

# PROGRAM ON INVESTMENT APPRAISAL AND RISK ANALYSIS

June 27 – July 22, 2011



## WEEK 1, DAY 1

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### MONDAY, JUNE 27

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**9:00 – 10:30**     **Course Commencement**

**10:30 – 10:45**     Break

**10:45 – 12:30**     **Integrated Investment Appraisal**

Introduction to Integrated Financial-Economic-Distributive-Risk Appraisal of Projects

**Readings/  
References:**

- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y., "Chapter 1: The Integrated Analysis", Cost – Benefit Analysis for Investment Decisions, (January 2010)
- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y., "Chapter 2: A Strategy for the Appraisal of Investment Projects", Cost – Benefit Analysis for Investment Decisions, (January 2010).

**12:30 – 13:30**     ***Welcome Lunch with Queen's Economics Department Faculty and Staff***

**13:30 – 15:00**     **Alternative Investment Criteria and Estimation and Use of Debt Service Ratios**

**Readings/  
References:**

- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y., "Chapter 4: Discounting and Alternative Investment Criteria" Cost-Benefit Analysis for Investment Decisions, (January 2010).
- Ley, Eduardo, "Cost-Benefit Analysis: Evaluation Criteria (Or: "Stay away from the IRR")", KNOWLEDGE BRIEF FOR BANK STAFF, PRMED, The World Bank, February 2008.

**15:00 – 15:15**     Break

**15:15 – 16:30**     **Distribution and Analysis of Case 1: Alternative Investment Criteria**

**Readings/  
References:**

- Handout of Alternative Investment Criteria case.
- Teaching Note: "Introduction to Excel and Word Computer Applications", Cambridge Resources International, Cambridge MA, 2003.

**16:30 – 18:00**     **Walking Tour of Queen's University**

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**WEEK 1, DAY 2**

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**TUESDAY, JUNE 28**

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**09:00 – 10:30 Development of Cash (Resource) Flow Statements**

- Readings/  
References:
- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y, "Chapter 3: The Financial Appraisal of Projects," Cost –Benefit Analysis for Investment Decisions, (January 2010).

**10:30 – 10:45** Break

**10:45 – 12:30 Determining Financial and Economic Values of Existing Assets for Cash Flow Statements**

- Readings/  
References:
- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y, "Chapter 3: The Financial Appraisal of Projects," Cost –Benefit Analysis for Investment Decisions, (January 2010).

12:30 – 13:30 Lunch

**13:30 – 15:00 Analysis of Case 1**

15:00 – 15:15 Break

**15:15 – 18:00 Presentation of Case 1**

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**WEEK 1, DAY 3**

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**WEDNESDAY, JUNE 29**

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**09:00 – 10:30 Integration of Movements in Prices, Inflation, and Exchange Rates**

Readings/  
References:

- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y, "Chapter 3: The Financial Appraisal of Projects," Cost –Benefit Analysis for Investment Decisions, (January 2010).
- Harberger, A.C., "Chapter 2: Survey of Literature on Cost-Benefit Analysis for Industrial Project Evaluation," Project Evaluation: Collected Papers, University of Chicago Press, 1976, pp. 42-48.

10:30 – 10:45 Break

**10:45 – 12:30 Integration of Movements in Prices, Inflation, and Exchange Rates (Cont'd)**

**12:30 – 18:00 Distribution and Analysis of Case 2: Financial Analysis of a Cement Project**

Handout of Financial and Sensitivity Analysis of case 2: Cement Project

**WEEK 1, DAY 4**

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**THURSDAY, JUNE 30**

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**9:00 – 10:30     Impacts of Inflation**

- Readings/  
References:
- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y, "Appendix.3.2, Chapter 3: "The Financial Appraisal of Projects", Cost – Benefit Analysis for Investment Decisions, (January 2010)

10:30 – 10:45     Break

**10:45 – 12:30     Financial Modelling from Alternative Points of Views (Manila Water)**

- Readings/  
References:
- Harberger, AC., Jenkins, G., and Kuo, CY., "Chapter 3: The Financial Appraisal of Projects," Cost – Benefit Analysis for Investment Decisions, (January 2010).
  - Teaching note: Manila Water Project, Spreadsheet of Samz Power Project.

