

Brenda L. Kirkland

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Education

Louisiana State University	Ph.D.	Geology (Botany minor)
Texas A&M University	M.S.	Geology
Ludwig-Maximilians-Universität (Munich, Germany)	1982-83	Course work in geology
The University of Texas at Austin	B.S.	Geology (Botany minor)
	B.A.	German (Spanish minor)

Significant Accomplishments

- Published 34 papers (26 peer-reviewed), 3 guidebooks, and 3 books
- Awarded \$5,210,766 in grants
- Supervised 28 Master's and 6 Ph.D. candidates
- Developed and taught 21 different courses for classroom, field, and on-line

Professional Experience

Associate Professor, Mississippi State University, 2010-Present

On campus courses taught:

- Geomorphology (Fall 2015)
- Geowriting (Fall 2010, 2011)
- Honors Seminar: Food Security (Spring 2014)
- Introduction to Environmental Geology (Spring 2010, 2011, 2012)
- Introduction to Earth Science I (Physical Geology) (Fall 2011, Maymester 2013, 2014, 2015)
- Introduction to Earth Science II (Historical Geology) (Fall 2014)
- Mineralogy (Fall 2012)
- Philosophy and Ethics (Spring 2016)
- Sedimentology I (Spring 2011, 2013, Fall 2015)
- Structural Geology (Spring 2010, 2012, 2013, 2014, 2015, 2016)
- Special Topic in Geology: Carbonate Petrology (Spring 2011, Fall 2014)
- Special Topic in Geology: Participation in Research (Maymester 2010, 2011, 2012)
- Special Topic in Geology: Imperial Barrel Competition Course (Spring 2015)

Distance learning lectures developed:

- Carbonate Petrography (Summer, 2010, Fall 2010, Fall 2014)
- Geologic Hazards (four lectures) (Summer 2010)
- Geowriting (Summer 2013)

Assistant Professor, Mississippi State University, 2004-2010

On campus courses taught:

- Geowriting (Spring 2005, 2006)
- Introduction to Environmental Geology (Spring 2005, 2007, 2009, 2010)
- Introduction to Earth Science (Fall 2004, 2005, 2006, 2009, Spring 2007, 2009)
- Resources and the Environment (K-12 Teacher training) (Summer 2004, 2005)
- Research Methods (Fall 2004)
- Sedimentology I (Spring 2005, 2007, 2009)
- Special Topic in Geology: Carbonate Petrography (Fall 2004, Spring 2009)
- Structural Geology (Spring 2006, 2008, 2010)

Distance learning courses taught:

- Rocks and Minerals (Fall 2006, 2007, 2008, 2009)

Adjunct Faculty Member and Instructor, Mississippi State University, 2000-2004

On campus courses taught:

- Geowriting (Spring 2003, 2004)
- Introduction to Earth Science (Fall 2001, Spring 2002, Fall 2003)
- Sedimentology (Spring 2003)
- Structural Geology (Spring 2004)

Distance learning lectures developed and recorded:

- Rocks and minerals for teachers in geoscience (Summer 2002)

Assistant Professor, The University of Texas at Austin, 1992-2000 (DuPont Young Professor, 1994-1998)

Undergraduate courses taught:

- Earth, Wind, and Fire (Earth-science for non-majors) (Spring 1994, 1995, Fall 1998)
- Emerging Scholars in Geology (for minority students, an introduction to geology and to skills needed for successful careers in science and engineering) (Fall 1994, 1995, 1997)
- Field Geology (Summer 1995, 1996, 1997)
- Physical Geology (for majors) (Summer 1992, 1999, Fall 1992, 1993)
- Sedimentology (Spring 1999, 2000)

Graduate courses taught:

- Carbonate and Evaporite Depositional Systems (Spring 1993, 1998, Fall 1994, 1999)
- Carbonate Petrography (Spring 1997, Fall 1998)
- Paleophycology (survey of fossil algae) (Spring 1996, 1999)
- Supervised Teaching in Geology (Fall 1994, 1995) (I restructured this course to university guidelines, introduced lab safety, field safety, CPR and First Aid.)
- Advanced Field Geology: Sedimentology and sequence stratigraphy, Guadalupe and Sacramento Mountains (Spring 1997) (I taught this course in conjunction with the University of Texas/University of Cambridge Field Trip Exchange Program, which I also coordinated in Spring 1994, 1995, 1996.)

Teaching Assistant, Louisiana State University, 1986-1991

Taught labs for and assisted with lectures in:

- Carbonate petrography, Carbonate Diagenesis, Physical Geology, and Oceanography

Summer Geologist, Mobil Exploration and Producing, U.S., New Orleans, Summer 1987

Project:

- Well-log correlation, off-shore Gulf of Mexico

Summer Geologist, Mobil Exploration and Producing Services, Inc., Dallas, Summer 1985

Project:

- Well-log correlation, North Slope of Alaska

Graduate Assistant, Texas A&M University, 1984-1986

Assisted in:

- Geology for educators; drafting department

Summer Geologist, Mobil Exploration and Producing Services, Inc., Dallas, Summer 1984

Project:

- Compiled a basic data base for 32 international basins

Student Assistant, Texas Bureau of Economic Geology, Office of Information, 1983

Responsibilities:

- Prepared bibliographies, compiled data on the mineral industry, gave presentations at grade schools, helped answer questions from the public

