COLORADOSCHOOLOFMINES

Subject: Applied Microeconomics
Number: EBGN521
Course Title: Microeconomics of Mineral and Energy Markets
Section: A
Semester/year: Spring 2017

Instructor: Graham A. Davis

      Contact information (Office/Phone/Email): EH325/303 273-3550/gdavis@mines.edu

      Office hours: Wednesdays 11:00 AM – 4:00 PM, or by appointment (email me).

      Class meeting days/times: Tuesdays and Thursdays 2:00 PM – 3:15 PM

      Class meeting location: Berthoud Hall 108

Instructional activity: _3_ hours lecture   _0_ hours lab   _3_ semester hours

Course designation: ___ Common Core   ___ Distributed Science or Engineering

      _X_ Major requirement _ _ Elective ___ Other (please describe _____)

Course description from Bulletin:

(II) The second of two courses dealing with applied microeconomic theory. This part concentrates on the behavior of the minerals and energy segment of the economy, the theory of production and cost, derived demand, price and output level determination by firms, and the competitive structure of product and input markets. Prerequisites: Principles of Microeconomics, MATH111, MATH530, EBGN509, EBGN510; EBGN511 or permission of instructor.

Textbook and/or other requirement materials:

    Required texts:

    Alpha C. Chiang and Kevin Wainwright, Fundamental Methods of Mathematical Economics, 4th edition, New York: McGraw-Hill, 2005.

    Walter Nicholson and Christopher Snyder, Microeconomic Theory: Basic Principles and Extensions, 11th edition, South-Western, 2012.

    Marian Radetzki and Linda Wårell, A Handbook of Primary Commodities in the Global Economy, Second Edition, Cambridge: Cambridge University Press, 2017.

    Other required supplemental information: will be provided on Blackboard

Optional texts not available in bookstore

Nicholson and Snyder's book comes with a student workbook, but past editions of the workbook have had many errors in them. I don't know if these have been corrected in the current edition. Schaum's Outlines' Microeconomic Theory, 3rd or 4th edition, is useful and contains thousands of worked questions. Some students also like Microeconomics with Calculus, by the husband and wife team of Brian Binger and Elizabeth Hoffman (Hoffman is the former President of the University of Colorado, incidentally). The book is now out of print but freely available on the used book market. It covers the same material as in Nicholson and Snyder, but is a less wordy and more mathematical. Varian's Microeconomic Analysis, which was the textbook for EBGN511, is also a good reference.

Student learning outcomes: At the conclusion of the class students will…

1. Describe the various models of production in mineral and energy markets
2. Distinguish between competitive and non-competitive markets
3. Recognize the flaws associated with traditional microeconomic models of production as applied to the minerals and energy markets
4. Create models of production in both static and dynamic frameworks
5. Employ Mathematica and Excel as tools to solve production problems for various market situations
6. Demonstrate the competence to use microeconomic models and tools in subsequent MEE classes
7. Understand the current state of global primary mineral and energy commodity markets.

Brief list of topics covered:

1. Economic models
2. Dynamic analysis
3. Production and Supply (static and dynamic)
4. Derived demand
5. Partial equilibrium competitive markets
6. Market Power
7. Decision making under uncertainty
8. Capital and time

Policy on disability support:

The Colorado School of Mines is committed to ensuring the full participation of all students in its programs, including students with disabilities. If you are registered with Disability Support Services (DSS) and I have received your letter of accommodations, please contact me at your earliest convenience so we can discuss your needs in this course. For questions or other inquiries regarding disabilities, I encourage you to visit disabilities.mines.edu for more information.

Policy on academic integrity/misconduct:

The Colorado School of Mines affirms the principle that all individuals associated with the Mines academic community have a responsibility for establishing, maintaining an fostering an understanding and appreciation for academic integrity. In broad terms, this implies protecting the environment of mutual trust within which scholarly exchange occurs, supporting the ability of the faculty to fairly and effectively evaluate every student's academic achievements, and giving credence to the university's educational mission, its scholarly objectives and the substance of the degrees it awards. The protection of academic integrity requires there to be clear and consistent standards, as well as confrontation and sanctions when individuals violate those standards. The Colorado School of Mines desires an environment free of any and all forms of academic misconduct and expects students to act with integrity at all times.

Academic misconduct is the intentional act of fraud, in which an individual seeks to claim credit for the work and efforts of another without authorization, or uses unauthorized materials or fabricated information in any academic exercise. Student Academic Misconduct arises when a student violates the principle of

academic integrity. Such behavior erodes mutual trust, distorts the fair evaluation of academic achievements, violates the ethical code of behavior upon which education and scholarship rest, and undermines the credibility of the university. Because of the serious institutional and individual ramifications, student misconduct arising from violations of academic integrity is not tolerated at Mines. If a student is found to have engaged in such misconduct sanctions such as change of a grade, loss of institutional privileges, or academic suspension or dismissal may be imposed.

The complete policy is online.

Grading procedures:

Individual assignments and projects that have a quality acceptable for graduate credit will be awarded a grade of A (4.0), A- (3.7), B+ (3.3), or B (3.0), with the grade reflecting the proficiency of the work. Work that is below par but may be acceptable for graduate credit if sufficient acceptable work is done in this class and in other classes such that a 3.0 GPA can be maintained will be awarded grades of B- (2.7), C+ (2.3), C (2.0), or C- (1.7), with the grade reflecting the proficiency of the work. Work that is unacceptable for graduate credit is awarded a grade of D+ (1.3), D (1.0), D- (0.7), or F (0.0), with the grade reflecting the proficiency of the work.

