Assessment: Course Four Column

Courses (MATH) - Math

MATH 126 MURPHREE:PreCalculus I

Course Outcomes	*Assessment Measures*	*Results*	*Actions*
Equations of circles and parabolas - Identify and obtain the equations of circles and parabolas. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 2 exam Problem # 5 & 6 Final exam Problem # 1 **Criterion:** 70% or better on problems	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Chapter 2 Exam Problem # 5: 75% 6: 83% Final Exam Problem # 1: 100% Results Analysis: The students did very well with this outcome, showing comparable percentages to the fall semester. I am glad with this outcome. (01/17/2019)	**Action:** Action Plan: I do not think there needs to be any changes here, the students had high achievement levels in this outcome. (01/17/2019)
Functions, including basic mathematical operations, composition, and inversion - Operate on functions, including basic mathematical operations, composition, and inversion. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 2 exam Problems # 13 & 14 Final exam Problems # 3 & 4 **Criterion:** 70% or better on problems	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Chapter 2 Exam Problem # 13: 75% 14: 75% Final Exam Problem # 3: 100% 4: 89% Results Analysis: I was again happy with this outcome. I did spend more time on function composition with this class and I can see that it paid off. The composition problems were number on the chapter 2 exam and number 4 on the	**Action:** I will continue spending extra time on composition of functions to make sure students can master this objective. (01/17/2019)

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		final exam and the students mostly knew how to handle them. (01/17/2019)	
Nonlinear inequalities - Solve nonlinear inequalities. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 2 exam Problem # 2 **Criterion:** 70% or better on problems	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Chapter 2 Exam Problem # 2: 67% Results Analysis: Students were mostly able to solve nonlinear inequalities, though I might like the percentage here to be higher. (01/17/2019)	**Action:** Take extra time to cover absolute value so that students have a better understanding of how the function works. (01/17/2019)
Manipulate complex numbers and understand their relationship - Manipulate complex numbers and understand their relationship to the solutions of polynomial and rational equations. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 3 exam Problem 4d Final Exam Problem 5d **Criterion:** 70% or better on problems.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Chapter 3 exam Problem # 5d: 100% Final Exam Problem # 5d: 67% 1. Results Analysis: Students grasped this concept very well and were able to remember to search for complex zeros for polynomial functions. The drop from the chapter exam to the final exam does show there were some retention problems here. (01/17/2019)	**Action:** I can put more emphasis on this topic when reviewing for the final so that students recall the procedure and necessity of checking for complex zeros. (01/17/2019)
Analyze functions by finding roots, turning points, and asymptotes - Analyze functions by finding roots, turning points, and asymptotes. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 3 exam Problems 2, 4, 5, & 6 Final exam Problems 5 & 6 **Criterion:** 70% or better on problems.	**Reporting Period:** 2017-2018 **Criterion Met:** No Chapter 3 Exam Problem # 2: 89% 5: 89% 6: 33% 7: 22% Final Exam Problem # 5: 56% 6: 44% Results Analysis: I am unsatisfied with the student	**Action:** I will incorporate some examples of finding asymptotes with the topic on finding zeros of polynomials to reinforce the connection. I also need to put a bit more emphasis on long division, which I usually only cover briefly before synthetic division. All of the students struggled with using long division to find slant asymptotes. (01/17/2019)

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		achievement level in this outcome. The three problems with low percentages were all on graphing rational functions and the students clearly did not grasp this topic or relate it to finding the zeros of polynomial functions. (01/17/2019)	
Graph a variety of functions including logarithmic, polynomial, rational, and exponential functions - Graph a variety of functions including logarithmic, polynomial, rational, and exponential functions. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 3 exam problem 3 Chapter 4 exam problems 5, 6, & 9 Fianl Exam Problem 8	**Reporting Period:** 2017-2018 **Criterion Met:** No Chapter 3 Problem # 6: 33% Chapter 4 Problem # 5: 44% 6: 67% 9: 22% Final Exam Problem # 8: 56% Results Analysis: This outcome was quite a surprise to me as this is usually an area or high achievement for students because of how often graphing techniques are reviewed in this course. Possibly because I am used to this outcome not being a struggle for the students I was not as careful in reviewing it when it came up in each chapter. (01/17/2019)	**Action:** I will make sure to connect the graphing techniques from chapter to chapter so that students have that reinforcement throughout the semester. This will especially be important with exponential functions where my students particularly struggled this semester. (01/17/2019)
Solve a variety of equations including polynomial, exponential and logarithmic - Solve a variety of equations including polynomial, exponential and logarithmic. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 4 exam Problems 13, 14, 15, & 16 Final exam problems 10, & 11 **Criterion:** 70% or better on problems.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Chapter 4 Problem # 13: 78% 14: 56% 15: 67% 16: 78% Final Exam Problem # 10: 33% 11: 67% Results Analysis: The students did well with this outcome. I am concerned with the drop I see with problem 10 on the final exam which was related to problem 14 on the chapter	**Action:** I mentioned in my fall MATH 126 assessment that I wanted to split the lesson on exponential and logarithmic equations to give logarithms more time. From this result, it looks like that is something I should try not just for the logarithms, but for the exponentials as will. (01/17/2019)

