

1-2014

M 105.01: Contemporary Mathematics

Charles W. Katerba

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Course Lecturer: Charles Katerba

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Office Hours:

Monday: 11.10 – 12.00

Tuesday: 1.00 – 2.00

Thursday: 12.00 – 1.00,

or by appointment.

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.*

Grading: Your grade in this course will be based on quizzes and exams. Quizzes and exams will count for 100 and 300 points respectively, so the final score will be out of 400 points. The grade breakdown is as follows:

$$400 \geq A \geq 360; 360 > B \geq 320; 320 > C \geq 280; 280 > D \geq 240; 240 > F \geq 0.$$

Exams: There will be three exams over the course of the semester, each worth 100 points. They are tentatively scheduled for **February 28th**, **March 28th**, and **May 2nd**. Before each exam, I will provide an outline of the material to be covered on the exam. You may use 1 standard 3'x5' index card for notes on the exams.

Quizzes and Homework: There will be a quiz (worth ten points) every Friday, unless there is an exam scheduled for that week. The last quiz will be given as a take-home and count as two quizzes. This gives us 12 quizzes total. At the end of the semester, I will drop your two lowest quiz scores, yielding the 100 point total for quizzes.

I will assign homework daily from our text (and occasionally other sources), but not collecting it. Doing mathematics is the easiest way to learn the subject, so I highly recommend completing each assignment and writing out your solution to each problem. As more motivation to complete each homework assignment, the quizzes will consist of problems identical (or nearly identical) to assigned homework problems. Additionally, you may reference your homework write-ups during quizzes.

Final: There will be an **optional** cumulative final exam for this class. Our final will be held on May 15th from 10.10 – 12.10. At the end of this course, you may elect to take your grade before the final. If you decide to take the final, it will replace your lowest exam score. If your grade on the final happens to be lower than your grades on all of the exams, I will not count the final. Thus, taking the final can only help your grade.

Calculators: You will need (or want) a calculator for some parts of this class. If you do not already have one, you will only need a scientific calculator.

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/VP/SA/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.