



Department of Economics Course Outline

		Term:	Winter 2010
Course:	Economics 329 [Electricity Markets]	Section:	01
Time:	TR 14:00 – 15:15	Place:	ICT 114
Instructor:	Dr. M.C. Moore		
Office:	ES 602	Telephone:	(403) 220-4386
Office Hours:	TR 12:00 – 14:00 or by appointment	E-mail:	mcmoore@ucalgary.ca

Textbook(s):

Power System Economics, Steven Stoft, Wiley-IEEE, (May 2002).
Additional readings will be available on Blackboard during term.

Book(s) on Reserve:

None

Blackboard:

This course will make use of Blackboard - students who are registered in this course can log on at <http://blackboard@ucalgary.ca/webapps/login>. Please note that Blackboard features a class e-mail list that I will use. It is your responsibility to ensure that Blackboard uses the e-mail address of your choice. The default is your University of Calgary e-mail address.

Objective:

At the end of the course, the student should have acquired a fundamental knowledge of the operations and oversight of electricity markets, especially as they exist in North America. We will review the basic concept of electricity generation and transmission and examine generation technology including fossil-based generation and renewable energy. We will examine in depth the pricing and operation of electricity markets and will then turn to regulation and oversight on these markets with particular emphasis on the recent phenomena of electricity market deregulation. We will conclude with a discussion of the integration of electricity and other energy markets in North America and worldwide.

Course Outline:

The course will consist of lectures and assigned readings with occasional guest lectures by specialists in this field. Grades will be based on class participation and performance in 3 quizzes, a mid-term and final examination.

Course Topic Areas (sequential)

1. Overview Course grading, assignments, readings
2. Electricity - physical characteristics
 - Physics
 - Engineering Technology, fuels and conversion
 - System characteristics including dispatchability and voltage reliability
 - Capacity characteristics
3. Power Systems
 - Generation types, efficiency cost effectiveness
 - Transmission lines - line loss and thermal limits rights of way pricing
 - Dispatch and Congestion Management
4. Power System Economics (Microeconomics and pricing)
 - Marginal Cost Pricing Efficiency, Perfect competition vs real market operations
 - Fixed and variable cost recovery
 - Demand curves (load) Matching supply to demand
5. Electric Markets including Spot, Firm, and Real Time Reserves
 - Forward Markets (Hour ahead, Day ahead, Week ahead)
 - Hedging and Delivery Settlement
 - Capacity and Installed Capacity Markets
6. Regulation and Oversight The Role of the Regulator
 - Federal
 - Regional, State or Province
 - Market Power Prediction Monitoring
7. Deregulation and Competition Underlying objectives
 - Theoretical applications
 - Practical experience
8. Review and Critique

Grade Determination and Final Examination Details:

Grades will be assigned on the basis of 2 quizzes, a midterm and final examination.

Quiz grades total	30%
Midterm grade	30%
Final	40%

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

A+	99 – 100	B	83 - 87	C-	64 - 67
A	92 - 98	B-	78 - 82	D+	60 – 63
A-	90 - 91	C+	74 - 77	D	55 - 59
B+	88 - 90	C	68 - 73	F	<55

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 not 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 assigned by the Registrar.

Tests and exams will not involve multiple choice questions.

Students' Union Vice-President, Academic

Meg Martin

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

www.ucalgary.ca/sue

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.

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.

Safewalk / Campus Security: 220-5333
Emergency Assembly Location – SS Food Court

Lecture Schedule Winter 2010 (Schedule subject to change or adjustment)

January	Topic	Readings
12	Introduction to the course	
14	Power pricing	Stoft chap 1-3
19	Micro economic review	Stoft chap 1-4
21	Micro review - competition in powr markets	Stoft chap 1-5
26	Marginal cost pricing	Stoft chap 1-6
28	Quiz then begin efficiency and competitive markets	Stoft chap 1-7
February		
2	Continue competitive markets and profit function	Stoft 1-8 & 2-7
4	Guest Lecture Market Surveillance Administrator	
9	Micro econ review, fixed and variable cost recovery	Stoft 2-1 to 2-4
11	Quiz 2 then intro to electric markets	Stoft 3-1
15 - 19	Reading Week	No Classes
23	Capacity markets	Stoft 3-2 & 2-8
25	Settlement and Auctions	Stoft 3-3
March		
2	Mid Term Exam	
4	Guest Lecture - AESO	
9	Regulation and Oversight	R.J. Gilbert, in blackboard
11	Guest - Regulation in Alberta	
16	Market Power	Stoft 4-1 & 4-2
18	Deregulation	Stoft 1-1 & 1-2 P. Joskow in blackboard
23	Quiz 3 and deregulation continues	
25	Deregulation in practice	W. Hogan and S. Oren art in blackboard
30	Ancillary services and Transmission	Stoft 3-4
April		
1	Alternative energy from renewables	Mead and Dunning in blackboard
6	Energy Efficiency	Quigley article in blackboard
8	Energy and Political systems	F. Wolak in blackboard
13	Guest Lecture - Nuclear Energy	
15	Wrap up and Review	