Section: 02C
Instructor: Blake Miller
Office: GH 7 (aka The Math Shack), The Missoula College East Campus
Office Hours: Thursday, 12:10 – 2:00
E-mail: blake1.miller@umontana.edu

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; 4th edition
Available as an e-book through MyLabsPlus

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.

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.

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 an open-minded and enthusiastic class, we will be able to try new things and have a good time while we all learn together.

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: (from http://www.umt.edu/catalog/cat/cas/math.html)
U 105 Contemporary Mathematics, 3cr offered every term. Prereq., M090 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.
GRADE OPTION: M105 must be completed with a C or better to fulfill the University of Montana Math Literacy requirement. Taking it with the Cr/NCr option will not fulfill the requirement.

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

- MyLabsPlus Homework: 45%
- In-Class Exams: 40%
- Final Exam: 15%

The table below provides the grade breakdown in this course.

<table>
<thead>
<tr>
<th>Grade Breakdown</th>
<th>Grade</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
</tr>
<tr>
<td>B</td>
<td>80-89%</td>
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<tr>
<td>C</td>
<td>70-79%</td>
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<tr>
<td>D</td>
<td>60-69%</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60%</td>
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</table>

CLASS ATTENDANCE: Attendance is not part of your grade in M105, but 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 and come prepared. Do your homework regularly. Don’t fall behind. You cannot expect to succeed in this course if you miss several classes; important information may be shared at any time that may not be posted on MyLabsPlus.

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. If you feel threatened by math, practice some of the techniques used to reduce math anxiety; there are links at the end of the syllabus.

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 up to four times 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.

TESTS: There will be 5 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. The final exam will be given during finals week. The final exam is cumulative and is intended to provide students with an opportunity to demonstrate they have mastered topics they did not have time to master during the regular semester. The final exam will be optional for students who maintain a 90% (or better) overall grade.

When circumstances prevent you from taking a test at the scheduled time, contact me PRIOR to the time of the test to report your absence. Absences are excused only for reasons of illness, injury, family emergency, or a University-sponsored activity. Arrangements for a make-up test must occur within a week of the scheduled exam date. Failure to arrange a make-up test within a week of the scheduled exam date will result in a score of zero for the test.

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 ASC (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://life.umt.edu/vpsa/student_conduct.php. Academic misconduct is subject to an academic penalty by the instructor and a disciplinary sanction by the university.

DROPPING AND ADDING COURSES OR CHANGING SECTIONS, GRADING OR CREDIT STATUS: Students are expected, when selecting and registering for their courses, to make informed choices and to regard those choices as semester long commitments and obligations.

Documented justification is required for dropping courses by petition. Some examples of documented circumstances that may merit approval are:

1. Error in registration
2. Accident or illness
3. Family emergency
4. Other circumstances beyond the student’s control

Relevant deadlines can be found at: http://www.umt.edu/registrar/forms/pdf/ImportantDates201330nv2.pdf

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).

CALCULATOR: A graphing calculator is required for M105; we recommend one using of the Texas Instruments models (TI-83 or TI-84).

TUTORING: Math tutoring is available for all UM students. Check for hours at the ASC on the Missoula College campus (AD 06) and at math@Mansfield on the Mountain Campus: http://www.umt.edu/math/MLC/default.htm.

OTHER INFORMATION:
Academic Support Center (Missoula College): AD06, phone # 243-7826 (need 2 days’ notice for make-up tests)
Math Learning Center (Math Bldg, Main Campus): Basement — used for taking make-up tests
math@Mansfield: Mansfield Library — drop-in tutoring center http://www.umt.edu/math/MLC/default.htm
Academic calendar available at http://www.umt.edu/provost/academiccalendar.html
Finals schedule available at http://www.umt.edu/registrar/students/finalsweek2/Spring.aspx
Some useful websites: http://www.khanacademy.org/
http://www.purplemath.com/
http://algebasics.com/
http://www.mathacademy.com/pr/minitext/anxiety/ Coping with Math Anxiety
http://mtsu32.mtsu.edu:11064/anxiety.html Help for Math Anxiety
# M105 SPRING 2013 COURSE OUTLINE:

<table>
<thead>
<tr>
<th>Date</th>
<th>Section(s)</th>
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<tbody>
<tr>
<td>Jan 28</td>
<td>Intro to M105</td>
</tr>
<tr>
<td>Feb 4</td>
<td>§2.1</td>
</tr>
<tr>
<td>Feb 11</td>
<td>§2.3, 3.5</td>
</tr>
<tr>
<td>Feb 18</td>
<td>Presidents' Day Holiday</td>
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<tr>
<td>Mar 4</td>
<td>Review</td>
</tr>
<tr>
<td>Mar 11</td>
<td>§14.2</td>
</tr>
<tr>
<td>Mar 18</td>
<td>§14.4</td>
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<tr>
<td>Mar 25</td>
<td>§13.3</td>
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<tr>
<td>Mar 30</td>
<td>Review</td>
</tr>
<tr>
<td>Apr 8</td>
<td>§15.3</td>
</tr>
<tr>
<td>Apr 15</td>
<td>§15.5</td>
</tr>
<tr>
<td>Apr 22</td>
<td>§9.1</td>
</tr>
<tr>
<td>Apr 29</td>
<td>§9.3, 9.4</td>
</tr>
<tr>
<td>May 6</td>
<td>Review</td>
</tr>
</tbody>
</table>

## Important Dates and Deadlines

- **Jan 28**: Intro to M105
- **Feb 1**: §1.2, 1.3
- **Feb 4**: §2.2
- **Feb 11**: §2.4
- **Feb 18**: Presidents' Day Holiday
- **Feb 19**: Test 1
- **Feb 25**: §13.3
- **Mar 6**: Test 2
- **Mar 11**: §14.2, 14.3
- **Mar 18**: §14.4
- **Mar 25**: Test 3
- **Apr 1 – Apr 5**: Spring Break
- **Apr 8**: §15.4
- **Apr 15**: Review
- **Apr 22**: §9.2
- **Apr 29**: §9.4, 9.5
- **May 6**: Review
- **May 8**: Test 5
- **May 10**: Review

The final exam for this class is scheduled for 10:10 to 12:10, Friday, May 17th in this classroom.

Important Dates and Deadlines are found at [http://www.umt.edu/registrar/forms/pdf/ImportantDates201330nv2.pdf](http://www.umt.edu/registrar/forms/pdf/ImportantDates201330nv2.pdf)
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1. **Problem Solving: Strategies and Principles**
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   2.2 Comparing Sets
   2.3 Set Operations
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   2.5 Looking Deeper: Infinite Sets

3. **Logic: The Study of What’s True or False or Somewhere in Between**
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    10.2 Polygons
    10.3 Perimeter and Area
    10.4 Volume and Surface Area
    10.5 The Metric System and Dimensional Analysis
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    11.2 The Huntington-Hill Apportionment Principle
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13. **Counting: Just How Many Are There?**
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15. **Descriptive Statistics: What a Data Set Tells Us**
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    15.2 Measures of Central Tendency
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    15.4 The Normal Distribution
    15.5 Looking Deeper: Linear Correlation

**Appendix A Basic Mathematics Review**