



# UNIVERSITY OF TORONTO

Department of Economics (St. George), ECO 404, Topics in Managerial Economics, Fall 2013  
Wednesdays, 11 – 2, in UC 52

## Course Description

ECO 404 is an intensive quantitative case analysis course. Students in ECO 404 analyze, debate, make group presentations, and write individual papers and models on a variety of real-world economic/econometric/business cases (see list of cases below).

## Prerequisites

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

- ECO 200 (minimum grade of 75%)/ ECO 204 / ECO 206
- ECO 220 /ECO 227/STA 250, STA 255/STA 257, STA 261
- At least one FCE in ECO at the 300 level or higher
- *Highly recommended preparation:* ECO 374/ ECO 375

## Course Staff

**Instructor:** Ajaz Hussain

**Office Hours:** By appointment

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## Course Evaluation

■ **30% = Two Group Presentations** (15% for each presentation). Students will be graded on an individual basis.

■ **40% = Two 10-page papers** with Excel/Matlab/R/etc. models combined (20% for each paper/model). There's a 10% penalty for each day that the paper is late.

■ **30% = "Participation": In class case analysis and discussion**

The penalty for missing a class is 10% of the total grade unless the student provides an appropriate and convincing typed explanation and/or medical note within 2 calendar (not business) days of the missed class. If a student misses a class due to an illness then he/she must provide an original University of Toronto medical certificate (photocopies or emailed certificates will NOT be accepted). The note:

§ Must list the physician's OHIP number

§ Clearly state that on the date of the test you were too sick to write the test. Illness *before* the test is *not* sufficient grounds for missing the test nor are statements that you would have performed "sub-optimally".

§ To comply with these requirements, it is expected that you will have met with the doctor on the day of the test.

§ It is an academic offence to feign illness to avoid a test.

§ Notes from acupuncture clinics, chiropractors, "health care professionals", hair transplant clinics, veterinarians, etc. will **not** be accepted.

If the student's explanation for missing class is accepted he/she will be permitted to write a 10-page paper on a case assigned by the instructor; this paper will be due at the beginning of the next class.

## 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

## Course Materials

### ■ HBS Cases:

Please purchase the following cases from the Harvard Business School Press by going to <https://cb.hbsp.harvard.edu/cbmp/access/21156304> and registering as a student. Please download all cases and Excel supplements to your computer (all files are in .pdf or .xls format).

### ■ Excel [Required]

We *highly* recommend using Excel 2010 or later on Windows and do not support Excel add-ins and commands for non-Windows platforms

- Excel Lessons on Youtube: <http://www.youtube.com/user/UTorontoECO204/>
- Please add-in the Developer Tab and Data Analysis (VBA) and Solver tools (instructions).
- Please download and install the Federal Reserve Bank Data Excel add-in from [here](#)
- Having problems downloading Excel files?
  - Solution 1: Don't use Microsoft's Internet Explorer; instead try using another browser such as Firefox.
  - Solution 2: Download the file and change the file extension from .zip to .xlsm. For example if the file name reads model.zip click on the file name once, and change ".zip" to ".xlsm".

## Course Schedule

Students will analyze the case before lectures and participate in a "Socratic style" debate in class. Students should bring a laptop preloaded with Excel/Stata/Matlab/R. At the end of each lecture, a group of four students will be randomly chosen to present a case in the following class. All presentations must be in PowerPoint and accompanied by Excel/Stata/Matlab/R models. After each presentation, four to five students (other than the presenters) will be randomly selected to write a 10 page paper on the case that has been presented in that class (the papers are due at the start of the next class). All students must make two presentations, write two papers and participate in all class discussions. There are no exams, tests or quizzes in the course.

## Class # 1

- **Discuss: Marriott Rooms Forecasting** [with data supplement]
  - 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.

- To be used in conjunction with the note on: **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.

