Spring 1-2016

M 105.02C: Contemporary Mathematics

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M105 CONTEMPORARY MATHEMATICS
DEPARTMENT OF APPLIED ARTS AND SCIENCES
SPRING 2016 SYLLABUS

Section:
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Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.
~~ H.G. Wells

Textbook: Pirnot: *Mathematics all around;* 5th edition

M105 is a one-semester contemporary mathematics course. This course is designed to illustrate different ways in which mathematics is used in life outside of academia. Besides exploring some topics of general interest which are not often taught in a formal mathematics class, we will also explore a bit of probability and statistics. My belief is that if you really understand how some of these basic concepts make our number system work, you will be able to appreciate not only how useful, but also how beautiful and elegant mathematics can be. Last of all, I hope we will have some fun together.

PLACEMENT in M105 is based on your individual mathematics assessment (ALEKS Level 3), or successful completion of M090 (Introductory Algebra) with a RB- or better, or successful completion of M095 (Intermediate Algebra) with an RC- or better. (The "R" designation indicates that the course is remedial or developmental. All developmental course grades carry the "R" designation.)

Be certain you are enrolled in the proper math class at the beginning of the semester. You may not be able to switch into a more appropriate class after the first week. If you have any concerns about your placement, come see me immediately.

WHY THIS COURSE? Mathematical Literacy is a necessary skill in today's sophisticated world. In choosing the curriculum for this course, we seek three attributes: relevance (engagement with the real world), adaptability (application of familiar ideas to unfamiliar contexts), and flexible understanding (the ability to use educated judgment to solve problems with insufficient or inconsistent information).

This course has been designed for you, the student. Your willing participation is essential if you plan to succeed in this course. If we can have a motivated, friendly, and enthusiastic class, we will be able to try new things and have a good time while we all learn together. This course is not supposed to be either tedious or competitive.

KEY TO SUCCESS: It is impossible to stress strongly enough how important it is for you to be diligent in your study habits. Pay attention and cultivate a positive attitude! No matter how you feel about studying math, personal responsibility and a solid work ethic are great attributes to be able to claim as your own. You are an important part of this class — you can make it lively and interesting or silent and boring. Develop a positive working relationship with your classmates and instructor. If you keep up with the work, the subject makes sense and the challenges are manageable.

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 and/or to understand elementary statistical concepts, such as data description, statistical estimation, randomization, and statistical inference.
4. 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).

COURSE DESCRIPTION: 105 Contemporary Mathematics

Offered every term. Prereq., M 090 (MAT 005) with a grade of B- or better, or M 095 (MAT 100), or ALEKS placement >= 3. An introduction to mathematical ideas and their impact on society. Intended for students wishing to satisfy the general education mathematics requirement. (From https://webprocess.umt.edu/cyberbear/bwckctlg.p_disp_course_detail?cat_term_in=201530&subj_code_in=M&crse_numb_in=105)

GRADE OPTION: M105 must be completed with a C or better to fulfill the University of Montana Math Literacy requirement. Auditing or taking it with the Credit/NoCredit option will not fulfill the requirement.

GRADING POLICIES: Your final grade will be computed as follows:

MyLabsPlus Homework:	250 points (25 @ 10 points each)
In-Class Exams:	700 points (7 @ 100 points each)
Extra Credit:	40 points (maximum)
Total:	990 points

The table below provides the grade breakdown in this course.

A	B	C	D	F
90-100%	80-89%	70-79%	60-69	< 60%

CLASS ATTENDANCE: Attendance contributes to extra credit in calculation of your final grade in M105, and no one can teach you if you are not in class engaged and ready to learn. Turn off your cell phone (and yes, that includes texting). Come to class prepared. Do your homework regularly. You cannot expect to succeed in this course if you miss several classes; **important information may be shared during any class period that may not be posted on MyLabsPlus.**

HOMEWORK: MyLabsPlus is an innovative way for you to do homework with immediate feedback. Every section of the M105 text covered in class has a corresponding assignment in MyLabsPlus. Homework can be retaken as often as you wish until the unit closes. Note that these assignments and chapters are open for specific times and in a specific order. Check the MyLabsPlus calendar frequently to be sure you are keeping current with your assignments. You must keep up with the progression in order to succeed in this course. Late assignments will not be reopened without a compelling reason. There is much more to mathematics than crunching numbers. You can find the MyLabsPlus icon at the top of

http://my.umt.edu/

TESTS: There will be 7 in-class tests over the course of the semester. You are allowed to use a calculator and one 8.5"x11" page of notes (front and back). **You are not permitted to use a cell phone during any test**. The final test will be given during finals week covering the last unit.

