

Course Syllabus: PNGE 460 – Well Stimulation Design

Semester:

Spring 2015

Class schedule:

Thursday, 6:00-8:20 PM

Lecture:

1 session/week, 140 minutes/session

Pre-requisites:

1. PNGE 333: Petroleum Reservoir Engineering
2. PNGE 420: Production Engineering
3. MAE 243: Mechanics of Materials

Instructor:

Hoss Belyadi

Available by Email

Email: hbelyadi@mail.wvu.edu

TA's email: zanewilliamharvey@gmail.com

Textbook and/or Other Required Material:

Modern Fracturing: Enhancing Natural Gas Production, Michael J. Economides and Tony Martin, Energy Tribune Publishing Inc, 2008

Reference Books:

1. Design and Appraisal of Hydraulic Fractures, Jack Jones and Larry Britt, Society of Petroleum Engineers, 2008
2. Hydraulic Fracture Mechanics, Peter Valkó and Michael J. Economides, Wiley and Sons, 1995

Course Learning Outcomes:

The main objectives of this course are:

1. Completions design
2. Optimizing production from both a completion and an economic perspective

Topics covered:

1. Basics of unconventional shale reservoirs and hydraulic fracturing
2. Various shale parameters for production enhancements
3. Different types of fracturing techniques with a special emphasis on slickwater and gel fracturing
4. Rock mechanics, in-situ stress, and fracture geometry
5. Rheology of fracture fluid
6. Diagnostic fracture injection test (DFIT)
7. Operation, safety, and job execution
8. Fracture treatment design and schedules
9. Economic analysis of various completions designs
10. Production analysis in relation to fracture design

Grading Policy:

Homework= 35%

Quizzes= 15%

Attendance= 20%

Mid-term exam= 15%

Final exam= 15%

Grade Assignment:

100 – 90 A

89 – 80 B

79 – 70 C

69 – 60 D

59 – 0 F

Attendance Policy:

Attendance is mandatory. Consistent with WVU guidelines, students absent from regularly scheduled classes because of authorized University activities will have the opportunity to take them at an alternate time. Make-up exams for absences due to any other reasons will be at the discretion of the instructor.

Social Justice Statement:

“West Virginia University is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and nondiscrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. 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 arrangement with Disability Services (293-6700).”

Academic Integrity:

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

http://studentlife.wvu.edu/office_of_student_conduct/student_conduct_code. 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.