Richard G. Hughes

Professional in Residence and Campanile Charities Professor

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Baton Rouge, LA 70803 | (225) 284–4742 (cell)

Academic Experience

Louisiana State University

Craft & Hawkins Department of Petroleum Engineering

Professional in Residence 2011 – Present
Campanile Charities Professor of Petroleum Engineering 2014 – Present
Associate Professor and Mr. & Mrs. Boyd H. McMullan Professor 2005 – 2010

- Teach undergraduate, graduate and industry courses; advise and mentor students, conduct research activities, supervise graduate students and develop sponsored research projects; participate in University, Professional and Community service.
- Courses Taught: Economic Aspects of Petroleum Production, Reserve Estimation and Reservoir Management, Numerical Simulation of Improved Recovery Processes, Well Completion Design, Fundamentals of Reservoir Engineering, Applied Reservoir Engineering, Improved Recovery Methods, Natural Gas Engineering, Mathematical Simulation Models, Numerical Methods for Engineering Computation, Reservoir Modeling, Fluid Flow in Porous Media, Engineering Computing, Advanced Reservoir Engineering (Simulation with spatial uncertainty), Fundamentals of CCUS
- Participate in multidiscipline teams working on field development projects.
- Research activities: Physics of flow through porous media, reservoir characterization and simulation (especially naturally fractured reservoirs), various natural gas engineering topics including production data analysis, natural gas hydrates, gas shales and coalbed methane, enhanced recovery through CO_2 flooding, CO_2 sequestration and low enthalpy geothermal reservoir characterization and development.

The University of Oklahoma 1999 – 2005

Mewbourne School of Petroleum & Geological Engineering
Assistant Professor

- Duties similar to those listed above.

Stanford University

Teaching Affiliate – Field Development Design 1997

- Co-taught graduate-level, writing-intensive production course.
- Conducted lectures and developed student notes, homework and exams for 25% of the course.

Teaching Assistant – Groundwater Pollution And Oil Spills:
Environmental Problems In The Petroleum Industry 1996

Teaching Assistant – Well Log Analysis II 1994

New Mexico Institute of Mining and Technology

Teaching Assistant – Drilling Mud Laboratory 1981 – 1982

University Service

Louisiana State University

- Senior Year Advisor: Work with Undergraduate Coordinator to ensure students navagate degree requirements.
- College of Engineering Academic Matters Committee: Evaluate, revise and ensure that College course descriptions and degree requirements are consistent with LSU and College policies including a State-mandated reduction in catalog hours and revisions due to prerequisite course changes (2008–pres)
- Worked with Chemical Engineering Department Chair and Faculty to revise the Chemical Engineering degree to add a Carbon Capture, Utilization and Storage concentration. This curriculum revision has been approved at College level and is expected to be implemented for the 2025 – 2026 catalog.
- Worked with the Petroleum Engineering Department Chair and Faculty to revise the Petroleum Engineering degree to add a new Carbon Capture, Utilization and Storage concentration, to account for Physics department course changes, to provide a dedicated production engineering course and to implememt State and University allowed enrollment management controls. These curriculum revisions were approved at all levels and have been implemented.
- Worked with the Department Chair, the Chair of the Department of Geology and Geophysics, individuals from a corporate sponsor and another University to develop an earth modeling concentration within the Petroleum Engineering curriculum. This concentraion was not implemented. Instruction in the sequence occurred in 2016–2018 but had very limited student interest.

The University of Oklahoma

- Member and occasional Chair of College of Engineering Academic Misconduct panels. Adjudicated between 5 and 10 cases per year.
- Co-developed a revised petroleum engineering curriculum. Prepared and presented the curriculum to the department, Industry Advisors, College and Provost where the revisions were approved. Worked with two members of the departmernt of Geology and Geophysics to develop two courses specifically for petroleum engineering students.

Petroleum Industry Experience

Amerada Hess Corporation 1990 – 1993

Engineering Systems Specialist

- Participated in multidiscipline teams working on both exploration and field development projects.
- Integrated data from multiple sources for field studies, reservoir simulations and daily operations.
- Provided general computer support, training and technical assistance.
- Technical software supported included well test analysis, nodal analysis, reserves and economic analysis, mapping, production plotting and simulation.

