UNIVERSITY OF TORONTO

Department of Economics | St. George |ECO 404| Topics in Managerial Economics |Spring 2012 | S. Ajaz Hussain

---

Course Description

This is a senior level seminar course on economic analysis of case studies on topics ranging from yield management, forecasting and real options to valuation and applications of dynamic programming. The case studies provide students an opportunity to gain in-depth knowledge about particular industries, companies, practices, and economic models. All students are required to present case studies, engage in Socratic style discussions, and write short papers (details below). As such, this course is an excellent preparation for graduate and law schools or careers in consulting and finance, and an opportunity to hone research, writing, presentation and critical analysis skills.

Each week, a randomly selected group of three to four student will make a presentation on a case (including an overview, analysis, and extensions) while all other students will be partitioned into two groups (by whether the last digit of their ID # is an odd or even number). Of the remaining two group of students, one group of students (say the odd digits) will be cold called and debated with in class while the other group (say the even digits) will follow the discussion/presentation and write a short paper (about 5 pages) on the case (to be submitted within a week). It is expected that every student will make at least two presentations, attend all classes, and actively participate in class discussions/debates or write short papers (as the case may be). There are no exams, tests or quizzes in the course.

Prerequisites

All students *must* meet the following pre-requisites and it is your responsibility to ensure you meet these prerequisites (no exceptions):

- **ECO200Y1** (minimum grade of 75%)/**ECO204Y1**/**ECO206Y1**
- **ECO220Y1**/**ECO227Y1**/(**STA250H1**, **STA255H1**)/(**STA257H1**, **STA261H1**)
- At least one FCE in ECO at the 300 level or higher
- *Highly recommended preparation*: **ECO374H1**/**ECO375H1**

Course Staff

Instructor: Ajaz Hussain
Office Hours: Wednesdays, 4:00 – 5:30 pm in GE 212
Office: GE 212, Economics Department, 150 St. George Street
Phone: +1 (416) 978 – 4965
E-mail: sayed.hussain@utoronto.ca

Teaching Assistant: Jeffrey Chan
E-mail: jeffm.chan@utoronto.ca
Please contact the TA to discuss econometric issues and/or for feedback on the papers

Course Material

You will need:

- Excel with the Developer Tab, Data Analysis (VBA) and Solver tools add-ins (**instructions**)
- A regression analysis software package (such as Stata or Matlab)
- The following cases, notes and supplements available for purchase from Harvard Business School Press. Go to http://cb.hbsp.harvard.edu/cb/access/11790205 → register as a student → pay by credit card → download the following cases and Excel supplements to your computer (all files are in .pdf or .xls format):

