



**Department of Economics (St. George)**  
**ECO 404: Topics in Managerial Economics**  
**Ajaz Hussain**

**Course Description**

Students will engage in [Socratic method](#) style discussions to analyze and present the following ‘quantitative’ managerial-economics cases:

- The connection between an airline’s cost/passenger/mile and its turnaround times and network structure;
- Managing price erosion at a company;
- Valuing assets in an ‘over-heated market’;
- Hedging against price volatility of a commodity for which no derivatives products currently exist;
- Analyzing the (in)effectiveness of marketing campaigns;
- Attributing mutual fund manager performance to ‘pedigree vs. grit’;
- Accounting frequent flier programs;
- Valuing a Leveraged Buyout (LBO);
- Bidding strategies on a complex auction of a Copper-Zinc mine.

*Highly recommended preparation:* ECO 374/375

**Prerequisites:**

All students *must* meet the pre-requisites listed at <https://fas.calendar.utoronto.ca/course/ECO404H1>: 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. Please note that the Economics Department checks prerequisites requirements manually and will ultimately eject students who do not meet prerequisites (i.e. being able to register for this course on ACORN doesn’t mean that you have satisfied all prerequisites).

Lectures			
Lecture Section	Day	Time	Lecture Location
Section L0101	Wednesdays	5 – 8 pm	TC 24

INSTRUCTOR	
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<b>Course Plan</b>	
<b>Lecture</b>	<b>Agenda</b>
1	Introduction
2	Excel-Stat-tools lesson Two cases chosen at random for discussion next week
3	Each student submits a 2-page memo summarizing the salient issues in the two cases (1 page per case) All students discuss the two cases Four groups chosen at random and assigned one of the two cases to be presented next week
4	The four groups present their assigned case (prior to class, each group must upload the slides and Excel file at "Presentation 1" tabs in ECO 404's Blackboard page). Four students chosen at random to write "paper 1 assignment" (due next lecture through Blackboard) Two cases chosen at random for discussion next week
5	Each student submits a 2-page memo summarizing the salient issues in the two cases (1 page per case) All students discuss the two cases Four groups chosen at random and assigned one of the two cases to be presented next week
6	The four groups present their assigned case (prior to class, each group must upload the slides and Excel file at "Presentation 1" tabs in ECO 404's Blackboard page). Four students chosen at random to write "paper 1 assignment" (due next lecture through Blackboard) Two cases chosen at random for discussion next week
7	Each student submits a 2-page memo summarizing the salient issues in the two cases (1 page per case) All students discuss the two cases Four groups chosen at random and assigned one of the two cases to be presented next week
8	The four groups present their assigned case (prior to class, each group must upload the slides and Excel file at "Presentation 1 (or 2)" tabs in ECO 404's Blackboard page). Four students chosen at random to write "paper 1 (or 2) assignment" (due next lecture through Blackboard) Two cases chosen at random for discussion next week
9	Each student submits a 2-page memo summarizing the salient issues in the two cases (1 page per case) All students discuss the two cases Four groups chosen at random and assigned one of the two cases to be presented next week
10	The four groups present their assigned case (prior to class, each group must upload the slides and Excel file at "Presentation 2" tabs in ECO 404's Blackboard page). Four students chosen at random to write "paper 2 assignment" (due next lecture through Blackboard) Two cases chosen at random for discussion next week
11	Each student submits a 2-page memo summarizing the salient issues in the two cases (1 page per case) All students discuss the two cases Four groups chosen at random and assigned one of the two cases to be presented next week
12	The four groups present their assigned case (prior to class, each group must upload the slides and Excel file at "Presentation 2" tabs in ECO 404's Blackboard page). Four students chosen at random to write "paper 2 assignment" (due one week later through Blackboard)
After the class, the very poor instructor cordially invites students to join him for drinks. Location TBA.	

