Instructor: Prof. Christine Ehlig-Economides
Office: 401F
Office Hours: MW 3-5pm
Phone: 979 458-0797
Email: cee@symet.net

Textbook:

Recommended Reading:

- SPE Reprint Series, No. 57: *Pressure Transient Testing*, V. I and II, 2004

Course Requirements:
Homework/Teamwork  50%
Midterms  50%

Unless otherwise indicated, homework assignments will be issued on Thursdays and due on the following Thursday. Students will present homework solutions according to a random selection. Failure to be prepared to present when asked will reduce homework grade by 10%. Collaboration on homework is encouraged, and the class will be divided into teams.

Midterm exams will be take-home exams due the next class.

Catalog Course Description:
Diffusivity equation and solutions for slightly compressible liquids; dimensionless variables; type curves; applications of solutions to buildup, drawdown, multi-rate, interference, pulse and deliverability tests; extensions to multiphase flow; analysis of hydraulically fractured wells.
Prerequisites: PETE 324 and 620; approval of graduate advisor.

Course Objectives:
1. Experience how well test models are derived and computed
2. Experience how to simulate pressure transient test behavior and how to design well tests*
3. Experience how to process, quality check, diagnose, and analyze pressure transient data
4. Understand the behavior of well and reservoir response patterns observed in well tests, what well and reservoir parameters can be quantified, and how to quantify them from pressure transient data*

*Using commercial software
Course Outline

Week  Lecture Topics
1  Introduction - Overview of the Course
2  Modeling – Diffusivity Equation Derivation; PTT Ch. 1, App. A, B
2  Modeling – Diffusivity Equation Solutions; PTT Ch. 1, App. A, B
3  Modeling – Solution Implementation, Type Curves; PTT Ch. 4, App. F
3  Superposition; PTT Ch. 1-2, App. E
4  Wellbore Storage and Skin; Index PTT wellbore storage, skin
4  Flow Regimes; PTT App. G
   Midterm Exam I
5  Test Design; PTT Ch. 8-11, App. K
6  Gas Well Testing, Multiphase Testing
7  Naturally Fractured Reservoir, Reservoir Limits
8  Partial Penetration/Limited Entry; PTT Ch. 2
9  Horizontal Well; PTT Ch. 12
10 Hydraulically Fractured Well; PTT Ch. 6
    Midterm Exam II
11 Multiwell and Interference Testing

Americans with Disabilities Act (ADA) Policy Statement

The following ADA Policy Statement (part of the Policy on Individual Disabling Conditions) was submitted to the University Curriculum Committee by the Department of Student Life. The policy statement was forwarded to the Faculty Senate for information.

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.

Academic Integrity Statement

"An Aggie does not lie, cheat, or steal or tolerate those who do."

Definitions of Academic Misconduct
http://www.tamu.edu/aggiehonor/acadmisconduct.htm

1. Cheating
   Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices or materials in any academic exercise.
2. Fabrication
   Making up data or results, and recording or reporting them; submitting fabricated documents.
3. Falsification
   Manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.
4. Multiple Submissions
   Submitting substantial portions of the same work (including oral reports) for credit more than once without authorization from the instructor of the class for which the student submits the work.
5. **Plagiarism**
The appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

6. **Complicity**
Intentionally or knowingly helping, or attempting to help, another to commit an act of academic dishonesty.

**Honor Council Rules and Procedures** [http://www.tamu.edu/aggiehonor](http://www.tamu.edu/aggiehonor)