Assurance of Student Learning 2019-2020	
Ogden College of Science & Engineering	Department of Mathematics
728 Mathematics	
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Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages.			
Student Learning Outcome 1: Students will be prepared for employment in government, industry, or academic settings.			
Instrument 1	Employment prospects of seniors will be monitored in an exit survey.		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.		**Met**	**Not Met**
Student Learning Outcome 2: Students will be able to use technology and apply mathematics to solve problems effectively.			
Instrument 1	Technology usage will be monitored in an exit survey.		
Instrument 2	Completion of a capstone project in MATH 498.		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.		**Met**	**Not Met**
Student Learning Outcome 3:			
Instrument 1	Completion of a capstone project in MATH 498.		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.		**Met**	**Not Met**
Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)			
We are satisfied with the assessment results, and plan no major programmatic changes based upon the results.			

Student Learning Outcome 1				
Student Learning Outcome	Students will be prepared for employment in government, industry, or academic settings.			
Measurement Instrument 1	Employment prospects of seniors will be monitored in an exit survey.			
Criteria for Student Success	Students have clear career plans and feel prepared for those types of jobs.			
Program Success Target for this Measurement	80%	**Percent of Program Achieving Target**	100%	
Methods	Seniors completing the 728 major all take MATH 498, our senior capstone course. These students are required to complete an exit survey as part of that course. Specifically, the students provide responses to the open-ended questions "What are your career plans?", "Do you feel that your mathematics major has prepared you well for your intended career? Explain.", and "Are you searching for employment after graduation? If so, have you had job interviews or offers yet? Please give details." 100% of the 728 students taking the MATH 498 course gave positive feedback on the questions.			
Measurement Instrument 2	Feedback from recent graduates will be monitored at the Career Options Panel at annual WKU Mathematics Symposium.			
Criteria for Student Success	Students that have been working in mathematics/statistics careers are invited back to our annual WKU Mathematics Symposium, and verify that their math major did prepare them for their careers.			
Program Success Target for this Measurement	80%	**Percent of Program Achieving Target**	100%	
Methods	We had three graduates of our 728 program sit on our careers panel at the 2019 WKU Math Symposium. All three of them spoke of the courses they took at WKU that covered mathematics/statistics content that they currently use in their jobs. Each felt that their WKU degree had prepared them for their careers.			
Based on your results, highlight whether the program met the goal Student Learning Outcome 1.			**Met**	**Not Met**
Actions (Describe the decision-making process and actions for program improvement. The actions should include a timeline.)				
We made no programmatic changes based on the above data.				
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)				
We will continue to collect the career data on our exit survey, and will endeavor to stay in contact with our graduates of the program after they leave WKU.				
Next Assessment Cycle Plan (Please describe your assessment plan timetable for this outcome)				

We will continue to collect career data on our senior exit survey, invite graduates back to campus to discuss their careers as circumstances allow, and will endeavor to stay in contact with our graduates via social media and other means.

