



Department of Economics Course Outline

		Term:	Fall 2006
Course:	Economics 527 [World Oil Economics]	Section:	01
Time:	MWF 0800 ? 0850	Place:	SA 121 (subject to change)
Instructor:	Dr. W. D. Walls		
Office:	SS 448	Telephone:	220-6761
Office Hours:	MW 0900-1000 or by appointment	E-Mail:	wdwalls@ucalgary.ca

Textbook(s):

Folder of readings available for purchase from Economics Department Office

Book(s) on Reserve:

1. Adelman, M.A. "The Genie out of the Bottle: World Oil Since 1970, MIT Press, 1995.
2. Adelman, M.A. "The Economics of Petroleum Supply, MIT Press, 1993.
3. Tertzakian, Peter, "A Thousand Barrels a Second: The Coming Oil Break Point and the Challenges Facing an Energy Dependent World", McGraw-Hill, 2006.
4. Frank, H.J. (ed.), "The World Petroleum Market: Past & Future", International Association of Energy Economists, 1993.
5. Simmons, Matthew R., "Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy", Wiley, 2003.
6. Yergin, Daniel, "The prize: The Epic Quest for Oil, Money & Power", Free Press, 1992.
7. Sampson, Anthony, "The Seven Sisters: The Great Oil Companies and the World They Made", Viking Press, 1975.

8. Ballonoff, Paul, "Energy: Ending the Never-Ending Crisis", Cato Institute, 2005.
9. Stevens, Paul (ed.) "The Economics of Energy, volumes I and II", Edward Elgar, 2000
10. Adelman, M.A., "The World Petroleum Market", Johns Hopkins Univ. Press, 1973.
11. Watkins, G. Campbell, "Petro makets: Probing the economics of continental energy", Fraser Inst. 1989.
12. Hannesson, Rognvaldur, "Petroleum Economics: Issues and Strategies of Oil and Natural Gas production", Quorum Books, 1998.
13. Wang, Henry, "China?s Oil Industry and Market", Elsevier, 1999.
14. Feldman, David L. (ed.), "The Energy Crisis: Unresolved Issues and Enduring Legacies", Johns Hopkins Univ. Pres 1996.
15. PBS Video, "The Prize" (4 PK, VHS, Video), June 2000, ASIN: 6302606640

Other Reference Materials:

The US Department of Energy, Energy Information Administration (EIA) is an excellent source of current information on world oil markets. Students should be familiar with its website (www.eia.doe.gov). Of particular interest for this course are several of the EIA?s ongoing information publications including the OPEC Brief (www.eia.doe.gov/emeu/cabs/opec.html), OPEC Revenues Fact Sheet (www.eia.doe.gov/emeu/plugs/plopec.html), Non-OPEC Fact Sheet (www.eia.doe.gov/emeu/cabs/nonopec.html), and Chronology of World Oil Market Events (www.eia.doe.gov/cabs/chron)

Students should be aware of a number of journals which include up-to-date material on the petroleum industry. Examples are:

For Canada: Oilweek, Daily Oil Bulletin.

For USA: Oil and Gas Journal, Energy Users Bulletin

For International Industry: Petrolelum Economist, Petroleum Intelligence Weekly, Middle East Economic Survey, and Middle East Economic Digest

There are many articles in economic journals. Of particular interest to this class may be those in Annual Review of Energy, Canadian Public Policy, Journal of Energy Development, The Energy Journal, Energy Economics, and Energy Policy. For reference to other recent articles on the economics of the oil industry see the relevant sections (Q4) in the Journal of Economic Literature, and draw on ECON-LIT as a journal search engine.

Governments also publish interesting material on energy industries. In Alberta, material from the Energy and Utilities Board and Alberta Department of Energy are of particular interest. For the Canadian federal government, see the National Energy Board, the Science Council of Canada, the Geologic Survey of Canada and Department of Natural Resources. For the US see the Department of Energy (especially the Energy Information Administration), and Federal Energy Regulatory Commission; also hearings before various Congressional Committees, including the House Ways and Means Committee, the Senate Committee on Commerce, the Senate Committee on Foreign Relations and the Joint Economic Committee. The OECD also has a number of interesting recent publications on energy, including publications of the International Energy Agency (IEA). So does OPEC, including the OPEC Review and OPEC Bulletin, as well as periodic statistical reviews and profiles of member countries.

