FINANCIAL MATHEMATICS (25 hours)

1. Theory of interest rates
   - The idea of interest. Simple and compound interest.
   - Present values. Effective and nominal rates of interest. The rate of doscount. Accumulation factors. The force of interest.
   - Present values of cash flows. Interest income.

2. The basic compound interest functions
   - The equation of value and the yield on a transaction.
   - Annuities: present values and accumulations. Deffered annuities. Continuously payable annuities. Increasing and decreasing annuities.
   - Annuities payable pthly.
   - Loan schedules.

3. Discounted cash flows
   - Net cash flows, net present values and yields.
   - Different interest rates for lending and borrowing.
   - The effects of inflation.

4. The valuation of securities – an introduction
   - Stock market securities.
   - Prices and yields. Yield curves. Volatility.
   - The matching of assets and liabilities. Immunization.

5. Simple stohastic interest rate models

Literature:

1. J. J. McCutcheon, W. F. Scott, An Introduction to the Mathematics of Finance, Institute and Faculty of Actuaries
2. Core Reading A1, Subject 102, Institute and Faculty of Actuaries