

Departmental Syllabus **Math 1730 -- Mathematics of Finance**

Textbook: Mathematics of Finance Workbook, by Clem Jeske

Prerequisites: MATH 15 or MATH 1530, or mathematics proficiency level of 15 or above.

Calculators: Scientific calculator required. (NOTE: On occasion, individual instructors may restrict the use of any type of calculator).

Course Description: Simple and compound interest, annuities, amortization, depreciation, valuation of securities, and bonds.

Topics and sections to be covered:

Simple Interest and Bank Discount

- 1.1 Basic Computations
- 1.2 Computing Time and Interest
- 1.3 Focal Date and Equations of Value
- 1.4 Partial Payments, U.S. Rule and Merchant's Rule
- 1.5 Net Present Value and Internal Rate of Return
- 1.6 Bank Discount

Compound Interest

- 2.1 Basic Computations
- 2.2 Effective Interest Rate
- 2.3 Finding the Rate
- 2.4 Finding the Time
- 2.5 Equations of Value
- 2.6 Partial Periods
- 2.7 Continuously Compounded Interest

Annuities

- 3.1 Basic Computations for Ordinary Annuities
- 3.2 Annuities Due
- 3.3 Forborne and Deferred Annuities
- 3.4 General Annuities

Further Annuity Computations and Home Loans

- 4.1 Further Computations Involving Annuities
- 4.2 Home Loans

Amortization, Sinking Funds, and Perpetuities

5.1 Amortization

5.2 Sinking Funds

5.3 Perpetuities

Bonds

6.1 Valuation of a Bond

6.2 Amortizing the Premium and Accumulating the Discount

6.3 Bond Purchases Between Coupon Dates

6.4 Finding the Yield Rate

Depreciation and Capitalized Cost

7.1 Depreciation

7.2 Cash Flows, Net Present Value, and Internal Rate of Return

7.3 Depletion

7.4 Capitalized Cost

7.5 Composite Life