

M234-01 Higher Mathematics for Elementary School Teachers
MWF Noon-12:50 CRN 73159

Semester: Fall 2019
Location: LA 235

Instructor: Richard Darnell, Office Math 002
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Office hours: M 3-4:30 pm, T 1-3 pm, 2-4 pm, and by appointment.

Course Description: The study of algebra, number theory, probability and statistics for prospective elementary and middle school teachers, including proportional reasoning, functions, elementary number theory, statistical modeling and inference, and elementary probability theory. Prerequisite: M132

Course Materials: Required Textbook, Beckmann, S. *Mathematics for Elementary Teachers with Activities Plus NEW Skills. 5th edition.* (Pearson, 2018). ISBN13 978-0-13-439279-0

Notebook of choice, pencil/ pen, calculator

Learning Outcomes: Upon completion of this course, a student will be able to:

1. Apply algebra in many forms (e.g., as a symbolic language, as generalized arithmetic, as a study of functions, relations, and variation) and use algebra to model physical situations and solve problems;
2. Explain proportionality and its invariant properties;
3. Apply number theory concepts and theorems, including greatest common factors, least common divisor, properties of prime and composite numbers, and tests for divisibility;
4. Represent, analyze and interpret data;
5. Simulate random events and describe expected features of random variation;
6. Distinguish between theoretical and experimental probability and describe how to use one or both to determine a probability in a given situation.

Classwork: Class activities are a mix of individual, partner, group and all-class participation. Activities with manipulatives and related discussions are difficult to replicate in the case of an absence from class. Deeper learning occurs when students are in attendance to share their explanations and methods of solving problems with each other. Please attend regularly. Reflections and follow-up activities on in-class group experiences are only available if you are in class for the experience.

Homework: Homework is a mixture of textbook exercises, Moodle assignments, problems, and preparation for future classes. Homework will be graded for thoughtful completion. Minimal feedback will be provided – more detailed feedback may be obtained during office hours.

Assessments: Periodic assessments will be given as needed, with prior advance notice. They will consist of 3 to 7 questions on the current topics of study. A comprehensive final exam is scheduled for Monday, December 9, from 8 – 10 am. Students scheduled for more than two final examinations on one day may contact the instructor to request/arrange for an

alternate testing time during the final examination week. If satisfactory arrangements cannot be made, the student should seek the assistance of his or her dean.

Make-ups will ONLY be given under special and extenuating circumstances, such as a death in the family or illness, provided that: a note from the Health Service or doctor is furnished by the student AND permission is obtained from the instructor prior to the exam. The final exam is compulsory and no exceptions can be made about the date/time at which it is held- this date is determined by the University Administration.

Grading Policy: Your grade depends on three areas: Performance on exams and a final, and participation and completion in homework and group activities.

Requirement	Weight
Exams	45%
Final Exam	15%
Class attendance/homework/other graded activities	40%

You may change to Credit/No Credit up to the last day of the class. General credit will be awarded to students earning a D- or better. However, if you choose this option the grade cannot be counted towards the School of Ed requirement nor the UM graduation requirement.

Support: Math support can be obtained by attending the Math Learning Center in the Math Building, visiting your instructor's office hours, and by working on homework or studying with classmates. Do not wait until the week of exams to get help. Ask questions regularly both in class and out of class.

Feel free to use additional resources (and share anything worthwhile with the class), including web sites, YouTube videos, etc.

Basic needs: Here are some information in case you or another student you know faces challenges securing food or housing. There are some campus resources that might be helpful:

Food Pantry Program UM offers a food pantry that students can access for emergency food. The pantry is open on Tuesdays from 9 to 2, on Fridays from 10-5. The pantry is located in UC 119 (in the former ASUM Childcare offices). Pantry staff operate several satellite food cupboards on campus (including one at Missoula College). For more information about this program, email umpantry@mso.umt.edu, visit the pantry's website (<https://www.umt.edu/uc/food-pantry/default.php>) or contact the pantry on social media (@pantryUm on twitter, @UMPantry on Facebook, um_pantry on Instagram).

ASUM Renter Center The Renter Center has compiled a list of resources for UM students at risk of homelessness or food insecurity here:

<http://www.umt.edu/asum/agencies/renter-center/default.php> and here:

<https://medium.com/griz-renter-blog>. Students can schedule an appointment with Renter Center staff to discuss their situation and receive information, support, and referrals.

TRiO Student Support Services TRiO serves UM students who are low-income, first-generation college students, or have documented disabilities. TRiO services include a textbook loan program, scholarships and financial aid help, academic advising, coaching, and tutoring. Students can check their eligibility for TRiO services online here: <http://www.umt.edu/trio/apply.php#Eligibility>.

Accommodation: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors and Disability Services for Students (DSS). If you have a disability that adversely affects your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate accommodation.

Academic Honesty: All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at the following web address:
http://life.umt.edu/vpsa/student_conduct.php.

M234 Fall 2019 Schedule

Week	Chapter	Notes
1	Chapter 8 Number Theory	
2	Chapter 8 Number Theory	
3	Chapter 8 Number Theory	Assessment Number Theory
4	Chapter 7 Ratio & Proportion	
5	Chapter 7 Ratio & Proportion	
6	Chapter 7 Ratio & Proportion	
7	Chapter 9 Algebra	Assessment Ratio and Proportion Mid-term check-in
8	Chapter 9 Algebra	
9	Chapter 9 Algebra	Assessment Algebra
10	Wrap Up Chapter 9 Algebra Begin Chapter 15 Statistics	
11	Chapter 15 Statistics	
12	Chapter 15 Statistics	Assessment Statistics
13	Chapter 15, 16 Probability	
14	Chapter 16 Probability	
15	Review and Evaluation	Assessment Probability Review and Evaluation Day
December 9: Final Exam 8-10 a.m. in LA 235		

*Acceptable reasons for a late drop are listed in the university catalog and include reasons such as accident, illness, family emergency or a change in work schedule. The following examples are not considered sufficient for a late drop: protecting GPA, forgetting to turn in the change slip, losing financial aid, losing eligibility to engage in sports.