ACMA 310-3E
MATHEMATICS OF COMPOUND INTEREST

Fall 2003
EVENING COURSE

Instructor: Ken Collins

Prerequisite:

MATH 152 must precede or be taken concurrently.

Required Text:

The Theory of Interest (Second Edition) by S.G. Kellison, pub: Richard D. Irwin Inc.

References:

- *Mathematics of Compound Interest* by M.V. Butcher & C.J. Nesbitt, pub: Ulrich's
- *Theory of Interest and Life Contingencies with Pension Applications* by M.M. Parmenter, pub: Actex
- *An Introduction to the Mathematics of Finance* by J.J. McCutcheon& W.F. Scott, pub: Institute and Faculty of Actuaries

Calendar Description:

Measurement of interest, present value. Equations of value. Basic annuities: immediate, due, perpetuity. General annuities. Yield rates: cash flow analysis, reinvestment rate, portfolio and investment year methods. Amortization schedules and sinking funds. Bonds and other securities. Applications: real estate mortgages depreciation methods. Interest rate disclosure and regulation in Canada. This course covers the syllabus of course 140 of the Society of Actuaries.

- **Basic Annuities:**
  Immediate, due, perpetuities.
- **General Annuities:**
  Payments at a different frequency than interest is convertible, continuous annuities, varying annuities.
- **Yield Rates:**
  Cash flow analysis, reinvestment rate, portfolio and investment year methods.
- **Amortization Schedules and Sinking Funds:**
  Outstanding loan balance, varying series of payments, continuous payments.
- **Bonds and Other Securities:**
  Types of securities, price of a bond, premium and discount, yield rates, callable bonds, serial bonds.
- **Applications:**
  Real estate mortgage, depreciation methods.

Grading Scheme:

Homework 10%
2 Midterms 40%
Final 50%