Math Annual Assessment 2023-2024

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Annual Assessment 2023-2024

Mathematics

Program Profile

Program Mission Statement
Please insert your program mission statement here

The mission of the Mathematics program is to provide an environment where students can learn and become accomplished users of Mathematics and Mathematical applications. The program contributes to the development of students as Mathematical thinkers, enabling them to become life-long learners, to continue to develop in their chosen professions, and to function as productive citizens.

Program Data

Delivery Method

Traditional On Campus (selected)
Online
Hybrid

Students Majors 2023-2024	Student Majors 2022-2023
	1

Student Minors 2023-2024	Student Minors 2022-2023
6	5

Concentrations 2023-2024
If your program contains concentrations, please list the concentrations and the number of students identified within each concentration.

There are no concentrations currently in the Mathematics program. A new Mathematics Secondary Education degree has been introduced for the 2022-23 year, but it is housed in the Education program. We have proposed a concentration in Actuarial Science, but it has not been approved as of 2024.

Concentrations 2022-2023
If your program contains concentrations, please list the concentrations and the number of students identified with each concentration.

There were no concentrations in the Mathematics program in the 2023-2024 academic year..

Student Demographics
What are the program goals for student retention, persistence, and degree completion? What do the persistence numbers mean to the faculty in the program? Are the persistence numbers what the program expected? If not, how could the numbers improve?

The Mathematics faculty proposed a new Mathematics Secondary Education major to allow students to be certified to teach high school without needing to complete the process through independent study. After some discussion and adjustments, the plan was modified to a Mathematics concentration to the Secondary Education major. This program was implemented in the fall of 2022. The Mathematics faculty will discuss changes to our assessment process with this new program. We are also considering a proposal for a Mathematics major with emphasis in Actuarial Science.

Optimal Enrollment
Considering current human and physical resources, what is the optimal enrollment for the program?
15

Is the Program Externally Accredited

Yes
No (selected)

External Accreditation
Name the Accrediting Agency or entity including the last review/approval. Is there an accrediting body for the field of study? If yes, what is the name of the group. Is the program seeking accreditation? If no, why?

There is no outside accreditation for Mathematics.

Admissions and Marketing Materials
Reflect on the current marketing materials used for the program. Please attach screen shots of the website or any material you are referencing in this section. What changes, if any, should be made to the material? Are there recommendations on how to modify the current material?

A brochere was developed for the Mathematics minor, and has been finalized by the faculty. Further revisions will be needed as new programs are implemented.

Marketing Material

Program Assessment

Standard/Outcome

Identifier	Description
WWU2021.1	Knowledge and Scholarship: Demonstrate current knowledge and educational expertise in an academic or professional discipline engaging students in the process of academic discovery.

Additional Standards/Outcomes

Identifier	Description
MAT.1	Apply mathematical concepts, methods and tools in solving problems pertaining to the world at large.
MAT.2	Model rates of change and accumulation of various quantities and find conditions under which those quantities are optimized in both discrete and continuous settings.
MAT.3	Identify and demonstrate pattern and structure inherent in performing different operations on mathematical objects.
MAT.4	Analyze situations involving multiple objects and constraints using multidimensional space.
MAT.5	Demonstrate the dependence or independence of mathematical statements upon their axiomatic framework.
MAT.6	Exhibit competence in various methods of analytic proof.
MAT.7	Accurately use algorithms in appropriate contexts.
MAT.8	Demonstrate the existence of numerical, geometric, and symbolic trends and make conjecture based on those trends.

Alignment to the Institutional Objectives
Please discuss the Program alignment to the Institutional Objectives. Specific evidence is not to be uploaded, but discussion is expected of the assignment, and intentionality of how the objective is met with program curriculum.

Inclusion: In the history of Mathematics, there are many instances of opposing viewpoints and cultures working together to solve problems to advance our knowledge of Mathematics. Mathematics is often called the "universal language" that can bring people of different cultures together in common understanding.

Creativity: A creative mind is useful in dealing with Mathematical problems and theorems. A natural curiousity is what has driven Mathematicians for centuries.

Intellectual inquiry: Here too, a curiousity of new results and thinking beyond known boundaries is what has advanced our knowledge of Mathematics.

Professions-oriented: Almost every profession will involve Mathematics in some capacity. However, there are fields such as teaching, statistics, and the actuarial field where it plays a primary role.

