Instructor
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Office: Rooms 407B Richardson Building
Office Hours: Tuesday and Thursday 2:00 – 4:00 PM or by appointment

Course Description:

665. Petroleum Reservoir Engineering (3-0). Credit 3

Reservoir description techniques using petrophysical and fluid properties; engineering methods to determine fluids in place, identify production-drive mechanisms, and forecast reservoir performance; implementation of pressure-maintenance schemes and secondary recovery. Prerequisite: Approval of instructor or graduate classification

Text: Petroleum Engineering Handbook, Bradley, editor, published by SPE. There will also be handouts from the petroleum literature and from the instructor.

ADMINISTRATIVE PROCEDURES

Class Schedule (Face to Face):
Monday-Wednesday-Friday 12:00 PM – 3:35 AM
Richardson 302

Grading:
Your final grade in PETE 665 is based on your individual performance and your participation as a team member. All students are expected to participate in class. Your participation is important to the success of the course as much of the learning will occur in collaboration with your classmates. The homework assignments and threaded discussions are ways you can demonstrate you have mastered lesson objectives, and will help prepare you for the exams. All assignments should be completed on schedule. Homework will be discussed in class and there will be two take home exams (dates already decided). The final exam will be over a two hour period and it will be comprehensive.

The following is the grading policy
GRADING SUMMARY PETE 665

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percentage</th>
<th>Exam Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Reviews</td>
<td>10%</td>
<td></td>
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<tr>
<td>Homework &amp; Participation</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Exam # 1 (Module 1)</td>
<td>25%</td>
<td>6/14/2006</td>
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<tr>
<td>Exam # 2 (Module 2)</td>
<td>25%</td>
<td>6/23/2006</td>
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<tr>
<td>Final Exam (comprehensive)</td>
<td>30%</td>
<td>7/03/2006</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
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GUIDELINES FOR PAPER REVIEW
It should take no more than one page to summarize a typical paper. Some papers may require more; use your own judgment. Learn to be concise and to state briefly the essential ideas communicated.

USUAL ORGANIZATION OF A REVIEW (adapted from Dr. John Lee)
- Authors, title. Use the SPE standard reference style. (You can find it in the SPE Guide to Publications, which is on the web at http://www.spe.org)
- Problem. Briefly, describe the problem the authors are trying to solve.
- Solution. Describe the solution the authors propose. Did they propose a specific method to recover additional oil, do they discuss data required, limitations, do they analyze performance? What is it?
- Value. Describe the value of the authors’ solution to the petroleum industry.
- Conclusions. Describe the conclusions the authors reached as a result of their analysis
- Approach. Describe what the authors did to validate their proposed solution.
- Limitations. List the limitations of the work. Is it applicable to only a certain type of reservoir or field?
- Application. How would you apply the knowledge provided in this paper?
- Critique. What questions did the authors leave unanswered? What could the authors have done to make the paper better?

OBJECTIVES FOR REVIEWING PAPERS IN THIS CLASS
- To learn how to learn from papers (harder than textbooks, but more important in the long run)
- To learn how to identify the really important ideas in papers
- To learn how to summarize ideas concisely
- To learn how engineers with vastly different points of view think and how they approach problems and their solutions

ACCESSING AND DOWNLOADING PAPERS
Students on campus:
- Go to library.tamu.edu
- Search for SPE.
- Click the link to SPE.
- Look for your ID and Password in the lower part of the page.
- Follow the instructions for logging into the SPE library. If/when the password changes, the change will be posted on the library's SPE link.

Distance-learning students:
- Log into My Portal on the library.tamu.edu Web site using your NetIDs (the same ID and password you use for WebCT).
- Any student can use My Portal to access the TAMU library—and the SPE library—from anywhere.
- In My Portal, you can set up My Journals so you do not have to search for SPE every time. All you have to do is click the book icon next to the link; this works for all the resources in the library. Once you link to SPE, it works the same as on campus.

Academic Integrity Syllabus Statement

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

All syllabi shall contain a section that states the Aggie Honor Code and refers the student to the Honor Council Rules and Procedures on the web http://www.tamu.edu/aggiehonor

It is further recommended that instructors print the following on assignments and examinations:

"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."

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Signature of Student

Americans with Disabilities Act (ADA) Policy Statement

The following ADA Policy Statement (part of the Policy on Individual Disabling Conditions) was submitted to the UCC 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 antidiscrimination statue 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 that you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room 126 of the Koldus Building, or call 845-1637.

Course Contents General

Module 1: Reservoir Fluid Properties

Course Overview
Classification of Reservoir Fluids
Gas Properties and Correlations
Phase Behavior Fundamentals from: Pressure/Temperature and Pressure/Composition Diagrams
Wet Gases – Recombination
Oil Properties and Correlations
Filed Data and Properties of Produced Waters

Exercises

Suggested Reading [1]
key for references and reading assignments included in power point presentations. Detailed syllabus links to downloadable material

Module 2: Properties of Reservoir Rocks
Porosity – Porosity Types
Fluid Saturations and Wettability
Permeability – Electrical Conductivity of Fluid Saturated Rocks
Capillary Pressure – Core Analysis
Relative Permeability – Interfacial Tension
Error Analysis – Regression Techniques
Numerical Integration

Exercises

Module 3: Reservoir Performance Modeling
Material Balance Gas Solution Gas-Drive, Gas-Cap Drive
Material Balance Oil Reservoirs
Modified Material Balance Volatile Oil and Gas Condensates
Generalized Material Balance Equation
Aquifer Models – Water Drive
Fractional Flow Theory – Pressure Maintenance – Water Flooding

Exercises

Summer 2006*

May 26        Friday, 5 p.m. Last day to register for first term and 10-week semester and pay fees.
May 29        Monday. Memorial Day. Faculty and Staff holiday.
May 30        Tuesday. First day of first term and 10-week semester classes.
June 2        Friday, 5 p.m.
  · Last day for adding/dropping courses for the first term and the 10-week semester.
  · Last day to apply for degrees to be awarded in August for students completing degree requirements in the first term.
June 19       Monday, 5 p.m.
  · Last day for all students to drop courses with no penalty for the first term (Q-drop)
  · Last day to officially withdraw from the University for first term.
June 30  
Friday. Last day of first term classes.

July 3  
Monday.  
· First term final examinations.  
· No 10-week semester classes.  
· Last day to register for the second term and pay fees, 5 p.m.

*All dates and times are subject to change.*