The Canadian Energy Research Institute (CERI) has published a monthly World Oil Market Analysis, which provides up-to-date information. Useful data on individual countries can be found in The International Petroleum Encyclopaedia.

Finally, the Reference section of the library has a copy of J. Evans, OPEC, Its Member States and the World Energy Market (1986), Burnt Hills, Essex: Longmans. This includes a brief review of world energy markets and their histories, information on individual OPEC nations, and

a detailed history of OPEC and its influence on world oil markets from its founding in 1960 to the mid 1980's.

Course Objectives:

The course will focus on the international crude oil market with particular emphasis on OPEC and the determinants of its behaviour.

A review of the simple analytics of oil price determination and the history of international oil prices;

Familiarity with major sources of data on the international petroleum industry;

- Knowledge of major factors affecting the "supply side" of crude oil, and the relationship between supply price and market price in competitive and non-competitive markets;
- Knowledge of the major factors which may have influenced the price of oil in international oil markets since 1973, and the strengths and weaknesses of various attempts to depict this in a simple model; and
- Development of the ability to see the economic significance of current events and policy statements about international prices.

Course Outline:

The course draws heavily on journal articles, on the supposition that students at this stage of studies should be able to gain useful information from current academic journals in economics. Students will not be held responsible for the more sophisticated mathematical and statistical material in some of the articles.

Readings with asterisks (*), are required, and included in the folder of readings. The others may be useful for students who wish more information on a particular topic, or for the paper.

A.

Introduction and an Overview of International Crude Oil Markets

1. Background

* Statistical material by BP from the folder of Readings.

* M.A. Adelman, "World Oil Production and Prices 1947-2000" *The Quarterly Review of Economics and Finance* 42, 2002, 169-191.

Familiarize yourself with some of the current periodicals and other publications in the library which provide recent data and discussions of events in the international oil industry. Check the latest issue of The International Petroleum Encyclopaedia and the December 2003 Worldwide Report issue of The Oil and Gas Journal. In addition, look at a recent issue of the OPEC Bulletin. On the EIA website U.S. Energy Information Administration www.eia.doe.gov look at the

"Country Analysis Briefs" for OPEC and several major countries in the world oil market; also check the Non-OPEC Fact Sheet, the OPEC Revenues Fact Sheet, and a recent issue of This Week In Petroleum.

2. An Example of a World Oil Model

* D. Gately, "OPEC's Incentives for Faster Output Growth" *The Energy Journal*, 25(2) 2004, 75-93.

B. The Oil Demand Function

* D. Gately and H.G., Huntington. "The Asymmetric Effects of Changes in Price and Income on Energy and Oil Demand" *The Energy Journal* 23(1), 2002, 19-55.

C. Crude Oil Supply

* M.A. Adelman, Chapter 2, "Economics of Oil Supply," in Adelman, *The Genie out of the Bottle: The World Oil Market Since 1970*, MIT Press, 1993. (Exclude the Appendices.)

* J.M. Griffin and D. J. Teece, Chapter 1 "Introduction" in J.M. Griffin, and D. J. Teece (eds.), *OPEC Behaviour and World Oil Prices*, George Allen and Unwin, 1982.

* Colin J. Campbell and Jean H. Laherrere, "The End of Cheap Oil", *Scientific American*, March 1998, pp.78-83.

* G.C. Watkins, "Oil Scarcity: What Have the Last Three Decades Revealed?" *Paper presented at the International Editorial Board Meeting of the Energy Policy Journal and Conference*, Hong Kong, March 2004.

* Michael C. Lynch, "Forecasting Oil Supply: Theory and Practice." *The Quarterly Review of Economics and Finance*, 42, 2002, 373-389.

C. D. Masters, D. H. Root and E. D. Attanasi, "World Oil and Gas Resources ? Future Production Realities" in *Annual Review of Energy*, Vol. 15, 1990, Hollander, Socolow and Sternlight,(eds.) pp. 23-51.

