

# Syllabus EC437/537 Winter 2019

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## Course Description

The official description of the course is:

Examines the rationale, economic principles, and institutions of historic economic regulation. Contemporary theory of the firm and regulatory practice with a focus on energy are analyzed. Prerequisites: Ec 311 or Ec 415.

This is a companion course to EC 438/538 which will address the development of energy markets. The order of the courses has changed to reflect the evolving nature of the field.

## Prerequisites

The undergraduate section has only the microeconomic theory as prerequisites. The graduate section requires only graduate standing.

This means that homework and lectures need to be tuned to three groups:

- Undergraduates that may have limited knowledge of microeconomic theory and econometrics.
- Graduate students outside of economics that have significant math background but little or no background in microeconomic theory and econometrics.
- Economics graduate students.

There will be times when the material may seem over your head mathematically (undergraduate) or the intuition is not coming through (non-economics graduate students), but I will do my best to keep the course balanced and moving forward with some class time spent on math or microeconomic theory as needed.

Any technical skills that students are missing will be supplemented with in-class tutorials and homework assignments.

## Key Dates

- Midterm: Feb 6th
- Final Exam: March 21st, 12:30-2:20

## Contact Information

Communication will be handled through slack <https://utilityeconw19.slack.com>. You should have received an invitation, if not just go to that URL and use your @pdx.edu email to sign up. There are reasonable help documents to get you started. <https://get.slack.help/hc/en-us/articles/218080037-Getting-started-for-new-users>

Slack will be used for IM, email and forum style communication. It even handles phone calls. If you have a question about course material or the course itself, ask in one of the channels. If you have a personal message that is not intended for others, send a direct message.

Please note that I am not online all the time and when I am online I will prioritize well phrased questions with sufficient detail. I tend to ignore general complaints, questions that can be answered by reading the syllabus or using the search bar.

Office Hours:

- My office is in CH 241-O.
- Drop in office hours are Monday 2:30-3:30 through the last week of class. There is no need to make an appointment for these hours – just come.
- If you can't attend regular office hours, please check my calendar <https://woods.j.youcanbook.me/>. I will make a limited number of 20 minute slots available each week. If you make an appointment and fail to show up without first canceling, I will penalize your final exam score two points.

My in-person office hours may need to be moved to a different location because of construction in Cramer Hall. I will put something on slack if this is necessary.

There is also a Graduate Assistant for this course, **NAME**, who will be available in CH 230 **HOURS**.

## Textbook and Other Resources

The main text for the course is Lesser, Johnathan A. & Leonardo R. Giacchino. Fundamentals of Energy Regulation, ed 2. Public Utilities Fortnightly, 2013. It was chosen with undergraduates in mind and illustrates many of the concepts they learned in EC 311/415.

This text will be supplemented with journal articles and books available electronically through the library.

## Assessments and Grade Policy

Your grade in the class will be based on your performance on homework assignments and two exams.

- Final Exam (30%)
- Midterm (30%)
- Homework (30%)
- Regulatory or Utility Topic Presentation (10%)

## Homework

There will be several assignments over the term. All will be equally weighted and are intended to be completed by an individual and turned into D2L.

Homework may also take the form of an in-class presentation on a course topic. This will typically be a shared experience, focusing on one of the assigned readings. Students will focus on related literature, mathematical models, or statistical analysis depending on the skill set of the student.

## Exams

Exams are open book and open note. No electronic resources are allowed. If you want to bring electronic reserve material please bring your own printed copies. Note that there is a limitation on the number of pages from the “Economics of Regulation and Antitrust” text that can be printed by each student.

Please bring a laptop to class on exam day. Most of our handwriting, mine included, is illegible to others. You will be submitting your exams on a google doc that you write in class supplemented with paper diagrams and math.

Because of the resources available, the exams will be *considerably* more difficult than the typical closed note and book exam. Please prepare accordingly.

## Regulatory or Utility Topic Presentation

This is a 30 minute presentation on something that was recently on the FERC or OPUC docket that you found interesting, or a public utility related article in one of these journals or the major general interest journals in economics.

- Journal of Regulatory Economics <https://link.springer.com/journal/11149>
- Energy Economics <http://www.journals.elsevier.com/energy-economics/>
- The Energy Journal <https://www.jstor.org/journal/energyj>
- Resource and Energy Economics <http://www.journals.elsevier.com/resource-and-energy-economics/>
- Energy: The International Journal <http://www.journals.elsevier.com/energy/>
- Energy Policy <http://www.journals.elsevier.com/energy-policy/>
- Utilities Policy <http://www.journals.elsevier.com/utilities-policy/>

Please note that just because a paper is in one of these journals does not mean that they are appropriate for the course.

