PROJ_MGT 405

Managerial Finance

Course Objective:

This Course provides an introduction to corporate finance, with an emphasis on project valuation. We review important ideas from modern finance theory and develop financial tools needed for valuing investment projects. Topics covered include the time value of money, estimating cash flows, accounting for risk, performing sensitivity analysis, developing appropriate selection criteria, and valuing projects as real options. The objective of the course is to apply basic insights from corporate finance theory to real business decisions.

Where possible, real-world examples are used to link theory with practice with an emphasis on the construction industry.

A major portion of the class effort is devoted to a case study of an actual project financed cogeneration facility. Students work in groups to prepare a presentation on its financial performance, including quantifying the risks it faces under changing circumstances.

The following is a week-by-week description of the course:

Week 1 **Introduction and basics of present value.**

Course overview and objectives are presented as well as housekeeping matters such as the use of Canvas, syllabus and the text. Why financial issues are important to a Project Manager. The time value of money and present value. Related key terms are defined. Use of cash flow diagrams to aid in financial analysis. Rules for choosing the best investment. Useful short cuts.

Chapter 2 of the text; no homework due

Week 2 **Using net present value to rank projects.**

Evaluating investments; using EXCEL financial function included with EXCEL. Alternative methods of ranking projects: the payback period, the discounted payback period, internal rate of return, book rate of return, and profitability index. Using net present value to rank projects; handling inflation; nominal and real interest rates/discount factors; projects with different lives; depreciation and taxes.

Cogeneration group case study assigned.

Chapters 5 and 6 of the text; homework due 2-16,18,34,38

Week 3 **Valuing stocks, bonds and firms.**

Using the Present value formula to value bonds; how bond prices vary with interest rates; determining yield to maturity; how common stocks are valued; estimating the cost of equity capital; stock prices and earnings per share.

Chapters 3 and 4 of the text; homework due 5-8,13,15, 6-18,24,31

Week 4 **Financing and valuation – Weighted average cost of capital and adjusted present value approaches. Project financing in construction.**

Comments on problems 5-13 and 6-18; how EXCEL can yield the wrong answer. Taxes; sources of capital for a project; adjusted present value; and project financing. Determining the cost of debt and equity capital. Impact of taxes on cost of debt; after tax weighted average cost of capital (WACC); working tax related problems.

Chapter 19 and 27 of the text; homework due 3-15,16 4-18

Week 5 **Sensitivity and breakeven analysis.**

The capital investment approval process; Northwestern University's capital budgeting process is presented as an example. Sensitivity analysis; scenario analysis; break even analysis; Monte Carlo simulation, real options and decision trees.

The upcoming midterm is discussed.

Chapter 10 of the text; homework due 19-11,16,19 27-1

Optional review session.

Week 6 **EXCEL Lab Session**

Use of Excel functions and macros.

Midterm second half of class

No homework due.

Week 7 **Decision tree and real option valuation. Financial planning and pro forma projections. Short term and cash financial planning.**

The value of real options to a project and firm; decision trees and real option analysis. Examples are worked thru to explain how to construct and analyze a decision tree.

Financial Statement Review; links between long-term and short-term financing decisions; tracing changes in cash and working capital; cash budgeting; short-term financing plan; long-term financing plan; cash management for contractors.

Types of financial statements and their use/importance. Lowe's financial statements are used as an extensive example: measuring Lowe's performance; measuring efficiency. Analyzing the return on assets; the DuPont System of performance analysis; measuring leverage; measuring liquidity; interpreting financial ratios. The use of pro forma analysis to project future performance and quantify risk.

Links between long-term and short-term financing decisions; tracing changes in cash and working capital; cash budgeting; short-term financing plan; long-term

financing plan; cash management for contractors. Further discussion of the cogeneration case study assignment; definitions used in the case study; details of required deliverables; time allotted for presentations.

The midterm is returned and results discussed.

Chapter 22, 28, and 29 of the text; homework due 10-12,19

Week 8 **Introduction to risk and the capital asset pricing model. Choosing a discount rate.**

Variability of investments; Reducing risk by diversification; Reducing risk via insurance; reducing risk by hedging with financial derivatives; managing project risks.

Relationship between risk and return; the capital asset pricing model; alternative theories. Cost of capital; cost of equity; analyzing project risk. Choosing a discount rate.

Chapter 7, 8, 9 of the text; homework due 28-18,27

Week 9 **In-class case studies**

Homework due 29-10,11,13,21

Week 10 **Presentations of cogeneration project by groups**

No homework due

Week 11 Case study discussion and question/answer sessions. Course wrap-up. Applying knowledge from this class to real-life situations. Linkage/distinction between finance and accounting.

All previous homework collected. Second midterm second half of class

No homework due.

Text: Principles of Corporate Finance by Brealey et.al. 11th Edition.

Grading: Two midterms, 30% each; case study 25%; homework 7%; class participation 8%

Instructors: Joseph J. Jaskulski, PE; Mel Meyer, CPA