Honors and Awards

- Nominee, 2016 American Association of Petroleum Geologists Distinguished Educator Award
- Mississippi State University Faculty Diversity Award, 2015 (President's Commission on the Status of Minorities)
- Sigma Xi, 2003
- Knebel Distinguished Teaching Award, University of Texas at Austin, 1998 (student vote)
- Houston Oil and Minerals Corporation Faculty Excellence Award, University of Texas at Austin, 1997 (faculty nomination and committee vote)
- DuPont Young Professor, 1994-1998 (\$75,000 unrestricted grant)
- Best Speaker, Graduate Student Symposium, Louisiana State University, 1991
- Sigma Gamma Epsilon, 1985 (Geology Honor Society)
- Fulbright Travel Grant, 1982-83 (to study building stone restoration)
- Federation of German-American Clubs Stipend, 1982-83
- Delta Phi Alpha, 1977 (German Honor Society)

Research Interests and Experience

The role of microbes in the formation of carbonate rocks

- The role of organic compounds and microbes in formation of nanometer-scale textures in carbonate minerals
- Organic matter in meteoric cements from carbonate eolianites, San Salvador Island, The Bahamas
- Microbial stromatolites and ooids from Pleistocene lake deposits, Texas Panhandle, Rita Blanca Formation
- Origin and nature of leopard rock buildups, Sacramento Mountains, New Mexico, Holder and Laborcita formations
- Microbial buildups in the Smackover Formation, Alabama
- Evidence for microbial precipitation of carbonate in modern reef rock from Jamaica
- Microbial micrite in the Capitan Formation
- *Lithocodium-Bacinella* in Mesozoic buildups

Carbon sequestration

- Preliminary exploration of potential carbon storage sites in Mississippi
- Effect of carbon dioxide on reservoir rocks in south-central Mississippi

Geoarcheology

- Early diagenesis of aragonitic freshwater bivalve shells at archeological sites in Louisiana and Mississippi

Geothermal Energy

- Creation of geothermal resource maps for Mississippi

Delaware Basin and Guadalupe Mountains

- Deposition of the Permian Capitan Formation
- Microstratigraphic analysis of Capitan reef development
- Development of a dynamic model for the origin of teepee structures in the Guadalupe Mountains

Research on radiaxial calcite

- Occurrence of marine radiaxial calcite through Phanerozoic time

Research on phylloid algal bioherms

- Reservoir characterization of Rattlesnake and Table Mesa fields, Pennsylvanian, San Juan Basin
- High-resolution, computed tomographic, three-dimensional imagery of pore networks
- Comparison of fabric development in samples of phylloid algal bioherms from the Paradox Basin, San Juan Basin, Sacramento Mountains, and Hueco Mountains

Research on caprock

- Origin of authigenic tourmaline and quartz in caprock, Challenger Dome, central Gulf of Mexico
- Microbial structures in caprock

Publications*Publications in Preparation*

Sumrall, J.B., Larson E.B., **Kirkland, B.L.**, and Mylroie, J.E., in preparation, Microbial dolomite development within the Seroe Domi Formation of Curaçao, Lesser Antilles.

Very small microbes from an extreme environment: TEM Evidence from hot spring biofilms, Viterbo, Italy, in preparation, Folk, R.L., **Kirkland, B.L.**, Lawrence, A.M., and Lynch, F.L.

TEM images of early aragonite precipitates in hot springs and tidal flats, in preparation, Rider, M.E., **Kirkland, B.L.**, A.M. Lawrence, and Folk, R.L.

Microbial stromatolites and ooids from Pleistocene Channing Lake Basin, Texas Panhandle, Rita Blanca Formation, in preparation, Trent, B.L. **Kirkland, B.L.**, Kirkland, D. W., and Moiola, R.J.

Microbial deposits known as giant hams, Lower Permian, Laborcita Formation, in preparation, Moore, K.M., **Kirkland, B.L.** and Gordon, I.T.

Comparison of dendritic structures in marine cements in the Capitan Formation (New Mexico), Laborcita Formation (New Mexico), and Lighthouse Reef, in preparation, Testa, M. and **Kirkland, B.L.**

Books

Farlow, J.O., Langston, W., Deschner, E.E., Solis, R., Ward, W., **Kirkland, B.L.**, Hovorka, S., Reece, T.L., and Whitcraft, J., 2006, Texas Giants: Dinosaurs of the Heritage Museum of the Texas Hill Country, The Heritage Museum of the Texas Hill Country, 105 p.

Saller, A.H., Harris, P.M., **Kirkland, B.L.**, and Mazzullo, S.J., eds., 1999, Geologic Framework for the Capitan Reef, SEPM Concepts in Sedimentology and Paleontology, 224 p.

Kirkland, B.L., Kocurek, G., and Mosher, S., 1994, Earth, Wind, and Fire: Dubuque, Iowa, Kendall Hunt, 145 p.

Invited Articles and Chapters

Kirkland, D.W. and **Kirkland, B.L.**, in press, Origin of Carlsbad Cavern, Lechuguilla Cave and other Hypogene Caves within the Capitan Reef Complex, Guadalupe Mountains, West Texas and Southeastern New Mexico.

McLean, R.J.C. and **Kirkland, B.L.**, 2014, Chapter 1. Nanostructures and nanobacteria, in *in* L.L. Barton, D.A. Baxzyliniski and H. Xu (eds.) Nanomicrobiology. Springer Science - Business Media, New York. DOI 10.1007/978-1-4939-1667-2_1

Kirkland, B.L., Lynch, F.L., Folk, R. L., Lawrence, A.M., and Corley, M.E., 2008, Nanobacteria, organic matter, and precipitation in hot springs, Viterbo, Italy: distinctions and relevance, *Microscopy Today*, v. 16, n. 6, p. 58-60.

