MSRL Spring-2019 Short Course
Characterization of Mudrock Reservoirs

(Open to all current MSRL members)

Location: Bureau of Economic Geology, Austin Texas

Date: 7:30am – 4:30pm, Thursday, April 4th, 2019

Outline: This short course will present best methods of multidisciplinary data collection, and interpretation critical to characterizing unconventional mudrock reservoir systems. Topics to be covered include facies definition, chemostratigraphy, hydrocarbon geochemistry, pore systems, and flow modeling and their importance in mudrock oil and gas reservoir characterization.

Who should attend: Geologists, petrophysicists, engineers, and managers

Schedule

7:30am **Introductions. Coffee and bagels provided**

8:00 – 9:30am **Mudrocks: origin and characterization (Stephen Ruppel)**

- Where are they and how do they form
- Tools for defining mudrock attributes

9:30 – 10:30am **Diagenesis and pore networks (Robert Loucks)**

- Diagenetic processes in mudrocks from deposition through burial
- Introduction to mudrock pore types, pore networks, and pore classification

10:30 – 12:00pm **Hydrocarbon geochemistry – (Tongwei Zhang, Xun Sun)**

- Methods for characterizing organic matter, and oil and gas in mudrocks
- Defining organic matter type, oil and gas generation and migration
- Biomarkers and their application in source input and thermal maturity

12:00 – 1:00pm **Lunch** (Sandwiches and beverages provided)

1:00 – 2:00pm **Trace element and isotope geochemistry of the oceans (Toti Larson)**

- Using trace elements and isotopes to define ocean chemistry
- Importance of trace element chemistry in mudrock characterization

2:00 – 3:00pm **Porosity and Permeability (Sheng Peng)**

- Pros and cons of laboratory methods
- Permeability-porosity relationships
- Importance of relative permeability and laboratory measurement

3:00 – 4:00pm **Fluid flow in mudrock systems (Farzam Javadpour)**

- NonDarcy gas flow
- NonDarcy liquid flow

4:00 pm **Discussion**