<table>
<tr><th colspan="5">Student Learning Outcome 2</th></tr>
<tr><td>Student Learning Outcome</td><td colspan="4">Students will be able to use technology and apply mathematics to solve problems effectively.</td></tr>
<tr><td>Measurement Instrument 1</td><td colspan="4">Technology usage will be monitored in an exit survey.</td></tr>
<tr><td>Criteria for Student Success</td><td colspan="4">Students feel like they have had adequate exposure to technology in their classes.</td></tr>
<tr><td colspan="2">Program Success Target for this Measurement</td><td>80%</td><td>Percent of Program Achieving Target</td><td>100%</td></tr>
<tr><td>Methods</td><td colspan="4">Seniors completing the 728 major all take MATH 498, our senior capstone course. These students are required to complete an exit survey as part of that course. Specifically, the students provide responses to the open-ended questions “Do you feel like the mathematics faculty is integrating technology into the curriculum appropriately? Explain.” and “Please list the courses in which assignments required you to use technology, such as a graphing calculator, Mathematica, Geometer’s Sketchpad, etc.” 100% of the 728 students taking the MATH 498 course gave positive feedback on the questions.</td></tr>
<tr><td>Measurement Instrument 2</td><td colspan="4">Completion of a capstone project in MATH 498.</td></tr>
<tr><td>Criteria for Student Success</td><td colspan="4">Students will average a 3 or better on a 4-point scale on rubric measures of the application of mathematics in their senior project.</td></tr>
<tr><td colspan="2">Program Success Target for this Measurement</td><td>80%</td><td>Percent of Program Achieving Target</td><td>83.3%</td></tr>
<tr><td>Methods</td><td colspan="4">Students are graded on both an 11-page paper and a 25-minute presentation of their senior project. Each project has three faculty graders, including the faculty member who supervised the student’s project research. The categories measuring the application of mathematics on the paper are
Central Message, where a 3 denotes that the “Central message is clear and consistent with the supporting materials, and at an appropriate level.”; and
Content Development and Analysis, where a 3 denotes that the student “Uses appropriate, relevant, and compelling language to explore ideas, shape the paper, and reveal insightful patterns, differences, or similarities.”
The categories measuring the application of mathematics on the presentation are
Content Development, where a 3 denotes that the student “Uses appropriate, relevant, and compelling language to explore ideas and shape the presentation.”;
Breadth and Thoroughness, where a 3 denotes that the “Presentation adequately discusses history of the problem, impact and extensions of solution, and topics for further study.”; and
Analysis, where a 3 denotes that the student “Organizes evidence to reveal important patterns, differences, or similarities related to focus.”
83.3% of the 728 students met this criteria.</td></tr>
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Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.	**Met**	**Not Met**
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)		
We made no programmatic changes based on the above data.		
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)		
We will continue to work with our students to help them succeed with their senior projects, but we acknowledge the reality that we lose one every so often.		
Next Assessment Cycle Plan (Please describe your assessment plan timetable for this outcome)		
We will continue to require a capstone project for all our 728 seniors, work carefully with them, and help them succeed to the best of their ability.		

Student Learning Outcome 3			
Student Learning Outcome	Students will have well-developed abilities to utilize critical thinking and communicate ideas effectively.		
Measurement Instrument 1	Completion of a capstone project in MATH 498.		
Criteria for Student Success	Students will average a 3 or better on a 4-point scale on rubric measures of their utilization of critical thinking and the communication of ideas in their senior project.		
Program Success Target for this Measurement	80%	**Percent of Program Achieving Target**	83.3%
Methods	Students are graded on both an 11-page paper and a 25-minute presentation of their senior project. Each project has three faculty graders, including the faculty member who supervised the student's project research. The category measuring critical thinking on the paper is • Content Development and Analysis, where a 3 denotes that the student "Uses appropriate, relevant, and compelling language to explore ideas, shape the paper, and reveal insightful patterns, differences, or similarities." The category measuring the critical thinking on the presentation is • Analysis, where a 3 denotes that the student "Organizes evidence to reveal important patterns, differences, or similarities related to focus." The categories measuring the communication of ideas on the paper are • Language and Syntax, where a 3 denotes that the student "Uses straightforward language that generally conveys meaning, with few errors."; and • Sources and Writing Conventions, where a 3 denotes that the student "Demonstrates consistent proper use of credible, relevant sources and writing conventions such as wording, displays of tables and graphics, and citations." The categories measuring the communication of ideas on the presentation are • Organization, where a 3 denotes that the "Organizational pattern (specific introduction and conclusions, sequenced material within the body, and transitions) is clearly and consistently observable."; and • Delivery, where a 3 denotes that the "Delivery techniques (posture, gestures, eye contact, and vocal expressiveness) make the presentation interesting, and the speaker appears comfortable." 83.3% students in the 728 program met this criteria.		
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.		**Met**	**Not Met**
Actions (Describe the decision-making process and actions for program improvement. The actions should include a timeline.)			
We made no programmatic changes based on the above data.			
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			

We will continue to work with our students to help them succeed with their senior projects, but we acknowledge the reality that we lose one every so often.
Next Assessment Cycle Plan (Please describe your assessment plan timetable for this outcome)
We will continue to require a capstone project for all our 728 seniors, work carefully with them, and help them succeed to the best of their ability.