

MGF 1106 FINITE MATHEMATICS

This course is designed for students who are not majoring in the sciences or business, and in many cases, will be the only math course they take. It has no prerequisite. Applications should be emphasized in lectures and on tests. Topics include symbolic logic, sets, combinatorics, probability, statistics, and the algebra of linear equations. The textbook is *Finite Math, custom edition for FIU, Pearson Custom Publishing*

Here is a suggested pacing for 27 meetings. Unless otherwise mentioned, every section must be covered **completely**.

1) Chapter 8 on Logic (the last chapter of the book): Sections 8.1 and 8.2

Cover statements and truth tables. Quantifiers are to be omitted.

2) Logic: Sections 8.3, 8.4, and 8.6

In section 8.4, you do not have to cover the negation of the conditional or writing a conditional as an "or" statement. In section 8.5, the only thing you have to cover is the bi-conditional statement. In section 8.6, students should be able to determine the validity of an argument using truth tables. They do not need to memorize common valid argument forms such as the Modens Tollens or common invalid argument forms. With repeated homework practice, those common forms should become automatically memorized automatically anyway without the names.

3) Sets: Sections 9.1 and 9.2

Sets, subsets, set operations, and Venn diagrams. Place emphasis on applications of Venn Diagrams (problems 17-24 of section 9.2)

4) Probability: Section 9.3 and a brief introduction to section 9.4

5) Basic Concepts of Probability: The conclusion of section 9.4

6) Conditional Probability; Independent Events: Section 9.5

7) Test on days 1-5

8) Bayes' Formula and the Multiplication Principle: Section 9.6 and an introduction to sec. 10.1

Despite the name of section 9.6, **don't** ask your students to use Bayes' Formula. Instead, have them draw a tree diagram and then use the formula for $P(E \text{ given } F)$ from section 9.5. Do a couple of examples of this approach and assign a few homework problems from section 9.6.

9) Probability Distributions and Expected Value: Section 10.1

10) The Multiplication Principle, Permutations and Combinations: Section 10.2

11) Applications of Counting: Section 10.3

12) Binomial Probability: Section 10.4

13) Frequency Distributions and Measures of Central Tendency: Section 11.1

You do not have to cover the mean or modal class of grouped distributions.

15) Measures of Variation: Section 11.2

Do **NOT** cover the variance and standard deviation of grouped distributions!

16) Normal Distributions: Section 11.3

Students with an older version of the text may not have the Table of Normal Probabilities in their text. If not, they can print it from www.fiu.edu/~rosentha/MGFII 06/NormalTable.pdf. Make a classroom set of these tables to distribute to your students with test #3 and the final exam.

17) Binomial Distributions: Section 11.4

18) First-Degree Equations: Section 1.6

You do not have to cover problems like exercises 15-26 and 39-48.

19) Graphs and Slope: Section 2.1 and the first half of section 2.2

Cover only linear equations and the application problems at the end of the exercises. Do **NOT cover the parabolas, ellipses, cubic, or square root functions found in section 2.1.**

20) The Equation of a Line and Applications of Linear Equations: The conclusion of section 2.2 and section 2.3

21) Linear Inequalities and Systems of Linear Equations: Section 2.5 and the first half of sec. 6.1. In section 2.5, omit absolute value. Students need only to know how to do exercises 2-26 and 57-62. In section 6.1, cover 2×2 systems only showing both the substitution and elimination (addition) methods.

22) Test on days 13, 15-20

23) Applications of linear systems and Graphing Linear Inequalities in Two Variables: The conclusion of section 6.1 and section 7.1

24) Linear Programming: Section 7.2

25) Applications of Linear Programming: Section 7.3

26) Matrices: You have a choice of any ONE of the following three options:

- a) The Gauss-Jordan method: Section 6.2
- b) Basic Matrix Operations: Sections 6.3 and 6.4 (omit inverses)
- c) Markov Chains: Section 10.5 (this requires a brief bit of matrix multiplication from sec. 6.4)

27) Catch-up or review (or both)

Additional Comments: The **Final Exam** is to be cumulative, although some greater weight can be given to the material not covered on the first three tests. If you wish to have a Math-XL component in your grading scheme, then have it be *at most 20%* of the course grade. Veteran instructors that already have a pacing that works for them do not have to follow the pacing above. The **order** above, with the exception of test placing, **must** be followed. All tests (or quizzes, if you give any) must be **closed book**, and students may **not use notes or formula sheets**. Graphing calculators are **not permitted on tests**. All instructors must cover **all** the material in the course syllabus. If you find yourself ahead of schedule, then it is fine to add material but **never** teach additional topics at the expense of required ones!