I. Course Description

This course will cover introductory as well as advanced concepts in geostatistics and application to petroleum reservoir characterization using a variety of data such as core data, log data, 3-D seismic, production history, tracer test data, pressure transient data etc. The course will include hands-on sessions for solving practical field problems using PC/workstations. See the attached course outline for details.

II. Course Duration

The course is designed to be for five days. The afternoons will be devoted to solving practical field problems.

III. Background Required

The course is designed for practicing geoscientists and engineers

IV. Instructor

Akhil Datta-Gupta is the Rob L. Adams Professor in Petroleum Engineering at Texas A&M U. in College Station, TX (USA). He holds a PhD in Petroleum Engineering from the U. of Texas at Austin and has worked with BP Exploration/Research and the Lawrence Berkeley National Laboratory. He is well-known throughout the industry for his contributions to reservoir characterization, development and application of 3D streamline simulation methods and dynamic data integration into reservoir models. He has over 60 publications in the related areas and was awarded the Lester C. Uren award (2003) by the Society of Petroleum Engineers for his contributions to Petroleum technology. He is an SPE distinguished member and a recipient of the AIME Rossitter W. Raymond award (1992) and SPE Cedric K. Ferguson Certificate (2000). He is also an SPE distinguished lecturer (1999-2000) and an SPE distinguished author (2000).
# COURSE OUTLINE

## GEOSTATISTICAL RESERVOIR CHARACTERIZATION
Instructor: Dr. Akhil Datta-Gupta, Texas A&M University, USA

<table>
<thead>
<tr>
<th>Day</th>
<th>Morning</th>
<th>Afternoon</th>
</tr>
</thead>
</table>
| 1   | Geostatistical Modeling-- Overview  
Heterogeneity Measures  
Decision-making Under Uncertainty | Review of Probability and Distributions  
Univariate Analysis/Data Transformation  
Analysis of Field Data |
| 2   | Covariance and Variogram  
Variogram Modeling and Interpretation  
Analysis of Field Data | Simple and Ordinary Kriging  
Cross-validation  
Analysis of Field Data |
| 3   | Cokriging/Collocated Cokriging  
Conditional Simulations/Sequential Approaches  
Analysis of Field Data | Indicator Simulation of Lithofacies  
Boolean/Object-based Models  
Analysis of Field Data |
| 4   | Multidisciplinary Data Integration  
Data Correlation via Non-parametric Regression  
Analysis of Field Data | Integration of Seismic Data  
Upscaling  
Analysis of Field Data |
| 5   | Flow Simulation Through Geologic Models Using  
Streamlines  
History Matching- Preliminaries | Discussion  
Wrap-up |

The course requires access to computers with MS Windows and MS Excel.