Reservoir Simulation & Modeling
Part One: Fundamentals

Course Number: PNGE 532
Course Title: Reservoir Simulation & Modeling – Part One: Fundamentals
Instructor: Shahab Mohaghegh, Ph.D.
Semester: Fall
Prerequisites: Reservoir Engineering or consent
None Required, Hand Outs are provided. Notes given during the course.
"Petroleum Reservoir Simulation," Aziz, Settari.
Approx. Test Date: Midterm Exam, Second Week of October
Final, Week of Finals
Homework: 4 to 8 homework sets and quizzes, 2 computer projects.
Grading Policy: Homework 25%
Projects 45%
Midterm 15%
Final 15%

On-Time attendance is absolutely required
Course Content

- Introduction - Basic Concepts
- Finite Difference Calculus
  - Taylor Series
- Grid Type and Boundary Conditions
- Solution Methods
  - Direct Method
  - Iterative Method
    - Jacoby’s Method
    - Gauss-Seidel Method
    - PSOR – LSOR Method
- Solution of the Elliptic Partial Differential Equation
  - Incompressible Flow
- Solution for Parabolic Partial Differential Equation
  - Slightly Compressible Flow
  - Compressible Flow