

J.P. Morgan Center for Commodities & Global Energy Management

Industry Course:

Energy and Commodities Analytics for Analysts

Daniel Jerrett, Ph.D.

Description

This on-line course introduces participants to commodity data analysis utilizing EViews software. The first section consists of an introduction to performing data analysis in the EViews software platform, with following sections including applied introductions to time-series modeling and forecasting. The course will take a deep dive into understanding the interactions between commodities and the macroeconomy, exchange rates, asset markets, and co-movement between commodities. The course will also focus on forecasting commodity prices with best practices.

Who Should Attend?

The course is appropriate for technical professionals in the commodity, investment, or public sectors who are wanting to learn best practices around data analysis, visualization, and forecasting. In addition, the course uses EViews software (an industry-leading data management and analysis software package) throughout, providing participants a hands-on, applied course focused on real world data and examples.

Course Goals

Upon completion, participants will have a formal understanding of modern time-series and forecasting best practices applied to commodity markets and prices. In addition, participants will gain fluency in the EViews software package and be able to perform a full analysis in the software.

Presentation Modules

1. Course introduction & EViews “Bootcamp
2. Probability and statistics of commodity prices
3. Data visualization in EViews
4. Introduction to time series data
5. Data transformations
6. Intro to regression analysis
7. Multivariate regression analysis
8. Univariate models of commodity prices
9. Model selection and evaluation
10. Forecasting commodities and best practices
11. Trends in commodity prices
12. Intro to multivariate time series models
13. Estimating vector autoregressions
14. Long-run trends in commodity prices
15. Cointegration and commodities
16. Estimating error-correction models



Denver

BUSINESS SCHOOL
GLOBAL ENERGY
MANAGEMENT



J.P. Morgan Center for Commodities
BUSINESS SCHOOL
UNIVERSITY OF COLORADO DENVER

Instructor Bio

Dr. Jerrett has over 15 years of experience developing and implementing forecasting models. He has expertise in mineral and energy economics, macroeconomic forecasting, and international finance. His experience spans both the private and public sectors. Daniel has spent time in the investment management industry, state and local governments as well as consulting with Fortune 500 companies. He continues to be active in academia and teaches courses in econometrics and forecasting at the University of Colorado Denver, University of Colorado School of Public Health and regularly lectures at the University of Colorado Denver's JP Morgan Commodities Center.

Daniel holds a Ph.D. in Mineral and Energy Economics from the Colorado School of Mines. He also holds an M.A. in Economics from DePaul University, an M.S. in Mineral Economics from the Colorado School of Mines and a B.B.A in Business Economics from the University of Iowa Henry B. Tippie School of Business.

For Registration and further information:

<https://business.ucdenver.edu/academics/professional-development/not-credit-certificates/energy-and-commodity-analytics-analysts>

Course Outline

Session 1: EViews Bootcamp

- Introduction to EViews
- Data visualization
- Data transformations
- Statistics review
- Application: *Relationships between commodities*

Session 2: Regression models

- OLS regression analysis
- Bivariate regression
- Multivariate regression
- Seasonality
- Application: *Supply and demand drivers of commodity markets*

Session 3: Univariate Models 1

- Introduction to time series data
- Overview of univariate modeling
- Estimating ARIMA models
- Introduction to forecasting
- Application: *Trends and cycles in commodity prices*

Session 4: Univariate Models 2

- Introduction to trending data
- Unit root tests
- Forecast evaluation
- Application: *Random walk models of commodities*

Session 5: Multivariate models 1

- Multivariate time series models
- ARDL estimation
- System of equations and forecasting
- Application: *Commodities and the global economy*

Session 6: Multivariate Models 2

- Overview of vector autoregressions (VAR)
- Estimating VAR models
- Granger causality
- Impulse response functions
- Forecasting with VAR models
- Application: *Commodities and the global economy*

Sessions 7: Multivariate Models 3

- Overview of cointegration
- Engle-Granger test
- Estimating error-correction models (VECM)
- Forecasting with VECM models
- Application: *Modeling commodity spreads*

Session 8: Introduction to machine learning and regularization

- Introduction to machine learning
- Elastic nets
- Ridge regression
- Lasso models
- Application: *Feature selection and commodity models*

Schedule:

The course will meet twice a week for 2 hours (time of day TBD), over a 4-week period. Lectures will be recorded. Additional EViews exercises will be given to participants at the conclusion of each online session. In addition, short recorded videos of each topic will be provided to help guide participants through take-home exercises. Participants are expected to spend 2-3 hours per week outside of class reinforcing concepts. The course material and communication will be managed online through Canvas. The instructor will provide virtual office hours throughout the week and by appointment to answer questions.