

# Commodities, Energy, and Related Markets

Finance 494, Spring 2010  
College of Business Administration  
University of Illinois at Chicago

## Instructor

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## Summary

This course introduces markets for commodities, energy, transport, weather, and emissions. After this course, students should understand:

1. differences between commodity and financial markets;
2. the importance of commodity risk management; and,
3. relationships between many commodity and financial contracts.

**Class Times** Tuesdays, Lincoln Hall 308, 6:00pm-8:30pm

**Office Hours** TBD

**Group Work** Group work is not allowed. Work done together will be given a zero.

## Required Materials

Kolb and Overdahl, *Understanding Futures Markets*, 2006.  
Dunsby, Eckstein, Gaspar, and Mulholland, *Commodity Investing*, 2008.  
Geman, *Commodities and Commodity Derivatives*, 2005.  
Blackboard/Docutek Readings.

**Site Visits** I have planned a few site visits (CME, cogeneration plant, ethanol refinery, grain elevator, hydroelectric plant). These are not required but may help you understand the fundamentals of these markets.

**Trading Competition** The CME is sponsoring a trading competition via the University of Houston. Participation is optional; contact me ASAP for more information.

**Speaker Series** There may be an (optional) speaker series related to the course.

## Optional/Reference

Copetas, *Metal Men*, 1985.  
Cronon, *Nature's Metropolis*, 1992.  
Eydeland and Wolyniec, *Energy and Power Risk Management*, 2002.  
Geman, *Risk Management in Commodity Markets*, 2008.  
Leffler, *Petroleum Refining in Nontechnical Language*, 2008.  
Levinson, *The Box*, 2006.

McLean and Elkind, *The Smartest Guys in the Room*, 2004.  
Raymond and Leffler, *Oil and Gas Production in Nontechnical Language*, 2005.  
Schap and Comins, *CBOT Handbook of Futures and Options*, 2006.  
Shively and Ferrare, *Understanding Today's Electricity Business*, 2004.  
Shively and Ferrare, *Understanding Today's Natural Gas Business*, 2003.  
Speight, *Synthetic Fuels Handbook*, 2008.  
Whyte and Cumming, Ed. *Mining Explained, 10th Ed.*, 2007.

## Course Outline

1. Spot, Futures, and Forward Markets
  - (a) Spot vs. Cash Market
  - (b) Differences Between Futures and Forwards
  - (c) Futures Markets
  - (d) Futures Curves
  - (e) Price Limits
  - (f) Technical Analysis
2. Storage and Delivery Issues
  - (a) The Importance of Being Fungible
  - (b) Ease of Storage Continuum
  - (c) Storage and Kurtosis
  - (d) Cash Settlement vs. Physical Delivery
  - (e) Squeezes and Physical Delivery
  - (f) What Makes a Contract Successful?
3. Legal Framework
  - (a) North American Regulation
  - (b) Other Countries' Regulation (esp. UK, China, Brazil)
4. Major Players in Various Markets
  - (a) Large Transnational Corporations
  - (b) National/Regional Producers
  - (c) End Users
  - (d) Speculators & Market Makers
  - (e) Intermediaries
5. Agriculturals
  - (a) Grains (*wheat, corn*)

- (b) Ethanol
  - (c) Oilseeds/Meal/Oil (*soybeans, palm*)
  - (d) Livestock
  - (e) Forest Products
  - (f) Fiber/Textiles(*cotton*)
  - (g) Softs/Tropicals (*coffee, sugar, cocoa, FCOJ*)
  - (h) Produce
6. Metals
- (a) Precious Metals (*incl. Specie Effect*)
  - (b) Industrial Metals
  - (c) Minor/Strategic Metals
  - (d) Ferrous Metals
  - (e) How the LME Differs from Other Exchanges
7. Petroleum
- (a) Crude Oil
  - (b) Refining
  - (c) Distillates
  - (d) Natural Gas
  - (e) Plastics
8. Electricity
- (a) Generation
  - (b) Transmission
  - (c) System Operations
  - (d) Markets
9. Coal and Commodity-Related Markets
- (a) Pipelines
  - (b) Shipping (aka Freight)
  - (c) Coal
  - (d) Emissions
  - (e) Weather
10. Spreads
- (a) Statistics of Spread Models
  - (b) Intertemporal
  - (c) Intermarket
  - (d) Intercommodity

- (e) Between Asset Classes
11. Options
    - (a) Basics and Vanilla Options
    - (b) Modifications to Black-Scholes-Merton
    - (c) Exotic and Spread Options
    - (d) Real Options
  12. Commodity Risk Management
    - (a) Risk Theory (*coherency, performance metrics, EVT*)
    - (b) Measuring Risk
    - (c) Modeling Risk
    - (d) Managing Risk
    - (e) General Issues
  13. Commodities as an Asset Class
    - (a) What is Meant and Implied by Being an Asset Class?
    - (b) Ways to Invest in Commodities (“baseload” versus “peak”)
    - (c) Problems with Some Investment Approaches
    - (d) The Future of Commodity Investment