Departmental Syllabus
Math 1730 -- Mathematics of Finance

Textbook: Mathematics of Finance Workbook, by Clem Jeske

Prerequisites: MATH 10, 12 or 15 with a grade of “C-” or better or mathematics proficiency level of 10 or above.

Calculators: A scientific calculator (such as one of the TI-30 models) or a graphing calculator (such as the TI-83, 84, 85, 86 or the TI-Nspire with TI-84 keypad) is required. A business calculator is not allowed. For a student who does not already own a graphing calculator, it is recommended that a purchase of a graphing calculator be delayed until after the first class meeting, when an instructor will provide specific calculator requirements for that class. Calculators with Computer Algebra Systems (CAS), (e.g. the TI-89, TI-92 and TI-Nspire with CAS keypad, or their equivalent), are not allowed in any math classes. 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.

Student Learning Outcomes: Students should be able to:
- evaluate personal finance scenarios involving simple and compound interest;
- calculate annual depreciation charges; and
- solve annuity problems.

General Education Learning Outcomes: UW-Platteville students shall
1-1 Recognize mathematical patterns to solve problems
1-2 Demonstrate ability to work with numbers, space and data
1-7 Demonstrate skills in problem-solving
1-9 Assess the plausibility of proposed solutions

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

If you require an accommodation due to a disability, please make an appointment to see me as soon as possible to discuss arrangements for the accommodations. You will need a Verified Individualized Services and Accommodations (VISA) form from Services for Students with Disabilities.