



March 2009

Have you thought about Earning a Math Minor?

A math minor requires 23 credits in M, MATH or STAT courses subject to the following rules:¹

- a) Courses must be listed in a UM-Missoula Catalog. (Transfer courses not equivalent to courses listed in a UM-Missoula Catalog will be evaluated on an individual basis.)
- b) M courses must be numbered 115 or higher, and MATH courses must be numbered 111 or higher.
- c) The 23 credits must include:
 - Applied Calculus (M 162 = MATH 150) or Calculus II (M 172 = MATH 153)²
 - Three 3- or 4- credit courses at the 300-level or above

If you like math, it doesn't take that much extra work to earn a math minor.

For some majors (e.g., computer science and physics majors), it takes only 2 additional courses beyond the courses required by the major!

And there are quite a few advantages:

- A math minor looks good on your resume.
- It demonstrates you know quite a bit of mathematics or statistics.
- It demonstrates that you have rigorous reasoning and problem solving skills.
- Graduate programs in the quantitative sciences like it. And so do Medical Schools and Law Schools.
- It makes you more marketable.
- But most importantly: Earning a math minor is a challenge and it is fun!

Planning for a Math Minor: There are many ways to earn a math minor – on the back of this sheet are quite a few suggested curricula.

The basis for a math minor is calculus: either Applied Calculus (M 162 = MATH 150) or both Calculus I and Calculus II (M 171/172 = MATH 152/153).²

The capstone of a math minor are the three courses at the 300/400 level. Have a look in the catalog at the variety of courses we offer. If you want to end up taking a particular upper-division math course, make sure you take the prerequisites. This is easy if you follow one of the suggested curricula. But you do not need to follow any of the suggested curricula – you can design your own math minor.

If you have any questions, please contact Nikolaus Vonessen (Room 210 in the math building; 243-6222; nikolaus.vonessen@umontana.edu).

Suggested Curricula leading to a Math Minor are on the back of this sheet.

¹ In addition, all courses counted toward the minor must be passed with a grade of C- or better, and a 2.00 grade average is required. (From the 2008-2009 Catalog)

² Honors Calculus I/II (M 181/182) can be substituted for Calculus I/II.

After completing Applied Calculus (or Calculus II), you are ready to take the following upper-division math courses (additional prerequisites in parentheses):

M 326 = MATH 326 – Number Theory (requires M 225 = MATH 225)

M 361 = MATH 381 – Discrete Optimization

M 362 = MATH 382 – Linear Optimization

M 414 = MATH 414 – Deterministic Models (requires M 274 = MATH 158)

STAT 341 = MATH 341 – Introduction to Probability and Statistics

STAT 451 = MATH 444 – Statistical Methods I (requires one of M 115 [=MATH 117],
STAT 216 [=MATH 241], or STAT 341 [=MATH 341])

STAT 452 = MATH 445 – Statistical Methods II (requires STAT 451 = MATH 444)

Some suggested curricula leading to a Math Minor based on Applied Calculus:

The “additional credits” can be in most M, MATH or STAT courses (see the restrictions under a) and b) on page 1). The new course numbers are always listed above the old course numbers.

<i>Applied Math</i>	New: M 162, 274, 362, 414, STAT 341 + 7 credits Old: MATH 150, 158, 382, 414, 341 + 7 credits
<i>Applied Statistics</i>	New: M 162, STAT 341, 451&457, 452&458 + 8 credits Old: MATH 150, 341, 444&447, 445&448 + 8 credits
<i>General Math</i>	New: M 162, 225, 326, STAT 341, one of M 361, 362 + 7cr. Old: MATH 150, 225, 326, 341, one of MATH 381, 382 + 7cr.
<i>Optimization & Probability</i>	New: M 162, 361, 362, STAT 341 + 10 credits Old: MATH 150, 381, 382, 341 + 10 credits

After completing Calculus II, you have even more options – here are a few particularly interesting ones. The “additional credits” can be in most M, MATH or STAT courses (see the restrictions under a) and b) on page 1). The new course numbers are always listed above the old course numbers. Honors Calculus I/II (M 181/182) can be substituted for Calculus I/II (M 171/172).

<i>In any of the above suggested curricula, you can replace Applied Calculus (M 162 =MATH 150) by Calculus I/II (M 171/172 = MATH 152/153); this reduces the number of “additional credits” by 4.</i>	
<i>Algebra and Number Theory</i>	New: M 171, 172, 221, 300, 307, 326, 431 Old: MATH 152, 153, 221, 300, 305, 326, 421
<i>Analysis</i>	New: M 171, 172, 273, 307, and two of 381, 472, 473 Old: MATH 152, 153, 251, 305, and two of 351, 452, 451
<i>Applied Math</i>	New: M 171, 172, 273, 311&317, and two of 412&418, 414, 440 Old: MATH 152, 153, 251, 311&317, and two of 412&418, 414, 471
<i>Combinatorics & Optimization</i>	New: M 171, 172, 307, 361, 362, 485 + 3 credits Old: MATH 152, 153, 305, 381, 382, 485 + 3 credits
<i>Statistics</i>	New: M 171, 172, 273, STAT 341, 421, 422 + 2 credits Old: MATH 152, 153, 251, 341, 441, 442 + 2 credits

Any questions? Please contact Nikolaus Vonessen (Room 210 in the math building; 243-6222; nikolaus.vonessen@umontana.edu).