Institutional_objectives_2.docx

General Education Alignment to Program
How do the General Education criteria align with Program Objectives? What courses within the program build upon skills learned from general education courses (please list the program course and the general education criteria)?

Written and Oral Communication: Mathematics majors need to have communication skills to present steps in a problem clearly. They also need to be able to communicate their understanding of Mathematical concepts to others, both in written and spoken form.

Information Literacy: The processing of information is vital in Mathematics, particularly in the Statistical field where information is summarized as concise and clear as possible.

Historical Perspective: Mathematics is a sequential process, so the historical perspective on how these processes are achieved is often studied. Also, we often investigate particular results or theorems and the process of their development.

Natural Science: In the Mathematics courses, applications to other disciplines are often studied. Fields of natural science such as Physics and Biology frequently require Mathematical concepts.

Expression and Invention: The history of Math is people thinking beyond known boundaries and inventing new results and then proving they are true. Mathematical work is often prized for its elegancy, so expressing thoughts in the most clear manner is desired.

Inquiry and Analysis: Understanding and disecting a problem is necessary to solve it and express the solution so others can understand.

Cultures and Community: Mathematics is a universal language that can be understood by people from many cultures, even if they do not share the same oral language. This brings the Mathematical communuity together with a common reference point.

NSSE Objectives Discussed Spring 2022

Program Alignment to NSSE Objectives
Faculty discussed the most recent NSSE results in spring of 2022 and identified universal objectives for all academic content. Please articulate what the program is doing to further students' knowledge and skills in the following areas: 1C- Explained course material to one or more students; 2E - Tried to better understand someone else's view by imagining how an issues looks from his/her perspective; 4C-Analyzing an idea, experience, or line of reasoning in depth by examining its parts; 4D- Evaluating a point of view, decision, or information source. Please describe the activities used and the impact on student learning.

1- Mathematics has always had a strong connection to the other sciences, particularly Biology and Physics. In the Biostatistics and Elementary Statistics courses, more examples were included that incorporated situations Biology students might see in their actual careers. There were no specific assignments added that addressed this topic.

2- Statistics are often used to support positions on social problems. Unfortunately, these statistics can also be misused to give credence to a certain narrative. It is important that students are able to interpret the data and reach their own conclusions independently.

3- With the knowledge gained in the Math and Statistics courses, hopefully students are able to understand their views in a more educated manner.

Curriculum Map

A - Assessed
R - Reinforced
I - Introduced
M - Master

CURRICULUM MAP

	MAT 124	MAT 214	MAT 215	MAT 224	MAT 312	MAT 313	MAT 314	MAT 324	MAT 325	MAT 422	MAT 423	SPR
MAT.1 Apply mathematical concepts, methods and tools in solving problems pertaining to the world at large.	I	R	R		R	R	R	M	M	M	M	A
MAT.2 Model rates of change and accumulation of various quantities and find conditions under which those quantities are optimized in both discrete and continuous settings.	I	R	R	R	M	R						
MAT.3 Identify and demonstrate pattern and structure inherent in performing different operations on mathematical objects.			R	R	R	R	R	M	M	M	M	A
MAT.4 Analyze situations involving multiple objects and constraints using multidimensional space.				I, M		R	R					
MAT.5 Demonstrate the dependence or independence of mathematical statements upon their axiomatic framework.	I	R, I		I	R	M, A						A
MAT.6 Exhibit competence in various methods of analytic proof.	I	R	R	R	R	R	R	M	M	M	A	A
MAT.7 Accurately use algorithms in appropriate contexts.			I			R			M, A			A
MAT.8 Demonstrate the existence of numerical, geometric, and symbolic trends and make conjecture based on those trends.	I	R		R	R	R	A, M	R	R			A

Changes to Curriculum

Are there any changes made to the curriculum map for this academic year? If so, please describe the program changes made along with the rationale for why and the impact the change should have on student learning?

We have not made any changes to the curriculum map for the 2023-24 academic year. The faculty will discuss the map as we introduce the Mathematics concentration to the Secondary Education degree.

Assessment Findings

Assessment Findings for the Assessment Measure level for CURRICULUM MAP

~ No Assessment Findings were reported

Analysis of the Assessment Process

Describe your assessment process; clearly articulate how the program uses coursework and or Student Performance Review for program wide assessment. Note any changes that occurred to the process since the previous year. Discuss what activities were successful and which ones were not as helpful and why. Please include who met to discuss the changes (unless you are a program of one person) and when you met. – Include a discussion on the process for collection and analysis of program data.

