Eastern West Virginia Community and Technical College
COURSE ASSESSMENT REPORT

Course Title and Number: MTH 135 College Algebra	**Academic Term and Year of Assessment Activity (Ex: Fall, 2014)** Fall 2018 and Spring 2019
Report Submitted By: Andrea Williams	**Number of Students Assessed:** 15
Date Report Submitted: 5/31/19	**Number of Sections Included:** 2
Course Delivery Format (list all modalities used in sections assessed. Ex: web based, VDL, traditional section, hybrid course, etc.): Traditional section	

Course Role in the Curriculum
Provide a description of the role the course serves in the curriculum (i.e. general education requirement, program technical core, restricted elective, etc.). Note all as appropriate.
MTH 135 is a general education course taken primarily by students seeking an Associate of Science degree or by those who will transfer to a four-year program of study requiring College Algebra. The prerequisites for the course are Math ACT score 19 or higher; SAT math score 500 or higher; or ACCUPLACER Elementary Algebra score of 76 or higher. Students not meeting the prerequisites are required to take MTH 135S College Algebra Support as a co-requisite to MTH 135.

Previous Assessment Reports and Results
Date of Previous Assessment: Spring 2017 **List of Outcomes Not Met:** See below **Summary of Actions Taken to Address Unmet Learning Outcomes: Append additional pages if necessary. If appending, include notation in box to "See attached".**
Outcomes not met on the previous assessment include   - evaluate and analyze functions   - solve problems involving exponential and logarithmic functions   As discussed in the previous assessment, more in-class examples and homework problems on these topics have been added to the course. The questions that prove to be the most difficult for the students are specifically addressed during the in-class final exam review.

Assessment Methods
Provide a description of the assessment process used. Include description of instrument and performance standards in description. Note all methods.
The MyMathLab assignments and unit tests are used as a basis for this assessment. Each assignment corresponds to one or more of the course's nine outcomes (see Attachment 1). Each student was assigned a score for each outcome based on his or her performance on the corresponding assignments, with the weight of each assignment factored into the calculation (labs 15%, tests 35%). The minimum satisfactory performance for each outcome is 75% of the students meeting that outcome with a score of 75%. The Fall 2018 and Spring 2019 cohorts were combined to increase the sample size.

