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COURSE BROCHURE

Volumetric Estimation and Subsurface Uncertainty Training Course

20 – 24 June 2027
Muscat

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Registered in the United Kingdom and Saudi Arabia

Volumetric Estimation and Subsurface Uncertainty Training Course

Ref: 2954_112004 **Date:** 20 – 24 June 2027 **Location:** Muscat **Fees:** 6500 GBP

Volumetric Estimation and Subsurface Uncertainty is a 1-week training course for geoscientists and reservoir engineers who calculate how much oil and gas sits in a trap before and after drilling, and who leave with an in-place volume range estimate for one prospect or field. Investment, appraisal and partner equity decisions now rest on honest ranges rather than single numbers. Jupiter Prime Training delivers this volumetric estimation course.

Why Volumetric Estimation and Subsurface Uncertainty Matters Now

Three groups lean on in-place volumes more heavily than before. Investment committees compare exploration and appraisal projects across portfolios and expect every volume to carry a stated low, best and high case. Partners in shared fields negotiate equity and cost shares on the same numbers, so hidden optimism turns into disputes. Appraisal teams must show which single uncertainty, such as contact depth or average porosity, is worth another well or a new seismic survey. An organisation that builds ranges carefully drills fewer disappointing wells.

Who Gains Most from Volumetric Estimation and Subsurface Uncertainty

- Geoscientists who map reservoir tops, faults and fluid contacts
- Petrophysicists who derive net-to-gross, porosity and water saturation from logs and core
- Reservoir engineers who convert pore volume into surface volumes with fluid properties
- Prospect assessors who set and combine input ranges
- Appraisal coordinators who choose what the next well should resolve

A subsurface asset group sending geoscience, petrophysics and engineering members together gains most.

Volumetric Estimation and Subsurface Uncertainty Capabilities

Participants move from a deterministic volume built from average values to a defensible range with its main drivers ranked.

- Calculate gross rock volume from depth maps, contact depths and area–depth curves — prospect sign-off
- Specify input ranges and distribution shapes for each reservoir parameter — peer assurance panels
- Test dependencies between inputs such as porosity and saturation — technical reviewers
- Build low, best and high in-place cases through probabilistic aggregation — investment committees
- Assess which uncertainties dominate the range using sensitivity ranking — appraisal planners
- Communicate volume ranges and assumptions — partners and commercial teams

Key Volumetric Estimation and Subsurface Uncertainty Terms

- Gross rock volume — the total rock volume between the reservoir top, base and the lowest fluid contact inside the trap.
- Net-to-gross — the fraction of the gross interval made of rock good enough to store and flow hydrocarbons.
- Water saturation — the share of the pore space filled with water rather than oil or gas.
- Formation volume factor — the ratio converting a volume of oil or gas at reservoir conditions into surface volume.
- Probabilistic aggregation — combining input ranges by repeated random sampling to produce a distribution of possible volumes.
- Tornado chart — a bar chart ranking each input by how much it widens or narrows the volume range.

Volumetric Estimation and Subsurface Uncertainty Day by Day

Day 1: Trap Geometry and Gross Rock Volume

- Depth Conversion Choices — How Velocity Uncertainty Moves the Reservoir Top
- Structure Maps and Spill Points — Defining the Closing Contour of a Trap
- Fluid Contact Picking From Pressure and Logs — Setting the Volume Base
- Area–Depth and Area–Thickness Curves — Turning Maps Into Rock Volume
- Fault Compartments and Segment Volumes — Splitting Totals by Connectivity

Day 2: Reservoir Properties and Their Ranges

- Net Pay Cut-Offs for Shale, Porosity and Saturation — Testing Their Influence
- Porosity Averaging From Logs and Core — Weighting Thin Beds and Gaps
- Water Saturation From Resistivity and Capillary Pressure — Choosing a Method Per Zone
- Formation Volume Factor and Gas Expansion — Linking Fluid Samples to Volume
- Analogue Fields and Regional Trends — Bounding Inputs Where Data Is Sparse

Day 3: Probabilistic Methods and Dependencies

- Distribution Shapes for Each Input — Normal, Lognormal, Triangular and Uniform Choices
- Random Sampling and Iteration Counts — Producing a Stable Volume Distribution
- Correlated Inputs Such as Porosity and Saturation — Avoiding Unrealistic Combinations
- Scenario Versus Probabilistic Approaches — When Discrete Geological Models Fit Better
- Adding Volumes Across Segments and Zones — Avoiding Errors in Summed Low Cases

Day 4: Ranking Uncertainty and Guiding Appraisal

- Tornado and Spider Charts — Ranking Inputs by Their Effect on Range
- Value of Appraisal Information — Choosing Wells and Surveys That Narrow Ranges
- Updating Ranges After New Well Results — Recording Why Numbers Changed
- Peer Assurance Checklists — Challenging Optimism and Anchoring in Inputs
- Presenting Ranges to Partners and Committees — Clear Assumptions and Caveats

Day 5: Practising the In-Place Volume Range Estimate

- Faulted Sandstone Oil Prospect — Applying Trap Geometry and Segment Volumes
- Carbonate Gas Field Under Appraisal — Applying Property Ranges and Dependencies
- Tight Gas Acreage Screening — Applying Scenario and Probabilistic Comparison
- Group Challenge of Input Ranges — Defending Distributions and Sensitivities
- In-Place Volume Range Estimate — Issuing Low, Best and High Cases With Drivers

Applying Volumetric Estimation and Subsurface Uncertainty After the Course

- Rebuild the volume of one current prospect with explicit input distributions and compare it with the single figure on record.
- Produce a tornado chart for one field segment and propose which uncertainty the next appraisal step should target.

Volumetric Estimation and Subsurface Uncertainty Questions FAQ

What is volumetric estimation and subsurface uncertainty, and why does it matter now?

It is the calculation of oil and gas in place from rock volume and reservoir properties, expressed as a range. Investors and partners now expect stated low, best and high cases before committing to drilling or development.

Which roles gain most from volumetric estimation and subsurface uncertainty?

Geoscientists, petrophysicists and reservoir engineers who supply the inputs gain most. Prospect assessors and appraisal coordinators also benefit.

How does volumetric estimation and subsurface uncertainty differ from a reserves classification course?

It focuses on how much hydrocarbon sits in the rock and how uncertain that figure is. A reserves classification course deals with how recoverable, commercial volumes are categorised and reported.

What do you bring back from volumetric estimation and subsurface uncertainty?

You bring back an in-place volume range estimate for one prospect or field. It sets out input distributions, cases and their main drivers.

Volumetric Estimation and Subsurface Uncertainty: The Way Forward

The in-place volume range estimate first informs whether a prospect is worth drilling or which appraisal step should come next. Geoscientists, reservoir engineers and commercial staff use it to agree the numbers shown to partners and committees. After its first use, revisit the input distributions once new well or seismic results arrive.