12:30 – 13:30     Lunch

**13:30 – 15:00     Analysis of Case 2**

15:00 – 15:15     Break

**15:15 – 18:00     Analysis of Case 2**

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WEEK 1, DAY 5

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FRIDAY, JULY 1

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**9:00 – 10:30      Micro-Economics I for Economic Valuation**

Readings/  
References

- Dhakal, D.N.S., Lecture Notes on "Foundations of Applied Microeconomics for Investment Appraisal," Cambridge Resources International, 2000.
- Jenkins, G.P., and Harberger, A.C., "Chapter 7: Objectives and Framework for Economic Investment Appraisal", Cost-Benefit Analysis for Investment Decisions, Queen's University, 2002.

10:30 – 10:45      Break

**10:45 – 12:30      The Importance of Scale and Timing and Adjusting for length of life in Project Appraisal**

Readings/  
References:

- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y., "Chapter 5: Scale, Timing, Length and Inter-Dependencies in Project Selection", Cost – Benefit Analysis for Investment Decisions, (January 2010).

12:30 – 13:30      Lunch

**13:30 – 18:00      July 1 ( Canada Day) Celebration with JDIEP Faculty**

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## WEEK 1, DAY 6

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### SATURDAY, JULY 2

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**9:00 – 10:30    Micro-Economics II for Economic Valuation**

Readings/  
References:

- Dhakal, D.N.S., Lecture Notes on "Foundations of Applied Microeconomics for Investment Appraisal," Cambridge Resources International, 2000.
- Jenkins, G.P., and Harberger, A.C., "Chapter 7: Objectives and Framework for Economic Investment Appraisal", Cost-Benefit Analysis for Investment Decisions, Queen's University, 2002.

**10:30 – 12:30    Participant Presentations of Case 2**

**12:30 – 18:00    Free Time**

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## WEEK 1, DAY 7

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### SUNDAY, JULY 3

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**Free Time**

**12:00 – 18:00    Thousand Island Boat Cruise (at Lunch Hour)**

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**END OF WEEK ONE**

**WEEK 2, DAY 1**

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**MONDAY, JULY 4**

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**9:00 – 10:30 Principles Underlying the Economic Analysis of Projects**

- Readings/  
References:
- Harberger, A.C., Jenkins, G.P., and Kuo, C.Y., "Chapter 7: Principles Underlying the Economic Analysis of Projects," Cost-Benefit Analysis for Investment Decisions, (January 2010).

10:30 – 10:45 Break

**10:45 – 12:30 Measurement of Costs and Benefits of Transportation Investments**

- Readings/  
References:
- Harberger, A.C., "Chapter 10: Cost-Benefit Analysis of Transportation Projects", Project Evaluation: Collected Papers, University of Chicago Press, 1976.
  - Capital Appraisal Handbook, Road Agency of Limpopo, Cambridge Resources International, MA, USA, 2004.

12:30 – 13:30 Lunch

**13:30 – 15:00 Structure and Overview of M-12 Toll Road Financial Analysis**

- Handout of Financial and Sensitivity Analysis of M-12 Toll Road Project

15:00 – 15:15 Break

**15:15 – 18:00 M-12 Toll Road Financial Analysis: Traffic Demand and Toll Design**

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**WEEK 2, DAY 2**

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**TUESDAY, JULY 5**

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**9:00 – 10:30 Economic Cost of Foreign Exchange**

Readings/

References:

- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y, “Chapter 9: The Shadow Price of Foreign Exchange and Non-Tradable Outlays,” Cost-Benefit Analysis for Investment Decisions, (January 2010).
- Arnold C. Harberger, Notes on the Premia for Foreign Exchange and Non-Tradables Outlays, University of California, Los Angeles, April 2003
- Harberger, A.C., Kuo, C. Y., Jenkins, G.P. and Mphahlele, M.P., “The Economic Cost of Foreign Exchange for South Africa,” The South African Journal of Economics, Vol. 71:2, June 2003, pp. 298-324.