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		4 exam. Students apparently had difficulty recalling how to solve exponential equations. Many of the students used more difficult techniques than necessary, introducing logarithms where matching bases would be easier. (01/17/2019)	
Properties of logarithms - Use the properties of logarithms. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 4 exam Problems 10 & 11 Final exam Problem 9 **Criterion:** 70% or better on problems.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Chapter 4 Problem # 10: 78% 11: 67% Final exam Problem # 9: 67% Results Analysis: I was very impressed with how well these student handled using logarithmic properties. The same students who used them well on the chapter 4 exam retained that knowledge for the final (same students missed both times as well). I did take more time this semester when teaching the properties and we did more drills with both separating a logarithm and condensing. (01/17/2019)	**Action:** I will still change the homework for the section on logarithmic properties to include more separating problems. I think more practice with that will help the students with the process. (01/17/2019)
Systems of equations using various methods including elimination, matrices, and determinants - Solve systems of equations using various methods including elimination, matrices, and determinants. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 9 exam Problems 1, 2, 4, 5, 6, 9, & 10. Final exam Problems 12, 13, & 15 **Criterion:** 70% or better on problems	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Chapter 9 Problem # 1: 100% 2: 100% 4: 78% 5: 100% 6: 78% 9: 78% 10: 67% Final Exam Problem # 12: 100% 13: 78% 15: 89%	**Action:** Since Gaussian elimination will not be required on the learning outcomes next semester, I will be removing the topic. I think the elimination method and Cramer's rule is really enough. (01/17/2019)

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		Results Analysis: The students had no trouble with solving systems of equations using all of the techniques. The largest struggle was with Gaussian elimination (problem 6 on the chapter 9 exam) and nonlinear systems (problem 10). Non-linear systems improved on the final (problem 15) but no students used Gaussian elimination on the final. (01/17/2019)	
Partial Fraction Decomposition of a rational expression - Find the Partial Fraction Decomposition of a rational expression. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 9 exam Problem 8 Final exam Problem 14 **Criterion:** 70% or better on problems	**Reporting Period:** 2017-2018 **Criterion Met:** No Chapter 9 Problem # 8: 44% Final exam Problem # 14: 78% Results Analysis: I was very pleased to see the improvement from the chapter 9 exam to the final exam with this topic. Students clearly took the time to review the process. We did discuss partial fraction decomposition during the review for the final, which I think helped. (01/17/2019)	**Action:** I want the students to get this topic better the first time around. I will have more practice with this in discussion so the students get used to setting up the problems. Most students who could set up the problem correctly were able to solve correctly as well. (01/17/2019)
Demonstrate the appropriate mathematical format and notation in solving problems - Demonstrate the appropriate mathematical format and notation in solving problems. **Course Outcome Status:** Active **Next Assessment:** 2022-2023	**Exam -** Chapter 2 exam problem 14 Chapter 3 exam problem 4 Chapter 4 exam problem 4 Chapter 9 exam problem 7 Final exam problems 4, 5, 7, & 13 **Criterion:** 70% or better on problems.	**Reporting Period:** 2017-2018 **Criterion Met:** Yes Chp 2 Prob # 14: 75% Chp 3 Prob # 5: 100% Chp 4 Prob # 4: 33% Chp 9 Prob # 7: 78% Final Prob # 4: 89% 5: 56%	**Action:** I do not see any need for changes from this data. (01/17/2019) **Follow-Up:** This course was a night course with a much different demographic from the fall semester. I did not have any high school students in this course. Mainly I had older students, most of whom had work duties in addition to classes. This might have contributed to the high drop rate in this course. 58% of students who started the course dropped or withdrew, with 86% of those that dropped leaving the class before the first exam. I wonder if the problem

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		7: 56% 13: 78% Results Analysis: Again with this important outcome. Students did very well with this. The low percentage on problem 4 of the chapter 4 exam was on finding the inverse of a rational function and many students struggled with the basic algebra steps of finding that inverse. A similar problem on the final (number 4 again) show that students went back and got that information before the end of the course. (01/17/2019)	might have been that they misjudged their workload when signing up for the class. I would be reluctant to reduce the amount of homework or exams in this course because I think that practice is a student's best tool here. I also had trouble with attendance in this class despite adopting a new attendance score that worked well in my other classes this semester. Most students (but not all) who had to miss class blamed work. (01/17/2019)