

## Economics 329(L01) Electricity Markets

Instructor:	Matt Ayres	Lecture Location:	ICT116
Phone:		Lecture Days/Time:	MW 17:00-18:15
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Office:	SS 338		
Office Hours:	After class	Fall 2017	

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### Course Description:

Economic analysis of the deregulated electric power industry including the pricing of power, energy and capacity, power supply and demand, market structure, market architecture, and the design and testing of market rules.

### Course Objectives/Learning Outcomes:

Students will learn why electricity markets pose interesting economic problems, the solutions proposed and how basic economics theory can shed light on real world problems.

### Course Outline:

Electricity has some unique characteristics that pose unique economic problems. Some jurisdictions have sought to use markets (deregulation) to tackle these problems rather than central planning (regulation), other jurisdictions have not. Even within market based systems there are important differences in structure and market rules. Not all of the drivers are economic, some are technical, some historical and some political. The interplay between all of these factors makes for complex, controversial and, often, poorly understood.

To make the course as accessible as possible the focus will be on using the Alberta Electricity Market as a case study, comparing and contrasting this to the approaches used elsewhere. As we approach the fall of 2017 the Alberta Electricity Market is in the midst of a major transformation. A phase out of Coal generation is underway along with programs to introduce more generation from renewable sources. After 16 years of relative stability market itself is undergoing a major transformation that will take a number of years to complete while all the time consumers expect the reliable provision of electricity at reasonable cost.

Topics covered in the course will include:

- Fundamentals about the electric system and electric generation
- How the Alberta electricity market works: Uniform clearing price auctions
- Interplay between electricity markets and electric reliability: How do markets provide security and adequacy?
- Coal phase-out and support for new renewable generation: Correcting for market failures?

There is no required textbook for this course. Primary government and industry publications will be used as appropriate; these will be identified in class. However, a number of useful textbooks are cited below. Note that these are more technical / advanced than is required for this course. Interested students are welcome to consult with the instructor for additional suggested readings.

**Prerequisites/corequisites:**

Economics 201 and 203 or consent of the Department.

**Required Textbook(s):**

There is no required textbook

**Recommended Textbook(s):**

Biggar, Darryl and Mohammad Reza Hesamzadeh (2014), *The economics of electricity markets*.  
 Stoft, Steven (2002), *Power system economics*.

**Books on Reserve:**

Harris, Chris (2006), *Electricity markets: Pricing structures and economics*.  
 Hunt, Sally (2002), *Making competition work in electricity*.  
 Stoft, Steven (2002), *Power system economics*.  
 Sweeney, James (2002), *The California electricity crisis*.

**Desire2Learn:**

This course will make use of the Desire2Learn (D2L) platform. Students who are registered in the course can log on at <http://d2l.ucalgary.ca> through their student centre. Please note that D2L features a class e-mail list that may be used to distribute course-related information. These e-mails go to your University of Calgary e-mail addresses only.

**Grade Determination and Final Examination Details:**

ASSIGNMENT	20%
MIDTERM EXAM	30%
FINAL EXAM	<u>50%</u>
	100%

*Grading Scale*

A+	95 – 100	B	73 – 76	C-	60 – 62
A	85 – 94	B-	70 – 72	D+	56 – 59
A-	80 – 84	C+	67 – 69	D	50 – 55
B+	77 – 79	C	63 – 66	F	0 – 49

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

As per the Writing Across the Curriculum Statement in the Calendar, writing and grading thereof will be a factor in the evaluation of student work.

Any student work which remains undistributed after the last day of classes will be available to students through the instructor's office during his office hours.

The final examination will be comprehensive, scheduled by the Registrar, held in a classroom, and last 2 hours. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam [www.ucalgary.ca/registrar/exams/deferred\\_final](http://www.ucalgary.ca/registrar/exams/deferred_final). Under no circumstance will this be accommodated by the Department.

Tests and exams will/will not involve multiple choice questions. Non-programmable calculators WILL be allowed during the writing of tests or final examinations.

The exact date for the in-class midterm will be announced at least one week in advance.

THERE WILL BE NO MAKEUP OR DEFERRED QUIZZES/TESTS/EXAMS under any circumstances, nor may the quizzes/tests/exams be written early. Students unable to write the quizzes/tests/exams because of documented illness, family emergency, religious observance, or university-sanctioned event will have the weight shifted to the final examination; otherwise a grade of zero will be assigned.

**Reappraisal of Grades and Intellectual Honesty:**

*For reappraisal of graded term work, see Calendar I.2*

<http://www.ucalgary.ca/pubs/calendar/current/i-2.html>

*For reappraisal of final grade, see Calendar I.3*

<http://www.ucalgary.ca/pubs/calendar/current/i-3.html>

*Statement of Intellectual Dishonesty, see Calendar K.4*

<http://www.ucalgary.ca/pubs/calendar/current/k-4.html>

*Plagiarism and Other Academic Misconduct, , see Calendar K.5*

<http://www.ucalgary.ca/pubs/calendar/current/k-5.html>

**Academic Accommodation:**

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities Visit [www.ucalgary.ca/access/](http://www.ucalgary.ca/access/).

Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at <http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf>

**Important Dates:**

Please check: <http://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>

**Student Organizations:**

Faculty of Arts Students' Association (F.A.S.A.):

Economics Department Representative

Office: SS 803, E-mail: [econrep@fasaucalgary.ca](mailto:econrep@fasaucalgary.ca) and Web: [www.fasaucalgary.ca](http://www.fasaucalgary.ca).

Society of Undergraduates in Economics:

<https://www.ucalgarysue.com/>.

Society of Undergraduates in Economics is a student run organization whose main purpose is to assist undergraduate economics students to succeed both academically and socially at the University of Calgary. Services include access to the exam bank, career partnerships with the Career Centre through hosting industry nights and information sessions, recognizing achievements in teaching, and organizing social events for members. They invite you to join by contacting SUE at [societyofundergradsineconomics@gmail.com](mailto:societyofundergradsineconomics@gmail.com).

**Faculty of Arts Program Advising and Student Information Resources:**

- Have a question, but not sure where to start? The Arts Students' Centre is your information resource for everything in Arts! Drop in at SS102, call them at 403-220-3580 or email them at [artsads@ucalgary.ca](mailto:artsads@ucalgary.ca). You can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate> which has detailed information on common academic concerns, including program planning and advice.
- For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at 403-210-ROCK [7625] or visit them in the MacKimmie Library Block.
- Online writing resources are available at <http://www.ucalgary.ca/ssc/resources/writing-support>.

**Evacuation Assembly Point:**

In case of an emergency evacuation during class, students must gather at the designated assembly point nearest to the classroom. The assembly point for this classroom is Social Science - Food Court.

**Safewalk:**

The Safewalk program provides volunteers to walk students safely to their destination anywhere on campus. This service is free and available 24 hrs/day, 365 days a year. **Call 403-220-5333.**

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2017-08-13