10:30 – 10:45 Break

**10:45 – 12:30 Economic Prices and Conversion Factors for Tradable Goods**

- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y, “Chapter 10: Economic Prices for Tradable Goods and Services,” Cost-Benefit Analysis for Investment Decisions, (January 2010).
- Teaching Note: “Estimation of Economic Prices for Traded Goods and Services,” Queen’s University, Canada, (March 2007).

12:30 – 13:30 Lunch

**13:30 – 15:00 M-12 Toll Road Financial Analysis: Financing Units, Exchange Rates and Toll Design**

15:00 – 15:15 Break

**15:15 – 18:00 Participants Presentation M-12 Toll Road Financial and Sensitivity Analysis**

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**WEEK 2, DAY 3**

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**WEDNESDAY, JULY 6**

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**9:00 – 10:30 Measurement of Economic Prices of Non-Tradable Goods**

- Readings/  
References:
- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y, "Chapter 11: Economic Prices for Non-Tradable Goods and Services," Cost-Benefit Analysis for Investment Decisions, (January 2010).
  - Teaching Note: "Senegal Water and Sanitation Project," Queen's University, Canada, 2006.

10:30 – 10:45 Break

**10:45 – 12:30 Economic Valuation of Willingness to Pay in Non-Competitive Markets**

- Readings/  
References:
- Graves, Philip E. and Sexton, Robert L., "Demand and Supply Curves: Rotations versus Shifts" (March 2003). Atlantic Economic Journal, Volume 34, Number 3, September, 2006.

12:30 – 13:30 Lunch

**13:30 – 15:00 Structure and Overview of M-12 Toll Road Economic Analysis**

- Handout of Economic Analysis of M-12 Toll Road Project.

15:00 – 15:15 Break

**15:15 – 18:00 M-12 Toll Road Economic Analysis**

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**WEEK 2, DAY 4**

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**THURSDAY, JULY 7**

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**9:00 – 10:30 Stakeholder and Basic Needs Analysis**

Readings/  
References:

- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y., “Chapter 13: Evaluation of Stakeholder Impacts,” Cost-Benefit Analysis for Investment Decisions, (January 2010).
- Harberger, AC., Jenkins G.P., and Kuo, C.Y., “Chapter 14: The Shadow Price of Government Funds, Distributional Weights and Basic Needs Externalities”, Cost – Benefit Analysis for Investment Decisions, (January 2010).

10:30 – 10:45 Break

**10:45 – 12:30 Economic Opportunity Cost of Capital**

Readings/  
References:

- Harberger, A.C., Jenkins, G.P. and Kuo, C.Y., “Chapter 8: The Economic Opportunity Cost of Capital,” Cost-Benefit Analysis for Investment Decisions, (January 2010).
- Kuo, C. Y., Jenkins, G.P. and Mphahlele, M.P., “The Economic Opportunity Cost of Capital for South Africa,” The South African Journal of Economics, Vol. 71:3, September 2003, pp. 496-516.

12:30 – 13:30 Lunch

13:00 – 18:00 **M-12 Toll Road Stakeholder Analysis**

**WEEK 2, DAY 5**

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**FRIDAY, JULY 8**

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**9:00 – 10:30 Economic Aspects of Foreign Financing**

Readings/  
References: • Jenkins, G.P, "Economic aspects of foreign financing," Queen's University, Canada. (February 2001)

10:30 – 10:45 Break

**10:45 – 12:30 Evaluation of Economic Values of Environmental Impacts**

12:30 – 13:30 Lunch

**13:30 – 15:00 Structure and Overview of M-12 Toll Road Stakeholder Analysis**  
Handout of Economic Analysis of M-12 Toll Road Project.

