

## **PNGE 735 – Advance Formation Evaluation**

### ***Course Description***

PNGE 735. Advanced Formation Evaluation. 3 Hr. Advanced methods for interpreting well logs, shaly sand analysis, and production logging methods.

### **Pre-requisites:**

1. Graduate level standing

### **Textbook(s) and/or Other Required Material**

#### **Textbooks**

**Openhole Log Analysis and Formation Evaluation**, 2012 Edition, by Richard M. Bateman, publisher: Society of Petroleum Engineers.  
**Schlumberger Interpretation Charts 2009**

### **Reference Books:**

**Theory, Measurement, and Interpretation of Well Logs**, by Bassiouni, Z., SPE Text Book Series Vol. 4, 1994.

Reference Book: Fundamentals of Formation Evaluation, by Helander, D. P., OGC Publications, 1983.

### **Course Objectives**

This course is designed to give the graduate standing students the fundamental concepts and applications of well log interpretation for: (1) delineation of hydrocarbon bearing horizons, (2) geological characterization, (3) applications of advance well log interpretation and formation evaluation to exploration and extraction programs.

### **Topics Covered**

1. Log interpretation, fundamental concepts
2. SP log and applications

3. Conventional resistivity logs and applications
4. Acoustic (sonic) log and applications
5. Gamma ray and caliper logs
6. Formation density compensation
7. Compensated neutron and side wall neutron porosity logs
8. Litho-density log and applications
9. Collective applications and interpretation of the above geophysical well logs
11. Shay Sand Interpretation

**Lecture:** 2 sessions/week, 75 minutes/session

**Grading Policy**

HOMEWORKS:	10%
QUIZZES:	20%
PROJECT:	30%
EXAMS:	25%
PRESENTATION	15%
<b>Total</b>	<b>100%</b>

**Attendance Policy:**

ATTENDANCE IS MANDATORY!!!! Only extenuating circumstances will be excused with the proper documentation. For university-sponsored events, students must inform the instructor at least one week in advance of the absence to be excused and provide a written note from the event sponsor. In the case of illness or family tragedy, the student must contact the instructor within 48 hours of the absence to be excused. For illnesses, written notes from physicians must be presented to be excused.

### **Assignments/Projects:**

Assignments are due at the beginning of each class.

### **Missed Lab/Quiz/Test Policy:**

Missed quizzes/tests may be made up for excused absences only (see above). The student must make arrangements with the instructor/TA to make up the quiz/test within one week after the absence.

If you have questions/issues please talk to your instructor. **YOU** ARE RESPONSIBLE FOR THE GRADE YOU RECEIVE IN THIS COURSE.

### **Social Justice Statement:**

“The West Virginia University is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Accessibility Services (304-293-6700). For more information on West Virginia University’s Diversity, Equity, and Inclusion initiatives, please see <http://diversity.wvu.edu>.”

### **Academic Integrity Statement:**

The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Student Conduct Code at <http://studentlife.wvu.edu/studentconductcode.html>. Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me before the assignment is due to discuss the matter.

### **Emergencies:**

In the case of an emergency such as fire alarm, please evacuate the building and gather at least 100 yards away from the building. DO NOT return to the building until the emergency is over and it is cleared by the fire marshal or police. with Disability Services (293-6700).