# ACMA 310-3
# MATHEMATICS OF COMPOUND INTEREST

**Fall 2004**
**DAY COURSE**

**Instructor: Dr. G. Parker**

**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 part of course 2 of the Society of Actuaries.

**Outline:**

This course is an introduction to the mathematics of compound interest. The topics covered correspond to the interest theory of course 2 of the Society of Actuaries and they include:

- **Measurement of Interest:**
  Simple interest, compound interest, accumulation functions, present value, effective and nominal rates, forces of interest.
- **Equations of value:**
  Basic problem, numerical results, unknown time, unknown rate of interest.
- **Basic Annuities:**
  Immediate, due, perpetuities.
- **General Annuities:**
  Payments at a different frequency than interest is