As there were no remaining Math majors this year, we did not have any assessment day activities. The one Mathematics secondary education student participated in the Education activities. In the future, we may try to add a component into the assessment process.

Improvement Narrative List

Program Activities

Student Performance Review
Describe the department Student Performance Review activities if not already articulated. Please describe the nature of the assessments conducted as well as the process of assessment happening on these two days. Include the schedule of assessment day for your program. What does the data and outcomes tell you? What changes will you make as a result of the data? What areas are successful for the program?

We did not gave Student Performance Day activities this year as there were no Mathematics majors.

Student Performance Review Schedule
Upload the program schedule for students during Performance Reviews.

Senior Showcase/Symposium
Describe program activities used to highlight Senior achievement. What benefit does the program gain from the activities? What if any assessment of students happens during this event?

There were no senior Mathematics students in 2023-2024, so no Senior Symposium activities were held. The Mathematics faculty did participate in the day's activities, attending faculty and student presentations in other disciplines.

Tools used for Assessment
Upload rubrics or other Assessment based tools used by the program that are important to the assessment process.

Service Learning
Does the Program include projects/ course content that uses the philosophy of service learning?
Yes
No (selected)

Service Learning Component
If so, how is service learning infused in the coursework within your department? Is service or community engagement in the program mission? Describe the Service Learning Activities that your students and department engaged in this past year. How did the activities improve student learning? How did the activities benefit the community?

N/A

Co-Curriculuar and LEAD Events
Describe Co-Curricular and LEAD events sponsored by program faculty. This includes LEAD and other events meant to engage students and foster learning outside of the classroom.

Professor Schnedier did hold a LEAD event involving applications of Statistics.

Student Accomplishments
Highlight special examples of student successes in the field (academic: mentor-mentee, conference presentations, competitive internship, journal acceptance; extra-curricular: horse show championship, art exhibit). This is for any accomplishment a student achieved outside of course work or the normal expectation of student success.

There were no Mathematics majors for the 2023-24 school year.

Alumni Accomplishments
Please highlight special examples of any successes of recently graduated alumni (acceptance or graduation graduate school, employment or professional milestones).

We did not receive any updates from alumni in the 2023-24 school year.

Faculty Accomplishments
Highlight special examples of faculty success in the profession/field/content area. This is for any accomplishment of a faculty member that is research or professional in nature.

All three Math faculty attended the KME regional convention held on the Missouri State campus in Springfield. We heard presentations from both students and faculty, and saw a demonstration of a new statistical package that may be useful in classes in the future.

Assessment Rubric:

Clear	3.000 Exceeds	2.000 Meets	1.000 Falls Below Expectations	N/A
Mission Statement Clearly Articulated weight: 1.000	The mission statement for the program is insightful and forward thinking. It aligns with the University Mission and learning objectives showing a clear alignment between the University and the program.	✓ The mission statement for the program clearly articulated and aligned with the University mission.	The mission statement is minimal at best.	N/A
Comment:				
Reflection on Student Demographics, Retention, and Degree Completion Data weight: 1.000	The program provides a detailed description on the enrollment, retention, persistence and degree completion numbers. The program provides new ideas on how to improve retention of their program students or articulates what they are currently doing to keep students in their program.	✓ The program provides a basic reflection on enrollment, retention, persistence, and degree completion data provided.	The program does not reflect on enrollment, retention, persistence, and degree completion data in a detailed way.	N/A
Comment:				
Marketing Materials weight: 1.000	The program outlines the successes and needs in regards to marketing. Detailed suggestions on how to market the program and what niche areas that are program specific would benefit the marketing strategy.	✓ The program discussed the general marketing strategy for the program.	The program provided little to no discussion on the marketing materials or approach to how to market the program.	N/A
Comment:				
Alignment to University Objectives weight: 1.000	The program provides a detailed explanation of how program courses align to the Institutional Objectives. This explanation details specific courses, or activities that coordinate with the intent of the Institutional Objectives.	✓ The program provides a basic explanation of how program courses align to the Institutional Objectives. This explanation provides a minimal understanding of how the program is aligned to the Institutional Objectives.	The program provides little to no explanation of how program courses align to the Institutional Objectives.	N/A
Comment:				
General Education alignment clearly explained weight: 1.000	The program provides a detailed explanation of the General Education criterial and how the basic skills learned are expanded upon in the program. Details include but are not limited to: specific courses, or activities that stretch the knowledge of the specific areas.	✓ The program provides a basic explanation of the General Education curriculum and how the skills learned are expanded in program courses.	The program provides a minimal explanation of the General Education curriculum and how the skills learned are expanded in program courses.	N/A
Comment:				
NSSE Objectives weight: 1.000	The program provided a detailed listing of activities and assessments used within the program that focused on the identified NSSE objectives. The activities and assessments were divided out within the curriculum and impacted different cohort groups.	✓ The program provided a basic explanation of the activities and assessments used within the program that focused on the identified NSSE objectives.	The program provided minimal explanation of the activities and assessments used within the program that focused on the identified NSSE objectives.	N/A
Comment:				
Curriculum Map alignment and changes weight: 1.000	The curriculum map is detailed and complete. All Changs made to the curriculum map are detailed with supporting rationale for the decision..	✓ The curriculum map is complete. Changes made to the curriculum map are explained with some explanation as to why the changes were implemented.	The curriculum map is not complete and little to no explanation on curricular changes was provided.	N/A
Comment:				
Assessment Map weight: 1.000	Assessment of objectives are spread out across the curriculum with a variety of assessment measures and each program objective is assessed a minimum of twice a year.	Each objective is assessed a minimum of 2 times a year or an assessment rotation is explained so that all objectives are assessed. The assessments are not concentrated in one class.	✓ The assessment map is not complete or much of the assessment happens in only one course. Not all objectives are assessed annually, nor is a plan provided on assessment.	N/A
Comment:	the program is a stand alone minor but they only noted one assessment assignment for each objective.			

