Mathematics Department
University of Wisconsin Oshkosh

General Syllabus for
Math 204 Mathematics for Business Analysis I

Course Description:
This course is designed to acquaint business students with mathematical techniques, which are useful in business and management. Topics include functions, matrix algebra and applications, linear programming, probability, and mathematics of finance.

Prerequisites:
Math 103 or Math 108 with a grade C or above.

Description of Students Who Take the Course:
The course is designed for students planning to major in Business, Economics or related subjects. The course is a prerequisite for Math 206.

General Goals and Objective for the Course:
- Identify the basic graphs and properties of polynomial, rational, exponential, and logarithmic functions. Apply the knowledge of functions to business applications such as simple, compound or continuous compound interest, ordinary annuities, finding the maximum or minimum for quantities which are quadratic functions, and finding break even points.
- Perform basic operations with matrices, and use matrix methods to solve systems of linear equations. Apply the knowledge of matrices to business problems such as inventory, production, and total cost.
- Use geometric method to solve linear programming problems. Interpret information as an objective function with constraints, set up the linear programming problem, solve the problem and interpret the result in the context of the problem.
- Use basic counting techniques and calculate probabilities, including conditional probabilities. Apply the mathematical knowledge of probability to business problems and interpret the results.
- Represent data with graphical and numerical summaries. Calculate probabilities for binomial and normal distributions. Apply the statistical skills to problems in various business settings and interpret the results.

Textbook and Other Required Materials Recently Used:
Finite Mathematics for Business, Economics, Life Sciences and Social Sciences, 11th edition by Raymond A.Barnett, Michael R. Ziegler and Karl E. Byleen

A graphing calculator is required and will be specified by the instructor.

Description of Specific Content:
The course will cover the following topics.

- **Functions:** Linear, quadratic, rational, exponential and logarithmic function. Transformation of functions and graphing.

- **Mathematics of Finance:** Simple and compound interest, future value and present value of annuities, sinking funds, and amortization.

- **Systems of Linear Equations and Matrices:** Solution of systems of linear equations by graphing, substitution, elimination by addition, Gauss-Jordan elimination and use of matrix inverse. The systems of equations considered will have a unique solution, no solution or an infinite number of solutions.

- **Linear Programming:** Systems of linear inequalities in two variables, geometric approach to solving linear programming problems in two variables.

- **Probability and Statistics**: Operations on sets, counting techniques including permutations and combination, basic properties of probability, conditional probability, Bayes formula, random variables and expected values. Graphical description and numerical summaries of data. Binomial distribution and normal distribution.

Variation by instructor:
Although this course has a common content syllabus across sections and course coordination occurs, teaching methodology and evaluation policies may vary. Evaluation may include quizzes, exams, a comprehensive final, and the collection of homework. In addition, instructors of this course may make additional reading and writing assignments.

Students should consult the individual course syllabus for more information.

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