Dwights EnergyData 1987 – 1990

Product Manager–Systems Analysis Module (SAM)

- Project leader for the continued design and development of the production systems (nodal) analysis personal computer program SAM.
- Prepared and updated product user manual.
- Instructed new users on the systems analysis technique and application of the program. Also instructed program usage to students in Schlumberger's NODAL Analysis schools.
- Aided software sales by attending sales calls and by providing technical assistance to clients.

Tenneco Oil Company 1983 – 1986

Production Engineer

- Monitored well performance, planned and field supervised well completions and remedial workovers to achieve maximum production.
- Designed and field supervised the installation of production facilities, optimized production costs, generated AFE cost estimates and prepared annual budgets.
- Increased profit margin by generating solutions to operational cost anomalies in corrosion control, material specifications and contractor utilization.
- Experienced in the design, installation and operation of all types of artificial lift.
- Worked with fields under natural decline and both secondary and tertiary (CO_2) recovery.

Education

Stanford University

Doctor of Philosophy in Petroleum Engineering December, 1998
Dissertation: Network Modeling of Imbibition in Fractured Porous Media
Advisor: Martin J. Blunt

Stanford University 1995

M.S. in Petroleum Engineering
Thesis: CT Measurements of Two-Phase Flow in Fractured Porous Media
Advisor: William E. Brigham

New Mexico Institute of Mining and Technology 1982

B.S. Petroleum Engineering with Honors

Honors and Awards

William A. Brookshire Award for Teaching Excellence	2016
Louisiana Engineering Society Engineering Faculty Professionalism Award	2014
Bill Holden Faculty Excellence Award	2013, 2015
Zaki Bassiouni Excellence in Instruction Award	2009, 2011
LSU Tiger Athletic Foundation Undergraduate Teaching Award	2007
OU College of Engineering, Outstanding Faculty Advisor Award	2004
OU SPE Student Chapter, Outstanding Faculty Award	2003
Centennial Teaching Award	1996
Chevron Fellowship	1994–1995

Colorado Registered Professional Engineer - Registration # 26735

Peer-Reviewed Publications

1. Zulqarnain, M., Sears, S.O., Zeidouni M., Hughes, R.G., Carlson, D., and Rivera, C.F.: "GCS site selection in saline Miocene formations in South Louisiana", *International Journal of Greenhouse Gas Control*, 122 (2023), 103818

2. Wang, B., Wald, I., Morrical, N., Usher, W., Mu, L., Thompson, K. and Hughes, R.: "A GPU-accelerated particle tracking method for Eulerian-Lagrangian simulations using hardware ray tracing cores", *Computer Physics Communications*, 271 (February 2022), 108221.

3. Wang, B., Feng, Y., Thompson, K. and Hughes, R.G.: "Streamline-based simulation of nanoparticle transport in field-scale heterogeneous subsurface systems", *Advances in Water Resources*, 148 (February 2021), 103842.

4. Zulqarnain, M., Zeidouni M. and Hughes, R.G.: "Hydromechanical modelling to evaluate impact of fault structure on CO_2 migration in stacked storage system", *International Journal of Greenhouse Gas Control*, 93 (2020), 102886.

5. Zulqarnain, M., Zeidouni M. and Hughes, R.G.: "Response surface modeling of CO_2 dynamic storage efficiency factor in high permeability thick sandstones", *Greenhouse Gases: Science and Technology*, 9 (5), 1043–1063.

6. Waltrich, P., Capovilla, M., Lee, W., de Sousa, P.C., Zulqarnain, M., Hughes, R.G., Tyagi, M., Williams, W., Kam, S., Archer, A., Singh, J., Nguyen, H., Duhon, J. and Griffith, C.: "Experimental Evaluation of Wellbore Flow Models Applied to Worst-Case Discharge Calculations for oil wells," *SPE Drilling & Completion* (July 2019).