<b>Course Evaluation</b>			
<b>Please be sure to read the "notes" below</b>			
<b>Component</b>	<b>Weight</b>	<b>"When"</b>	<b>"Where"</b>
Four sessions of in-class discussions (◇)	12%	Except for the first two lectures and the two lectures in which you're making group presentations.	During class

Four 2-page memos (◇◇)	8%	Except for the first two lectures and the two lectures in which you're making group presentations	Submit hard copy to the instructor at the beginning of each class
Group Presentation 1 (◇◇◇)	20%	During the first half of the course	In-class Please upload slides and Excel file at "Group Presentation 1" Tabs in ECO 404 Blackboard
<u>Individual assignment 1:</u> 5-page paper and Excel file (Δ)	10%	During the first half of the course	Please upload paper and Excel file at "Paper 1" Tabs on the ECO 404 Blackboard site.
Group Presentation 2 (◇◇◇)	30%	During the second half of the course	In-class Please upload slides and Excel file at "Group Presentation 2" Tabs in ECO 404 Blackboard
<u>Individual assignment 2:</u> 10-page paper and Excel file (Δ)	20%	During the second half of the course	Please upload paper and Excel file at "Paper 2" Tabs on the ECO 404 Blackboard site.
<b>Notes:</b>			
◇	<p>Except for the first two lectures and the two lectures in which you are presenting, you are expected to read the assigned cases <i>prior</i> to the class. In each of the four "discussion" classes, you will be graded as follows: 0% of course grade = no participation, 1% of course grade = minimal participation; 2% of course grade = active participation; 3% of course grade = very active/valuable participation.</p> <p>Penalty for missing class and therefore not participating in-class discussions: you will get 0 points for in-class discussions unless you provide a <i>valid</i> reason for why you missed class. If you missed the class due to "medical reasons" then, within 72 hours of the start time of the missed class, you must provide a <i>valid</i> reason (by e-mailing the instructor) for why you missed the class. If you missed the class due to "medical reasons" then, within 72 hours of the start time of the missed class, you must provide the instructor with an <a href="#">original University of Toronto medical certificate</a> (no photocopies or emailed notes) stating that you were too ill to <u>attend the ECO 404 class on that date and time</u> (sic). The medical note <i>must</i> list the physician's OHIP number. Please note that "illness before the class" or "the student would have performed sub-optimally" are not acceptable medical reasons. If the instructor is satisfied with your explanation, then you will be permitted to "make up" the missed class by writing a 20-page paper on the two cases discussed during the missed class (10 pages per case).</p>		
◇◇	<p>Except for the first two lectures and the two lectures in which you are presenting, you are expected to read the assigned cases <i>prior</i> to the class and write a 2-page memo summarizing the main issues in the two cases (1 page per case). Submit a hard copy of the memo to the instructor at the beginning of each of the four classes in which you are participating in class discussions. Each memo will get either 0% of the course grade (no memo submitted) or 1% = 1 page memo submitted or 2% = 2-page memo submitted.</p> <p>Penalty for missing class and therefore not submitting the memo: same as the penalty for missing class and therefore not participating in-class discussions.</p>		
◇◇◇	<p>Each student will make two group presentations – one in the first half of the course and the other in the second half of the course. Each student will be assigned to a group at the start of the course and mid-way through the course (i.e. each half of the course has different groups).</p> <p>Group presentations must be at least 20 minutes and at most 30 minutes. There will be a 30 to 45-minute "aggressive Q&amp;A" session after all groups have presented. Prior to the presentations, each group must upload their slides and Excel file (one submission per group) at the "Presentations 1 (or 2) Tabs" on ECO 404's Blackboard. Please name all files as "Group_Name_Presentation_1 (or 2)" and list the names of all</p>		

group members on the title slide/worksheet.

Here is a recommended (loose) template for presentations:

- Introduction and opening remarks (“statement of the central issue(s)”)
- Agenda
- Overview & Background
- [If applicable] Data description with summary stats, graphs, and charts
- Analysis (please list regressions in a single table and report t-stats and/or p-values). Here is an [excellent example](#).
- Recommendations/conclusion
- Backup slides and models (you should be able to bring these up in real time)
- You cannot “go outside” the case; i.e. stick to the facts and data in the case.

Here are two “old” examples of “professional” presentations: [SH&E \(Airline Consulting Firm\) Presentation](#) and [Goldman Sachs presentation to Brown University Corporate Finance 2<sup>nd</sup> year Undergrad students](#).

Penalty for being absent when it’s your turn to present: you will get 0 points on the presentation unless you provide a *valid* reason for why you missed the presentation. If you missed the presentation due to “medical reasons” then, within 72 hours of the start time of the missed presentation, you must provide the instructor with an [original University of Toronto medical certificate](#) (no photocopies or emailed notes) stating that you were too ill to present the ECO 404 case on that date and time (sic). The medical note *must* list the physician’s OHIP number. Please note that “illness before the presentation” or “the student would have performed sub-optimally” are not acceptable medical reasons. Provided that the instructor is satisfied with your explanation, you will be permitted to “make up” the missed presentation by writing a 20-page paper on the case that you were supposed to present *and* meet the instructor for a one-hour oral-exam on that case (80% of the presentation score will be based on the results of the oral test and the remaining 20% will be based on the paper).

