

1-2014

M 105.03: Contemporary Mathematics

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Office Hours: MWF :10:00AM-11:00AM or by appointment. (Subject to change)

Catalog Description: (from <http://www.umt.edu/catalog/mathsci.htm>)

U 105 Contemporary Mathematics 3 cr. Offered every term. Prereq., MATH 095D or appropriate placement score. An introduction to mathematical ideas and their impact on society. Intended for students wishing to satisfy the general education mathematics requirement.

Class Web Page: <http://www.math.umt.edu/105>

Course Coordinator: First person to see with complaints, questions, etc. about this course that cannot be resolved with the instructor.

Lauren Fern.....Math 205B.....243-5398.....fernl@mso.umt.edu

Free Tutoring:

MLC

Monday - Thursday from 10am - 3pm; Friday 10-12

Math @ Mansfield

Monday - Thursday from 10am - 2pm; Friday 1-3

Monday - Thursday from 6:30pm - 9pm

Learning Goals:

1. To attain some degree of mathematical literacy, including an ability to read mathematical material and write using mathematical notation correctly. To develop skills to think and reason mathematically in order to function more effectively in the modern world.
2. To examine ways in which mathematics is used, to follow and understand logical arguments, and to solve applied quantitative problems. This includes learning to formulate a problem precisely, to interpret solutions, and to make critical judgments in the face of competing formulations and solutions.
3. To understand elementary probability concepts and phenomena: including sample spaces with equally likely outcomes, the basic parameters (mean, standard deviation), the normal distribution, and a qualitative view of the Central Limit Theorem.
4. To understand elementary statistical concepts, such as data description, statistical estimation, randomization, and statistical inference.
5. To explore and examine several other aspects of contemporary mathematics. This could include, but is not limited to, management science (e.g. graph models for network problems), social choice and decision making (e.g. elections, voting, fair division, Congress apportionment), or applied geometry (e.g. symmetry, tilings, growth rates).

Notes About the Course: This course is designed to illustrate several ways in which mathematics is used in the "real world". We will explore some topics of general interest which are not typically taught in a formal mathematics class. The goal is for you to see not only how useful mathematics is, but also how beautiful and elegant it can be.

Text: *Quantitative Literacy*. Crauder et al.

Topics to be covered

- 1) **Financial math 4.1-4.4**
- 2) **Statistics 6.1 and 6.2**
- 3) **Formal Logic 1.2 and 1.3**
- 4) **Modular Arithmetic**
- 5) **Graphs 7.1-7.3 and Graph colorings**
- 6) **Geometry**

Grading:**Exams: 30%**

There will be a total of 3 exams. Dates will be discussed in the future.

Project: 25%

Students will work in groups of 4 or 5 and submit a project on a chosen topic. Guidelines will be presented later in the semester.

Quizzes: 45%

Quizzes will be given every Friday. There is no mandatory homework in this class. Homework will be assigned every day but not collected. The quizzes will be from the homework problems. They are merely a way to ensure that you are doing the homework.

Homework: 0%

There will be daily homework. It is not required to be submitted. The quizzes will draw from the homework questions so I recommend doing the homework. At the end of each class I will post the homework.

Final:

The final is optional. If you choose not to take it you do not need to show up to the final. If you choose to take the final it will replace your lowest exam score. If your final score is lower than all of your exam scores nothing will happen. The final CAN NOT lower your grade in any way. It can only benefit you. The final date is Monday, May 12 from 10:10-12:10.

Attendance:

Attendance is not required, but strongly encouraged. You are all adults and can make your own decisions; however you may wish to know that for instate students it costs you about 20 dollars for each lecture. Out of state student pay about 65 dollars per class. That being said, every time you skip class, you are throwing away that money.

Add/Drop Policy: The last day to add/drop or change grading option to Audit by Cyberbear is **2/14**. The last day to change sections and to change grading options is **4/7**. This is also the last day to drop. Changes after this deadline and until **5/9** must be done by Petition to Drop/Add after deadline and approved by me, your advisor and the appropriate Dean. Approval requires genuine extenuating circumstances as listed in the university catalog.

Extenuating circumstances are:

1. Missing a substantial number of classes due to illness, accident or family emergency.
2. A change in work schedule that makes it impossible to attend class or devote adequate time to the course.
3. Registration in the course by error and never attending class.

Reasons that are not satisfactory include:

1. Forgetting to turn in a drop slip.
2. Protecting your grade point average.

Incomplete (I) Grades: To be eligible for an "I", the following conditions must be met:

1. The student must have been in attendance and passing the course up to 3 weeks before the semester ends; and

2. The student is unable to complete the course due to extenuating circumstances, which usually means serious illness or death in the family.

Incompletes are not given under any other circumstances and are always given at the discretion of the instructor. See the 2013-2014 catalog for further information.

Misconduct: 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. Available for review online at <http://www.umt.edu/SA/VPSA/index.cfm/page/1321>

Special Accommodations: Students with disabilities are welcome to discuss accommodations with me.

Important University-Wide Info and Dates:

- Monday, 17 February: President's Day Holiday. No school.
- 31March -4 April: Spring Break. No school.