7. Zulqarnain, M., Zeidouni M. and Hughes, R.G.: "Field-scale well leakage risk assessment using reduced-order models", *Greenhouse Gases: Science and Technology*, 9 (3), 567–581.

8. Zulqarnain, M., Zeidouni M. and Hughes, R.G.: "Implications of Fault Structure Heterogeneities, Dissolution and Capillary Trapping Mechanisms for CO_2 Storage Integrity", *International Journal of Greenhouse Gas Control*, 76 (2018), 53–61.

9. Hughes, R.G.: "Overview of Petroleum Reservoir Engineering Concepts," in *Encyclopedia of Maritime and Offshore Engineering*.

10. Ansari, E., Hughes R.G. and White, C.D.: "Modeling a new design for extracting energy from geo-pressured, geothermal reservoirs", *Geothermics* (January 2018).

11. Waltrich, P., Whitehead, J., Hughes, R., and Thompson, K.: "A Study of Fluid Flow in Sediments and the Effect of Tidal Pumping," *Journal of Earth Science* (October 2017).

12. Gherabati, S.A., Hughes, R.G., White, C.D. and Zhang, H.: "A Large Scale Network Model to Obtain Interwell Formation Characteristics," *International Journal of Oil, Gas and Coal Technology*, 15(1), 1–24.

13. Ansari, E., Hughes R.G.: "Statistical Modeling of Geopressured Geothermal Reservoirs", *Computers & Geosciences* (May 2017).

14. Gherabati, S.A., Takbiri, A., Hughes, R.G.: "Heterogeneity Quantification in Waterfloods Using a Multiphase Network Approach", *Journal of Natural Gas Science and Engineering*, 40, 299–311.

15. Ansari, E., Hughes R.G.: "Response Surface Method for Assessing Energy Production from Geopressured Geothermal Reservoirs", *Geothermal Energy* (December 2016)

16. Yalcinkaya T., Radonjic M., Hughes R.G., Willson C.S, Ham K.: "The Effect of CO_2-Saturated Brine on the Conductivity of Wellbore-Cement Fractures", *SPE Drilling and Completion* (September 2011)

17. Jin, L., Wojtanowicz, A.K. and Hughes, R.G.: "An Analytical Model for Water Coning Control Installation in Reservoir with Bottom Water," *Journal of Canadian Petroleum Technology* (May 2010).

18. Al Adwani, F., Langlinais, J.P. and Hughes, R.G.: "Modelling of an Underbalanced Drilling Operation Utilizing Supercritical Carbon Dioxide," *SPE Drilling and Completion* (December 2009).

19. Daneshfar, J., Civan, F. and Hughes, R.G.: "Feasibility Investigation and Modeling Analysis of CO2 Sequestration in Arbuckle Formation Utilizing Salt Water Disposal Wells," *Journal of Energy Resources Technology* (June 2009), Vol. 131.

20. Gonzalez, M.C., Hughes, R.G., Civan, F. and Taylor, C.: "Phenomenological Modeling of Hydrate Formation and Dissociation," in *Recent Advances in the Study of Gas Hydrates*, Kluwer Academic/Plenum Publishers (2004).

21. Hughes, R.G. and Blunt, M.J.: "Network Modeling of Multiphase Flow in Fractures and Matrix/Fracture Transfer," *SPE Journal* (June 2001), **6**, No. 2.

22. Hughes, R.G. and Blunt, M.J.: "Network Modeling of Multiphase Flow in Fractures," *Advances in Water Resources* (February 2001), **24**, No. 3–4, 409–421.

23. Hughes, R.G. and Blunt, M.J.: "Pore Scale Modeling of Rate Effects in Imbibition," *Transport in Porous Media* (September 2000), **40**, No. 3, 295–322.

24. Hughes, R.G.: *Network Modeling of Imbibition in Fractured Porous Media*, PhD dissertation, Stanford University, Dept. of Petroleum Engineering, Stanford, CA (December 1999).

Conference Papers and Reports

1. Zulqarnain, M. Zeidouni, M. and Hughes, R.G.: "Static and Dynamic CO_2 Storage Capacity Estimates of a Potential CO_2 Geological Sequestration Site in Louisiana Chemical Corridor," in Proceedings of the Carbon Management Technology Conference, Houston, Texas (July 2017).