Group Presentation Rubric				
	Excellent	Good	Fair	Problematic
Score:	3	2	1	0
Case Analysis: Arguments, Evidence, Understanding	Clearly identifies salient issue[s] in case. Effective and forceful arguments based on solid economic and (if applicable) econometric analysis. Demonstrates sound understanding of issues and economic/econometric concepts. Clear recommendations and/or findings.	Adequate identification of salient issue[s] in case. Somewhat effective arguments based on adequate use of economic and (if applicable) econometric analysis. Demonstrates adequate understanding of issues and economic/econometric concepts. Adequate recommendations and/or findings.	Inadequate identification of salient issue[s] in case. Poor and/or invalid arguments based on sparse use of economic and (if applicable) econometric analysis. Demonstrates inadequate and/or confused understanding of issues and economic/econometric concepts. Inadequate recommendations and/or findings	Misidentifies salient issue[s] in case. Incorrect arguments which are not based on economic and (if applicable) econometric analysis. Demonstrates little to no understanding of issues and economic/econometric concepts. Lacks recommendations and/or findings
Organization & Flow: Clarity, Conciseness, Structure, Flow, Grammar, Interest to Audience	Presentation has excellent structure and flow. Slides are properly formatted and titled, and effectively and succinctly convey information and/or arguments. Data and econometric analysis (if applicable) presented clearly and effectively. Clear, effective tables, graphs, charts, etc.	Presentation has less than stellar structure and flow. Some issues with formatting and titles. Slides inadequately convey information and/or arguments. Inadequate presentation of data and econometric analysis (if applicable). Ineffective use of tables, graphs, charts, etc.	Presentation has poor structure and flow. Major issues with formatting and titles. Slides fail to adequately convey information and/or arguments. Data and econometric analysis (if applicable) shoddily presented. Poorly organized tables, graphs, charts, etc. Backup slides	Presentation lacks structure and flow. Lots of major issues with formatting and titles. Slides do not convey information and/or argument. Data and econometric analysis (if any) poorly or not presented. Poor, ineffective, use of tables, graphs, charts, etc. No

	Excellent backup slides for the Q&A session effectively demonstrating “behind the scenes” analysis. Minimal (if any) errors.	Backup slides inadequate for Q&A session and ineffectively demonstrating “behind the scenes” analysis. A few minor errors.	completely inadequate for Q&A session and for demonstrating “behind the scenes” analysis. Many minor errors.	backup slides for demonstrating “behind the scenes” analysis. Many major errors.
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At the end of each lecture (except for the first two lectures and the two lectures in which a student is making a presentation), four students will be randomly selected to write a 5-page paper in the first half of the course (10-page paper (in the second half of the course) accompanied by an “analysis file” (such as an Excel model) on the one of the cases presented that day. The assignments files are due at the start of the next week’s lecture and must be submitted through the “Assignment 1 (or 2) Tabs” at the ECO 404 Blackboard site. The assignments are “individual assignments” and therefore it is an academic offense to, amongst other factors, take help from anyone else. Here’s a recommended loose template for the paper:

- Introduction and opening remarks (“statement of the central issue(s)”)
- Agenda
- Overview & Background
- [If applicable] Data description with summary stats, graphs, and charts
- Analysis (please list regressions in a single table and report t-stats and/or p-values). Here is an [excellent example](#).
- Recommendations/conclusion
- Highly recommended “style guides”: [Economist Magazine Style Guide](#) and [The Elements of Style](#)

Penalty for late submissions: 50% of the assignment score per calendar day that the assignment is late. Students will be graded on an individual basis according to the following rubric:

