Students requiring accommodations as a result of disability must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

Instructor: Robin Insley

Prerequisite:
MATH 152. Students with credit for ACMA 310 may not take this course for further credit.

Required Text:
Mathematics of Investment and Credit (5th ed.) by Samuel A. Broverman, Publisher: ACTEX

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
- *The Theory of Interest (2nd ed.) by S.G. Kellison, Publisher: Richard D. Irwin Inc.*
- *An Introduction to the Mathematics of Finance* by J.J. McCutcheon & W.F. Scott, pub: Institute and Faculty of Actuaries
- *Financial Mathematics – A Practical Guide for Actuaries and other Business Professionals (2nd ed.)* by Ruckman and Francis, pub: BPP Professional Education
- *Derivatives Markets (2nd ed)* by Robert L. McDonald, pub: Addison Wesley

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. Covers the interest theory portion of Exam FM of the Society of Actuaries. **Quantitative**

Outline:
This course is an introduction to the mathematics of compound interest. The topics covered correspond to the course of reading of Exam FM 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 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, modern financial instruments
- **Other:**
  Inflation, duration, yield curves, forward rates, spot rates, convexity, immunization.

Grading Scheme:

Assignments-15%
Midterm 1-20% (Tuesday, Oct 16th, 16:30-18:20, Room AQ 3181)
Midterm 2-20% (Tuesday, Nov 20th, 16:30-18:20, Room AQ 3181)
Final Exam-45%
All Grading is subject to change.

Students looking for a Tutor should send an email to stat@sfu.ca with "Tutor Request" in the subject line. Please only include information that you would like forwarded to our tutors mailing list.

Revised June 20, 2012