REASONABLE ACCOMMODATIONS: Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications. For more information, please consult http://www.umt.edu/disability. Examples of reasonable accommodations include extra time or use of a quiet room for quizzes. To qualify for reasonable accommodations you must provide a letter from DSS. You are responsible for making the necessary arrangements with DSS (for the Mountain Campus) or the Learning Center (for the Missoula College campus). If you have any questions, please contact me.

ACADEMIC CONDUCT: All students must practice academic honesty as defined by the Student Conduct Code, available at http://www.umt.edu/vpsa/policies/student_conduct.php. Academic misconduct is subject to an academic penalty by the instructor and a disciplinary sanction by the university.

PETITION TO DROP: Student election for dropping M105 can occur up to the 30th day of instruction. After the 30th day of instruction, petitions for dropping will be considered only for students who provide written verification of at least one university approved excuse:

1. Error in registration
2. Accident or illness
3. Family emergency
4. Change in work schedule

CALCULATOR: A graphing calculator is **REQUIRED** for all M105 sections offered by the Department of Applied Arts and Sciences. We recommend one using of the Texas Instruments models, TI-83 or TI-84 (regular or plus editions). Calculators with symbolic manipulation capabilities (e. g. TI-89, TI-92) will not be allowed in testing situations.

TUTORING: Math tutoring is available for all UM students. Check for hours at the Learning Center on the Missoula College campus (AD06) and at math@Mansfield on the Mountain Campus.

INCOMPLETES: A grade of incomplete will only be considered when all three of the following are true:

1. The student has been in regular attendance and passing up to three weeks before the end of the academic semester.
2. Factors beyond the student's control make it impossible to complete the course on time.
3. The instructor and the student agree that there is a reasonable probability that the student will be able to make-up the work required to complete the course and specific arrangements are drawn up and signed by both. A student who receives an incomplete has one calendar year to resolve the incomplete (I) before it automatically reverts to a failing grade (F).

M105 SPRING 2016 COURSE OUTLINE:

Jan 25 Intro	Jan 27 §1.1	Jan 29 §1.2
Feb 1 §1.3	Feb 3 §Review	Feb 5 Chapter 1 Test
Feb 8 §4.1	Feb 10 §4.2	Feb 12 §4.3
☺ Feb 15 ☺ Presidents Day – no classes	Feb 17 Review	Feb 19 Chapter 4 Test
Feb 22 §5.1	Feb 24 §5.2	Feb 26 §5.3
Feb 29 Review	Mar 2 Chapter 5 Test	Mar 4 §6.1
Mar 7 §6.2	Mar 9 §6.3	Mar 11 §6.4
Mar 14 §6.5	Mar 16 Review	Mar 18 Chapter 6 Test
Mar 21 §7.1	Mar 23 §7.2	Mar 25 §7.5
Mar 28 §7.5	Mar 30 Review	Apr 1 Chapter 7 Test
☺ Apr 4 – Apr 8 ☺ Spring Break		
Apr 11 §7.6	Apr 13 §7.6	Apr 15 §8.1
Apr 18 §8.2	Apr 20 Review	Apr 22 Chapter 7.6 & 8 Test
Apr 25 §12.1	Apr 27 §13.1	Apr 29 §13.2
May 2 §14.1	May 4 §14.2	May 6 Review
Final Exams May 9 - 13 The final exam for this class is scheduled for _____ in this classroom.		

OTHER INFORMATION:

DSS (Disability Services for Students): EL154, phone # 243-2243

Academic calendar available at http://www.umt.edu/provost/academiccalendar/

Finals schedule available at http://www.umt.edu/registrar/students/finalsweek2/