

Montana University System
PROGRAM REVIEW

Institution: **The University of Montana Western**

Program Years: **2014-2021**

List of the programs reviewed:

Mathematics Department (B.S. Mathematics Major, B.S. Mathematics and Secondary Education Double Major, Statistics and Data Analysis Minor)

Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:

The University of Montana Western resolves to continue offering the B.S. Mathematics Major, B.S. Mathematics and Secondary Education Double Major, and Statistics and Data Analysis Minor.

Rationale or justification for the decision based on the program review process established at the campus. Include graduation numbers and student majors for each of the last seven (7) years for every program under review.

The mission of the Department of Mathematics is to prepare students for professional work or postgraduate study in mathematical data analysis and modeling or in mathematics education by both developing their competencies with core mathematical concepts and providing them with the experience of engaging in mathematical research.

The mathematics department efficiently and effectively fulfills its mission by offering rich and diverse undergraduate research experiences across all academic levels to their own majors and minors as well as to students in other programs they serve. Moreover, they accomplish while practicing careful stewardship of their resources. They've designed their curriculum so that a significant number of their courses support the completion of their three primary degree programs (B.S. Mathematics Major, B.S. Mathematics and Secondary Education Double Major, and Statistics and Data Analysis Minor). This allows a small number of faculty to support all three programs efficiently without the need for excessive specialization. Enrollment and graduation numbers for these programs are summarized in the table below (note that the Statistics and Data Analysis Minor is relatively new. Therefore, there are only two years of data for this program).

Enrollment and Graduation Data

Major	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
B.S. Mathematics Major	10	8	7	4	3	10	8	7	5	2
B.S. Mathematics and Secondary Education	15	22	27	24	18	11	12	11	16	14
Statistics and Data Analysis Minor									1	4
TOTAL	25	30	34	28	21	21	20	18	22	20

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Graduates by Major										
B.S. Mathematics Major	0	1	1	1	0	1	0	0	3	1
B.S. Mathematics and Secondary Education	7	2	2	1	4	6	3	1	0	2
Statistics and Data Analysis Minor									1	3
TOTAL	7	3	3	2	4	7	3	1	4	6

In addition to its core function, the mathematics department maintains a very active service role on campus.

- First, the mathematics department has an array of general education offerings (100 level Mathematics and Statistics courses, with the exception of M161, M171, and M172). All students pursuing a major at UMW are required to take one, four-credit general education class in mathematics or statistics. During the each of the fall semesters from 2011 through 2020, the mathematics department offered an average of 4.5 general education courses that were enrolled at 71% of capacity. During each of the spring semesters from 2012 through 2021, the mathematic department offered an average of 5 general education courses that were enrolled at 74% of capacity.
- Second, the mathematics department provides service courses to other majors in biology, ecology, environmental science, business, health and human performance, and psychology, in the form of courses such as M161, M171, M172, M210, M221, STAT 121, STAT 217, STAT 233, STAT 335, STAT 394A, STAT 420, STAT433, and STAT 437. These are courses students take in order to fulfill a requirement within one or more of these majors or to support their capstone research. During each of the fall semesters from 2011 through 2020, the mathematics department offered an average of 7 service courses that were enrolled at 66% capacity. During each of the spring semesters from 2012 through 2021, the mathematics department offered an average of 7.5 service courses that were enrolled at 60% capacity.
- Finally, from Fall 2012-Fall 2020, between 56% and 69% of incoming UMW students begin their collegiate careers in need of reviewing their high school mathematics skills. These students typically enroll in one or both of M090 or M095. During each of the fall semesters from 2011 through 2020, the mathematics department offered an average of 7.1 developmental courses that were enrolled at 86% capacity. During each of the spring semesters from 2012 through 2021, the mathematics department offered an average of 5.9 developmental courses that were enrolled at 79% capacity.

Undergraduate research is one of the high impact practices (HIPs) identified as essential for furthering the success of Experience One in the Strategic Plan of the University of Montana Western. Through its commitment to offering numerous undergraduate research experiences at all academic levels to students enrolled in its own programs as well as to those in programs it serves, the mathematics department plays a critical role in helping the University of Montana Western to attain the goals laid out in its strategic plan.