Kirkland, B. L., 2006, Review of Permo-Carboniferous Platforms and Reefs: SEPM Special Publication No. 78, by Wayne M. Ahr, Paul M. (Mitch) Harris, William A. Morgan, and Ian D. Somerville, Editors, 2003, SEPM, Tulsa, 414 p., in *Palaios*, v. 20, n. 6, p. 605-607.

Kirkland, B.L. (translated into Polish by T. Peryt), 1995, Permian Capitan Reef Complex in the Guadalupe Mountains: Panstwowy Instytut Geologiczny, (invited article), p. 374-380.

Articles in refereed journals and books

Puckett, M.K., McNeal, K.S., **Kirkland, B.L.**, Corley, M.E., Ezell, J.E., 2011, Biogeochemical stratification of carbonate dissolution-precipitation in hypersaline microbial mats (Salt Pond, San Salvador, The Bahamas), *Aquatic Geochemistry*, v. 17, no. 4-5, p. 397-418.

Choh, S.J. and **Kirkland, B.L.**, 2008, Sedimentologic role of *in situ* Beresellid algal colonies, Holder Formation, (Upper Pennsylvanian), New Mexico, U.S.A., *Carbonates and Evaporites*, v. 23, p. 79-88.

Dixon, P. G., M. E. Brown, K. Sherman-Morris, and **B. L. Kirkland**, 2008: Comments on "Seals of (Dis)Approval: Television Weathercasters Debate the Value of Voluntary Credentials." *National Weather Digest*, 32, 61-65.

Dixon, P. G., M. E. Brown, K. Sherman-Morris, and **B. L. Kirkland**, 2008: Meteorology Degrees and Certificates Offered by Mississippi State University. *National Weather Digest*, 32, 69-70.

Choh, S.J. and **Kirkland, B.L.**, 2006, Sedimentologic role of microproblematica *Donezella* in a Lower Pennsylvanian *Donezella*-siliceous sponge dominated buildup, frontal Ouachita thrust-belt, Oklahoma, USA, *Journal of Sedimentary Research*, v. 76, 152-161.

Fratesi, S.E., Lynch F.L., **Kirkland, B.L.**, and Brown, L.R., 2004, Effects of SEM preparation techniques on the appearance of bacteria and biofilms in the Carter Sandstone, *Journal of Sedimentary Research*, v. 74, p. 114-123.

Miller, V.M., Rodgers, G., Charlesworth, J.A., **Kirkland, B.L.**, Severson, S.R., Rasmussen, T.E., Yagubyan, M., Rodgers, J.C., Cockerill, F.R., Folk, R.L. Rzewuska-Lech, E, Kumar, V., Farell-Baril, G., Lieske, J.C., 2004, Evidence of nanobacteria-like structures in calcified human arteries and cardiac valves, *American Journal of Physiology, Heart Circulation Physiology*, v. 10.1152, p. H1115-H1124.

Saller, A.H., Harris, P.M., **Kirkland, B.L.**, and Mazzullo, S.J., 1999, Introduction to "Geologic Framework of the Capitan Reef", *in* Saller, A.H., Harris, P.M., Kirkland, B.L., Mazzullo, S.J., eds., *Geologic framework of the Capitan Reef, SEPM Concepts in Sedimentology and Paleontology*, p. 1-13.

Kirkland, B.L., Longacre, S.A., and Stoudt, E.L., 1999, The dynamic Capitan reef: an image of an ancient reef and suggestions for future research, *in* Saller, A.H., Harris, P.M., Kirkland, B.L., Mazzullo, S.J., eds., *Geologic Framework of the Capitan Reef, SEPM Concepts in Sedimentology and Paleontology*, p. 161-173.

Rahnis, M.A. and **Kirkland, B.L.**, 1999, Distribution, petrography, and geochemical characterization of radiaxial calcite and associated diagenetic events in the Capitan Formation, West Texas and New Mexico, *in* Saller, A.H., Harris, P.M., Kirkland, B.L., Mazzullo, S.J., eds., *Geologic Framework of the Capitan Reef, SEPM Concepts in Sedimentology and Paleontology*, p. 175-191.

Gournay, J.P., **Kirkland, B.L.**, Folk, R.L., and Lynch, F.L., 1999, Evidence for nannobacterially precipitated dolomite in Pennsylvanian carbonates: *Sedimentary Geology (special volume on microbial carbonate)*, p. 243-252.