## Topics and Readings

Do not let this section alarm you. We will only address part of this outline in the class. As with most of my upper-division courses, we will complete a small subset at the start of the class and then vote on each succeeding topic.

Each topic has some readings that both undergraduates and graduate students will read and some that are specific to each. I will be adding topics and supplementary readings throughout the term. Except for the books, this reading list should be considered incomplete.

- Cost Theory Basis Regulation
  - Introduction. Ch 11, Viscusi, W. Kip, Joseph E. Harrington, and John M. Vernon. Economics of regulation and antitrust. MIT press, 2005. [http://search.library.pdx.edu/PSU:psu\\_library:CP71189149050001451](http://search.library.pdx.edu/PSU:psu_library:CP71189149050001451)
  - Lesser & Giacchino, Ch 2 (More small details on electricity than Viscusi and simpler theory)
- Regulation and Public Enterprise
  - Efficiency and Technical Progress, Ch 4, Viscusi, et al (2005)
  - Theory of Natural Monopoly. Ch 10, Viscusi, et al (2005)
  - Public Enterprise. Ch 14, Viscusi, et al (2005)
  - History of Regulation
    - \* Posner, Richard A. “Theories of Economic Regulation.” The Bell Journal of Economics and Management Science, vol. 5, no. 2, 1974, pp. 335–358. JSTOR, <https://www-jstor-org.proxy.lib.pdx.edu/stable/3003113>.
    - \* Stigler, George J. “The Theory of Economic Regulation.” The Bell Journal of Economics and Management Science, vol. 2, no. 1, 1971, pp. 3–21 (<https://www-jstor-org.proxy.lib.pdx.edu/stable/3003160>)
    - \* Peltzman, Sam. “Toward a more general theory of regulation.” The Journal of Law and Economics 19.2 (1976): 211-240. <https://www.jstor.org/stable/725163>
    - \* Becker, Gary. “Toward a More General Theory of Regulation.” The Journal of Law & Economics, vol. 19, no. 2, 1976, pp. 245–248. <https://www-jstor-org.proxy.lib.pdx.edu/stable/725165>
    - \* Becker, Gary S. “A Theory of Competition Among Pressure Groups for Political Influence.” The Quarterly Journal of Economics, vol. 98, no. 3, 1983, pp. 371–400.<https://www-jstor-org.proxy.lib.pdx.edu/stable/1886017>.
- Introduction to Electricity and Natural Gas
  - Lesser & Giacchino, Ch 1 (Good read on the history of gas and electric regulation)

- Natural Monopoly Regulation and Electric Power, Ch 12, Viscusi, et al (2005)
- Economic Regulation of Energy, Ch 18, Viscusi, et al (2005)
- Lesser & Giacchino, Ch 3 (More electricity specific details on Costs.)
- Cost Measurement
  - Lesser & Giacchino, Ch 5
  - Oregon Public Utility Commission, “Regulation of Water Utility Rates and Service” <http://www.puc.state.or.us/water/water%20home%20page/Ratemaking%20Explained.pdf>
  - Example Disallowance, Trojan: Public Utility Commission of Oregon Order 95-322 [http://www.puc.state.or.us/admin\\_hearings/key\\_puc\\_cases/95\\_322.pdf](http://www.puc.state.or.us/admin_hearings/key_puc_cases/95_322.pdf)
  - Example Disallowance, Rolling Hills: Public Utility Commission of Oregon Order 08-548 <https://apps.puc.state.or.us/orders/2008ords/08-548.pdf>
  - Malko, J. Robert, and Robert Skinner. “Selecting a Capital Structure for a Regulated Electric Utility: Some Issues and Directions.” *The Electricity Journal* 24.7 (2011): 49-56. <http://stats.lib.pdx.edu/proxy.php?url=http://www.sciencedirect.com/science/article/pii/S1040619011001722>
  - Sample FERC Case: 156 FERC 61,234 (2016) <https://www.ferc.gov/CalendarFiles/20160928194709-EL14-12-002.pdf>
- Cost Allocation
  - Lesser & Giacchino, Ch 6
  - Uniform System of Accounts, 18 CFER Part 101 <https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=054f2bfd518f9926aac4b73489f11c67&rgn=div5&view=text&node=18:1.0.1.3.34&idno=18>
  - Electric Utility Cost Allocation Manual, National Association of Regulatory Utility Commissioners (1992) <http://pubs.naruc.org/pub/53A20BE2-2354-D714-5109-3999CB7043CE>
  - Roth, Alvin E., and Robert E. Verrecchia. “The Shapley value as applied to cost allocation: a reinterpretation.” *Journal of Accounting Research* (1979): 295-303. <http://stats.lib.pdx.edu/proxy.php?url=https://www.jstor.org/stable/2490320>
- Rate setting
  - Lesser & Giacchino, Ch 7
  - Allcott, Hunt. “Rethinking real-time electricity pricing.” *Resource and energy economics* 33.4 (2011): 820-842. <https://www-sciencedirect-com.proxy.lib.pdx.edu/science/article/pii/S092876551100042X>
- Environmental Regulation
  - Efficiency and Technical Progress, Ch 19-21, Viscusi, et al (2005)

