MED STEM Annual Assessment 2023-2024

Graduate Annual Assessment 2023-2024

Master of Education STEM

Program Profile

Program Mission

STEM PROGRAM OBJECTIVES/MISSION

The STEM Education program mission focuses upon education reforms in the United States as it relates to students' learning how to apply science, technology, engineering, and mathematics content; effective integration of science, technology engineering, and mathematics content in the classroom; and the educational impact on students engaging in scientific practices. This program is designed for students to understand the role of engineering within the K-12 STEM, science, mathematics, and science classrooms. Students explore a variety of instructional strategies that K12 teachers utilize for introducing engineering concepts in science, technology, mathematics, or STEM specific courses. Students also learn how K12 teachers effectively integrate science, mathematics, and technology in engineering design lessons; how integrating technology and coding in STEM classrooms affects student achievement, perceptions, persistence, interests, self-efficacy and/or attitudes; and how inquiry based instruction affects K12 students' achievement, perceptions, persistence, interests, self-efficacy and/or attitudes.

VIA Assignments occur in: WEEK 8 of EDU 564, EDU 565, EDU 566, and EDU 567.

VIA Assessment also occurs in EDU 586 which corresponds to the master's capstone.

Program Demographics	**Graduating Students**
Total Enrollment 2022-2023	**Total Graduated 2022-2023**
15	15
Total Enrollment 2023-2024	**Total Graduated 2023-24**

Program Assessment Data Sheet
Upload the Assessment Data sheet from Institutional Research
Copy_of_Final__Program_Assessment_Data_Graduate__4_.xlsx
Program_Assessment_Data_Graduate_19_20__3_.xlsx
Copy_of_Program_Assessment_Data_Graduate__1_.xlsx
Education_Department_Report_Full__1_.xlsx

Reflection on Demographic Data
Program goals for student retention, persistence and degree completion are? What do the persistence numbers mean to the faculty in the program? Are your persistence numbers what you expected? If not, how could the numbers be improved? What is the optimal enrollment for the program?

The retention data for the STEM Education Program is 85 percent, which is 1% lower than the university graduate retention rate. The overall goal is for retention to eventually exceed the university average. The program retention rate

increased from 77% the year prior. The program is on the right track for incresing rention. This could be explained from the fact that all the faculty in the program now have a PhD or EdD with high school science teaching certifications.

It is concerning that the program numbers have dropped below 10 for the first time in 5 years. Generally, this program hovers right at or around 20 to 25 students. The program could serve 50-60 students given the present rotations.

Our program goal is for there to be 95 percent or higher retention and persistence. The lower persistence and retention number than the goal of 95% is difficult to discern. With six prime opportunities a year for students to drop out of the program given that there are six 8-week semesters, there is double the risk for decreased retention compared to traditional 16-week semesters. A possible avenue for increasing retention would include:

For me to set clear expectations for instructors to engage online learners;

We need involved educators;

We need our educators to listen;

We need our educators to set the stage for engagement.

https://www.learningrevolution.net/online-course-retention-rate/

William Woods University
Assessment Data

Program: STEM

	Academic Year							
	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	Change
Declared Majors									
Incoming	0	8	8	2	3	3			
Total	10	20	28	32	25	15	-25.0%		
Graduate Enrollment			1,403	1,367	1,280	1,232	951	716	-47.6%

Number of Cohorts

Graduated Majors (9/1-8/30)	0	1	4	12	9	21

	Cohort Year					
Graduation Rate:2	14/15	15/16	16/17	17/18	18/19	19/20
Graduate College	61%%	86.7%	80.6%	54.8%	85.7%	74.2%%
Program	50.0%	/	/	40%	85%	53%

STEM Program enrollment is zero'd out for 2023-2024 since the program is merging into MEd C and I.

Program Delivery

Cohort
Online (selected)
Hybrid
Cohort and Online

External Accreditation
Does the program hold external accreditation?
Yes (selected)
No

If yes, state the name of the organization.

Along with the name of the organization, please note the date of approval, and the date of review.