- Kirkland, B.L.**, Lynch, F.L., Rahnis, M.A., Folk, R.L., Molineux, I.J., and McLean R.J.C., 1999, Alternative origins for nanobacteria-like objects in calcite: *Geology*, v. 27, p. 347-350.
- Henry, D.J., **Kirkland, B.L.**, and Kirkland, D.W., 1999, Sector-zoned tourmaline from the cap rock of a salt dome: *European Journal of Mineralogy*, v. 11, p. 263-280.
- Kirkland, B.L.**, Dickson, J.A.D., Wood R.A., and Land, L.S., 1998, Microbialite and microstratigraphy: encrustations in the middle and upper Capitan Formation, Guadalupe Mountains, Texas and New Mexico, USA: *Journal of Sedimentary Research* v. 68, p. 956-969.
- Kocurek, G. and **Kirkland, B.L.**, 1998, Getting to the source: aeolian influx to the Permian Delaware basin region: *Sedimentary Geology*, v. 117, p. 143-149.
- White, J.V., **Kirkland, B.L.**, and Gournay, J.P., 1998, Quantitative porosity determination of thin sections: *Journal of Sedimentary Research*, v. 68, p. 220-222.
- Wood, R.A., Dickson, J.A.D., and **Kirkland, B.L.**, 1996, New observations on the ecology of the Permian Capitan Reef, Guadalupe Mountains, Texas and New Mexico: *Paleontology*, v. 39, p. 733-762.
- Dickson, J.A.D., Wood, R.A., and **Kirkland, B.L.**, 1996, Exceptional preservation of the sponge *Fissispongia tortacloaca* from the Pennsylvanian Holder Formation, New Mexico: *Palaaios*, v. 11, p. 559-570.
- Wood, R., Dickson, J.A.D., and **Kirkland-George, B.L.**, 1994, Turning the Capitan reef upside down: a new appraisal of the ecology of the Permian Capitan reef, Guadalupe Mountains, Texas and New Mexico: *Palaaios*, v. 9, p. 422-427.
- Kirkland, B.L.**, 1994, Distribution of fossil dasycladacean algae in the Capitan Formation and Carlsbad Group, Guadalupe Mountains, Texas and New Mexico, U.S.A.: *Beiträge zur Paläontologie von Österreich*, no. 19, p. 153-159.
- Moshier, S.O., and **Kirkland B.L.**, 1994, Identification and diagenesis of a phylloid alga: *Archaeolithophyllum* from the Pennsylvanian Providence Limestone, western Kentucky, reply to discussion by N. E. Pingatore: *Journal of Sedimentary Petrography*, v. A64, p. 925-926.
- Moshier, S.O., and **Kirkland, B.L.**, 1993, Generic identity and diagenesis of the Pennsylvanian alga *Archaeolithophyllum* from the Providence Limestone, Kentucky: *Journal of Sedimentary Petrology*, v. 63, n. 6, p. 1032-1041.
- Kirkland, B.L.**, Moore, C.H., and Dickson, J.A.D., 1992, Well preserved aragonitic phylloid algae (*Eugonophyllum*, Udoteaceae) from the Pennsylvanian Holder Formation, Sacramento Mountains, New Mexico: *Palaaios*, v. 7, p. 111-120.
- Dickson, J.A.D., Smalley, P.C., and **Kirkland, B.L.**, 1991, Stable isotope analysis of aragonitic phylloid algal plates and cements from the Holder Formation, Sacramento Mountains, New Mexico: *Geochimica et Cosmochimica Acta*, v. 55, p. 2607-2613.
- Kirkland, B.L.**, and Chapman, R.L., 1990, The fossil green alga *Mizzia* (Dasycladaceae): a tool for interpretation of paleoenvironment in the Upper Permian Capitan reef complex, southeastern New Mexico: *Journal of Phycology*, v. 26, p. 569-576.

Kirkland, B.L., Lighty, R.L., Rezak, R., and Tieh, T.T., 1987, Lower Cretaceous barrier reef and outer shelf facies, Sligo Formation, South Texas: Transactions: Gulf Coast Association of Geological Societies, v. 37, p. 371-391.

Guidebooks

Kirkland, B.L., Banner, J.L., Moore, C.H., Hoffman, C., Pursell, B, and Vasquez, R., 1996, Cretaceous cyclic platform carbonates of Central Texas, South Central Section Meeting of the Geological Society of America, Field Trip #3, 36 p.

White, J.V., and **Kirkland, B.L.**, 1996, Diagenesis and porosity distribution of Pennsylvanian Paradox Formation carbonates (Upper Ismay), southeastern Utah, Paradox Basin Field Conference Guidebook, *in* Huffman, A.C., Lund, W.R. and Godwin, L.H., eds., *Geology and Resources of the Paradox Basin*, Utah Geological Society and Four Corners Geological Society Guidebook 25, p. 157-160.

Kirkland, B.L., Longacre, S.A., Stoudt, E.L, 1993, Reef, *in* Bebout, D.G. and Kerans, C., eds. Guide to the Permian Reef Geology Trail, McKittrick Canyon, Guadalupe Mountains National Park, West Texas: Texas Bureau of Economic Geology Guidebook 26, p. 23-31.

Conference Proceedings

Owen, A. M., **Kirkland, B. L.**, Mylroie, J. E., and Fratesi, SD. E., 2010, Serendipitous observations of organic matter in meteoric calcite cement in Holocene eolian calcarenites, San Salvador Island, Bahamas. *In* Martin, J. B., and Siewers, F., D., eds., Proceedings of the 14th Symposium on the geology of the Bahamas and other carbonate regions.

Johns, R.A., **Kirkland, B.L.**, and Turich, C. H., 2005, Sponge diversity patterns in the middle Capitan reef of the Guadalupe Mountains, Texas, and their environmental implications, *in* Armstrong, F.R. and Keller-Lynn, K. eds., *The Guadalupe Mountains symposium: Proceedings of the 25th anniversary conference on research and resource management in Guadalupe Mountains National Park*, p. 279-295.

Special Publications

Johns, R.A. and **Kirkland, B.L.**, 1999, Patterns of sponge diversity in the middle Capitan Reef of the Guadalupe Mountains, Texas: *in* DeMis, W.D. and Nelis, M.K., eds. *The search continues into the twenty-first century*, West Texas Geological Society Publication 98-105, p. 77-87.

Kirkland, B.L., and Moore, C.H., 1996, Microfacies analysis of the Capitan Outer Shelf, Permian Capitan Reef Complex: *in* Martin, R.L., *Permian Basin oil and gas fields; keys to success that unlock future reserves*, West Texas Geological Society Publication 96-101, p. 99-106.