## Evolving Topics

As with any evolving field, things will happen over the course of the term. The Oregon PUC was required to do a big think on the future of regulation (<https://www.puc.state.or.us/Renewable%20Energy/SB978LegislativeReport-2018.pdf>) and will probably be making some headway on these issues in the near future. I will be adding to this section during the term.

- Performance Based Regulation
  - Mandel, Benjamin H. “The Merits of an ‘Integrated’ Approach to Performance-Based Regulation.” *The Electricity Journal* 28.4 (2015): 8-17. <https://www-sciencedirect-com.proxy.lib.pdx.edu/science/article/pii/S1040619015000792#bib0015>
- Distributed Energy Resources (DER)
  - This is not about utility scale storage. Fitzgerald, Garrett, et al. “The economics of battery energy storage.” *Rocky Mountain Institute* (2015). <https://www.rmi.org/insight/economics-battery-energy-storage/>
  - Federal Energy Regulatory Commission. “The potential benefits of distributed generation and rate-related issues that may impede their expansion.” USDOE,(Ed.) (2007). <https://www.ferc.gov/legal/fed-sta/exp-study.pdf>
  - Basak, Prasenjit, et al. “A literature review on integration of distributed energy resources in the perspective of control, protection and stability of microgrid.” *Renewable and Sustainable Energy Reviews* 16.8 (2012): 5545-5556. <http://www.sciencedirect.com.proxy.lib.pdx.edu/science/article/pii/S1364032112003772>

- Cap and Trade
  - Metcalf, Gilbert E.. 2009. “Market-Based Policy Options to Control U.S. Greenhouse Gas Emissions.” *Journal of Economic Perspectives*, 23(2): 5-27. <http://stats.lib.pdx.edu/proxy.php?url=https://www.aeaweb.org/articles?id=10.1257/jep.23.2.5>
- Transportation Electrification

## Other Rules

- When completing assignments *The work must be authentically and genuinely your own or group. In other words, if you are copying answers you found online, it is not your work.*
- Go to office hours at the first sign of trouble – not as a last resort.
- In this classroom, we support and value diversity. To do so requires that we:
  - Respect the dignity and essential worth of all individuals
  - Promote a culture of respect toward all individuals
  - Respect the privacy, property, and freedom of others
  - Reject bigotry, discrimination, violence, or intimidation of any kind
  - Practice personal and academic integrity and expect it from others
  - Promote the diversity of opinions, ideas, and backgrounds, which is the lifeblood of a university

For additional information, please see the Office of Affirmative Action & Equal Opportunity at <http://www.pdx.edu/diversity/affirmative-action>.

- Accommodations are collaborative efforts between students, faculty, and the Disability Resource Center. If you have a documented disability and require accommodation, you must arrange to meet with the course instructor prior to or within the first week of the term. The documentation of your disability must come in writing from the Disability Resource Center (Faculty letter). Students who believe they are eligible for accommodations but who have not yet obtained approval through the DRC should contact the DRC immediately. Reasonable and appropriate accommodations will be provided for students with documented disabilities. For more information on the Disability Resource Center, please see <http://www.drc.pdx.edu>.
- Academic honesty is expected and required of students enrolled in this course. Suspected academic dishonesty in this course will be handled according to the procedures set out in the Student Code of Conduct.
- I am sympathetic to family emergencies but you must inform me as soon as possible. If the notice is verbal, please email me with your understanding of our agreement. All agreements have to be in writing.

Link to this syllabus <https://github.com/woodsjam/Course-Public-Utility-Economics>. Check branch for this term.