



PETROLEUM GEOSCIENCE AND PETROPHYSICS

Machine Learning and Data Science for Petroleum Geoscience

5 day course

Classroom, online or in-house

Course overview

Geoscience departments hold decades of logs, cores, seismic and reports that are rarely analysed together because the data are messy and spread across formats. Data science can make that archive productive when the geoscientist understands the algorithm. Delegates start with Python, notebooks and the core libraries, then clean and condition well logs, handling gaps and depth shifts. Supervised learning follows: regression for synthetic logs and permeability prediction, classification for facies, with honest blind well validation. Unsupervised clustering for electrofacies and dimensionality reduction come next, then convolutional networks for fault and salt detection. The final sessions treat explainability, bias and how to deploy a model into a team workflow. Delegates leave able to build, test and critique machine learning models on their own data.

What you will learn

- Prepare and clean well log and core data sets in Python
- Apply regression methods to predict missing logs and permeability
- Train and validate classification models for facies prediction
- Use clustering and dimensionality reduction to define electrofacies
- Explain how convolutional neural networks are applied to seismic interpretation
- Evaluate model performance with cross validation and blind wells
- Interpret model outputs with explainability tools and geological judgement
- Plan the deployment of a model into an existing geoscience workflow

Who should attend

- Geoscientists with an interest in data analytics
- Petrophysicists automating interpretation
- Seismic interpreters exploring automated picking
- Data scientists joining subsurface teams
- Digital transformation leads in upstream companies

Course outline

- 01 Python and notebooks for geoscientists
- 02 Subsurface data wrangling
- 03 Exploratory analysis and visualisation
- 04 Supervised regression
- 05 Facies classification
- 06 Clustering and electrofacies
- 07 Deep learning for seismic
- 08 Validation, explainability and bias
- 09 Deploying models in the team

Upcoming dates



Dates	Venue	Format	Fee per delegate
26 to 30 October 2026	Kampala, Uganda	Classroom	USD 1,325
9 to 13 November 2026	Kigali, Rwanda	Classroom	USD 1,325
7 to 11 December 2026	Online	Online	R8,500
4 to 8 January 2027	Windhoek, Namibia	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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