*Abstracts presented at meetings (*denotes speaker if other than first author)*

Kirkland, B. L. Moore, K., Trent, B., Tischler, K., Samai, N., Kirkland, D.W., Moiola, R.J., Lessons from the Capitan Reef: Unraveling Microbial Fabric Development in other Settings (Holder, Laborcita, Smackover, and Rita Blanca formations), West Texas Geological Society Annual Meeting, October, 2015. (*invited*)

Tischler, K.L. and **Kirkland, B.L.**, Microbial expression and variability in leopard rock, Holder Formation (Pennsylvanian, Virgilian), Sacramento Mountains, New Mexico, West Texas Geological Society Annual Meeting, October, 2015.

- Samai, N.A. and **Kirkland, B.L.**, A petrographic analysis of a microbial thrombolite buildup in the Oxfordian Smackover Formation, Little Cedar Creek field, Alabama, West Texas Geological Society Annual Meeting, October, 2015.
- Testa, M.P., Babineaux, C., Bise, R.D., **Kirkland, B.L.**, Hollis, L., Murray, B., Bychowski, M., Wise-Bellard, M., Microbial influence on pyrite and iron oxide in the Prairie Bluff Formation, Starkville, Mississippi, Geological Society of America, Vancouver, Abstracts with Programs v. 46.
- Killian, C., Bridges, S., **Kirkland, B.L.**, Meeks, C., Olsson, O., Pierce, P., Tavernier, L., Weremeichik, J., October 2014, Gypsum, pyrite, and iron oxides in the Ripley Formation, Oktibbeha County, Mississippi, Geological Society of America, Vancouver, Abstracts with Programs, v. 46.
- Testa, M.P., **Kirkland, B.L.**, Pounders, D. and Qualls, K, October 2014, Exploration of the relationship between microbial dendritic shrub structures and formation of aragonitic botryoidal cement, Geological Society of America, Vancouver, Abstracts with Programs, v. 46.
- Calhoun, K., **Kirkland, B.L.**, Schmitz, D., May, J., October 2014 Analysis of Parent Source Material of Calcium Bentonite in Smith County, Mississippi, Gulf Coast Association of Geological Societies, Lafayette, Louisiana.
- Tischler, K. L. and **Kirkland, B.L.**, April 2014, Microbial origin of bioherm associated leopard rock, Holder Formation, (Pennsylvanian, Virgilian), Sacramento Mountains, New Mexico, AAPG Abstracts with Programs, V. 46.
- Aina, E. A., and **Kirkland, B.L.***, October 2013, Evolution and occlusion of porosity in the Lower Cretaceous Aptian-Albian Sligo Formation shelf edge reef, South Texas, Gulf Coast Association of Geological Societies, v. 63.
- Calhoun, K., Schmitz, D., **Kirkland, B.L.**, May, J., 2013, Parent source material of calcium bentonite in Smith County, Mississippi, AAPG Abstracts with Programs, v. 45.
- Degny, A.D. **Kirkland, B.L.**, Schmitz, D., 2013, Assessment of reservoir quality and potential impact of sequestered carbon dioxide in reservoir units of diverse lithologies in south-central Mississippi, USA, AAPG Abstracts with Programs, v. 45.
- Kirkland, B.**, J. Diaz-Ramirez, G. Thibaudeau, K. Sherman-Morris, and K. McNeal. 2012. Preparing the STEM Workforce for the Future: Proactive Efforts at Mississippi State University to Address Shifting Population Demographics. ASEE Southeastern Section Annual Conference, April 1-3, 2012, James Worth Bagley College of Engineering, Mississippi State University.
- Baghai-Riding, N., Bise, R.D., Kazal, E.A., Collins, J.D., **Kirkland, B.L.**, Merritt, D.N., Moody, H.A., Roberts, W.G. Jr., Shows, K.J., 2012, Possible microbial influence on dissolution of pyrite in Demopolis Chalk, NE Mississippi, Geological Society of America Abstracts with Programs, v. 44.
- Kirkland, B.L.**, Lindsey, C., Woodard, C., Simmons, J., Jasper, G., Collins, J.D., Baghai-Riding, N.L., Tisdale, R., Grant, G., Enhanced microbial precipitation of iron oxides in Demopolis Chalk Formations, Geological Society of America Abstracts with Programs, vol. 44.
- Baghai-Riding, N., Choudhary, V., Collins, J.D., Degny, A.D., Guthrie, C.L., **Kirkland, B.L.**, Putnam, B. and Williams, K.L., 2011, Microbial Precipitation of Iron Oxide in Sandstone, Central

Mississippi, Geological Society of America, Abstracts with Programs, vol. 43, no. 5, p. 583.