15:00 – 15:15 Break

**15:15 – 18:00 REVIEW**

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**WEEK 2, DAY 6**



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**SATURDAY, JULY 9**

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**08:00            Niagara Falls Trip (Whole Day)**

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**WEEK 2, DAY 7**

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**SUNDAY, JULY 10**

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**9:00 – 13:30    Free Time (AM)**

**13:00 – 18:00   Distribution, Selection and Analysis of Major Cases**

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**END OF WEEK TWO**

**WEEK 3, DAY 1**

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**MONDAY, JULY 11**

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**9:00 – 10:30 Economic Opportunity Cost of Labor**

Readings/  
References:

- Harberger, A.C. and Jenkins, G.P., Kuo, C.Y., "Chapter 12: The Economic Opportunity Cost of Labor," Cost-Benefit Analysis for Investment Decisions, (January 2010).
- Bicak, H., Jenkins, G.P., Kuo, C. Y., and Mphahlele, M.P., "An operational guide to the Estimation of The Economic Opportunity Cost of Labour in South Africa," The South African Journal of Economics, Vol. 72:5, December 2004.

10:30 – 10:45 Break

**10:45 – 12:30 Participants Presentation ; M-12 Toll Road Economic and Stakeholder**

Readings/  
References:

- Lecture Notes

12:30 – 13:30 Lunch

**13:30 – 15:00 Preparation of Major Cases**

15:00 – 15:15 Break

**15:15 – 18:00 Preparation of Major Cases**

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**WEEK 3, DAY 2**

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**TUESDAY, JULY 12**

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**9:00 – 10:30      Costs and Benefits of Electricity Investments**

- Readings/  
References:
- Harberger, A.C., "Chapter 9: Marginal Cost Pricing and Social Investment Criteria for Electricity Undertakings," Project Evaluation: Collected Papers, University of Chicago Press, 1976.

10:30 – 10:45      Break

**10:45 – 12:30      Foundations of Risk and Uncertainty**

- Readings/  
References:
- Lecture Notes

12:30 – 13:30      Break

**13:30 – 15:00      Preparation of Major Cases**

15:00 – 15:15      Break

**15:15 – 18:00      Preparation of Major Cases**

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**WEEK 3, DAY 3**

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**WEDNESDAY, JULY 13**

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**9:00 – 10:30 Risk Analysis**

Readings/  
References:

- Harberger, AC., Jenkins, G.P, and Kuo, C.Y., “Chapter 6: Dealing with Uncertainty and Risk in Project Appraisal”, Cost – Benefit Analysis for Investment Decisions, (January 2010)
- Savvides, S., “Risk Analysis in Investment Appraisal”, Project Appraisal, Volume 9, Number 1, March 1994, pp. 3–18.
- Brigham, “Risk Analysis and the Optimal Capital Budget”, Chapter 10, Canadian Financial Management, 3rd ed., Holt, Rinehart and Winston of Canada.

10:30 – 10:45 Break

**10:45 – 12:30 Introduction to Risk Analysis Program Risk Demonstration Case: Internet Service Provider (ISP) Case**

Readings/  
References:

- Mun, J., “Chapter 5: Peering into the Crystal Ball,” Applied Risk Analysis: Moving Beyond Uncertainty in Business, John Wiley & Sons, Inc., 2004, pp. 91-105.

12:30 – 13:30 Lunch

**13:30 – 15:00 Preparation of Major Cases**

15:00 – 15:15 Break

**15:15 – 18:00 Preparation of Major Cases**

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**WEEK 3, DAY 4**

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**THURSDAY, JULY 14**

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**9:00 – 10:30 Risk Management and Principles of Contracting, Risk Sharing and Risk Reduction**

- Readings/  
References:
- Glenday, G., "Risk Sharing Contracts in Project Appraisal," Canadian Journal of Program Evaluation, 1996.
  - Mun, Johnathan, "Chapter 10: The Search for the Optimal Decision," Applied Risk Analysis: Moving Beyond Uncertainty in Business, John Wiley & Sons, Inc., 2004, pp. 237-252.
  - Mun, Johnathan, "Chapter 11: Optimization under Uncertainty," Applied Risk Analysis: Moving Beyond Uncertainty in Business, John Wiley & Sons, Inc., 2004, pp. 253-266.

