

Exploration, Evaluation and Development of Unconventional Hydrocarbons

Course Description

This 4-day course provides the strategies, tactics, and tools needed to effectively assess and value oil and gas resource in unconventional targets. The premise is that sound estimating of key geoscience, engineering, and economic parameters is essential for maximizing profitability. Probabilistic techniques and a staged approach are emphasized to quantify the range of possible outcomes and make good decisions about which projects to invest in and how to wisely spend capital.

Course Outline

1. Day 1
 - a. Introduction
 - b. Defining an Unconventional Play
 - c. Useful Screening Criteria
 - d. Building an Unconventional Play Map
 - e. Yet-to-Find Methods and Reality Checks
 - f. Estimating In-Place Volumes
2. Day 2
 - a. Estimating Play Chance
 - b. Mapping, Ranking, and Identifying Sweet Spots
 - c. Probability, Distributions, and Correlations
 - d. Estimating the Range of the Average
 - e. Quantifying Uncertainty and Mitigating Bias
3. Day 3
 - a. Aggregation and Its Derivative Products
 - b. Quantifying the Value of Information
 - c. Work Processes and Deliverables
 - d. Discipline Workflows
 - e. Economics and the Single Well Cashflow Model
 - f. Estimating Resources and Reserves
4. Day 4
 - a. Applying a Staged Approach (using Decision Trees and Stage Gates)
 - b. Introduction to ProjectRA (a fully-probabilistic cash flow tool)
 - c. Case Study Posters (evaluated by Teams)
 - i. Shale gas: Barnett, Fayetteville, Haynesville
 - ii. Liquids-rich shales: Eagle Ford, Marcellus, Wolfcamp
 - iii. Sandstones: Codell, Medina, Lance
 - iv. Carbonates: Bakken, Austin Chalk, Uteland Butte