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M 115.50C: Probability and Linear Mathematics

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eText: *Finite Mathematics-10th Edition*, Lial, Greenwell, Ritchey

Welcome to Probability and Linear Mathematics.

M115 is really two math courses in one. The first part of the course includes topics describing linear functions and their applications. We will examine phenomena that can be described as linear functions as well as common techniques for solving systems of linear equations. The second half of the course is an introduction to probability; probability provides important foundations for the study of statistics.

Placement in M115 is based on your individual mathematics assessment (ALEKS, ACT, COMPASS, or SAT) or completion of either M090 (Introductory Algebra) with a grade of RB- or better or M095 (Intermediate Algebra) with a grade of RC- or better. (The "R" designation indicates that the course is remedial or developmental.)
Be certain that 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 see me <u>immediately</u>.

This course has been designed for you, the student. Your willing participation is essential if you plan to succeed in this course. You need to do your part by reading the book on your own to the best of your ability. Don't fall behind. You are an important part of this class — in fact, you ARE the class. If you keep up with the homework, you will find the material enjoyable and the challenges are manageable.

Our online classroom environment is based on mutual respect and appreciation. I will respect your efforts and appreciate your contributions, and you should do the same for me and your classmates. Support your classmates' efforts as well as your own and it will make our entire class stronger.

I cannot emphasize enough how important it is for you to be diligent in your study habits. You cannot learn math by wishful thinking alone; you need to put in the effort in order to be able to learn the material. Different students have different learning styles, but every student can improve with effort. Find the technique that works best for you.

COURSE CONTENT:
1. Linear Functions (Slopes and Equations of Lines, Linear Functions and applications, linear vs. exponential functions)
2. Uses of Percentages
3. Systems of Linear Equations and Matrices
4. Linear Programming, The Graphical Method (Graphing Linear Inequalities, Solving Linear Programming Problems Graphically, Applications)
5. Sets and Probabilities (Sets, Applications of Venn Diagrams, Basic Concepts of Probability, Conditional Probability; Independent Events, Bayes' Theorem)
6. Counting principles; Further Probability Topics (The Multiplication Principle, Permutations, Combinations, Probability Applications of Counting Principles, Binomial Probability, Probability Distributions; Expected Value)
7. Statistics (Frequency Distributions; Measures of Central Tendency, Measures of Variation, The normal distribution, Normal Approximation to the Binomial Distribution)

COURSE OBJECTIVES:
Upon successful completion of the course, students will be able to perform each of the following:
1. Master basic concepts of lines, linear systems, matrices and linear programming (graphical method only).
2. Understand basic probability concepts: probability models (Venn diagrams, two-way tables), sample spaces with equally likely outcomes (counting), conditional probability (tree diagrams), Bayes' theorem, binomial probabilities, probability distributions.
3. Understand the rudiments of statistics: measures of center and spread, the normal distribution and the normal approximation to the binomial distribution.

4.   Use the above concepts to solve application problems (this includes learning to precisely formulate a problem and to interpret solutions).

MYLABSPLUS (MLP): All coursework for M115 Online will be done in **MyLabsPlus**. It is important to know that **MyLabsPlus is NOT Moodle**. MyLabsPlus is an innovative way for you to do homework and take quizzes with immediate feedback; MyLabsPlus also keeps you on task and using your developing math skills. Every section of the M115 text covered in class has a corresponding assignment in MyLabsPlus. Homework questions can be submitted up to three times until the assignment closes. *Late homework is subject to a 20% penalty.* Late homework assignments can be submitted up until 5 PM on the last day of regular class meetings.

There is a chapter quiz for each of the chapters covered as well; each quiz can be taken three times and the highest score is the recorded score. Note that these assignments and chapters are open for specific times and in a specific order. Check the MyLabsPlus calendar frequently and be sure you are keeping current with your assignments. You must keep up with the progression in order to succeed in this course. Tests and quizzes will not be reopened without a compelling reason.

To access your MyLabsPlus course shell go to http://my.umt.edu and click the MyLabsPlus icon at the top of the page. Use your NetID/Password to complete the login process.

CALCULATOR: A graphing calculator is required for M115; the Department of Applied Arts and Sciences uses and recommends Texas Instruments models TI-83 or TI-84. Calculators with symbolic manipulation capabilities (e.g., TI-89, TI-92) will not be allowed in testing situations.

CHAPTER TESTS: There are five chapter tests that are taken through MyLabsPlus. Testing serves an important purpose; these tests are intended to give you an opportunity to share what you have learned, not to intimidate you. Graphing calculators are permitted as well as a single page (8½"x11") of notes (both sides) to assist you during tests.

FINAL EXAM: The final exam for this class is a traditional written, comprehensive exam worth 150 points. The final exam will be held at Missoula College during final exams week. The final exam is mandatory. Students unable to attend the final exam at Missoula College will need to make arrangements to have their final exam proctored. More information is available on MyLabsPlus.

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

GRADING POLICIES: The following Table shows the values for each of the MyLabsPlus Components
The final grade for M115 will be computed as follows:

MyLabsPlus quizzes:	120 points (6 @ 20 points each)
MyLabsPlus homework:	96 points (24 @ 4 points each)
MyLabsPlus tests:	500 points (5 @ 100 points each)
Final exam:	150 points
TOTAL	866 points

Letter grades correspond to numerical scores according to this plan:

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

TUTORING: Math tutoring is available for all UM students. Check for hours at the Learning Center at the Missoula College campus (AD 06; 243-7826; two days' notice required for scheduling tests) and at math@Mansfield on the Mountain Campus: http://cas.umt.edu/math/undergraduate/all-students/free-tutoring.php

REASONABLE ACCOMMODATIONS: Students with disabilities may request reasonable modifications. 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/dss/. Examples of reasonable accommodations include extra time or use of a quiet room for tests and/or 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.

EXTRA CREDIT: There is no extra credit available for this course.

PETITION TO DROP: 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

Reasons that are not satisfactory include:
1. Forgetting to turn in a drop slip

2. Protecting a student's grade point average

See Important Dates below for more information.

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).

Important Dates and Deadlines for adding, dropping, or changing from tradition grading to credit/no credit can be found on the Registrar's website at http://www.umt.edu/registrar/