- Aina, E. and **Kirkland B.L.**, 2011, Assessment of porosity and diagenesis in the Lower Cretaceous Aptian-Albian Sligo Formation, South Texas, American Association of Petroleum Geologists, Annual Meeting Abstracts, v. 20.
- Moore, K.M., Gordon, I.T., **Kirkland, B.L.**, Schmitz, D.W., 2011, Giant hams from the Laborcita Formation, Sacramento Mountains, New Mexico, American Association of Petroleum Geologists, Annual Meeting Abstracts, v. 20.
- Aina. E., Degny, A.D., **Kirkland, B.L.**, McBryde, W.D., Sherman-Morris, K., Miller, T.S., Weeks, B.L., Wright, K.L., 2010, Evidence of microbial weathering of pyrite in Mississippi Sandstone, Geological Society of America Abstracts with Programs, v. 42.
- Kirkland, B.**, Thibaudeau, G., McNeal, K., Sherman-Morris, K., Baghi-Riding, N., Meek, C., Dickerson, O., Jennings, M., Dutrow, B., Schmitz, D., Lawrence, A., 2010, Human Resources for the energy workforce of the future: Finding the best employees requires addressing diversity now, American Association of Petroleum Geologists, Annual Meeting Abstracts, v. 19.
- Weeks, B. L., **Kirkland, B. L.**, Kirkland, D. W., Moiola, R. J., Lynch, F. L., Dewey, C. P., and Sellers, C. B. 2010, Role of Organic Matter in Formation of micritic ooids and stromatolites from Channing Lake Bed Basin; Rita Blanca Formation; Panhandle, Texas. Amer. Assoc. Petrol. Geol. New Orleans, LA, American Association of Petroleum Geologists, Annual Meeting Abstracts, v. 19.
- McNeal, K.S., Clary, R., Sherman-Morris, K., **Kirkland, B.**, Gillham, D. and Moe, A., 2009, Mississippi State University's Geoscience Education and Geocognition Research Program in the Department of Geosciences. American Geophysical Union Fall Meeting, Section ED44A, Eos Trans. AGU, 90(52) Fall Meeting Supplemental Abstract ED12A-06.
- Weeks, B. L., **Kirkland, B. L.**, Kirkland, D. W., Moiola, R. J., Lynch, F. L., Sellers, C. B. and Dewey, C. P., 2009. Role of organic matter in formation of stromatolites and micritic ooids from Channing Lake Bed Basin; Rita Blanca Formation; Panhandle, Texas. Geol. Soc. Amer. Abstracts with Programs Vol. 41.
- Corley, M.E., Folk, R.L., **Kirkland, B.L.**, Lynch, F.L., Puckett, K.M., and McNeal, K.S., 2009, A new look at familiar environments: early carbonate precipitates and biofilms in hot springs, salt ponds and reefs, American Association of Petroleum Geologists, American Association of Petroleum Geologists, Annual Meeting Abstracts, v. 18.
- Funderburk, W.K., **Kirkland B.L.**, and. Brown, L.R., 2009, Quantifying the fractal topology of micron-scale biofilm surfaces using SEM, Proceedings of the Southeastern Microscopy Society, v. 29, p. 15.
- Johnston, J., **Kirkland, B.L.**, Dyer, J., 2008, A quantitative analysis of the effectiveness of directed discovery teaching methods and weekly quizzes in a standardized introductory Earth science laboratory course, Geological Society of America Abstracts with Programs, v. 40.
- Puckett, M.K., McNeal, K., **Kirkland, B.L.**, 2008, A biogeochemical description of microbial biofilms from Fowl Cay reef and microbial mats at Salt Pond, the Bahamas Geological Society of America Abstracts with Programs, v. 40.

- Kirkland, B.L.**, Lynch, F.L., Folk, R.L., Lawrence, A.M., 2008, Nannobacteria, organic matter and precipitation in hot springs, Viterbo, Italy: Distinctions and relevance, Microscopy Society of America National Meeting. (*Invited*)
- Owen, A. M., **Kirkland, B. L.**, Mylroie, J. E., and Fratesi, S. B., 2008, Serendipitous observations of organic matter in meteoric calcite cement in Holocene eolian calcarenites, San Salvador Island, Bahamas. Abstracts and Program, 14th Symposium on the Geology of the Bahamas and Other Carbonate Regions, Gerace Research Centre, p. 17-18.
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- Kirkland, B.L.**, Banner, J.L., Lynch, F.L., Ward, W.B., 1999, A dynamic model for formation of the pisoid tepee facies in the Permian reef complex, Guadalupe Mountains, New Mexico, American Association of Petroleum Geologists, Annual Meeting Abstracts, v. 31.
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- Gournay, J.P., and **Kirkland, B.L.**, 1998, Fabric development in phylloid algal bioherms: American Association of Petroleum Geologists, Annual Meeting Abstracts, v. 7.
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- Henry, D.J., **Kirkland, B.L.**, and Kirkland, D.W., 1996, Sector zoned tourmaline from the cap rock of the Challenger Salt Dome: interplay of surface energy and mineral chemistry: Geological Society of America Abstracts with Programs, v. 28.
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- White, J.V., and **Kirkland, B.L.**, 1995, Cementation of adjacent units of differing lithology: cementation of a Pennsylvanian mixed siliciclastic/carbonate system, Paradox Basin, Utah: Geological Society of America Abstracts with Programs, v. 27.
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- Kirkland, B.L.**, and Moore, C.H., 1995, More evidence for a barrier reef: microfacies analysis of the Tansill outer shelf, Permian Capitan reef complex, American Association of Petroleum Geologists and Society of Economic Paleontologists and Mineralogists, Annual Meeting Abstracts, v. 4.
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- Kirkland, B.L.**, and Moore, C.H., 1993, Radiaxial calcite in the Capitan Formation, Guadalupe Mountains, New Mexico: a possible indicator of sea-level rise, American Association of

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Kirkland, B.L., Moore, C.H. and Dickson, J.A.D., 1991, Aragonitic phylloid algae from New Mexico: the missing link: American Association of Petroleum Geologists Bulletin, v. 75, p. 610.

Kirkland, B.L., and Moore, C.H., 1990, New evidence for a barrier reef model, Permian Capitan reef complex, New Mexico: American Association of Petroleum Geologists Bulletin, v. 74, p. 726.

Moshier, S.O., and **Kirkland, B.L.**, 1990, Generic identity and diagenesis of Pennsylvanian phylloid alga (*Archaeolithophyllum*) revealed by cathodoluminescence: American Association of Petroleum Geologists Bulletin, v. 74, p. 726.

