

**Contact Professor:**

- ✓ **Lecturer:** Lauren Fern
- ✓ **Office:** Math 205B
- ✓ **Email:** [fern1@mso.umt.edu](mailto:fern1@mso.umt.edu)

**Catalog Description:**

(<http://www.umt.edu/catalog/colleges-schools-programs/humanities-and-sciences/mathematical-sciences/default.php>.) **M 115 - Probability and Linear Mathematics**

Credits: 3. Offered every term. Prereq. M 090 with a grade of B- or better, or M 095, or M01 placement  $\geq 19$ , or ALEKS placement  $\geq 3$ , or ACT score of 22, or SAT score of 550(with the new test). Systems of linear equations and matrix algebra. Introduction to probability with emphasis on models and probabilistic reasoning. Examples of applications of the material in many fields.

**Learning Outcomes: Upon completion of this course, students will be able to:**

1. Use linear equations, systems of linear equations and linear programming (graphical method only).
2. Use basic probability: sample spaces with equally likely outcomes, counting, conditional probability, Bayes' theorem, binomial probabilities, probability distributions, tree diagrams, Venn diagrams, two-way tables.
3. Use probability distributions: the binomial and normal distributions, and the normal approximation to the binomial distribution.
4. Use descriptive statistics: graphical displays, measures of center and spread.
5. Solve word problems involving the above concepts (this includes being able to precisely formulate a problem, and to interpret solutions).

**General Education Learning Outcomes:**

Upon completion of the mathematical literacy requirement, a student will be able to effectively apply mathematical or statistical reasoning to a variety of applied or theoretical problems.

**Course Content:**

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

**Text:**

*Finite Mathematics-11th Edition*, Lial et al. Access to MyMathLab and a graphing calculator are also required. Online demonstrations will be done with a TI-84. A graphing calculator with symbolic capability, such as a TI-89, TI-92 or anything CAS will not be allowed on tests.

In an effort to help drive down the costs, your faculty member and The Bookstore have worked with the publisher to bring your course materials at a lower cost through the school's Inclusive Access program. The cost of these materials has been charged to your student account. You still have the right to Opt Out and find these materials at the market rate. If you do so, your access will be cancelled and The Bookstore will issue a refund for the fee assessed to your tuition bill. Please keep in mind that you will still need to purchase access to MyMathLab for the online homework component of this class. This all inclusive program will give you access to MyMathLab which provides an e-book as well as supplemental learning programs. There is a print on demand option as well. If you decide you need a printed copy of the textbook, you can go to The Bookstore and request a copy from the textbook department. If you are not in Missoula, you can arrange, through the Bookstore, for this printed copy to be shipped to you. **Please note that our course ID is fern07875**

To register/login to your MML account, please go to the class moodle page.

### **How the Course is Run:**

Online courses require a lot of self-teaching. In order to make this process easier on you, I have recordings of me lecturing each of the sections covered in this class. That way you will get somewhat of an “in-class” experience, watching me explain each topic, as well as working many examples. Another advantage of watching the videos is you can see the types of material I emphasize....this will be especially helpful in chapter 2 as we do not cover all of the material in each of the sections. The videos are available at the following link: [https://www.youtube.com/channel/UC-HFFIg04hlFMqzJmVmBiUQ/videos?view=0&sort=dd&shelf\\_id=0](https://www.youtube.com/channel/UC-HFFIg04hlFMqzJmVmBiUQ/videos?view=0&sort=dd&shelf_id=0)

I would recommend that you start learning each section in the following manner.....first skim through the section in the textbook. Next, watch my videos(s) for that section. Then go and work the homework problems as well as the supplemental problems (when relevant.... these are provided on our class Moodle page). Of course you are always welcome to work additional textbook problems for extra practice. PLEASE note that the supplemental exercises posted on our moodle page are super important to work BEFORE you take the relevant test.

All homework assignments will be completed on MyMathLab. You are allowed 4 attempts per question so this should allow you ample opportunity to complete the assignments successfully. At times the program is rather picky (they may want fractions as opposed to decimals, for example). IF you believe that the program has made an error or you are unsure why your answer is incorrect PLEASE email me and I will get right back to you on what you did wrong (if anything) or how to enter your solutions correctly. I assure you that I am very quick at responding so please do not hesitate to email me.

All exams need to be taken in a proctored environment. The exams are written so as to enable you to get partial credit. I have attached the Proctor Form to our Moodle page and that specifies the proctoring environments that are OK. These include schools and libraries. Essentially, I need to be sure it is *you* that took the test and that you did *not* cheat on it. Proctors, if at all possible, should not be friends or family members; and your proctor MUST have access to a scanner and printer. Once we have the proctor set-up for you, I will scan the tests to the proctor for you to take and they will return it to me for grading (again by scanning and emailing). Please note that I do NOT set a time limit for the tests!

This summer class is a 6 week course. At the end of this syllabus I have included a suggested calendar for you to complete the class. Within this 6 week time frame, you can work through this course at your own pace (as long as everything is completed on or before 6/24). I would suggest you work through this in an organized fashion....once all of the homework is completed for chapter 7, take test 1; next when you have completed all of the homework for chapters 8 and 9, take test 2, etc. See below for the class schedule. PLEASE note that June 24<sup>th</sup> is NOT an artificial deadline and PLEASE do not fall into the procrastination trap. That is the quickest way to place yourself in a less than optimal position to complete the course with any measure of success.

### **Suggestions/Advice:**

1. It is strongly recommended that you check your campus email daily.
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). Please note that the videos can be accessed at the following link: [https://www.youtube.com/channel/UC-HFFIg04hlFMqzJmVmBiUQ/videos?view=0&sort=dd&shelf\\_id=0](https://www.youtube.com/channel/UC-HFFIg04hlFMqzJmVmBiUQ/videos?view=0&sort=dd&shelf_id=0)
3. Coursework should be done daily. There is no time limit on homework assignments. You can attempt the same question up to 4 times and still receive full credit. Use your notes from the videos as well as your textbook when needed.
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 10 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( 70% of your grade) and 18 homework assignments(30% of your grade). There is no final exam.

<i>Grade</i>	<i>Grading Scale by Percentages</i>
A	85%+
B	84-75%
C	74-60%
D	59-50%
F	Less than 50%
CR	≥ 50%

\*\*\* 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 **Friday, 25 May**. Changes after this deadline must be done by Petition 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  
  1. 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 2017-2018 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).

<b>Week</b>	<b>Sections, Tests</b>
5/14 – 5/18	7.1 – 7.4
5/21 – 5/25	7.5 – 7.6, Test 1 (chapter 7)
5/28 – 6/1	8.1 – 8.5
6/4 – 6/8	9.1 – 9.3 Test 2 (chapters 8 and 9)
6/11 – 6/15	1.1 – 1.3, Ch. 2
6/18 – 6/24	3.1- 3.3, Test 3 (Chapters 1–3)