

1. Class attendance is a must. Absenteeism could result in a FAILING grade. Lectures will be given once. Punctuality is also essential and if some extra ordinary circumstances result in your coming late, please come in with minimum disturbance to class.
2. Homework assignments will be due one week from the date assigned unless noted otherwise. Homework assignments are individual tasks, but you are free to consult the instructor, the TA, your classmates or anyone else if needed. The important point in doing homework is to help understand the course material.
3. Short, unannounced quizzes may be given at the beginning of any class. They will cover the most recent class topics.
4. Final exam is mandatory. No makeup exam will be given.
5. Your final grade will be determined solely by your performance on the assignments, and exams. Therefore, the work done must be your own. Plagiarism and cheating will not be tolerated. A violation of the rules of academic integrity may result in "F" for the course.

COURSE OUTLINE

1. Production System
 - Major Components of a Total Production System
 - Examples
2. Review of Mass Transfer Models
 - Black-Oil Model
 - Compositional Model
3. Inflow Performance Relationship for Oil and Gas Wells.
 - Flow In Porous Media
 - Productivity Index Concept
 - Two-Phase Flow Inflow Performance Relationship
 - Flow Efficiency
 - Non Darcy Flow IPR
 - Future IPR's
4. Fluid Mechanics Review.
 - Conservation Laws
 - Pressure Gradient Equation
 - Enthalpy Gradient Equation
 - Temperature Prediction in Wellbores and Pipelines
 - Calculation Algorithm
 - Multiphase Flow Basics
5. Flow in Wellbores and Pipelines
 - Pressure Gradient and Holdup Prediction
 - ◆ Dimensional Analysis
 - ◆ Correlations
6. Comprehensive Mechanistic Modeling
 - ◆ Unified Model (Zhang et al.)
7. Flow in Restrictions
 - Critical vs. Sub-Critical Flow
 - Critical Flow Correlations
 - Sub-Critical Flow Correlations
8. Production System Analysis (Nodal Analysis)
9. Special Topics