#### Class # 2:

- **Discuss: *Marriott Rooms Forecasting*** [with data supplement]
  - 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.
  - To be used in conjunction with the note on: **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.
- **Presentation: *Marriott Rooms Forecasting***

#### Class # 3:

- **Discuss: *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.
- **Presentation: *Cook Composite and Polymers Co.***

#### Class # 4

- **Discuss: *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.
  - To be used in conjunction with the **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.
- **Presentation: *Milk and Money***

#### Class # 5

- **Discuss: *Bitter Competition: The Holland Sweetener Company vs. NutraSweet Co.***
  - The NutraSweet Co. has very successfully marketed aspartame, a low-calorie, high-intensity sweetener, around the world. NutraSweet's position was protected by patents until 1987 in Europe, Canada, and Japan, and until the end of 1992 in the United States. The case series describes the competition that ensued between NutraSweet and the Holland Sweetener Co. (HSC) following HSC's entry into the aspartame market in 1987. Describes the subsequent move and countermove in both the marketplace and the courts. Also, discusses the business "game" that takes place at both the tactical and value levels. Ends with the final countdown to the expiration of NutraSweet's U.S. patent.
- **Presentation: *Bitter Competition: The Holland Sweetener Company vs. NutraSweet Co.***

#### Class # 6:

- **Discuss: *Race to Develop Human Insulin***
  - Describes the race to develop human insulin.
  - To be used in conjunction with **R&D Race**
    - Two firms are engaged in a race to develop a new process. Various strategic aspects of the race are analyzed.
  - Please review the Bernoulli, Binomial, Geometric, Poisson, and Exponential probability models.
  - Optional
    - [R and D Race Algebra](#)
    - [R and D Race Excel Model](#)
- **Presentation: *Race to Develop Human Insulin***

#### Class # 7:

- **Discuss: *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.
- **Presentation: *Compass Maritime Services, LLC: Valuing Ships***

#### Class # 8:

- **Discuss: *Pedigree vs. Grit: Predicting Mutual Fund Manager Performance*** (with data supplement)
  - An asset management company must replace the manager of its two signature mutual funds, who is about to retire. Two candidates have been short-listed. The management team is divided and cannot decide which of the two candidates would make the better mutual fund manager. The retiring manager presents a linear regression model to examine success factors of mutual fund managers. This linear regression is the starting point for the subsequent analysis.
- **Presentation: *Pedigree vs. Grit: Predicting Mutual Fund Manager Performance***

#### Class # 9:

- **Discuss: *Fueling Sales at EuroPet*** (with data supplement)
  - EuroPet S.A. was a multinational company operating gas stations in many European countries. There was a growing propensity for supermarkets to attach gas stations to their retail operations, which was developing into a major threat to EuroPet. As a result, in the mid-1990s, the company began to develop and brand its own convenience stores co-located with its gas stations. However, the company was spending much more on advertising the convenience stores than its competitors did. Management now had to decide if the increase in sales attributed to advertising efforts justified the advertising spend by analyzing the market data from one large metropolitan area: Marseille, France.
- **Presentation: *Fueling Sales at EuroPet***

**Class # 10:**

- **Discuss: *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
    - In conjunction with the note on ***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)
    - [Optional] [Bidding for Antamina](#) Provides information on Brownian motion methods for forecasting commodities spot, future and forward prices.
- **Presentation: *Bidding for Antamina***

**Class # 11:**

- **Discuss: *Southwest Airlines: In a Different World***
  - This is the fourth in a 35-year series of HBS cases on an organization that has changed the rules of the game globally for an entire industry by offering both differentiated and low-price service. The focus of the case is on whether Southwest Airlines should buy gates and slots to initiate service to New York's LaGuardia airport, which does not fit the airline's profile for cost, ease of service, and other factors. The bigger issue is how the organization should deal with competition that has successfully emulated more and more of what it does in an operating environment that has changed significantly. Hence the subtitle, which was suggested by Herb Kelleher, Southwest's Chairman and CEO, Emeritus.
- **Presentation: *Southwest Airlines: In a Different World***