10:30 – 10:45 Break

**10:45 – 12:30 Cost Effectiveness**

- Readings/  
References:
- Harberger, A.C. and Jenkins, G.P., and Kuo, C. Y., "Chapter 15: Cost-Effectiveness and Cost-Utility Analysis" Cost-Benefit Analysis for Investment Decisions, (January 2010)

12:30 – 13:30 Lunch

**13:30 – 15:00 Preparation of Major Cases**

15:00 – 15:15 Break

**15:15 – 18:00 Preparation of Major Cases**

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**WEEK 3, DAY 5**

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**FRIDAY, JULY 15**

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<b>9:00 – 10:30</b>	<b>Cost Effectiveness Analysis in Health Sector</b> <i>Guest Lecturer</i>
10:30 – 10:45	Break
<b>10:45 – 12:30</b>	<b>Cost Effectiveness Analysis in Health Sector(Cont'd)</b> <i>Guest Lecturer</i>
12:30 – 13:30	Lunch
<b>13:30 – 15:00</b>	<b>Course Review for Participant Evaluations</b>
15:00 – 15:15	Break
<b>15:15 – 17:00</b>	<b>Course Review for Participant Evaluations (Cont'd)</b>

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**WEEK 3, DAY 6**

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**SATURDAY, JULY 16**

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**09:00 – 10:30**    **Participant Evaluations**

10:30 – 10:45    Break

**10:45 – 12:30**    **Preparation of Major Cases**

12:30 – 13:30    Lunch

**13:30 – 18:00**    **Preparation of Major Cases**

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**WEEK 3, DAY 7**

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**SUNDAY, JULY 17**

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Free Time (AM)

**13:30 – 18:00**    **Preparation of Major Cases**

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**END OF WEEK THREE**

**WEEK 4, DAY 1**

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**MONDAY, JULY 18**

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**9:00 – 10:30      Parameterization of Risk**

Readings/  
References:

- Lim, Henry and Jenkins, Glenn, Appendix of "An Integrated Analysis of a Power Purchase Agreement."
- Harberger, A.C., and Jenkins, G.P., (ed.), "Introduction: The Treatment of Risk in Public Project Evaluation," Cost-Benefit Analysis, Edward Elgar Publisher, 2002, pp. xxxviii to xlii.
- Mun, Johnathan, "Chapter 8: Tomorrow's Forecast Today," Applied Risk Analysis: Moving Beyond Uncertainty in Business, John Wiley & Sons, Inc., 2004, pp. 175-183.
- Mun, Johnathan, "Chapter 9: Using the Past to Predict the Future," Applied Risk Analysis: Moving Beyond Uncertainty in Business, John Wiley & Sons, Inc., 2004, pp. 184-234.

10:30 – 10:45      Break

**10:45 – 12:30      Elements of Project Finance**

Readings/  
References:

- Yescombe E. R, "Chapter 2: What is Project Finance," Principles of Project Finance, Academic Press, 2002.
- Finnerty, J.D., "Chapter 1: Introduction," "Chapter 2: The Rational for Project Financing," "Chapter 5: Legal Structure," Project Financing – Asset-Based Financial Engineering, John Wiley & Sons, Weinheim, 1996.