2. Zulqarnain, M. Zeidouni, M. and Hughes, R.G.: "Risk Based Approach to Identify Leakage Potential of Wells in Depleted Oil and Gas Fields for CO_2 Geological Sequestration," in Proceedings of the Carbon Management Technology Conference, Houston, Texas (July 2017).

3. Waltrich, P., Capovilla, M., Lee, W., Zulqarnain, M., Hughes, R.G., Tyagi, M., Williams, W., Kam, S., Archer, A., Singh, J., Nguyen, H., Duhon, J. and Griffith, C.: "Experimental Evaluation of Wellbore Flow Models Applied to Worst-Case Discharge Calculations," SPE 184444 in Proceedings of the SPE Health, Safety, Security, Environment & Social Responsibility Conference – North America, New Orleans (April 2017).

4. Al Attar, A., Hughes, R.G., and Hassan, O.E.: "Handling Missing and Corrupted Data in Waterflood Surveillance, Using Reservoir Linear Characterization Models," SPE 182207 in Proceedings of the SPE Asia Pacific Oil and Gas Conference, Perth, Australia, (October 25-27, 2016).

5. Whitehead, J., Waltrich, P., Hughes, R., and Thompson, K.: "A Study of Fluid Flow in Sediments and the Effect of Tidal Pumping," in Proceedings of the ASME 2016 35th International Conference on Ocean, Offshore and Arctic Engineering, Busan, Republic of Korea, (June 19-24, 2016).

6. Shetty, S., Hughes, R.G., and Afonja, G.: "Experimental Evaluation of Simultaneous Water and Gas Injection Using Carbon Dioxide," SPE 169690 in Proceedings of the SPE EOR Conference held at Oil and Gas West Asia, Muscat, Oman, (March 31-April 2, 2014).

7. Ansari, E., Hughes, R.G. and White, C.D.: "Well Placement Optimization for Maximum Energy Recovery from Hot Saline Aquifers," SGP–TR–202 in PROCEEDINGS, Thirty-Ninth Workshop on Geothermal Reservoir Engineering, Stanford University, Stanford, California, February 24-26, 2014.

8. Afonja, G., Hughes, R.G. and Nagineni, V.: "Simulation Study for Optimizing Injected Surfactant Concentration in a Miscible Carbon Dioxide Flood," SPE 158220 in Proceedings of the SPETT 2012 Energy Conference and Exhibition, Port of Spain, Trinidad, (June 11–13, 2012).

9. Afonja, G., Hughes, R.G. and Shetty, S.: "Experimental Study for Optimizing Injected Surfactant Volume in a Miscible Carbon Dioxide Flood," SPE 150634 in Proceedings of the SPE EOR Conference at Oil and Gas West Asia, Muscat, Oman, (April 16–18, 2012).

10. Gherabati, S.A., Hughes, R.G., Zhang, H. and White, C.D.: "A Large Scale Network Model to Obtain Interwell Formation Characteristics," SPE 153386 in Proceedings of the SPE Western North American Regional Meeting, Bakersfield, CA, (March 19–23, 2012).

11. Nagineni, V.G.R., D'Souza, D.F., Holden, C. and Hughes, R.G.: "Using Core Data to Study and Optimize the Completion Strategy in EOR Operations," SPE 145106 in Procedings of the SPE Enhanced Oil Recovery Conference, Kuala Lumpur, Malaysia, (July 19–21, 2011).

12. Rao, D.N. and Hughes, R.G.: "Current Research and Challenges Pertaining to CO_2 Flooding and Sequestration," *The Way Ahead*, vol. 7, No. 2, May 2011.

13. Hughes, R.G.: "Final Report: Reservoir Modeling of the MC252 Blowout," internal publication for the Bureau of Ocean Energy Management, Regulation and Enforcement, June, 2010; work cited in McNutt, M, R. Camilli, G. Guthrie, P. Hsieh, V. Labson, B. Lehr, D. Maclay, A. Ratzel, and M. Sogge. "Assessment of Flow Rate Estimates for the Deepwater Horizon/Macondo Well Oil Spill." Flow Rate Technical Group report to the National Incident Command, Interagency Solutions Group, March 2011.

