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## **MATH 130 - TOPICS IN FINITE MATHEMATICS (4 credits)**

### **Prerequisites**

Two years of high school algebra or MATH 104 or MATH 108.

### **Course Description**

Topics to be chosen from linear equations, graphing, linear programming, sets, Venn diagrams, counting and combinations, probability theory, conditional probability, Bayes' theorem.

### **Course Format**

Each topic will be explained in the classroom, with examples and illustrations. Students are expected to pay attention in class and to participate in classroom activities, such as solving problems in group or presenting them on the board to the other students. After new material has been discussed in class, homework exercises corresponding to this material should be done individually and presented in the next class. Homework corrections are done on the chalkboard by the professor or students, either by volunteering or by request by the teacher.

The level of difficulty and type of exercises that you are asked to solve in exams are the same that you find in the homework from the textbook. Therefore, it is important that you study it and familiarize yourself with it. To encourage daily study of the material, short quizzes covering the homework assignments will be given at the beginning of most classes.

For students having difficulties with the material or falling behind the rhythm of the class, it is crucial to use office hours to recuperate. The teacher is always available for consultation, do not hesitate to approach with a difficulty, small as it may seem.

### **Course Objectives**

1. To fulfill the math requirement that students should take.
2. Introduce and work with linear mathematical models.
3. To understand the usefulness of Linear Programming methods.
4. Study the basics of Financial Mathematics: Interest, Annuities, Loans, etc.
5. Study Combinatorics and a solid introduction to Probability Theory.
6. Prepare students to take STATS 250 "Applied Statistics."
7. To learn the practical applications of the material that is being presented.
8. Learn how to use calculators and computer spreadsheet as aides in the course.

### **Course Evaluation**

There will be a continuous evaluation based on your participation, homework presented, exercises and examinations. See the semester schedule below for more information. The following percentages indicate how the final grade is given:

Homework, quizzes and class participation	15%
Test 1	15%
Test 2	15%
Test 3	15%
Test 4	15%
Final Exam	25%

Each exam covers approximately one fourth of the course material. The final exam covers all course material and its questions are similar to questions in previous exams. In order to earn homework and class participation grade you must come prepared to class by having done the homework and engage during the class, for instance, solving problems on the board and participating actively in the proposed activities. There will be a short quiz weekly with questions similar to homework problems for the day.

### **Attendance, homework, making up for exams**

Students must be punctual for classes. If a student arrives late (5 minutes or more), the professor may refuse entry and mark you absent.

Attendance is mandatory. After two unjustified absences your final grade will be lowered by one half point for each unjustified absence (i.e., from “B” to “B-“). Any unavoidable absences must be suitably justified in writing (e.g. a doctor’s note). If you have flu symptoms, don’t come to school and inform by e-mail. All work missed due to absence must be made up.

Before you enter the classroom, be sure you have solved all your businesses so that you do not have to leave in the middle of the class, which is always an undesirable interruption and, furthermore, it is not allowed. That includes taking care of all your physiological needs, bringing your own calculator, and a Kleenex or similar if you are having a cold and switching off your cellular phone. Thanks for your cooperation!

The homework must be presented in the classroom the day it is due in order to earn credit for it.

There will **not** be make-up exams, although a justified absence in an exam will allow you to recuperate it during the final exam.

### **Required Reading and Supplies**

Raymond A. Barnett, Michael R. Ziegler, Karl E. Byleen. Finite Mathematics for Business, Economics, Life Sciences, and Social Sciences, Pearson, Prentice Hall, 12/E.

A scientific calculator is required. The book and calculator must be brought to every class meeting. Questions about how to use calculators will not be answered during quizzes or exams. Ask them earlier!

### **Course Outline**

1. *Linear Equations and Graphs*
2. *Linear Inequalities and Linear Programming*
3. *Mathematics of Finance*
4. *Sets and Counting*
5. *Probability*
6. *Matrices and Games*