

SYLLABUS: M115 PROBABILITY AND LINEAR MATHEMATICS SUMMER 2018

- **CLASS TIMES & LOCATION:** 9:30am-11:00am, Room 211 Mathematics Building
- **INSTRUCTOR:** Ian Kit Nicolas
- **OFFICE HOURS & LOCATION:** Monday-Thursday at 11:00am-1:00pm in the Math Learning Center (MLC) or by appointment
- **EMAIL:** iankit.nicolas@umontana.edu

CATALOG DESCRIPTION

Credits: 3. Offered every term. Prerequisite M090 with a grade of B- or better, or M095, M01 placement ≥ 19 , or ALEKS placement ≥ 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 material in many fields.

COURSE TEXT & MATERIALS

This course will use material primarily from *Finite Mathematics, 11th Edition* by Lial et. al. An online e-book of the text is available via your MyMathLab account. See the course Moodle page for instructions on how to access MyMathLab. A graphing calculator, such as a **TI-84**, will be required for both exams and homework. However, calculators with any computer algebra system (CAS) or symbolic capability, such as a TI-89, will not be allowed for use on exams.

TENTATIVE SCHEDULE

Week	Lecture Chapters	Homework	Exam
5/21-5/25	7	Assigned: 5/21 Due: 5/24	Given: 5/25 Material from: 5/21-5/23
5/29-6/1	7,8	Assigned: 5/25 Due: 5/31	Given: 6/1 Material from: 5/24/-5/30
6/4-6/8	8,9	Assigned: 6/1 Due: 6/7	Given: 6/8 Material from: 5/31-6/6
6/11-6/15	9,1	Assigned: 6/8 Due: 6/14	Given: 6/15 Material from: 6/7-6-13
6/18-6/22	2,3	Assigned: 6/15 Due: 6/21	Given: 6/22 Material from: 6/14-6/20

Homework solutions will be posted on the course Moodle page after class on Thursdays. As such, **homework should be turned in before you leave class on Thursdays**. Graded homework will be returned on Fridays. Graded exams and exam solutions will be returned and posted on the course Moodle page, respectively, on the Monday following each exam.

GRADING

Exams are 50% of your total grade. Homeworks are 50% of your total grade. There is **no online homework**. Your lowest exam score will be dropped; however, all exams must be attempted. **An exam score of 0 due to an unexcused absence will not be dropped.** Homework submitted after the due date and time will be graded as 0. Your lowest homework grade, including a 0 grade, will be dropped.

There are **no exam or homework makeups** regardless of any reason (e.g. sickness, sports, family emergency, etc.) and **early exams will not be given**. Letter grades will correspond to the following total grade percentages:

Grade	Percentage
A	100% – 90%
B	89.99% – 80%
C	79.99% – 65%
D	64.99% – 55%
F	54.99% – 0%
CR	$\geq 55\%$

An additional "+" or "-" letter grade will be given at the instructor's discretion when deemed appropriate. If you are taking this course as a general education requirement, you must be registered for a traditional letter grade (T). A letter grade of D- is considered passing and it will earn you credit; however, it will not fulfill your general education requirement.

To be eligible for an Incomplete grade (I), the following conditions must be met:

1. The student must have been in regular attendance and passing the course for up to 3 weeks before the semester ends.
2. The student is unable to complete the course due to extenuating circumstances such as serious illness or family emergency.

Note that an Incomplete grade is given at the discretion of the instructor when deemed appropriate. Please review the 2017-2018 catalog for more information.

COURSE CONTENT

- Basic set theory & probability theory: sets, applications of Venn diagrams, basic concepts of probability, conditional probability, independent events, Bayes' theorem.
- Counting principles & further probability topics: the Multiplication Principle, permutations, combinations, probability applications of counting principles, binomial probability, probability distributions, expected Value.
- Statistics: frequency distributions, measures of central tendency, measures of variation, the normal distribution, the binomial distribution, normal approximation to the binomial distribution.
- Linear functions: slopes and equations of lines, linear function applications, linear vs. exponential functions.

- Linear programming & the Graphical Method: graphing linear inequalities, solving linear programming problems graphically, applications of systems of linear inequalities.

LEARNING OUTCOMES

Upon completion of the course, a student will be able to:

- Use linear equations, systems of linear equations and linear programming (graphical method only).
- 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.
- Use probability distributions: the binomial and normal distributions, and the normal approximation to the binomial distribution.
- Use descriptive statistics: graphical displays, measures of center, and spread.
- Solve word problems involving the above concepts (this includes being able to precisely formulate a problem, and to interpret solutions).

SPECIAL ACCOMMODATIONS

Students with disabilities will receive reasonable accommodations in this 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 Disabilities Services website at <https://www.umt.edu/dss> or call/text (406)-243-2243.

ACADEMIC 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. For more information, visit <http://www.umt.edu/vpesa>.

ADD/DROP POLICY

The last day to add/drop a course or to change a course grading option to Audit 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.