D. OPEC Behaviour Since 1970

1. Various Views

* D. Gately, "A Ten Year Retrospective: OPEC and the World Oil Market," *Journal of Economic Literature*, XXII, (3), 1984, pp. 1100-1114.

* A.J.MacFadyen, "Spot and Sticky-Price Crude Oil Markets" and "Cheating and the Kinked Demand Curve.

M. A. Adelman, "Modelling World Oil Supply," *The Energy Journal*, 14 (1), 1993, pp.1-32.

D. J. Teece, Chapter 3, "OPEC Behaviour: An Alternative View," in J. M. Griffin and D. J. Teece,

(editors), *OPEC Behaviour and World Oil Prices*.

W. J. Mead, "An Economic Analysis of Crude Oil Price Behaviour," in the 1970s, *Journal of Energy Development*, Spring 1979, pp 212-228.

H. Razavi, "An Economic Model of OPEC Coalition," *Southern Economic Journal*, 51 (2), 1984, pp. 419-428.

Articles by Moran, Lichtblau and Pindyck, in J. M. Griffin and D. J. Teece, *OPEC Behaviour and World Oil Prices*.

P. K. Verleger, Chapters 1, 2 and 3 in *Oil Markets in Turmoil*.

D. J. Green, "The World Oil Market: An Examination Using Small Scale Models," *The Energy Journal*, 9 (3), 1988, pp. 61-77.

M. Abdel-Fadil, (ed.), *Papers on the Economics of Oil: A Producer's View*, Oxford University Press, 1979.

D. J. Teece et. Al., "Natural Resource Cartels," Chapter 24 in A. V. Kneese and J. L Sweeney (eds.), *Handbook of Natural Resource Economics*, Vol.III, North-Holland Press, 1993.

S. F. Singer, "The Price of World Oil," *Annual Review of Energy*, 8, 1983, pp. 451- 500.

L. Turner, *Oil Companies in the International System*, 3rd edition, George Allen and Unwin, 1983.

M. A. Adelman, *The World Petroleum Market*, Resources for the Future, 1972.

R. Mabro, "OPEC and the Price of Oil," *The Energy Journal*, 13 (2) 1992, pp. 1-17.

D. Gately, "How Plausible is the Consensus Projection of Oil Below \$25 and Persian Gulf Oil Capacity and Output Doubling by 2020?" *The Energy Journal*, (22) 4, 2001, pp. 1-27.

P. Odell, "World Oil Resources, Reserves and Production," in H. Frank (ed.), *The Changing World Petroleum Market*. (Special Issue). *The Energy Journal*, 1994,

D. Gately, "Strategies for OPEC Pricing and Output Decisions," *The Energy Journal*, 16, pp. 1-38

M. A. Adelman, Chapter 8, Stagnation after 1986, in Adelman, *The Genie Out of the Bottle: The World Oil Market Since 1970*.

A. Plourde, and G. C. Watkins, "How Volatile are Crude Oil Prices?" *OPEC Review*, XVIII, 1994, pp. 431- 444.

D. Gately, "Lessons from the 1986 Oil Price Collapse," and comments by Adelman and Griffin, *Brookings Papers on Economic Activity* (2) 1986, pp. 237-282.

M. Adelman, "The Competitive Floor to World Oil Prices," and J. Griffin and C. Jones, "Falling Oil Prices: Where is the Floor?" *The Energy Journal*, (9), 1986, pp. 9050

