GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF ADMINISTRATIVE STUDIES
COURSE OUTLINE 1983-84

BA 105 - BUSINESS MATHEMATICS AND STATISTICS 3(3-2)

TEXTS: Mathematics of Finance, C.W. McCoomb, Prentice Hall, 1983

Statistics for Management and Economics, 4th Edition, Duxbury Press 1981 (Optional)

PREREQUISITE: Math 20 or Math 33

COURSE DESCRIPTION: Emphasizes a range of mathematical calculations used in business. Introduction to simple interest, compound interest, annuities, amortization, sinking funds, statistical methods and probability theory. Practical applications will be emphasized in the course.

COURSE OBJECTIVES: The course is designed to provide students with an up to date range of mathematical calculations used in business operations. It also introduces the students to statistical analysis.

GRADING:

Mid Term Exam	30%
Final Exam	40%
Assignments	30%

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COURSE CONTENT:

A. Simple Interest and Simple Discount

1. Simple interest
2. Simple discount
3. Promissory notes

B. Compound Interest

1. Fundamental compound interest formula
2. Equivalent rates
3. Discounted value at compound interest
4. Accumulated and discounted value for a fractional period of time
5. Finding the rate and the time
6. Equations of value

C. Ordinary Simple Annuities

1. Definitions
2. Accumulated value of an ordinary simple annuity
3. Discounted value of an ordinary simple annuity
4. Finding the periodic payments
5. Finding the term of an annuity
6. Finding the interest rate
7. Other simple annuities
8. Perpetuities

D. General Annuities

1. Introduction
2. Conversion of ordinary general annuities into ordinary simple annuities
3. Accumulated and discounted value of an ordinary general annuity
4. Finding the periodic payment of an ordinary general annuity
5. Finding the interest rate, the term and the final payment
6. Mortgages in Canada

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E. Amortization and Sinking Funds

1. Amortization of a debt
2. Outstanding principal
3. The amortization method of refinancing a loan
4. The sum of digits method of refinancing a loan
5. Sinking funds

F. Statistics

1. Data, the raw material of statistics
   - internal data, methods of obtaining data
2. Analysis of statistical data
   - variable, ratios
3. Presentation of data
   - tables, graphical presentation, bar charts, times series line graphs
4. Frequency of Distributions
   - variations, frequency distributions, construction of frequency distributions, graphical presentation of frequency, cumulative frequency distributions
5. Characteristics of Frequency Distribution
   - mean, mode, median, range, quartile deviation, mean deviation, standard deviation

G. Probability

1. Counting Techniques
   - permutations, combinations
2. Sample Space and Events
3. Concepts of Probability
4. Properties of Probability
5. Probability of union, interactions and complement of events
6. Additional topics in probability
   - conditional probability, bayes formula, bernoulli trials
7. Expectation
8. Probability Distributions
   - binomial, poisson, normal