  - *Analyzing a Case*
    - A case is a text that refuses to explain itself. How do you construct a meaning for it? This chapter discusses in depth a case situation approach that identifies features of a case that can be helpful to its analysis and encourages active reading.
  - *Container Transportation Company*
    - The regional manager of the Container Transportation Company, and his colleagues were looking for a new strategy to allocate containers for transportation from Korea and China to the Middle East. All the business departments had been challenged by top management to optimize their revenues and profit. The regional manager wondered whether he could improve pricing or apply other revenue management techniques to enhance revenues without negatively affecting customer service.
  - *M2 Universal Communications*
    - Teleco Inc. (Teleco), an established telecom conglomerate with a significant position in the Canadian wireless business, had engaged M2 to plan its digital media spending strategy for the upcoming quarter. The vice-president at M2 would have to help Teleco decide on the ideal investment strategy for its $1.5 million digital media advertising budget and wondered how this would affect M2's strategic recommendations.
  - *Lorex Pharmaceuticals*
    - In this case, the managers of quality assurance must specify a fill-target for individual bottles of a new blood-pressure medicine. Higher targets lead to higher material costs but fewer seconds.
  - *Marriott Rooms Forecasting*
    - The manager of a large downtown hotel has to decide whether to accept 60 additional reservations or not. If she accepts, she will be overbooked and face certain costs if all the people holding reservations show up. The manager must forecast, based on historical data, how many of the people holding reservations will show up and then decide, after taking into account the cost involved, whether to take the additional bookings. The case can be used in a class on seasonality and exponential smoothing in time-series forecasting.
  - *Time Series Forecasting*
    - This technical note introduces (1) approaches to forecasting in general, (2) simple moving averages and exponential smoothing, (3) accounting for seasonality in forecasting, (4) accounting for trend in forecasting, and (5) implementing a forecasting model. Holt and Winter models for exponential smoothing are included.
  - *The Professor Proposes*
    - A professor (not me) is shopping for a diamond engagement ring. He finds one with certain specifications for a certain price, and wishes to determine if the price of the diamond is fair. He collects data on the prices and characteristics (cut, color, clarity, and carats) of several hundred diamonds from three Internet wholesalers. Can be used for linear regression analysis with categorical variables as well as other statistical techniques.
  - *Milk and Money* (with data supplement)
    - The financial success of dairy farms depends critically on the price of their main output, milk. Large volatility in the price of milk poses a considerable business risk to dairy farms. This is particularly true for family-run dairy farms. The question then arises: how can a farm owner hedge the milk price risk? The standard approach to establish a price floor for a commodity such as milk is to purchase put options on commodity futures. At the Chicago Mercantile Exchange, farmers can buy put options on the price of a variety of milk products. However, the price a farm receives for its milk depends on many factors and is unique to the farm. Thus, a farmer cannot directly buy put options on the price he receives for the milk his farm produces. Instead the farmer needs to determine which of the options available for trade at the Chicago Mercantile Exchange offer the best hedge for his own milk price. The assignment in this case is to examine historical data on several prices of milk products and the milk price received by a family-run dairy farm in California. Students need to find the price that is most closely correlated to the farm's milk price and to then choose options with the appropriate strike price that serve as the best hedge for the farm's price risk.
  - *Note on Basic Option Properties*
    - Options are contracts that give the right, but not the obligation, to either buy or sell a specific underlying security for a specified price on or before a specific date. Explains the basis of options, covering fundamentals such as option terminology, the payoff schemes of options, parameters that influence their value, the put-call parity, and the upper and lower bounds of options prices. Presents problems for students to solve.
  - *R&D Race*
    - Two firms are engaged in a race to develop a new process. Various strategic aspects of the race are analyzed.
  - *Race to Develop Human Insulin*
    - Describes the race to develop human insulin.
  - *American Airlines: Revenue Management*
    - Begins with a description of the elements of post-deregulation competition in the commercial airline industry. This should facilitate a discussion of the use of quantitative methods to support a broad range of tactical and strategic airline decisions. The principal thrust of the case is on revenue management. First, there is a description of the principal pricing concepts, followed by two examples of pricing decisions facing American. Next, there is a discussion of the basic yield management concepts and comments on the challenges in their implementation. Finally, there is a brief write-up on the structure and future of the revenue management organization.
  - *NWA, Inc. Northwest Airline Revenue Management*
    - Northwest Airlines is evaluating improvements to its revenue management system. This system executes a program of economic price discrimination under which the airline attempts to control the conditions on its discount fare offerings. Students must evaluate the effect of deregulation on the economics of the airline industry, and weigh the importance of aggressive asset management. They must then evaluate price discrimination as a means for airlines to maximize the profit contribution from the fixed inventory of seats on each flight. A secondary issue for the case (though it is crucial for airlines) is the importance of the proposed technology to Northwest's competitive position in the industry.
  - *Accounting for Frequent Fliers*
    - Airline frequent flier programs offer members the opportunity to earn free flights by accumulating mileage. Accounting and reporting the obligations of airlines and the cost of frequent flier programs raises difficult measurement issues. In 1991, the U.S. Securities and Exchange Commission began to require airlines to disclose the number of free flights program members took. The case allows estimates of the cost and obligations of the United Air Lines program.
  - *Cook Composite and Polymers Co.*
    - This case describes how a company improves resource efficiency and process quality in its manufacturing process by developing a waste by-product into a new product. The case describes how CCP cleans production equipment between batches using styrene, which becomes a costly hazardous waste. Having worked on minimizing waste for the past 20 years, CCP believed it could not reduce the use of styrene without risking product quality. Instead, CCP was exploring the development of a by-product from its "rinse styrene," but faces uncertainty regarding the operational, financial, and environmental implications of doing so. This case contains data to support quantitative analyses of financial, operational, and environmental issues including some basic life-cycle analysis (LCA) calculations that focus on greenhouse gas emissions.