12:30 – 13:30      Lunch

**13:30 – 15:00      Preparation of Major Cases**

15:00 – 15:15      Break

**15:15 – 18:00      Preparation of Major Cases**

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**WEEK 4, DAY 2**

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**TUESDAY, JULY 19**

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**9:00 – 10:30 Project Finance and Identification of Project Risks**

Readings/  
References:

- Beale C. W., Trends in Limited and Non-Recourse Financing, 1984.
- John M. Niehuss, An Introduction to International Project Financing, 1982.
- Finnerty, John D, "Chapter 3: Analysis of Project Viability," Project Financing: Asset Based Financial Engineering, John Wiley & Sons, 1996.

10:30 – 10:45 Break

**10:45 – 12:30 Public Private Partnerships**

Readings/  
References:

- Hemming Richard, "Chapter 1: Public-Public Partnerships," Public-Private Partnerships, Government Guarantees, and Fiscal Risk. International Monetary Fund, Washington DC, 2006.
- Leigland. J, and Shugart., C., "Is the public sector comparator right for developing countries? Appraising public-private projects in infrastructure" Gridlines: World Bank Public-Private Infrastructure Facility (PPIAF), Note No.4, April 2006.
- Bettingnies J. and Ross W., (2004) "The Economics of Public-Private Partnerships", Canadian Public Policy/Analyse de Politiques, Vol. 30, No. 2. (Jun., 2004), pp. 135-154, Canada.

12:30 – 13:30 Lunch

**13:30 – 15:00 Preparation of Major Cases**

15:00 – 15:15 Break

**15:15 – 18:00 Preparation of Major Cases**

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**WEEK 4, DAY 3**

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**WEDNESDAY, JULY 20**

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**9:00 – 10:30 Security Arrangements and Project Contractual Structure**

Readings/  
References:

- Finnerty, John D, "Chapter 4: Security Arrangements," Project Financing: Asset Based Financial Engineering, John Wiley & Sons, 1996.
- Sapte, W., "Chapter 4: Overview of Contractual Structures", Project Finance: The guide to financing build-operate-transfer projects, Euromoney Books, London, 1997.
- Yescombe E. R, "Chapter 6: Project Contracts (1)," Principles of Project Finance, Academic Press, 2002.

10:30 – 10:45 Break

**10:45 – 12:30 Managing Contingent Liabilities**

- H. Polackova (1998), Government Contingent Liabilities: A Hidden Risk to Fiscal Stability, Policy Research Working paper, Poverty Reduction and Economic Management Sector Unit, Europe and Central Asia, The World Bank, pp. 1-8.
- Hemming Richard, "Chapter 2: Government Guarantees and Fiscal Risk," Public-Private Partnerships, Government Guarantees, and Fiscal Risk. International Monetary Fund, Washington DC, 2006.
- Baldwin C., Lessard D. and Mason S. (1983), Budgetary Time Bombs: Controlling Government Loan Guarantees, Canadian Public Policy – Analyse de Politiques, XI:3:338-346, Canada.

12:30 – 13:30 Lunch

**13:30 – 15:00 Preparation of Major Cases**

15:00 – 15:15 Break

**15:15 – 18:00 Preparation of Major Cases**

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**WEEK 4, DAY 4**

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**THURSDAY, JULY 21**

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**9:00 – 10:30**      **Preparation for Presentation of Major Cases**

10:30 – 10:45      Break

**10:45 – 12:30**      **ALL MAJOR CASES DUE**

Submit in hard-copy and electronic form:

- Write-Up (\*.doc)
- Spreadsheet (\*.xls)
- Presentation (\*.ppt)

12:30 – 13:30      Lunch

**13:30 – 15:00**      **Presentations of Major Cases**

15:00 – 15:15      Break

**15:15 – 18:00**      **Presentations of Major Cases**

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**WEEK 4, DAY 5**

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**FRIDAY, JULY 22**

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**9:30 – 10:30**      Prof. Arnold C. Harberger Project Appraisal: A Perspective

10:30 – 11:00      Break

**11:00 – 12:00**      Prof. Arnold C. Harberger Project Appraisal: A Perspective

**12:30 – 15:30**      Closing Ceremony

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**END OF THE PROGRAM**