2. Empirical Tests of Models

- * J. M. Griffin, "OPEC Behaviour: A Test of Alternative Hypotheses," *American Economic Review*, 75 (5), December 1985a, pp. 954-963.
- * C. T. Jones, "OPEC Behaviour Under Falling Prices: Implications for Cartel Stability," *The Energy Journal*, 11 (3), July 1990, pp. 117-129.
- * H. Huntington, "Oil Price Forecasting in the 1980's: What Went Wrong?" *Energy Journal*, 15 (2), 1994, pp. 1-22.
- * J. M. Griffin and W. Xiong, "The Incentive to Cheat: An Empirical Analysis of OPEC," *Journal of Law and Economics*, XL, (October), 1997, pp. 289-316.
- J. M. Griffin and W. S. Neilson, "The 1985-86 Oil Price Collapse and Afterwards: What Does Game Theory Add?" *Economic Inquiry*, XXXII, 1994, pp. 543-561.
- A. S. Alsalem, S. C. Sharma and M. D. Troutet, "Fairness Measures and Importance Weights for Allocating Quotas to OPEC Member Countries," *The Energy Journal*, 18, 1997, pp. 1-21.
- S.G. Powell, "The Target Capacity-Utilization Model of OPEC and the Dynamics of the World Oil Market," *The Energy Journal*, 11 (1), January 1990, pp. 27-63.
- A. L. Danielson and S. Kim, "OPEC Stability: An Empirical Assessment," *Energy Economics*, 10 (3) July 1988, pp. 174-184.
- C. Dahl and M. Yucel, "Dynamic Modelling and Testing of OPEC Behaviour," *The Energy Journal*, 13, 1991, pp.117-138.
- J. M. Griffin and L. M. Vielhaber, "OPEC Production: The Missing Link," in H. Frank (ed.), *The Changing World Petroleum Market*, (*The Energy Journal*, 1994, *Special Issue*)
- James L. Smith, "Inscrutable OPEC? Behavioral Tests of the Cartel Hypothesis,"
The Energy Journal, 26 (1), 2005, 51-82.

E. Institutions

- * P. K. Verleger, "The Evolution of Oil as a Commodity," Chapter 7 in R. L. Gordon, et.al. (eds.), *Energy: Markets and Regulations*, Ballinger, 1982.
- * F. E. Banks, "Oil Futures Markets: An Introductory Economic Analysis," *OPEC Review*, Summer 1987.
- F.E. Banks, "Oil Stocks and Oil Prices," *OPEC Review*, XXIII, 1994, 173-184.
- R. Hagen, "How is the International Price of a Particular Crude Determined," *OPEC Review*, XVIII, 1994, pp. 127-135.
- D. Bohi and M. Toman, "Futures, Trading and Oil Market Conditions," *Journal of Futures Markets*, 7 (2), April 1987, pp. 203-22.
- F.E. Banks "Paper Oil, Real Oil and the Price of Oil", *Energy Policy*, 15, 1991, 4-19.

J. A. Overdahl and H. L. Matthews, "The Use of NYMEX Options to Forecast Crude Oil Prices," *The Energy Journal*, 9 (4), 1988, pp-135-147.

P. Horsnell and R. Mabro, *Oil Markets and Prices: The Brent Market and the Formation of World Oil Prices*, Oxford University Press, 1993.

Grade Determination and Final Examination Details:

The grade will be based upon three in-class quizzes, one term paper, and the final exam as follows:

In-class Quizzes (3 @ 15% each)	45%
Term Paper	25%
Final Examination (comprehensive)	30%

The final exam will be scheduled by the Registrar. It will be of two hours duration.

The final course grade will be obtained by weighting the numerical values (rather than letter grades) on the various exams and translating the numerical result back into a final letter grade for the course. The numerical-letter grade cut-off values will be as follows:

A+ 99-100	B 69-75	C- 50-53
A 84-98	B- 65-68	D+ 46-49
A- 80-83	C+ 61-64	D 40-45
B+ 76-79	C 54-60	F 0-39

If, for some reason, the distribution of grades determined using the aforementioned conversion chart appears to be abnormal, the instructor reserves the right to change the grade conversion chart if the instructor, *at the instructor's discretion*, feels it is necessary to more fairly represent student achievement.

A passing grade on any particular component of the course is not required for a student to pass the course as a whole.

Non-programmable calculators will be allowed during the writing of tests or final examinations.

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.
- Students' papers will be returned during regular class time, at the time of the final exam, or during regular Office Hours.
- Make-up examinations and deferred examinations will not be given except in cases of extreme personal emergencies. Also examinations will not be given before the indicated examination dates.
- It is the student's responsibility to request academic accommodations. If you are a student with a documented disability

who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.

Students? Union Vice-President Academic:

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

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Safewalk / Campus Security: 220-5333

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2006-07-10