- *Offshore Drilling Industry*
  - After booming in 1997 and early 1998, the offshore drilling industry slumps in late 1998 and early 1999. Lower oil prices lead oil companies to reduce drilling budgets, and rig utilization falls from essentially 100% to 70% in some markets. Day rates--the prices paid for a rig's services--fall by as much as 75%. The case illustrates how supply and demand work together to determine prices and utilization in the short run, as well as how long-run supply is determined in an industry where capacity additions take several years. Also describes the industry's move toward "turnkey" contracts, in which drilling contractors provide a complete bundle of drilling services, and how advances in deep-water drilling technology are changing industry structure.
- *Offshore Drilling Industry in 2011*
  - After booming in 2007 and early 2008, the offshore drilling industry slumps in 2009. Lower oil prices lead oil companies to reduce drilling budgets, and rig utilization falls from essentially 100% to 70% in some markets. Day rates--the prices paid for a rig's services--fall by as much as 68%. The case illustrates how supply and demand work together to determine prices and utilization in the short run, as well as how long-run supply is determined in an industry where capacity additions take several years. Also describes how advances in deep-water drilling technology are changing industry structure.
- *Compass Maritime Services, LLC: Valuing Ships* (with data supplement)
  - Tom Roberts, a founding partner of Compass Maritime Services, a New Jersey-based shipping research and consulting firm, has been asked by a new potential customer in May 2008 for advice on purchasing a capesize bulk carrier. After identifying a suitable ship with his colleague Basil Karatzas, they must determine an appropriate offer price for the ship and justify their recommendations.
- *Ocean Carriers* (with data supplement)
  - In January 2001, Mary Linn, vice president of finance for Ocean Carriers, a shipping company with offices in New York and Hong Kong, was evaluating a proposed lease of a ship for a three-year period, beginning in early 2003. The customer was eager to finalize the contract to meet his own commitments and offered very attractive terms. No ship in Ocean Carrier's current fleet met the customer's requirements. Mary Linn, therefore, had to decide whether Ocean Carriers should immediately commission a new capsize carrier that would be completed two years hence and could be leased to the customer.
- *Valuation of AirThread Connections* (with data supplement)
  - A senior associate in the business development group at American Cable Communications, one of the largest cable companies in the U.S., must prepare a preliminary valuation for acquiring AirThread Connections, a regional cellular provider. The acquisition would give American Cable access to wireless technology and the wireless spectrum and enable the company to offer competitive service bundles including wireless, currently a hole in the company's service offering. Students learn the basic valuation concepts including DCF (discounted cash flow) using APV (adjusted present value) and WACC (weighted average cost of capital) and they must choose the appropriate approach for situations in which the capital structure is changing or assumed to be constant. Students must consider the effect of constant debt versus the D/V (debt-to-value ratio) in estimating betas and the costs of capital. In addition, students analyze the effects of non-operating assets on valuation. As an additional assignment, instructors can require students to consider the personal tax disadvantage of debt as well as the synergies American Cable expects to achieve following the acquisition.
- *Valuation Methods and Discount Rate Issues: a Comprehensive Example*
  - Presents a comprehensive review of the valuation methods based on discounting cash flows or value creation metrics and shows, through simple example and a straightforward "how-to-do" framework, the perfect consistency and identity of their results under similar assumptions.
- *Note on Cash Flow Valuation Methods: Comparison of WACC, FTE, CCF and APV Approaches*
  - This note intends to clarify various discounted cash flow valuations and their usefulness. It examines how different methods analyze cash flow from different perspectives but finally arrive at an identical decision.
- *Using APV: a Better Tool for Valuing Operations*
  - For the past 25 years, managers have been taught that the best practice for valuing assets--that is, an existing business, factory, product line, or market position--is to use a discounted-cash-flow (DCF) methodology. That is still true. But the particular version of DCF that has been accepted as the standard--using the weighted-average cost of capital (WACC)--is now obsolete. Today's better alternative, adjusted present value (APV), is especially versatile and reliable. It will likely replace WACC as the DCF methodology of choice among generalists. Like WACC, APV is used to value operations, or assets-in-place. Timothy Luehrman explains APV and walks readers through a case example designed to teach them how to use it.
- *Bidding for Antamina* (Real Options Monte Carlo simulation here)
  - In June 1996, executives of the multinational mining company RTZ-CRA contemplate bidding to acquire the Antamina copper and zinc mine in Peru. The Antamina project is being offered for sale by auction as part of the privatization of Peru's state mining company. RTZ-CRA has to determine what the mine is worth and decide whether and how it should bid in the upcoming auction. The bidding rules put in place by the Peruvian government dictate that each company's bid contain two components: an up-front cash amount and an amount the bidder will invest to develop the property if development is warranted after further exploration is completed
- *Copper and Zinc Markets – 1996*
  - Provides background information on copper and zinc markets as of mid-1996. Discusses supply and demand conditions, forecasts of the spot prices of the metals, and contracts for future delivery (forwards, futures, and options)