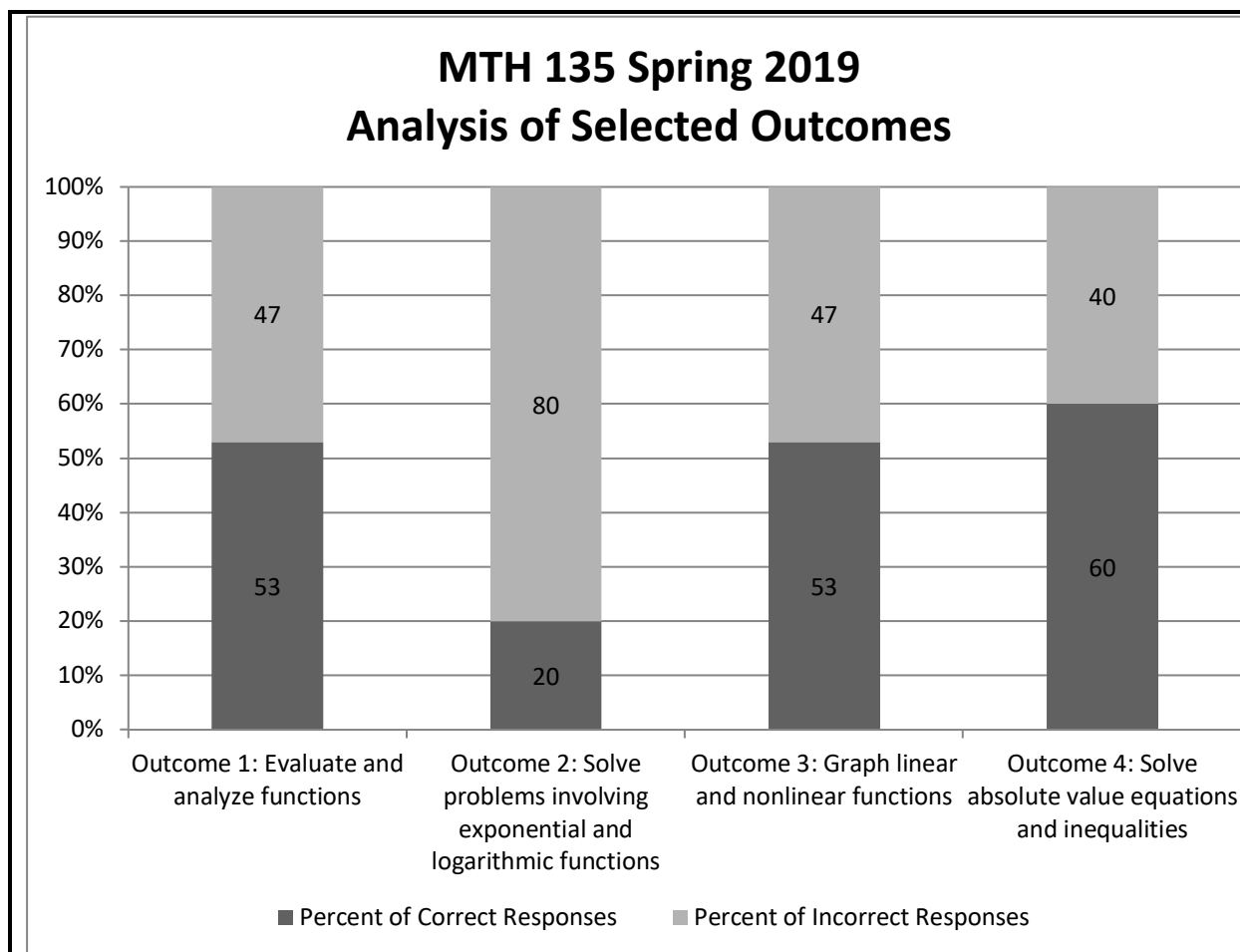| Course Level Assessment Summary of Outcomes, Indicators and Results Add additional rows to table if necessary			
Learning Outcomes (Insert learning outcomes assessed during this cycle)	**Indicator** (Insert indicators used for each outcome: exam question, scoring rubric, etc. Be specific)	**Percent of Correct Responses**	**Performance Standard Met (75%)*** (yes or no)
Outcome 1: Evaluate and analyze functions	Sample Questions: Let $f(x) = \frac{4x-12}{x+5}$. Find $f(-1)$. Find the inverse of the one-to-one function $f(x) = 2x + 6$.	53%	No
Outcome 2: Solve problems involving exponential and logarithmic functions	Sample Questions: Use the properties of logarithms to write $6 \ln x + 5 \ln y - 3 \ln z$ as a single logarithm. Solve $3(1.18)^x + 2 = 15$. Round your answer to the nearest thousandth.	20%	No
Outcome 3: Graph linear and nonlinear functions	Sample Questions: Graph the equation $5x - 3y = -15$. Graph $f(x) = (x + 3)^2 - 1$ using transformations. Clearly indicate the location of at least 5 points on the final graph.	53%	No
Outcome 4: Solve absolute value equations and inequalities	Sample Question: Solve the equation $|8 - 2x| = 3$.	60%	No

* Please note if using a different minimum performance standard.

Assessment Results Provide a summary of results including tables/charts. Incorporate information from previous assessments as appropriate. Append additional pages if necessary. If appending, include notation in box to "See attached".
The two outcomes not met on the Spring 2017 assessment were reassessed along with two new outcomes that have not been assessed recently. Direct comparison of results of this assessment with

the previous assessment is not applicable because
1. a different technique was used for determining the performance percentage for each outcome. Results from assignments and assessments throughout the semester were included rather than just the final exam.
2. this assessment includes results from only traditional adult sections, whereas the Spring 2017 assessment included an early entrance section as well. The early entrance students traditionally perform better than the adult students, and therefore increase the performance of each outcome, because they are required to meet certain pre-requisites to enroll in the course. Early entrance data for neither Fall 2018 nor Spring 2019 was available at the time of submission of this report.