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Kirkland, B.L., 1988, Petrographic and graphic analysis of shelf-edge porosity in the Lower Cretaceous Sligo Formation, South Texas: *in* Weidie, A., Kohl, B., and Fillon, R. eds., Transactions: Gulf Coast Association of Geological Societies, v. 38, p. 590.

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Grants for Research and Education

- Carbon Sequestration Research Initiative Subcommittee, Submitted to the MSU Office of Research and Economic Development, October 2014, \$2,0000.
- Multifunctional Nanostructures for Integrated Electrical, Chemical, Mechanical, and Geological Applications: A multidisciplinary Laboratory Education Program, 1/1/2014-12/31/2015, Co-PI with P. Hill, P.I., Co-PIs T. Stone, O. Meyers, Y. Koshka, and C. Henington, National Science Foundation, (\$200,000).
- MRI R2: Acquisition of a High-Resolution TEM for Materials and Life Science Research and Training, 01/01/2010-12/31/12, Senior Personnel with (PI) G. Thibaudeau, (Co-PIs in alphabetical order); M. Horstemeyer, A. Minerick, J. Schneider, J. Smith (other Senior Personnel in alphabetical order); G. Baker, S. Diehl, H. ElKadiri, Y. Koshka, A. Lawrence, W. Monroe, S. Sabanadzovic, K. Walters, M. Yuceer, National Science Foundation, (\$1,986,741).

- Geological Evaluation of the Potential for Carbon Dioxide Sequestration in Kemper County, Mississippi, Southern Company, with Jeffery Lindner and Darrel Schmitz, 3/1/11-12/31/11, (\$30,000).
- Proposal to Document Nanometer-scale Microbial Textures in Eight Samples, Petrobras, sole PI, 8/31/2010-8/31/2011, (\$17,495).
- Tests to Determine Effectiveness of Microbial Permeability Profile Modification in Little Creek Field, Mississippi, Denbury Resources, Inc., with Lewis R. Brown, and Darrel Schmitz, 8/15/2010-8/15/2011, (\$11,957).
- MRI: Acquisition of an Atomic Force Microscopy System for Advanced Materials Research and Education, National Science Foundation, Senior Personnel with PI K. Walters, CoPIs A. Minerick, G. Thibaudeau Munn, D. Wipf, and L. Williams, 9/1/2009-3/31/2012, (\$726,940).
- Diversity Enhancement of the Geosciences through Research Experiences (DEGRE): Mentoring African Americans through Research and Professional Development (Track 1), National Science Foundation, PI with CoPIs G. Thibaudeau Munn, K. McNeal, K. Sherman-Morris, and F.L. Lynch, September 2009 to August 2012, (\$190,959).
- Proposal to Incorporate High-Quality Images and Videos into Undergraduate Geology Classes, 2007, with F. L. Lynch and C. Dewey, Schilling Special Teaching Grant, (\$2,333).
- Creation of high-resolution 3-D images of reservoir rock from oil fields subjected to microbial permeability profile modification during carbon dioxide flood, Center for Nanophase Materials, Oak Ridge National Laboratories, Permission granted to work, no dollar value.
- Improvement of carbon dioxide sweep efficiency by utilization of microbial permeability modification to reduce the amount of oil bypassed during carbon dioxide flood, 2005-2010, with Co-Principal Investigators, D. Schmitz, F. Leo Lynch, and L. Brown, U.S. Department of Energy, (\$1,500,000).
- Proposal to Incorporate Geologic Thin Sections into Undergraduate "Principles of Sedimentary Deposition I" Course, Schilling Special Teaching Grant, (\$2,435).
- Investigation of Nannobacteria in Mineral Formation, 1998-2000, with Co-Principal Investigators R.L. Folk (University of Texas) and R.G.C. McLean (Southwest Texas State University), Texas Higher Education Coordinating Board (\$202,522)
- Investigation of the role of nannobacteria and their role in mineral precipitation, 1998-2000, Principal Investigator, National Science Foundation Start-up Grant for Exploratory Research EAR-9803031 (\$38,656)
- Texas High School Coastal Monitoring Program: Ball High School, Galveston, Year 2, 1999-2000, with Co-Principal Investigators J.C. Gibeaut and R. Gutiérrez, (Bureau of Economic Geology), General Land Office (\$25,809)
- Texas High School Coastal Monitoring Program: Port Aransas High School, Year 1, 1998-1999, with Co-Principal Investigators J.C. Gibeaut and R. Gutiérrez, (Bureau of Economic Geology), General Land Office (\$38,115)
- High School Beach Monitoring Program: A Pilot Project in Education, Public Awareness, and Coastal Management, 1997-1998, with Co-Principal Investigators J.C. Gibeaut and R. Gutiérrez (Bureau of Economic Geology), General Land Office, Exxon, Conoco (\$35,194)