Higher Learning Commission.

Marketing Materials
Reflect on the current marketing materials used for the program. Please attach screenshots 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?

We provide information regarding our STEM Education

https://www.williamwoods.edu/academics/online/graduate/master_of_education_in_stem.html

There are several small posters, for example in the admissions office and at Parkade location that specify we have a master's of education in STEM,d

Marketing Attachments

Faculty Teaching
Please either fill in the box or upload a document outlining the faculty loads for those who are actively teaching in the program. "Active" includes individuals who have taught within the past year for the program. Include if the faculty are full time or part time as well and how many classes they are teaching.

The faculty that teach in the STEM graduate program are adjuncts.

The following adjuncts run STEM Education coursework and the number of times they have taught their respective courses:

Erikka Brown 1 Course EdD William Woods University

Jaimie Foulk 2 Courses PhD University of Missouri

James Concannon 1 Course PhD University of Missouri

Patrick Brown 2 Courses PhD University of Missouri

Faculty Load Attachment
If you want to attach the load document you can do that here.

Program Objectives

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
MED-STEM.1	Students will understand past and present STEM education reforms in the United States as it relates to: students??? learning how to apply science, technology, engineering, and mathematics content; effective integration of science, technology engineering, and mathematics content in the classroom; the impact on students engaging in scientific practices.
MED-STEM.2	Students will understand the role of engineering within the K-12 STEM, science, mathematics, and science classrooms. Students will learn a variety of instructional strategies that teachers use for introducing engineering concepts in science, technology, mathematics, or STEM specific courses. Students will learn how teachers effectively integrate science, mathematics, and technology in engineering design lessons.
MED-STEM.3	Students will be able to describe how integrating technology and coding in STEM classrooms affects student achievement, perceptions, persistence, interests, self-efficacy and/or attitudes.
MED-STEM.4	Students will be able to understand how citizen science activities affects student achievement, perceptions, persistence, interests, self-efficacy and/or attitudes. Students will be able to describe how citizen science projects can be effectively implemented and integrated throughout STEM units. Students will investigate how science, technology, engineering, and mathematics relate to citizen science, and how students engaging in citizen science relates to meeting the NGSS.

Alignment with Institutional Objectives

Please discuss the program alignment to the University Objectives. We do not need an artifact for each objective, but a discussion on how the program uses the Institutional Objectives as an anchor for their program curriculum.

WWU 2016.1: Major Field Competence: Students will demonstrate excellence in an academic or professional discipline, and engage in the process of academic discovery.

This program is aligned to the overall university mission in that students engage in self-selected inquiry projects within STEM Education. This is evident in EDU 564, EDU 565, EDU 566, EDU 567, and EDU 586. The culmination of the degree, in EDU 586, is a self-exploratrity action research project in the field of K12 STEM Education hindged upon student observation, data collection, and data analysis.

Our daily mission as an Educator Preparation Program is to immerse students in a learning environment focused on theory, knowledge, experience and reflection. We believe that student-centered coursework, application of learning in educational settings, group-based activity and the ability to reflect on one's practice are the essential disciplines for developing you into the kind of high-quality teacher needed to boost student achievement in our state and elsewhere.

Curriculum Map

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

STEM EDUCATION

	EDU 520	EDU 543	EDU 558	EDU 564	EDU 565	EDU 566	EDU 567	EDU 586	EDU 590
MED-STEM.1 Students will understand past and present STEM education reforms in the United States as it relates to: students??? learning how to apply science, technology, engineering, and mathematics content; effective integration of science, technology engineering, and mathematics content in the classroom; the impact on students engaging in scientific practices.				I, A, M				M, A	
MED-STEM.2 Students will understand the role of engineering within the K-12 STEM, science, mathematics, and science classrooms. Students will learn a variety of instructional strategies that teachers use for introducing engineering concepts in science, technology, mathematics, or STEM specific courses. Students will learn how teachers effectively integrate science, mathematics, and technology in engineering design lessons.					I, A, M			M, A	
MED-STEM.3 Students will be able to describe how integrating technology and coding in STEM classrooms affects student achievement, perceptions, persistence, interests, self-efficacy and/or attitudes.						I, A, M		M, A	
MED-STEM.4 Students will be able to understand how citizen science activities affects student achievement, perceptions, persistence, interests, self-efficacy and/or attitudes. Students will be able to describe how citizen science projects can be effectively implemented and integrated throughout STEM units. Students will investigate how science, technology, engineering, and mathematics relate to citizen science, and how students engaging in citizen science relates to meeting the NGSS.							A, I, M	A, M	
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.								A, M	