Learning Outcome	Total Number of Students	# of Students 75% or above	# of Students below 75%	% Meeting Outcome
Outcome 1: Evaluate and analyze functions	15	8	7	53
Outcome 2: Solve problems involving exponential and logarithmic functions	15	3	12	20
Outcome 3: Graph linear and nonlinear functions	15	8	7	53
Outcome 4: Solve absolute value equations and inequalities	15	9	6	60

MTH 135 Spring 2019
Analysis of Selected Outcomes

Outcome 1: Evaluate and analyze functions	Correct: 53, Incorrect: 47
Outcome 2: Solve problems involving exponential and logarithmic functions	Correct: 20, Incorrect: 80
Outcome 3: Graph linear and nonlinear functions	Correct: 53, Incorrect: 47
Outcome 4: Solve absolute value equations and inequalities	Correct: 60, Incorrect: 40

■ Percent of Correct Responses ■ Percent of Incorrect Responses

Conclusion
Provide a brief summary of conclusions derived based on analysis of data. Append additional pages if necessary. If appending, include notation in box to "See attached".

As noted above, direct comparison between results of Spring 2017 and Spring 2019 cannot be made; however, exponential and logarithmic functions continue to be the most challenging for the students. Improvement in overall performance and understanding in the course is desirable; several suggestions for attaining this are discussed in the Action Plan below.

Action Plan and Date for Reassessment
Identify action plan for improvement or maintaining current performance levels including outcomes identified for re-assessment, curriculum revision, LOT proposal, new or revised course activities to reinforce learning outcomes, etc. Append additional pages if necessary. If appending, include notation in box to "See attached".

When comparing results by assignment type (Attachment 2), one can see a significant difference between homework performance and test performance. While homework performance was

satisfactory, there is still room for improvement, and improved performance on homework would most likely result in improved test grades. For this reason, the students need more motivation and accountability for completing the homework at a higher quality. Some possibilities are to set stricter deadlines for completing the homework, to offer an incentive (i.e. bonus points) for students who complete homework in advance of the deadline, and to make homework a higher percentage of the final grade. A change implemented between fall and spring semesters was to make the review assignment for each unit in MyMathLab *required* rather than *optional*, a change that will undoubtedly continue in anticipation of improving test scores. The suggestion has also been discussed among math faculty of requiring a minimum score on the review assignment before a student can test, but more thought will have to be given to logistics before implementation of this policy.

While placement by advisors so far seems to be accurate, they should continue to receive training on college-level math requirements to ensure no students are being placed into College Algebra who do not need the course. Advisors should also be informed that students are welcome to take the co-requisite support class even if they have the pre-requisites to take the college-level course by itself.

Date for reassessment: Spring 2021

Assessment Committee Recommendation/Approval
(To be posted by Assessment Committee Chair)

x Approved as presented
   Approved with recommendations for future reports (Explanation Required)
   Resubmission Required. Reason for Resubmission:

Date: 9/13/19

Attachment 1 – MTH 135 Coverage of Outcomes

																	Labs (15%)				
Outcome	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	2.5	Rev	3.1	3.2	3.3	3.4	3.5	Rev	4.1	4.2	4.3	4.4	4.5
1	✓	✓	✓	✓						✓		✓				✓					
2		✓		✓	✓			✓		✓	✓	✓	✓		✓	✓					
3						✓	✓	✓		✓											
4									✓	✓											
5												✓	✓	✓		✓					
6																	✓	✓	✓	✓	✓
7																					
8																					
9																					

Outcome	4.7a	4.6	4.7b	Rev	5.1	5.2	5.3	5.4	5.5	5.6	Rev	6.1	6.4	6.5	6.6	6.7	Rev
1					✓	✓					✓						
2																	
3																	
4																	
5																	
6	✓			✓													
7		✓	✓	✓													
8							✓	✓	✓	✓	✓						
9												✓	✓	✓	✓	✓	✓

	Tests (35%)				
Outcome	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
1	✓	✓		✓	
2	✓	✓			
3	✓				
4	✓				
5		✓			
6			✓		
7			✓		
8				✓	
9					✓

Approved Assessment Committee: 2/8/2019
Approved LOT: 3/18/2019

Attachment 2 – Results Separated by Assignment Type

MTH 135 Spring 2019
Results Separated by Assignment