14. Yalcinkaya T., Radonjic M., Hughes R.G., Willson C.S, Ham K.: "The Effect of CO_2-Saturated Brine on the Conductivity of Wellbore-Cement Fractures", SPE 139713 in Proceedings of the SPE International Conference on CO_2 Capture, Storage, and Utilization, New Orleans, LA, (November 10-12, 2010)

15. Nagineni, V., Hughes, R.G., D'Souza, D. and Deets, M.: "Evaluation of CO_2 Injectivity from Waterflood Values," SPE 132624 in Proceedings of the SPE Western Regional Meeting, Anaheim, CA, (May 27–29, 2010).

16. Hughes, R.G., Amadi, S.U. and DeSousa, D.F.: "Field Applications of Behind-Pipe Saturation Evaluation in a Miscible CO_2 Flood," SPE 129989 in Proceedings of the 2010 SPE Improved Oil Recovery Symposium, Tulsa, OK, (April 24–28, 2010).

17. Jin, L., Wojtanowicz, A.K. and Hughes, R.G.: "An Analytical Model for Water Coning Control Installation in Reservoir with Bottom Water," CIPC 2009-098 in Proceedings of the Canadian International Petroleum Conference (CIPC) 2009, Calgary, Alberta, Canada, (June 16–18, 2009).

18. Lewis, A.M. and Hughes, R.G.: "Production Data Analysis of Shale Gas Reservoirs," SPE 116688 in Proceedings of the 2008 SPE Annual Technical Conference and Exhibition, Denver, CO, (September 22–24, 2008).

19. Senocak, D., Pennell, S.P., Gibson, C.E. and Hughes, R.G.: "Effective Use of Heterogeneity Measures in the Evaluation of a Mature CO2 Flood," SPE 113977 in Proceedings of the 2008 SPE Improved Oil Recovery Symposium, Tulsa, OK, (April 19–23, 2008).

20. Amadi, S. and Hughes, R.G.: "Evaluation of Behind-Pipe Saturation in a Miscible CO2 Flood," SPE 113887 in Proceedings of the 2008 SPE Improved Oil Recovery Symposium, Tulsa, OK, (April 19–23, 2008).

21. Al Adwani, F., Langlinais, J.P. and Hughes, R.G.: "Modelling of an Underbalanced Drilling Operation Utilizing Supercritical Carbon Dioxide," SPE/IADC 114050 in Proceedings of the SPE/IADC Managed Pressure Drilling and Underbalanced Operations Conference and Exhibition, Abu Dhabi, UAE, (January 28–29, 2008).

22. Daneshfar, J., Civan, F. and Hughes, R.G.: "Feasibility Investigation and Modeling Analysis of CO2 Sequestration in Arbuckle Formation Utilizing Salt Water Disposal Wells," Proceedings of the 6th Annual Carbon Capture and Sequestration Conference, Pittsburgh, PA, (May 7–9, 2007).

23. Daneshfar, J., Civan, F. and Hughes, R.G.: "Aquifer Sequestration Utilizing Commercial Disposal Wells," Proceedings of the Petroleum Society's 5th Canadian International Petroleum Conference (55th Annual Technical Meeting), Calgary, AB, (June 8–10, 2004).

24. Gonzalez, M.C., Hughes, R.G., Civan, F. and Taylor, C.: "Equilibrium and Non-Equilibrium Models Applied to Hydrate Formation and Dissociation Experiments," Proceedings of the 2003 American Institute of Chemical Engineers Spring meeting, New Orleans, LA, (March 30 – April 3, 2003).

25. Brown, R.L., Wiggins, M.L., Penuela, G., Hughes, R.G., Civan, F., and Martinez Torres, L.: "Relating saturation and permeability to elastic properties of fractured rocks," SEG Annual Meeting Expanded Technical Program Abstracts with Biographies, v72, 113-116, Salt Lake City, UT, (October 6-11, 2002).

