



PETROLEUM GEOSCIENCE AND PETROPHYSICS

Shaly Sand and Complex Reservoir Petrophysics

5 day course

Classroom, online or in-house

Course overview

Archie's equation assumes clean rock, and in laminated, clay rich, low resistivity or mixed lithology reservoirs it can understate hydrocarbon saturation badly enough to condemn a commercial zone. Delegates start with clay mineralogy and the distinction between laminated, dispersed and structural shale, then compare the Simandoux, Indonesia, Waxman Smits and dual water models. Thin bed analysis, resistivity anisotropy and low contrast pay are treated next. Complex lithology follows: volcanics, tight sands and mixed carbonate clastic sequences, solved with multimineral probabilistic methods. Integration with core, capillary pressure and saturation height functions completes the work. Delegates leave able to choose and calibrate the right saturation model, quantify uncertainty and build a petrophysical model fit for reserves and simulation.

What you will learn

- Distinguish laminated, dispersed and structural clay and their effect on logs
- Compare Simandoux, Indonesia, Waxman Smits and dual water saturation models
- Evaluate thin beds and low resistivity pay using anisotropy and high resolution data
- Solve mixed lithology problems with multimineral probabilistic analysis
- Calibrate log models to core porosity, grain density and cation exchange capacity
- Derive saturation height functions from capillary pressure data
- Quantify uncertainty in net pay, porosity and saturation

Who should attend

- Experienced petrophysicists
- Formation evaluation specialists
- Reservoir geologists working difficult reservoirs
- Core analysis specialists
- Reservoir engineers responsible for in place volumes

Course outline

- 01 Limits of the Archie approach
- 02 Clay minerals and shale distribution
- 03 Shaly sand saturation models
- 04 Thin beds and anisotropy
- 05 Low resistivity and low contrast pay
- 06 Complex and mixed lithology
- 07 Multimineral probabilistic analysis
- 08 Core calibration and saturation height
- 09 Uncertainty in petrophysical outputs

Upcoming dates



Dates	Venue	Format	Fee per delegate
12 to 16 October 2026	Accra, Ghana	Classroom	USD 1,325
15 to 19 February 2027	Online	Online	R8,500
1 to 5 March 2027	Gaborone, Botswana	Classroom	R19,950
15 to 19 March 2027	Durban, South Africa	Classroom	R19,950

Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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