My grader will assign the grades for the homework assignments. If you have a question about a grade see him first, and then see me if the two of you can't resolve the issue. I will grade exams.

The final grade for the course will be a weighted average of the grades on the homework and exams, calculated just as a grade point average is calculated. Weights will be assigned as follows:

First exam	10 points
Second exam	15 points
Third exam	20 points
Final exam	25 points
Term paper	20 points
Problem Sets	10 points
Total	100 points

The Spring 2016 class had an average final grade of B. The lowest grade was C+. The highest grade was A.

Coursework return policy:

I will endeavor to return assignments within 7 days of receiving them, and in all cases within 14 days of receiving them.

Absence policy:

I have no attendance policy – I assume graduate students are mature enough to optimally allocate their time given their budget and time constraints. There is no class participation grade. If you miss handing in or presenting an assignment or taking an exam because of an event that CSM classifies as an "excused absence" (see http://inside.mines.edu/Student-Absences), I will allow you to present or hand in a substitute work or a make-up exam at a later date.

Homework:

Due to the fact that I post solutions immediately after assignments are due, homework assignments must be turned in by the time they are due.

Learning strategy:

No-one ever said the study of economics was easy. Whenever I am at the dentist or out to dinner and someone asks me what I do, the mention of economics usually elicits a groan. That does not mean that the subject cannot be mastered by most. In my class a successful learning strategy appears to be the following:

1) read the assigned chapter materials ahead of class. Look for about 40% comprehension with this reading;
2) attend class and ask questions where you are not clear on what is happening;
3) reread the chapter and class notes after class, at which point you should have about 70% comprehension;
4) do the homework assignment, which should get you up to about 90% comprehension;
5) do as many additional problems as you can – both Chiang and Nicholson have answers to selected problems in the back of the book;
6) work in groups so that you learn from each other
7) do not spend more than 30 minutes on a homework question if you get stuck. Come and see me in office hours or see a classmate for direction.
8) make use of my office hours. I will not necessarily give you a direct answer to your question, but I'll bet that I can clarify things in about 10% of the time that it will take you to work things out on your own or with your classmates. There is no shame showing up at office hours with a question that reflects some prior thought on your part.

Economics is a language. Like any language, repetition and practice are keys to success – we teach essentially the same thing in econ 201, 301, 401, and 511, with the hope that by the time you see it in 521 you will start to become fluent. Since many of you have not taken econ 201, 301, or 401, you will have to undertake the repetition yourself by repeatedly going over the material until you master it.

Course Outline

1/12/2017   Introductory Lecture (Nicholson and Snyder Ch. 1)

I. Production and Supply

1/17/2017   Production Functions (Nicholson and Snyder Ch. 9)

1/19/2017   Production Functions (Nicholson and Snyder Ch. 9)

1/24/2017   Production Functions (Nicholson and Snyder Ch. 9)

1/26/2017   Cost Functions (Nicholson and Snyder Ch. 10)

1/31/2017   Cost Functions (Nicholson and Snyder Ch. 10)

2/2/2017   Cost Functions (Nicholson and Snyder Ch. 10)

2/7/2017   Cost Functions (Nicholson and Snyder Ch. 10)

2/9/2017   Profit Maximization (Nicholson and Snyder Ch. 11)

2/14/2017   Profit Maximization (Nicholson and Snyder Ch. 11)

2/16/2017	Profit Maximization (Nicholson and Snyder Ch. 11)
2/21/2017	President's Day Break, No Class
2/23/2017	Exam #1 on chapters 9 and 10

II. Competitive Markets

2/28/2017	Partial Equilibrium (Nicholson and Snyder Ch. 12)
3/2/2017	No Class (Davis Away)
3/7/2017	Partial Equilibrium (Nicholson and Snyder Ch. 12)
3/9/2017	Partial Equilibrium (Nicholson and Snyder Ch. 12)

III. Market Power

| 3/14/2017 | Monopoly (Nicholson and Snyder Ch. 14) |
| 3/16/2017 | Monopoly (Nicholson and Snyder Ch. 14) |

IV. Dynamic Modeling

3/21/2017	Dynamic optimization (Chiang Ch. 20)
3/23/2017	Dynamic optimization (Chiang Ch. 20)
3/28/2017	Spring Break, No Class
3/30/2017	Spring Break, No Class
4/4/2017	Exam #2 on chapters 11 and 12
4/6/2017	Dynamic optimization (Chiang Ch. 20)
4/11/2017	Dynamic optimization (Chiang Ch. 20)

V. Capital Markets and Impatience

4/13/2017	Capital and Time (Nicholson and Snyder Ch. 17)
4/18/2017	Capital and Time (Nicholson and Snyder Ch. 17)
4/20/2017	Capital and Time (Nicholson and Snyder Ch. 17)

4/25/2017   Exam #3 on chapters 14 and 20

VI. Uncertainty

4/27/2017   Uncertainty (Nicholson and Snyder Ch. 7)

5/2/2017   Tentative: Uncertainty (Nicholson and Snyder Ch. 7)

5/4/2017   Uncertainty (Nicholson and Snyder Ch. 7)

Week of 5/6/2017 through 5/11/2017   Two-hour final exam on chapters 17 and 7