Course Evaluation

- 40% = Two Group Presentations (20% for each presentation)
- 30% = All class discussion, debates and participation combined (see below for penalty on missing class)
- 30% = All short papers combined (see below for penalty on failure to submit papers or late submissions)

Please note:

- Each week a group of three to four students will be randomly selected to present a case the following week (questions for the case will be posted the week before)
  - Once a student has presented he/she won't present the next case until all other students have been made a presentation
  - The presentation *must* be in Power Point, limited to the time frame in the case, and contain a non-trivial overview of the case and in-depth analysis and extensions of case questions. It is expected that the group will have backup slides and Excel/Stata/Matlab models. Please ensure the presentation is professional looking, well organized and free to typos. Please purchase a laser pointer and use it in the presentation.
  - Presentations will be graded on organization, depth and range of analysis, quality of presentation and preparation.
- If you are supposed to present a case: 20% of the total grade will be deducted if you are supposed to present a case and fail to do so
- If you are supposed to discuss/debate a case: 4% of the total grade will deducted for each class session you miss
- If you are supposed to write a short paper on a case: 4% of the total grade will deducted for each failure to submit the paper by the next class and/or for each class session you miss

- A penalty of 1% will be imposed on the total grade for each day that a paper is over due

Academic Integrity

Academic integrity is one of the cornerstones of the University of Toronto. It is critically important both to maintain our community which honors the values of honesty, trust, respect, fairness and responsibility and to protect you, the students within this community, and the value of the degree towards which you are all working so diligently. According to Section B of the University of Toronto's ***Code of Behavior on Academic Matters*** which all students are expected to know and respect, it is an offence for students:

- To obtain unauthorized assistance on any assignment. showing another student completed work (e.g., an answer in a test)
- To falsify or alter any documentation required by the University. This, includes, but is not limited to, doctor's notes.
- To use or possess an unauthorized aid in any test or exam
- There are other offences covered under the **Code** but these are by far the most common. Please respect these rules and the values which they protect.

