Short Course 1

Shale Diagenesis

Instructor: R. Douglas Elmore, Director & Eberly Chair, ConocoPhillips School of Geology & Geophysics
Gerhard Heij, PhD Candidate; Jennifer Roberts, Master’s Candidate

Location: Sarkeys Energy Center - Room 1446

Fee: $15 for students

Limit: 20 participants maximum

Includes: Lunch

Shale diagenesis is very complex and controlled by several variables operating across non-discrete spatial-temporal boundaries. While significant progress has been made in understanding shale diagenesis, fundamental issues such as whether or not shales behave as open or closed systems and how diagenesis controls migration pathways remain unresolved. In addition, we need to better connect scales of observation in shales. In this short course, we will discuss these issues and focus on the paragenesis of shales. Other topics which will be included are porosity types and origin, how diagenesis can influence the mechanical properties, the magnetic fabric of shales, the timing of events in shales. We will spend part of the short course examining shales in the SEM.

Short Course 2

3D Seismic Attributes To Define Structure And Stratigraphy—A Hands-on Course

Instructor: Kurt Marfurt, Professor, ConocoPhillips School of Geology & Geophysics

Location: Sarkeys Energy Center - Room 1010 Crustal Imaging Facility

Fee: $15 for students

Limit: 20 participants maximum

Includes: Lunch

Geometric attributes such as coherence and curvature are routinely used to rapidly visualize and quantify faults and folds in 3D volumes that may otherwise take weeks to manually interpret using traditional horizon and fault plane interpretation workflows. Curvature is a measure of shape and can thus be used to map carbonate buildups, collapse features, and differential compaction of thicker channels. Amplitude curvature maps more rapid lateral changes in reflectivity and often allows one to image joints and fractures that give rise to subtle amplitude lineaments. Reflector convergence quantifies the magnitude and orientation of onlap, erosional truncation, and channel fill. Spectral components are sensitive to thin bed tuning and can be used to map channels and lateral changes in thickness that fall at or near the limits of seismic resolution.
Short Course 3

3-D Reservoir Modeling (using Petrel)

*This course is for non-OU students only*

**Instructor:** Matthew Pranter, Professor, ConocoPhillips School of Geology & Geophysics

**Location:** Sarkeys Energy Center - Plaza 360

**Fee:** $15 for students

**Limit:** 25 participants maximum

**Includes:** Lunch

This short course emphasizes the concepts and methods of 3-D geological / reservoir modeling through lectures and the use of Petrel software (*Petrel software graciously provided by Schlumberger through a major donation to OU*). The course addresses the reservoir modeling workflow, modeling inputs and conditioning data, stratigraphic and structural framework, well-log upscaling, “rock type” modeling concepts and methods, petrophysical property modeling methods, and analysis of reservoir modeling results.

*This course is for non-OU students only*

Short Course 4

An Independent Petroleum Geologist: What You Will Never Learn from Professors or Majors

**Instructor:** Mike Pollok, President of MAP Exploration, University of Oklahoma Alumnus

**Location:** MAP Exploration—Purcell, OK

**Fee:** $15 for students

**Limit:** 35 participants maximum

**Includes:** Lunch & Transportation

An independent geologist’s perspective on generation, leasing, selling and development of various types of oil and gas prospects. The course will demonstrate proven techniques used in getting wells drilled and completed. Participants will be exposed to all aspects of a prospect from using regional maps for the “big picture” to overseeing leasing, packaging of the prospect, selling of the deal and finally overseeing of the drilling of the well.

Short Course 5

Non-seismic methods in exploration and production

**Instructor:** Michael Behm, Professor, ConocoPhillips School of Geology & Geophysics

**Location:** Sarkeys Energy Center - Plaza 340

**Fee:** $15 for students

**Limit:** 20 participants maximum

**Includes:** Lunch

In addition to the seismic reflection method, a variety of additional geophysical technologies provide information for exploration and production. Potential field methods measure the Earth’s gravity and magnetic fields and can map variations of density and magnetization in the subsurface. Electromagnetic methods are sensitive to the subsurface electrical resistivity and are used to discriminate between pore fluids. Microseismic monitoring can detect changes in the stress field of the subsurface caused by reservoir stimulation.

We will discuss the principles of these methods and their role in the E&P workflow, as well as their merits and limitations. Examples from case studies will be presented.