

Commodity Derivatives & Price Risk Management

Fall 2026

Course Information

Course Duration: 14 Weeks (28 Sessions)

Credit Hours: 4 Hours

Meetings: Monday 11.30 am to 1.30 am, Tuesday 11.30 am to 1.30 am.

Location: FOB Lounge

Prerequisites: Derivatives & Risk Management or Introduction to Financial Derivatives

Equivalent Courses: None

Instructor Information

Instructor: Prof. Nilotpall Sarma

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1. Course Description

This course provides a comprehensive introduction to commodity derivatives and their role in price risk management. It covers the fundamentals of commodity markets, including futures, options, and swaps, as well as pricing mechanisms and valuation techniques. The course emphasizes practical hedging strategies used by producers, consumers, and financial institutions to manage price volatility. It also explores derivatives across key segments, including metals, agricultural commodities, precious metals, energy, carbon, and weather. Through analytical frameworks and real-world applications, students develop the skills to assess risk, design hedging strategies, and interpret market dynamics in global commodity markets.

2. Course Intended Learning Objectives(Aim)

Course Intended Learning Outcomes	Teaching and Learning Activities	Assessments/ Activities
CLO 1: Explain the structure and functioning of commodity markets and derivative instruments (futures, options, swaps).	Lectures, concept discussions, reading case materials, and classroom interactions	Quizzes, short answer tests, and class participation
CLO 2: Apply pricing models and valuation techniques for commodity derivatives.	Numerical problem-solving sessions, spreadsheet exercises, and guided tutorials	Research project, presentation
CLO 3: Design and evaluate hedging strategies for managing commodity price risk.	Numerical problem-solving sessions, spreadsheet exercises, and guided tutorials	
CLO 4: Analyze derivative markets across commodities (metals, agri, energy, carbon, weather) and interpret market dynamics.	Case studies, Numerical problem-solving sessions, group discussions, and real-market data analysis	

3. Scheme of Evaluation and Grading

Assessment Task	Weightage	Nature	Week of Assessment
A1: Class Quiz	30%	Individual	Weeks 4, 8, and 12
A2: Participation in Case Study and Class Discussion	20%	Individual	Continuous
A3: Project Report and Presentation	50%	Individual	Continuous

Description of Assessment tasks:

Class test/Quiz	There will be three class tests/quizzes. The tests will be based on the lecture notes, class discussions, and readings mentioned in the course manual. The syllabus for each quiz and test will comprise the portion covered till the previous class lesson.
Participation in Case Study and Class Discussion	Throughout the course, multiple real-world case studies will be discussed to connect theoretical concepts with practical applications. Each case will focus on critical events, derivative products, or policy decisions. Active participation in discussions, critical thinking, and the ability to relate cases to course concepts will be key components of evaluation.
Project Report and Presentation	Students will undertake a research project involving real-world commodity market data, applying pricing, hedging, and analytical techniques to evaluate risk exposures, interpret market dynamics, and present actionable insights through reports and presentations.

4. Grade Definition

The schema of the grade sheet may change. Students will be informed well in advance of any changes in the schema of the grade sheet.

Letter Grade	Percentage of Marks	Grade Value	Grade Definitions
O	80 and above	8	Outstanding.
A+	75-79	7.5	Excellent
A	70-74	7	Very Good
A-	65-69	6	Good
B+	60-64	5	Fair
B	55-59	4	Acceptable
B-	50-54	3	Marginal
P1	45-49	2	Pass 1
P2	40-44	1	Pass 2
F	Below 40	0	Fail
I	Incomplete		Extenuating circumstances preventing the student from completing coursework, assessment, or taking the examination; or where the Assessment Panel, at its discretion, assigns this grade. If an “I” grade is assigned, the Assessment Panel will suggest a schedule for completing the work or a supplementary examination.

5. Academic Integrity

Learning and knowledge production of any kind is a collaborative process. Collaboration demands an ethical responsibility to acknowledge from whom we have learnt, what we have learned, and how reading and learning from others have helped us shape our ideas. Even our ideas demand an acknowledgment of the sources and processes through which those ideas have emerged. Thus, all ideas must be supported by citations. All ideas borrowed from articles, books, journals, magazines, case laws, statutes, photographs, films, paintings, etc., in print or online must be credited with the source. If the source or inspiration of your idea is a friend, a casual chat, or something that you overheard, or heard being discussed at a conference or in class, then they must be duly credited. If you paraphrase or directly quote from a web source in the examination, presentation, or essays, the source must be acknowledged. The University has a framework to deal with cases of plagiarism. All forms of plagiarism will be taken seriously by the University, and prescribed sanctions will be imposed on those who commit plagiarism. Attendance Policy: For all students, the course attendance policy implemented by their respective schools shall be applicable.

Use of phone/ texting/ laptop

Mobile phones must be on silent during lectures. Any misuse of this policy, such as using it for surfing or social networking, or any activity that causes or may cause a distraction in class, such as answering the phone or texting during lectures, will negatively affect class participation scores.

6. Keyword Syllabus

- Commodity Derivatives
- Futures & Forwards
- Energy commodities
- Metal Commodities
- Agricultural Commodities
- Carbon & Weather derivatives.

7. Course Material

- I. Commodity Derivatives & Risk Management, Prabina Rajib, *PHI Publication*.
- II. Risk Management in Commodity Markets: From Shipping to Agriculturals and Energy (The Wiley Finance Series) Hardcover, by Helyette Geman, *Wiley Publication*.

8. Session Plan

Session	General Topic	Readings	Approach/Pedagogy
Week 1	Commodity Derivatives Trading & Commodity Exchanges: Commodity Contracts, Trading Platform for Major Commodity Exchanges, Open Outcry vs. Electronics Trading.	Chapter 1: P. Rajib	Classroom teaching using slides and boards.
Week 2	Commodity Exchanges and Commodity Contracts.	Chapter 2: P. Rajib	Classroom teaching using slides and boards
Week 3	Introduction to Futures & Forwards: Pricing & Valuation, Pricing & Valuation for Storable/Non-Storable Commodity.	Chapter 3: P. Rajib	Lectures using slides, boards, and Excel
Week 4	Contango/Backwardation, Hedge Ratio.	Chapter 3: P. Rajib	Lectures using slides, boards, and Excel
Week 5	Introduction to Options, Swaps: Exchange of Futures for Physicals, Pricing & Valuation of Commodity Options.	Chapter 3: P. Rajib	Lectures using slides, boards, and MS Excel
Week 6 & 7	Commodity Price risk for the Agricultural and Livestock commodity: Seasonality in prices, Contango, backwardation.	Chapter 4: P. Rajib	Lectures using slides, boards, and MS Excel

Session	General Topic	Readings	Approach/Pedagogy
Week 8 & 9	Commodity Price Risk in Crude Oil & Natural Gas	Chapter 5: P. Rajib	Lectures using slides, boards, and MS Excel. Case Study.
Week 10	Gold & Silver, Base Metal Commodity Derivatives.	Chapters 6 & 7: P. Rajib	Lectures using slides, boards, and MS Excel
Week 11	Electricity Derivatives Pricing and Trading.	Chapter 8: P. Rajib	Lectures using slides, boards, and MS Excel
Week 12	Carbon Credit Derivatives & Weather Derivatives	Chapters 9 & 10: P. Rajib	Lectures using slides, boards, and MS Excel
Week 13	Miscellaneous Derivatives: Freight, Water, Property, and Non-Farm Payroll Index, Salmon, Bitcoin Derivatives.	Chapter 11: P. Rajib	Lectures using slides, boards, and MS Excel
Week 14	Project Presentations		