Data Driven Decision-making is explained weight: 1.000	An overview of program assessment is provided with details on the specific successes and challenges from the year. A detailed review of how assessment was administered over the academic year is clearly outlined.	A basic overview of program assessment is provided with some details on the successes and challenges from the year. A basic review of how assessment was administered over the academic year is outlined.	✓ A basic overview of program assessment is not provided with little to no discussion on the administration of assessment over the academic year.	N/A
Comment:	the assessment findings did not populate due to the program not listing the activities for assessment in the map.			
Documentation provided on assessment findings weight: 1.000	The program uploads all rubric and support information to support the claims in the assessment findings along with detailed instructions on the assessment process and data analysis.	The program uploads all rubric and support information to support the claims in assessment findings.	✓ The program did not upload the data to support assessment claims in the assessment findings.	N/A
Comment:				
Analysis of Assessment weight: 1.000	The program completed assessment findings for each component identified, and provided a comprehensive summary of each assessment measure identified in the report.	The program completed the assessment findings for each component and provided a summary for each assessment measure.	✓ The program did not provide a completed assessment findings for each component, nor did they complete the summary for each measure.	N/A
Comment:				
Improvement narratives are selected with intentionality weight: 1.000	The program identified Improvement Narratives that appear to move the program forward and see the bigger picture than only the specific program curriculum options	The program used the provided Improvement Narratives and selected options that made sense to the objectives and issues within the assessment.	The program did not use any improvement narratives, or the ones chosen are not aligned with assessment results.	✓ N/A
Comment:				
Student Performance Review weight: 1.000	The program described and provided a detailed account of Student performance Review activities. Data evidence provided and detailed.	The program provided the schedule and a brief description of Student Performance Review with data of the results.	The program did not provide complete explanation on Student Performance Review nor did they provide data results.	✓ N/A
Comment:	This is a minor program and does not participate in the activity			
Senior Showcase weight: 1.000	The program had all senior students participate in Senior Showcase and provided a detailed explanation of their expectation and the presentations presented.	The program described the Senior showcase activities and provided some evidence of what was presented.	Little to no content of Senior showcase was provided.	✓ N/A
Comment:	This is a minor program and does not participate in the activity			
Co Curricular and LEAD activities weight: 1.000	The program detailed the activities of LEAD and other co-curricular programing that was provided throughout the year. They provided numerous events for students.	✓ The program provided a listing of LEAD events and activities provided.	The program provided little to no description of the Co-curricular activities provided throughout the year.	N/A
Comment:				
Faculty, alumni, and Student accomplishments weight: 1.000	The program provided detail updates on successes on Students, Alumni and Faculty with added information explaining the kinds of success that were experienced.	✓ The program provided a listing of information on Students, Alumni, and faculty accomplishments.	The program provided little to no data on students, alumni, faculty accomplishments.	N/A
Comment:				