Paper Rubric				
	Excellent	Good	Fair	Problematic
Score:	3	2	1	0
Economic Argument, Concepts & Evidence	Clearly stated argument & concepts. Economic reasoning is sound and indicates thorough understanding of concepts discussed in class.	Fairly clear and convincing argument. Adequate use of economic concepts. Demonstrates understanding of topics discussed in class.	Argument is confusing or contradictory. Weak definition/application of economic concepts. Demonstrates some understanding of topics discussed in class.	No clear argument. Confused or no use of economic concepts. Poor quality and little if any displayed evidence of understanding of topics discussed in class.
Organization & Flow	Each main point is written in a separate paragraph, in a logical order. Article closes with a clear and convincing call to action.	Each reason is written in paragraphs, but not necessarily separate. Closing gives a fairly clear and convincing call to action.	Reasons are not written in distinct paragraphs. Closing gives a call to action, although not well supported.	Reasons are not written in good paragraphs and have questionable order. No clear or convincing call to action at close.
Writing – Clarity, Conciseness, Sentence Structure, Grammar, Active Voice, interest to Reader	Easy to read, even for a non-specialist. Writing enhances understanding and interest. Short, clear, correctly structured sentences with active voice throughout. Minimal (if any) errors.	Mostly easy to read. Mostly short, clear, correctly structured sentences with active voice. A few minor errors.	Sentence/word level problems get in the way of understanding, distracting reader in places. Some passive voice and/or jargon.	Significant sentence/word level problems make it difficult for reader to understand argument. Considerable passive voice and/or jargon.

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<b>Required Course Materials</b>
<b>ECO 404 HBS Case Pack</b>
Available for purchase at <a href="http://cb.hbsp.harvard.edu/cbmp/access/69007322">http://cb.hbsp.harvard.edu/cbmp/access/69007322</a> . Please register as a student, pay by credit card, and download all files to your computer.
<b>Excel</b>
Excel 2007 (or later versions) running on PCs (not Apples) with Windows operating systems Please install “Solver add-in”, “Data Analysis add-in”, “ <a href="#">FRED Excel Add-in</a> ”, “ <a href="#">Monte-Carlo Simulations Add-in</a> ” Ajaz’s Excel Lessons on <a href="#">YouTube</a> (apologies for less than stellar quality and the soporific tone).
<b>Stat tools (incompatible with Apple machines)</b>
Available for \$50 at <a href="http://www.palisade.com/">http://www.palisade.com/</a>
<b>Notes</b>
<a href="#">Ajaz’s Note on the Tupelo Model.</a> <a href="#">Ajaz’s Note on Omitted Variable Bias.</a> <a href="#">Ajaz’s Note on Brownian Motion</a> <a href="#">Real Options Monte Carlo simulation Excel model for Antamina Case</a>

### **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 offense 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; to continue writing the exam after being instructed to stop writing. There are other offenses covered under the [Code](#) but these are by far the most common. Please respect these rules and the values which they protect.

### **Cases**

#### **Southwest Airlines: In a Different World**

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

#### **Milk and Money and Note on Basic Option Properties (Data set in the course packet)**

*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.

*Milk and Money:*

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. Data supplement in case packet.

### **Compass Maritime Services, LLC: Valuing Ships (Data set in the course packet)**

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. Data supplement in case packet.

### **Tupelo Medical: Managing Price Erosion (Data set in the course packet)**

Robert Davidson, pricing manager for Tupelo Medical, was concerned about the variability in price paid for its top-selling product, the Micron 8 Series blood pressure monitoring system. Using historical transaction data, Davidson must determine the appropriate price floor. Setting a price too high risked the loss of a large number of customers, putting the company at substantial risk due to the importance of the product. Setting a price too low would impact Davidson's ability to meet the stated objective of increasing margins by 3 percent. He wondered what the optimal price floor would be and what the expected profits would be for that new price floor. Additionally, the company's business varied considerably by geographic region, account size and account type. As a result, he needed to consider whether it made sense to set a single price floor or whether he could improve profits by allowing some variability in the price floor by customer segment. Data supplement in case packet. Review the note: [Tupelo Model](#).

### **Fueling Sales at EuroPet (Data set in the course packet)**

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. Review: [Ajaz's Note on Omitted Variable Bias](#).

### **Pedigree vs. Grit: Predicting Mutual Fund Manager Performance (Data set in the course packet)**

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. Review: [Ajaz's Note on Omitted Variable Bias](#). Optional: [Hedge Funds Performance and Personalities](#).

### **Bidding for Antamina, Real Options Monte Carlo Simulation Properties (Data set in the course packet)**

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. See: [Real Options Monte Carlo simulation Excel model](#) and [Ajaz's Note on Brownian Motion](#). Optional readings: [Introduction to Convenience Yields](#), [Stochastic Convenience Yields and Pricing of Oil Contingent Claims](#). Brennan and Schwarz, "Evaluating Natural Resource Investments", [Energy Price Processes](#), [Asset Pricing and Commodities](#).

## **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.

## **Using APV for Better Decisions and Valuation of Airthread Connections Properties (Data set in the course packet)**

*Using APV for Better Decisions:* 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.

*Valuation of Airthread Connections:* 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.