (n=23)	85.2%
Web Second 10	22	4.5% (n=1)	18.2% (n=4)	13.6% (n=3)	4.5% (n=1)	45.5% (n=10)	27.3% (n=6)	13.6% (n=3)	36.4% (n=8)	61.5%
Web Subtotal	68	5.9% (n=4)	17.6% (n=12)	22.1% (n=15)	1.5% (n=1)	39.7% (n=27)	27.9% (n=19)	13.2% (n=9)	45.6% (n=31)	77.5%
13/SP Subtotal	414	14.3% (n=59)	22.0% (n=91)	21.5% (n=89)	0.2% (n=1)	36.0% (n=149)	20.0% (n=83)	6.0% (n=25)	57.7% (n=239)	78.1%

Full-Time Faculty vs Adjunct Faculty

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer
										Success
Full-time	156	13.5% (n=21)	22.4% (n=35)	23.1% (n=36)	0.0% (n=0)	34.0% (n=53)	17.9% (n=28)	7.1% (n=11)	59.0% (n=92)	78.6%
Adjunct	258	14.7% (n=38)	21.7% (n=56)	20.5% (n=53)	0.4% (n=1)	37.2% (n=96)	21.3% (n=55)	5.4% (n=14)	57.0% (n=147)	77.8%

*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 – Assessment versus Course Grade – AY12-13

AY2012-2013 Combined

		Assessment	
		Passed	Failed
Course	Passed	48.1% (n=379)	31.5% (n=246)
	Failed	0.6% (n=5)	19.7% (n=154)

- 1133 total enrollment
- 781 assessments were completed and reported (68.9%)
- 75 assessments were either not completed or not reported (6.6%)
- 277 assessments were not completed due to students who were NSF,W, AU or I (24.4%)

Fall 2012

		Assessment	
		Passed	Failed
Course	Passed	49.5% (n=236)	31.2% (n=149)
	Failed	0.6% (n=3)	18.7% (n=89)

- 719 total enrollment
- 477 assessments were completed and reported (66.3%)
- 72 assessments were either not completed or not reported (10.0%)
- 170 assessments were not completed due to students who were NSF,W, AU or I (23.6%)

Spring 2013

		Assessment	
		Passed	Failed
Course	Passed	46.1% (n=140)	31.9% (n=97)
	Failed	0.7% (n=2)	21.4% (n=65)

- 414 total enrollment
- 304 assessments were completed and reported (73.4%)
- 2 assessments were either not completed or not reported (0.5%)
- 108 assessments were not completed due to students who were NSF,W, AU or I (26.1%)