26. Steinberger, A., Civan, F. and Hughes, R.G.: "Phenomenological Inventory Analysis of Underground Gas Storage in Salt Caverns," SPE Paper 77346, in Proceedings of the SPE Annual Technical Conference and Exhibition, San Antonio, TX, (September 29 – October 2, 2002). Also in Proceedings of Oil Rock 2002, Irving, TX (October 21–23, 2002).

27 Penuela, G. Hughes, R.G., Civan, F. and Wiggins, M.L.: "Elongated-slab Models for Interporosity Flow in Naturally Fractured Reservoirs," paper NFR-003 in Proceedings of the Conference on Naturally Fractured Reservoirs, Oklahoma City, OK, (June 3–4, 2002).

28. Martinez, L., and Hughes, R.G.: "Fractured Reservoir Properties from Conventional Well Logs," paper NFR-008 in Proceedings of the Conference on Naturally Fractured Reservoirs, Oklahoma City, OK, (June 3–4, 2002).

29. Penuela, G., Civan, F., Hughes, R.G. and Wiggins, M.L.: "Time-Dependent Shape Factors for Interporosity Flow in Naturally Fractured Gas Condensate Reservoirs," SPE Paper 75524, in Proceedings of the 2002 SPE Gas Technology Symposium, Calgary, AB, (April 30 – May 2, 2002).

30. Penuela, G. Hughes, R.G., Civan, F. and Wiggins, M.L.: "Time-Dependent Shape Factors for Secondary Recovery in Naturally Fractured Reservoirs," SPE Paper 75234, in Proc. of the SPE/DOE 13th Symposium on Improved Oil Recovery, Tulsa, OK (April 13–17, 2002).

31. Vora, H.K. and Hughes, R.G.: "Field-Scale Modeling of Capillary Number Effects Using Streamline Simulation," SPE Paper 75215, in Proc. of the SPE/DOE 13th Symposium on Improved Oil Recovery, Tulsa, OK (April 13–17, 2002).

32. Hughes, R.G. and Blunt, M.J.: "Pore-Scale Modeling of Multiphase Flow in Fractures and Matrix/Fracture Transfer," SPE 56411, in Proceedings of the 1999 SPE Annual Technical Conference and Exhibition, Houston, TX, (October 3–6, 1999).

33. Hughes, R.G. and Blunt, M.J.: "Network Modeling of Multiphase Flow in Fractured Porous Media," in Proceedings of the 6th European Conference on the Mathematics of Oil Recovery, Peebles, Scotland, (September 8–11, 1998).

34. Hughes, R.G., Brigham, W.E., and Castanier, L.J.: "CT Imaging of Two Phase Flow in Fractured Porous Media," Proc. of the 21st Workshop on Geothermal Reservoir Engineering, Stanford, CA, (January 24–26, 1996).

35. Hughes, R.G., Brigham, W.E., and Castanier, L.J.: "CT Measurements of Two-Phase Flow in Fractured Porous Media," Report No. SUPRI TR-104, U.S. DOE Grant No. DE-FG22-96BC14994, U.S. Department of Energy, Bartlesville, OK (June 1997).

36. Hughes, R.G.: "CT Imaging of Two Phase Flow in Fractured Porous Media," Master's Report, Stanford University, Dept. of Petroleum Engineering, Stanford, CA (December 1995).

Research and Educational Grants

1. "Community Engagement for CCS (DOE Phase II project), US Department of Energy as a subcontract from Blue Sky Infrastructure, LLC, $347,355; with two LSU collaborators.

2. "Community Engagement to Support CCS Development (DOE Phase III project)", US Department of Energy as a subcontract from Blue Sky Infrastructure, LLC, $318,380; with two LSU collaborators.

3. "Louisiana Offshore CO_2 Hub Repurposing Infrastructure to Decrease Greenhouse Emissions (DOE Phase II – Project LOCKRIDGE)", US Department of Energy as a subcontract from Southern States Energy Board, $400,792; with two LSU collaborators.

4. "Carbon Capture and Underground Storage Shallow Zone Characterization', Shell International Exploration and Production Inc., $350,000; with three LSU collaborators.

