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M 105.50: Contemporary Mathematics

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Syllabus for MATH 105 Contemporary Mathematics

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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.

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.

Textbook: *Quantitative Literacy, 1st ed.* Crauder. An access code to MathPortal is necessary to participate in this class.

Orientation:

M105 online utilizes MathPortal as an innovative way to do homework and testing with immediate feedback; MathPortal also keeps you on task and using your developing math skills. Every section of the text covered in class has a corresponding assignment in MathPortal. There is also a chapter quiz for each of the chapters covered in class and 3 exams throughout the semester. Note that all of the homework, quizzes and exams are grouped together; however I suggest you go in order (i.e. after completing chapter 1 homework, do the chapter 1 quiz. Similarly, after completing the chapter 2 homework and quiz, you should take exam 1 which covers both chapters 1 and 2).

All assignments and communication will take place inside the MathPortal environment. Once you have registered for MathPortal and completed the orientation, you will be able to access assignments, view course materials, check your grades, and send email messages inside MathPortal. I expect you to use email as your primary means of communicating with me and your classmates.

You must complete the mandatory online orientation. The orientation will cover the registration and operation of the software (MathPortal) so you will need your access code in order to complete the orientation. If you have difficulty using the software, you should consider taking this class in a different format.

This semester I have opted out of having specific due dates for the homework, tests and quizzes. You will notice that everything has a due date of December 15, the last day of finals week. This DOES NOT mean that you should wait until the last moment to work on your assignments. I assure you this is a quick way to place yourself in a less than optimal position to complete the course with any measure of success. You may ask why I have chosen to do this. There are multiple reasons. Part of the beauty of an online course is the fact that it is self-paced and can be studied on your time, not necessarily during typical school time. I also realize that we have lives going on outside of school and things may come up where one has to focus on other matters. While I can give extensions, that seemed to stress many students out, and the idea of stressing over an artificial deadline is senseless (PLEASE note that December 15 is NOT an artificial deadline!!!!). This leads to my last reason which is that I would much rather spend time helping people learn math than sitting at my computer switching due dates!

Suggestions/Advice:

1. It is strongly recommended that you check your campus email biweekly.
2. You should begin each chapter by reading the assigned sections in your text book and watching the corresponding section videos. Some students find it useful to watch the videos first, and then read the text (and maybe watch the videos again).
3. Homework should be done daily. There is no time limit on homework assignments. You can attempt the same question up to 5 times and still receive full credit. Use your notes from the videos as well as your text book when needed. You will receive a 100% grade for homework if all of the questions are answered correctly. Additional online practice homework questions can be found under Chapter Contents in the Study Plan. Homework from the text is for practice purposes and will not be graded.
4. If any questions arise, PLEASE contact me. Your success in this course will depend upon the amount of time and effort you are willing to spend with the material. You should plan to spend at least six hours per week reading your text, reviewing notes, working on homework, completing quizzes, and studying for exams.
5. It is assumed that you are able to use the basic features of your calculator and that you have a working knowledge of all material covered in the prerequisite course. While I understand that some of the material was not mastered by all students in the prerequisite course or that the prerequisite course was taken years ago, it is your responsibility to seek assistance if it is needed. You should start by reading the textbook and its examples. You will find that the material comes back quickly. You are strongly encouraged to ask questions.

Grading: Your course grade will be based on 3 exams(42.86% of your grade), 6 quizzes(28.57% of your grade) and 23 homework assignments(28.57% of your grade). There is no final exam.

*** If you are taking this course as a general education requirement, you must take it for a traditional letter grade (not CR/NCR). A grade of "D-" is considered passing and will earn you credit for the course, BUT it will NOT fulfill your general education requirement and you will have to re-take the class***. A grade of **C or better** is needed to fulfill the math literacy requirement.

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>.

Cheating will not be tolerated! You are expected to personally complete any work that is submitted with your name on it. While I encourage students to discuss homework solutions, you should not discuss particular solutions to questions that will be graded. Instead, find a similar question to discuss or use an example from the textbook or notes. It is never acceptable to copy another person's work or to allow another student to copy your work.

Special Accommodations: Students with disabilities will receive reasonable accommodations in this online course. To request course modifications, please contact me as soon as possible. I will work with you and Disability Services in the accommodation process. For more information, visit the [Disability Services website](#) or call 406.243.2243 (Voice/Text).