Dr. Derek Williams
Wilson 2-251   Office Hours: M 1100-1300; R 1400-1500
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Course Information

Textbook:
   Discrete Mathematics: An Introduction to Mathematical Reasoning. Susanna S. Epp.
ISBN 978-0-495-82617-0

Catalog Description:
   PREREQUISITE: M 172Q. Reasoning and communication in mathematics, including logic, generalization, existence, definition, proof, and the language of mathematics. Topics include functions, relations, set theory, recursion, algebra, number theory, and other areas of mathematics.

Welcoming Classroom:
   I value diversity, social justice, inclusion and equity in this (and every) class. I hold the fundamental belief that everyone is fully capable of engaging in and mastering material. There is more than one way to solve mathematical problems, and our learning will be richer by remaining open to different ideas, by rejecting stereotypes, and being aware of- in order to minimize- our biases. I look forward to getting to know you all as individuals and as a learning community.

Mathematical Content areas:
   • Variables; the language of sets, relations and functions
   • The logic of compound and quantified statements
   • Elementary number theory (rational numbers, divisibility, quotient-remainder theorem, irrationality) and methods of proof (direct and indirect)
   • Sequences, mathematical induction, and recursion
   • Set theory
   • Counting and probability
   • Functions
   • Equivalence relations

Mathematical Practice Objectives:
   During this course students will engage in the CCSS Mathematical Practices; sometimes these are considered the mathematical "habits of mind." This course takes particular focus on MP1. Persevere in solving problems; MP2. Reason abstractly and quantitatively; and MP3. Construct viable arguments and critique the reasoning of others.

Humanity in Mathematics Outcomes:
   Over the course of the semester, students will begin to recognize their own identities and their interplay with their mathematical development. Students will reflect and enact changes to build an inclusive, equitable, and flourishing mathematical community.

Course Schedule:
  Cumulative Evaluations: March 9
                                April 29
  Narrative Due: May 12 (End of day)

Course Components:
  Groupwork: Each week there will be a group assignment. The entire group will receive the same grade and only the leader for the week must submit an assignment for the group. This assignment is to be completed during a synchronous meeting of the group members. Time for group work will be allocated.

  Homework: There will be regular homework assignments. These are a required part of your success in the course. The purpose of the homework is for you to actively engage in learning the methods, techniques, and problem-solving skills in the course. The expectation is that you will complete the assignments on your own and learn the material in order to prepare for the quizzes. Quizzes will relate closely to the homework you are assigned.

  Quizzes: There will be quizzes on Mondays; approximately one per week. Weeks without quizzes will be announced. The quizzes will relate closely to the assigned classwork, homework, and examples from the textbook. Other assignments may also be collected for evaluation and feedback.

  Cumulative Evaluations: There will be two in-class evaluations covering major concepts from the course. These will take place on March 9 and April 29.

  Biography/Narrative: Throughout the semester there will be assignments related to identity and intersectionality in the mathematical sciences. This project will culminate in a biography/narrative to be submitted the week of May 12.

Grades

  I will grade collected problems using the following EPRF rubric. An 'R' grade is an invitation to make revisions and resubmit an assignment based on feedback from your original submission. Revisions will typically be due within one week of receiving feedback and may only be re-evaluated to a 'P' grade. Revisions are intended to support your learning by giving you feedback and time to continue thinking about problems. Unsubmitted revisions will result in an 'F' grade.

Score	Justification
E	***Excellent.*** Outstanding work that exhibits comprehensive and thoughtful understanding of the content of the assignment. Complete, clear communication. Any errors are trivial.
P	***Proficient.*** Work reflects a solid understanding of the content of the assignment. Several errors may occur in the assignment.

R	***Needs Revision.*** Partial understanding of the content of the assignment is evident, but significant gap(s) remain. Needs more work/expansion/communication or more time devoted to demonstrating understanding of content. The work may contain inconsistencies or demonstrate limited understanding of the content. May be incoherent or poorly written.
F	***Fragmentary.*** The work shows a lack of understanding of the assignment. Insubstantial attempt made.

Overall letter grades for the course will be determined as follows:

Letter Grade	Criteria
A	- All E and P scores - At least 50% E's - No F's
B	- At least 80% E and P scores - E or P on both cumulative evaluations - Number of E's is greater than or equal to number of F's
C	- At least 70% E and P scores - E or P on at least one cumulative evaluation
D	F scores on both cumulative evaluations
F	Criteria for D or better are unmet

Missed In-class assessments:
    Any conflict with an in-class quiz or cumulative evaluation should be discussed with me prior to missing the assignment. I follow University policy on makeups, which allows that serious illness or a serious family emergency are valid reasons requiring an accommodation. Most other reasons (e.g., employment conflict, travel plans, etc.) are not valid.

In the event of contagious illness:
    Please do not come to class or to campus to turn in work if you are sick. You should email me if you will miss class due to illness as soon as practical, and we will determine the most appropriate plan to ensure you are able to remain current with the course.

Americans with Disabilities Act:
    If you have a documented disability and would like to discuss academic accommodations, please contact me as soon as is practical.

Expectations of Myself (the instructor):
    I expect myself to:

- Provide assignments and prompts that motivate mathematical discussions and collaboration.
- Facilitate discussions (online and in-person) to push students' thinking, pose additional questions, and provide closure to activities.
- I value mathematical contributions of each and every student, and expect myself to help build a welcoming learning community in which each student feels capable of contributing in personally meaningful ways.
- Provide meaningful feedback on problem sets to support your mathematical learning.
- Finally, many students may enter our course with an idea that learning mathematics is a solitary quest and that one either can or cannot learn high-level mathematics. I expect myself to combat this fixed mindset towards learning mathematics and support your development of a growth mindset. I believe each and every student is capable of learning advanced mathematical concepts.

Administrative Notes

Expectations of Students

Behavioral Expectations: Montana State University expects all students to conduct themselves as honest, responsible and law-abiding members of the academic community and to respect the rights of other students, members of the faculty and staff and the public to use, enjoy and participate in the University programs and facilities. For additional information see http://catalog.montana.edu/code-conduct-policies-regulations-reports/.

Collaboration: Students are welcome to collaborate on work in this class, but all work turned in must be completed by the individual receiving a grade. You may discuss your ideas with classmates, discuss mathematical questions with classmates, and exchange completed problems for peer-review with classmates. You must not copy solutions from classmates or others or use work that is not your own. For example, using Wolfram Alpha, SymboLab, or Chegg to generate solutions to problems IS ALLOWED as long as you do not simply submit copied work from such sources. Instead, provide a copy of the web-generated solutions and then discuss, explain, or justify why the solution works or how using the resource supported your understanding of the problem. If you are unsure about the degree of collaboration that is acceptable, please ask me for clarification. Cheating will not be tolerated. Academic misconduct will result in a minimum penalty of a grade of F on the assignment.

Plagiarism: Paraphrasing or quoting another's work or submitting work from an outside source without citing the source AND explaining how sources contributed to your own original thinking is a form of academic misconduct. Even inadvertent or unintentional misuse or appropriation of another's work (such as relying heavily on source material that is not expressly acknowledged) is considered plagiarism. If you have any questions about using and citing sources, you are expected to ask for clarification.