5. "CO_2 Geologic Storage Site Evaluation in Offshore Louisiana", Carbonvert, $40,000; with four LSU collaborators.

6. "Carbon Capture and Underground Storage Shallow Zone Characterization", Shell International Exploration and Production Inc., $510,859; with four LSU collaborators.

7. "Southeast Regional Carbon Storage Partnership: Offshore Gulf of Mexico", US Department of Energy as a subcontract from Southern States Energy Board, $589,358; with four LSU collaborators.

8. "Development and Improvement of Flow Models Applied to WCD Calculations", Bureau of Ocean Energy Management, $148,416; with two LSU collaborators.

9. "Integrated CCS in the Louisiana Chemical Corridor", US Department of Energy, $1,052,600; with eight LSU collaborators.

10. "Experimental Investigation and Performance Evaluation of Models Applied to Worse-Case-Discharge Calculations", Bureau of Ocean Energy Management, $571,432; with five LSU collaborators.

11. "Relating the transport behavior of nanosensors to rock structure and fluid flow properties in geologic formations", University of Texas at Austin, $1,736,720; with five LSU and UL-Lafayette collaborators.

12. "A study of fluid flow in sediments and the effect of tidal fluctuations", Beatty & Wozniak, P.C., $82,793; with P. Waltrich and K. Thompson.

13. "Tepetate Field Study Phase I", Hilcorp Energy Company, $126,435; with S.O. Sears.
14. "Oil Spill Scenario Development", Shell Oil Company, $566,623; with five LSU collaborators.
15. "Geothermal Resource Development With Zero Mass Withdrawl Engineered Convection, and Wellbore Energy Conversion", US Department of Energy, $997,332; with eight LSU collaborators.
16. "Non-equilibrium Kinetics of Hydrate Formation in Porous Media", National Energy Technology Laboratory, $28,662; with F. Civan; NETL collaborator: C. Taylor.
17. "Evaluation and Enhancement of Carbon Dioxide Flooding Through Sweep Improvement", U.S. Department of Energy, $678,070, with M.L. Wiggins ($466,336 transferred to LSU).
18. "Sweep Improvement Evaluation of Oil Fields in Mississippi", Denbury Resources, Inc., $50,000, with M.L. Wiggins.
19. "Sucker Rod System Design and Analysis Hardware and Software Donation", Lufkin Industries, $25,000.
20. "Southwest Regional Partnership on Carbon Sequestration", U.S. Department of Energy, $1,600,000 co-PI with B.J. McPherson and five others. OU portion: $199,636; with C.J. Mankin.
21. "Travel Grant to Participate in NeSS 2002, International Workshop on Neutrinos and Subterranean Science", American Geophysical Union, $1,442.
22. "Continuation of Experimental and Theoretical Studies on the Stability of Hydrate-Bearing Formations", University of Oklahoma Research Council, $6,800, with F. Civan.
23. "Junior Faculty Research Program: Experimental and Theoretical Studies on the Stability of Hydrate-Bearing Formations", University of Oklahoma Research Council, $6,000.
24. "Development of Reservoir Characterization Techniques and Production Models for Exploiting Naturally Fractured Carbonate Reservoirs", U.S. Department of Energy, $718,341, with R.L. Brown, M.L. Wiggins, F. Civan, A. Gupta, and R.L. Evans.
25. "Bermejo Field Reservoir Characterization Project", TECPetrol, Argentina, $300,000, with D.J. O'Meara, Jr., J.M. Castagna and J.M. Forgetson.

