



## Department of Economics Course Outline

		<b>Term:</b>	Fall 2009
<b>Course:</b>	Economics 323 [Natural Gas Markets]	<b>Section:</b>	01
<b>Time:</b>	TR 09:30 – 10:45	<b>Place:</b>	ES 443 (subject to change)
<b>Instructor:</b>	R. C. Schlenker		
<b>Office:</b>	SS 1050	<b>Telephone</b>	220-4096
<b>Office Hours:</b>	TR 08:30-09:15	<b>E-Mail:</b>	<a href="mailto:rschlenk@ucalgary.ca">rschlenk@ucalgary.ca</a>

**Textbook(s):** [Required] Class Handout – This can be purchased in the department office (SS454) at the start of the term.

### Book(s) on Reserve:

Arlon Tussing & Bob Tipee (eds.) *The Natural Gas Industry: Evolution, Structure, Economics*, Pennwell Books, 1995, 2<sup>nd</sup> edition.

Arthur DeVany and W. David Walls, *The Emerging New Order on Natural Gas: Markets versus Regulation*, Quorum Books, 1995.

Canadian Energy Research Institute (CERI) – *Natural Gas in Canada and the United States from Wellhead to Burner Tip*, January 2004.

Mansell, R. and J. Church, *Traditional and Incentive Regulations: Applications to Natural Gas Pipelines in Canada*, Van Horne Institute – 1995.

### Course Objective:

The main objective of this course is to provide the student with an understanding of the economics of natural gas markets. The course will cover the chain of activities that bring natural gas from an undiscovered resource to a commodity available for sale, providing both historical context and economic analysis of each activity. The incentives and economic decisions behind gas finding and production, pipeline transportation and storage, and distribution and consumption will be explored. Students will also gain an understanding of regulations that have influenced the development of the natural gas market.

**Course Outline****Readings:**

- |   |   |
|---|---|
| 1. Introduction and Overview of Gas Market            | Class Handout Part A                        |
| 2. Exploration, Development and Operations            | Class Handout Part B, CERI Chapter 1        |
| 3. Transportation                                     | Mansell and Church (Ch.1-2), CERI Chapter 2 |
| 4. Regulation and Deregulation                        | CERI Chapter 4                              |
| 5. Consumption  | CERI Chapter 3                              |
| 6. Production   | Class Handout Parts C                       |
| 7. Pricing  | CERI Chapter 4, Class Handout Part D        |
| 8. Processing, Natural Gas Liquids and Petrochemicals | Class Handout Part E                        |

**Websites**

The following institutional websites provide significant amounts of information with respect to the natural gas industry:

Alberta Energy Resources Conservation Board (ERCB) – [www.ercb.ca](http://www.ercb.ca)  
 Alberta Department of Energy (ADOE) – [www.energy.gov.ab.ca](http://www.energy.gov.ab.ca)  
 British Petroleum (BP) - <http://www.bp.com>  
 Canadian Association of Petroleum Producers (CAPP) – [www.capp.ca](http://www.capp.ca)  
 International Energy Agency (IEA) – [www.iea.org](http://www.iea.org)  
 National Energy Board (NEB) – [www.neb.gc.ca](http://www.neb.gc.ca)  
 Organization of Petroleum Exporting Countries (OPEC) – [www.opec.org](http://www.opec.org)  
 US Department of Energy/Energy Information Administration (DOE/EIA) – [www.eia.doe.gov](http://www.eia.doe.gov)

In addition, the following specific resources from the previous websites will be referred to during the course (in some cases frequently):

Alberta Energy Resources Conservation Board (ERCB) - Alberta's Energy Reserves and Supply Demand Outlook – <http://www.ercb.ca/docs/products/STs/st98-2009.pdf>

British Petroleum (BP) – Statistical Review of World Energy - <http://www.bp.com/productlanding.do?categoryId=6848&contentId=7033471>

National Energy Board (NEB) – Canadian Energy Overview – <http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyvrvw/cndnnrgyvrvw2008/cndnnrgyvrvw2008-eng.pdf>

National Energy Board (NEB) – Canada's Energy Future: Reference Case and Scenarios to 2030 + 2009 Reference Case Scenario – Canadian Energy Supply and Demand to 2020  
<http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyftr/2007/nrgyftr2007-eng.pdf>

<http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyftr/2009/rfnccsscnr2009-eng.pdf>

National Energy Board (NEB) – Short Term Canadian Natural Gas Deliverability – <http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/ntrlgs/ntrlgsdlvrblty20082010/ntrlgsdlvrblty20082010-eng.pdf>

US Department of Energy/Energy Information Administration (DOE/EIA) – Annual Energy Outlook (AEO) - <http://www.eia.doe.gov/oiaf/aeo/index.html>

### Grade Determination and Final Examination Details:

Assignment	10% - Due date: November 26
Midterm Examination	40% - October 22
Final Examination	50% - December 11-21

Tests and final exams are marked on a numerical (percentage) basis. The numerical grade in the course is then calculated using the weights indicated above. As a guide to determining standing, these letter grade equivalences will generally apply:

A+	98 - 100	B	75 - 79	C-	60 - 62
A	90 - 97	B-	70 - 74	D+	55 - 59
A-	85 - 89	C+	67 - 69	D	50 - 54
B+	80 - 84	C	63 - 66	F	0 - 49

A non-programmable, non-graphing, non-alphanumeric calculator may be allowed during the writing of tests or final examinations.

There will be a Registrar scheduled final examination, lasting 2 hours and held in a classroom.

Although unlikely, exams may contain multiple choice questions.

### Notes:

- Students seeking reappraisal of a piece of graded term work (term paper, essay, etc.) should discuss their work with the Instructor *within fifteen days* of the work being returned to the class.
- Late assignments will not be accepted under any circumstances.
- Make-up midterm examinations will not be given under any circumstances. With appropriate documentation, the weight of the midterm will be moved to the final exam. Deferred examinations will not be given *except in cases of extreme personal emergencies*. Also, examinations will not be given *before* the indicated dates.
- Students' exams and assignments will be returned during regular class time.
- Please note that the following types of emails will receive no response: emails not addressed to anyone in particular; emails where the recipient's name is not spelled correctly; anonymous emails; emails in which the sender has not identified which course and section he/she is taking; and, emails involving questions that are specifically addressed on the course outline.

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Society of Undergraduates in Economics (S.U.E.)

[www.ucalgary.ca/sue/](http://www.ucalgary.ca/sue/)

Safewalk / Campus Security: 220-5333

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2009-05-22