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 changes should' have on student learning?

The EDU 586 master's coursework will be scored using the C & I rubric to measure the WWU 2021.1 assessment point.

The program will merge into MEd C and I. 2023-2024 is the last year for the stand-alone MED STEM program.

Assessment Findings

Assessment Findings for the Assessment Measure level for STEM EDUCATION

~No assessment submitted for the program

Improvement Narrative List

Assessment List

Analysis of the Assessment Process
Describe your assessment process; clearly articulate how the program is using coursework and or assessment day activities for program wide assessment. Note any changes that occurred to that process since the previous year. Discuss what activities were successful at assessment 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.

My analysis is this: The data set is small. With fewer than five to six students scored each year due to the shrinking size of the major, it makes it difficult to project a meaningful analysis; however, all-in-all students are doing well for standards 1, 2, and 4. The lofty goal of 90 percent of students scoring exemplary is sometimes unattainable. A MAJOR issue we had to frequently address throughout the year was that the via link from BrightSpace was not activated, and students nearly for each STEM course could not easily turn in their final paper into via. One could anticipate, despite the frequent correspondances with various individuals, that every eight weeks the professor and students would encounter this program.

Upon discussing with other instructors in STEM, we decided to pull citizen science from the curriculum. Beyond this upcoming change, no formal changes were made to the assessment procedures.

Program Activities

Student Accomplishments

Highlight special examples of student successes in the field (research, conference presentation, award in the profession). This is for any accomplishment that a student achieved outside of coursework or the normal expectations of student success.

- Unknown

Faculty Accomplishments

Highlight special examples of faculty success in the profession/field/content area. This is for any accomplishment of a faculty activity/research/professional nature

James Concannon presented at Critical Questions in Education conference, Interface, and National Science Teachers Association in Denver, CO.

Patrick Brown published several peer-reviewed articles, and made several professional presentations.

Alumni Accomplishments

Highlight special examples of any successes of any alumni (acceptance to or graduation from a graduate/professional program, new job in the field) including your most recent graduates

-Unknown

Professional Development Opportunities

Highlight professional development opportunities over the course of the academic year that were beneficial to program faculty and or instrumental to student learning. This could be local or external professional development.

We had our annual PD over the 2023 summer. I met with our STEM instructors and ensured each STEM instructor received approved annual PD.

Professional Development

Upload any documentation supporting the professional development offered.

Online_RemoteCoursesHandout_1.docx

Assessment Rubric

	3.00 Exceeds	2.00 Meets	1.00 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:	Working with IR to determine where the data is for the program so that a true discussion on retention and graduation rates can be provided.			
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:				
Faculty Teaching Loads weight: 1.000	The program provides a detailed explanation of teaching loads outlining courses for adjunct and full time faculty. Data is provided that shows percentages and responsibilities in the program.	✓ The program provides a basic explanation who is teaching in the program with no data to provide a complete picture.	The program provides a minimal explanation to no explanation of who teaches in 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:				
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 decisions.	✓ 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 activities for assessment are not articulated so the assessment map is not complete and the opportunity for findings on the map will not load.			
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:				
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:				
Assessment Findings 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:				
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:				
Professional Development Opportunities weight: 1.000	The program detailed the opportunities for PD as well as any additional PD completed by faculty in the program.	The program provided a basic listing of PD options available and how many faculty participated.	✓ The program provided little to no description of the PD available or participation of faculty.	N/A
Comment:				

Appendix: Supplemental Data