Graduate Students

Projects In Progress

1. Ayman Said, Ph.D.: TBD – Machine Learning Applied to Geophysical Monitoring of CO_2

Projects Completed

1. Esmail Ansari, Ph.D.: Mathematical Scaling and Statistical Modeling of Geopressured Geothermal Reservoirs
2. Atheer Al Attar, M.S..: Well-to-Well Connectivity Models – missing data and field applications
3. Amin Gherabati, Ph.D.: A Large Scale Network Model To Obtain Interwell Formation Characteristics
4. James Stiernberg, M.S..: Aggregation of Uncontrolled Fluids During Catastrophic System Failures In Offshore Environments
5. Gbolahan Afonja, Ph.D.: Development of a Framework for Scaling Surfactant Enhanced CO_2 Flooding from Laboratory Scale to Field Implementation
6. Shrinidhi Shetty, M.S.: Evaluation of Simultaneous Water and Gas Injection using CO_2
7. Venu Nagineni, M.S.: Simulation Study of Sweep Improvements in Heavy Oil CO_2 Floods
8. Gbemisola Ogunyomi, M.S.: Evaluation of Interwell Connectivity from Production Data, 2009
9. Didem Senocak, M.S.: Evaluation of Sweep Efficiency of a Mature CO_2 Flood in Little Creek Field, Mississippi, 2008
10. Samuel Amadi, Ph.D. (project suspended): Three- and four-phase cased-hole log measurements
11. Adam Lewis, M.S.: Production Data Analysis of Shale Gas Reservoirs, 2007
12. Shirish Deshpande, M.S.: Geochemical Simulation of Laboratory CO_2 Sequestration Experiments, 2005
13. Luis Rodriguez, M.S.: Early-time Estimation of Tight-Gas Reserves From Production Data, 2005
14. Tung Tran, M.S.: An Experimental Procedure For Creating Methane Hydrate Saturated Sand Packs, 2005

15. Maria Carolina Gonzalez, M.S.: Non-equilibrium Modeling of Methane Hydrate Formation and Dissociation, 2005
16. Misael Uribe Bernal, M.S.: Utilizing Log-derived J-Function Analysis for the Estimation of Archie Parameters m and n, 2004
17. Jimmy A. Rojas, M.S.: "A New Approach for Improving the Estimation of Permeability From NMR Logs by Using Log-derived J Function Analysis", 2004
18. Gustavo Gomez, M.S.: "Application of Log-Derived J-Functions to Determine Compartmentalization, J-Facies Distribution, and Poro-Perm Relationships For Highly Compartmentalized Reservoirs", 2004
19. Ella Maria Llanos, M.S.: "An Investigation of the Impact of Faults and Grid Parameters on the the Accuracy of Fluid Flow Prediction", 2003
20. Jaime Vargas, M.S.: "Comparison of Solutions to a Three-Dimensional Upscaling Problem", 2003
21. Liliana Martinez-Torres, M.S.: "Characterization of Naturally Fractured Reservoirs From Conventional Well Logs", 2002
22. Gherson Penuela, Ph.D.: "Modeling Interporosity Flow for Improved Simulation of Naturally Fractured Reservoirs", 2002
23. Hemang Vora, M.S.: "Capillary Number Dependent Streamline Simulations", 2002
24. Hung Le, M.S.: "An Experimental Study of CO_2 Hydrate Formation and Dissociation", 2002

Industrial Courses Taught

NExT/Devon Energy – Introduction to Well Testing
- Houston, TX — 10/2009

SPE – Review for the Principles & Practice Exam and SPE Certification Exam (Co-taught)
- Pointe-a-Pierre, Trinidad — 3/2014
- Dallas, TX — 9/2018
- San Antonio, TX — 10/2012 and 10/2017
- Denver, CO — 10/2011 and 10/2008
- Dhahran, Saudi Arabia — 1/2011, 5/2011 and 12/2011
- Houston, TX — annually in March, May or August, 2008 – 2017
- New Orleans, LA — 10/2009 and 10/2013
- College Station, TX — 5/2008
- Aneheim, CA — 11/2007

Schlumberger – Introduction to Well Testing
- Kellyville, OK — 10/2001

NExT – Advanced Production Data Analysis/NODAL^{TM} Analysis
- Houston, TX — 6/2001

Schlumberger – Production Systems NODAL^{TM} Analysis (Co-taught)
- Houston, TX — 5/1990
- Houston, TX — 5/1989
- Houston, TX — 5/1988
- Houston, TX — 4/1988
- Houston, TX — 9/1987

Conoco, Inc. – Well Flow Analysis
- Houston, TX — 3/1989