ACST829 CAPITAL BUDGETING AND FINANCIAL MODELLING

Assumed knowledge: Students are assumed to have completed a unit in corporate finance (e.g. ACCG808 or ACST827) or something equivalent and to be familiar with the excel spreadsheet software package.

Description : The purpose of the unit is to teach students about:
- Established methods for the valuation and appraisal of investment projects
- The new "real options approach" to investment appraisal
- using microsoft excel to build the financial models and perform the calculations for these methods
- introduce students to visual basic / excel macros

The unit critically examines various established methods for the evaluation of investment projects and introduces the "real options approach" to this. The unit also teaches students how to use excel for building financial models and to perform project evaluation.

TOPICS

BASIC FINANCIAL THEORY
- Overview of capital budgeting
- Introductory financial mathematics
- Project analysis under certainty:
- Project analysis under risk: risk and uncertainty, the risk adjusted discount rate and certainty equivalent approaches, cost of capital
- Sensitivity and breakeven analysis, Simulation concepts and methods
- Resource constraints and linear programming

OPTIONS AND REAL OPTIONS ANALYSIS
- Introduction to options: calls and puts, European and American options,
- embedded options
- Flaws in existing methods of project appraisal
- The "real options approach" to project valuation
- Valuation of options using Black Scholes formulae, Monte Carlo Simulation and Binomial Tree methods
- Exotic options formulae relevant to real options and project appraisal (compound options, switching options, chooser options, option on the maximum or minimum of several assets etc)

Excel for financial modelling:
- Introduction to excel / Financial statement modelling / Financial analysis of leasing and leveraged leasing / Estimating beta factors and the security market line
- Excel functions: statistical functions, financial functions, date functions, array and matrix functions / using excel for linear regression / Monte carlo simulation in excel
- Building and using binomial trees for valuation of contingent claims and options

Visual basic for applications (VBA)
- User defined functions
- Conditional execution: using if and select case statements
- Types and loops
- Macros and user interaction
- Arrays: simple, multidimensional and dynamic arrays
- Objects in vba

Assessment Three assignments: 50% Final exam: 50%

Textbooks Capital budgeting: by Dayananda et al (ISBN 0 521 52098 3)
Financial Modelling: by Simon Beninga (ISBN 0 262 02482 9)

For the novice excel user, the book Teach Yourself Visually Excel 2003 by Maran (ISBN 0-7645-3996-5) is a good way to quickly learn the basics of excel assumed for this unit.

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Location and Time

Lecture:	E7B264 Tuesday 9-11
Computer Lab Session	C5C217 and C5C219 Tuesday 11-1

In most weeks we will have some exercises to do in excel during the computer lab session. A large part of what the course is about is to teach you how to set up excel spreadsheets to solve various financial and valuation problems.

Content of the lectures:

This is a new unit, so we have some flexibility about what to cover and when to cover it. Prior to the break we will probably cover most of

Chapters 1-8 of Capital budgeting: by Dayananda
Chapters 1-6, 8 and 27 of Financial Modelling: by Simon Beninga

In week 1 we will cover basic financial maths and using excel to compute present values and future values of single payment cashflows, annuities, and simple examples of bond valuations and loan calculations.

In week 2 we will cover loans and leases, loan repayment schedules, coping with deterministically varying interest rates and periods and how to adapt annuity and other valuation formulae for this complication. We will also cover the excel NPV and IRR functions, excel date functions, and bond valuation using excel.

After that: to be advised