Course Plan

Case presentation questions will be posted one week in advance

Class 1: January 12

- Pre-class reading: *Analyzing a Case*
- Introduction to Solver
  - Please bring a laptop with Excel and please add-in the Developer Tab, Data Analysis (VBA) and Solver tools beforehand (**instructions**)
- In class case exercises (read these before coming to class)
  - Wired at Maynard
  - Coffee Blending Case

Class 2: January 19

- Presentation # 1: *Container Transportation Company*
  - Group: To be randomly assigned in previous class
  - Discussants: all other students whose ID ends with an odd number
  - 5 page individual paper write up: all other students whose ID ends with an even number
    - Please submit paper in class 3

Class 3: January 26

- Presentation: *Cook Composites and Polymers, Inc.*
  - Group: To be randomly assigned in previous class
  - Discussants: all other students whose ID ends with an even number
  - 5 page individual paper write up: all other students whose ID ends with an odd number
    - Please submit paper in class 4

Class 4: February 2nd

- Presentation: *Marriott Rooms Forecasting*
  - Background reading: *Time Series Forecasting*
  - Group: To be randomly assigned in previous class
  - Discussants: all other students whose ID ends with an odd number
  - 5 page individual paper write up: all other students whose ID ends with an even number
    - Please submit paper in class 5

Class 5: February 9th

- Presentation: *The Professor Proposes*
    - Group: To be randomly assigned in previous class
    - Discussants: all other students whose ID ends with an even number
    - 5 page individual paper write up: all other students whose ID ends with an odd number
        - Please submit paper in class 6

Class 6: February 16th

- Presentation: *Milk and Money* (Data supplement in course pack)
    - Background readings: *Note on Basic Option Properties, Introduction to Trading Dairy Futures and Options*
    - Group: To be randomly assigned in previous class
    - Discussants: all other students whose ID ends with an odd number
    - 5 page individual paper write up: all other students whose ID ends with an even number
        - Please submit paper in class 7

Class 7: March 1st

- Presentation: *Race to Develop Artificial Human Insulin*
    - Background reading: *R&D Race*
    - Group: To be randomly assigned in previous class
    - Discussants: all other students whose ID ends with an even number
    - 5 page individual paper write up: all other students whose ID ends with an odd number
        - Please submit paper in class 8

Class 8: March 8th

- Presentation: *American Airlines Inc. Revenue Management & NWA Inc. Northwest Airlines Revenue Management*
    - Group: To be randomly assigned in previous class
    - Discussants: all other students whose ID ends with an odd number
    - 5 page individual paper write up: all other students whose ID ends with an even number
        - Please submit paper in class 9

Class 9: March 15th

- Presentation: *Accounting for Frequent Fliers*
    - Group: To be randomly assigned in previous class
    - Discussants: all other students whose ID ends with an even number
    - 5 page individual paper write up: all other students whose ID ends with an odd number
        - Please submit paper in class 10

Class 10: March 22nd

- Presentation: *Compass Maritime Services, LLC: Valuing Ships* (Data supplement in course pack)
    - Background reading: *Ocean carriers* (Data supplement in course pack)
    - Group: To be randomly assigned in previous class
    - Discussants: all other students whose ID ends with an odd number
    - 5 page individual paper write up: all other students whose ID ends with an even number
        - Please submit paper in class 11

Class 11: March 29th

- Presentation: *Valuation of Airthread Connections* (Data supplement in course pack)

- Background readings:
  - *Note on Cash Flow Valuation Methods: Comparison of WACC, FTE, CCF and APV Approaches*
  - *Using APV: A Better Tool for Valuing Operations*
  - *Valuation Methods and Discount Rate Issues: A Comprehensive Example*
- Group: To be randomly assigned in previous class
- Discussants: all other students whose ID ends with an even number
- 5 page individual paper write up: all other students whose ID ends with an odd number
  - Please submit paper in class 12

Class 12: April 5th

- Presentation: *Bidding for Antamina* (Real Options Monte Carlo simulation here)
  - Background reading: *Copper and Zinc Markets 1996*
  - Group: To be randomly assigned in previous class
  - Discussants: all other students whose ID ends with an odd number
  - 5 page individual paper write up: all other students whose ID ends with an even number
    - Please submit paper in my office by Thursday, April 12th