- Participation of High School Students in Cooperative Research on Coastal Change, 1996-1997, with Co-Principal Investigators J.C. Gibeaut and R. Gutiérrez (Bureau of Economic Geology), Amoco, Conoco, Chevron, Exxon (\$12,500)
- Young Professor Grant, 1994-1998, DuPont Foundation (\$75,000)
- Development of an Emerging Scholars Program in the Department of Geological Sciences, 1994-1997, with R. Gutiérrez, Exxon Foundation, Conoco, British Petroleum, Amoco (\$50,000)
- University of Texas/University of Cambridge Field Trip Exchange, New Mexico & West Texas, Co-Leader with J.A.D. Dickson (Cambridge), 1997, Burlington Resources, Texaco, Saga, Amerada Hess, Unocal, ARCO (\$21,000)
- University of Cambridge/University of Texas Field Trip Exchange, Dorset Coast, 1996, Co-Leader with J.A.D. Dickson (Cambridge) Chevron (\$2,000)
- University of Texas/University of Cambridge Field Trip Exchange, New Mexico & West Texas, 1995, Co-Leader with J.A.D. Dickson (Cambridge) Mobil North Sea, Chevron, Eby Petrography, Inc. (\$4,500)
- University of Texas/University of Cambridge Field Trip Exchange, Dorset Coast 1994, Co-Leader with J.A.D. Dickson (Cambridge), Mobil North Sea, Chevron (\$1,610)
- Development of Phylloid Algal Bioherms in the Paradox Basin, Southeastern Utah, 1995, with Graduate Research Assistants I. Gordon, J. Gournay, K. Tischler, and J. White, Conoco (\$10,000)
- Organic Geochemical Study of Paradox Basin Source Rocks, 1993, with Graduate Research Assistant K. Tischler, Mobil Exploration and Producing, U.S. (\$3,000)
- Sequence of Marine Cementation in the Capitan Formation, Guadalupe Mountains, Texas and New Mexico, 1993-1995, Petroleum Research Fund of the American Chemical Society, Type G Starter Grant #26697-G8 (\$20,000)

Recently Submitted:

- Exchange of Magnetic Resonance Imaging (MRI) Technology between Norway and Mississippi, Proposal to the Fulbright US Scholar Program, August 2014.
- Learning and Educating Teachers Through Interdisciplinary Research (LETTIR), PI with CoPIs G. Thibaudeau, R. Walker, and K. Sherman-Morris, submitted to National Science Foundation, March 2014, \$2,255,398.
- MRI Acquisition of a Multi-user Focused Ion Beam-SEM for Multidisciplinary Materials Science Research and Training, submitted to National Science Foundation, January 2014, \$995,354.
- The Role of Microbes and Organic Matter in the Genesis of Complex Carbonate Microfacies and Lithologies in the Sacramento Mountains, New Mexico, submitted to the National Science Foundation, January 2014, \$307,775.
- MRI: Acquisition of a Multi-user Focused Ion Beam-SEM for Multidisciplinary Materials Science Research and Training Co PI with PI Gabitov, and CoPI's Thibaudeau and Schneider, submitted to National Science Foundation, January 2013, \$965,366

- Effect of Microbial Activity and Organic Compounds on Nanometer-scale Textures of Calcium Carbonate: A Key to Evaluation of Biosignatures, PI with Co-PI R. Gabitov, and Sr. Personell, C. Templeton, 2014-2015, submitted to the National Science Foundation, July 2013, \$278,100.
- Effect of pCO₂, Temperature, Salinity, and Microbial Activity on Nanometer-scale Textures and Isotopic Variations in Calcium Carbonate: New Approaches to Evaluation of Biosignatures, Submitted to Shell Oil Co., December 2013, \$274,999.
- Effects of eddies and hurricanes on geochemical records of planktonic foraminifera: an insitu approach, CoPI with PI R. Gabitov, submitted June 2013, \$237,797.
- MRI: Acquisition of a Multi-user Focused Ion Beam-SEM for Multidisciplinary Materials Science Research and Training, \$995,354.
- The Role of Microbes and Organic Matter in the Genesis of Complex Carbonate Microfacies and Lithologies, in the Sacramento Mountains, New Mexico, \$307,775.

Students Supervised

Mississippi State University

Ph.D.

- Testa, Maurice, Exploration of microbial carbonate in Pinar del Rio, Cuba: Understanding environment of deposition through laboratory experimentation, anticipated date of graduation, May 2018
- Babineaux, Claire E., Study of the affects of using glass cullet for beach restoration: Effects on plants, surrounding environments, and the human population, anticipated date of graduation, May 2016
- Mitchell, Joseph A., Environmental change reflected in freshwater mollusc shells, anticipated graduation, December 2015
- Tischler, Keith L., Depositional environment, origin, and geospatial location of Leopard Rock, Holder and Laborcita formations, Sacramento Mountains, south central New Mexico, anticipated graduation, May 2016

M.S.

- Samai-Odegaarden, Natalie, Microbial carbonate in the Smackover Formation, anticipated graduation May 2015
- Testa, Maurice, Description of potential microbial origins in botryoids, anticipated graduation May 2015.
- Brooke, J. Michael, Study of deep shale play samples in southwestern Mississippi, anticipated graduation, May 2014
- Calhoun, Kayla J., (co Supervised with Dr. Darrel Schmitz), Assessment of bentonite beds from Smith County, Mississippi, anticipated graduation December 2013
- Byrd, Kinsey M., Variables affecting the morphology of industrially produced gypsum crystals, anticipated graduation, December 2013
- Degny, A. Desire, Effect of carbon dioxide on reservoirs in southeastern Mississippi, May 2013
- Dealy, Jessica L., Assessment of wind speed at a site in Leflore County, Mississippi and cost benefit analysis of wind turbines for that area, May 2013
- Babineaux, Claire E., (Co-supervised by Dr. Christopher Dewey), Recycled glass cullet as an alternative for dredged sediments in coastal replenishment: A feasibility study. December 2012
- Collins, Joe D., (Co-supervised by Dr. Evan Peacock), Diagenetic alteration of aragonitic mollusk shells, May 2012
- Aina, Eytayo D., Porosity development and loss in the Sligo Formation shelf margin reef, South Texas, December 2011

- Moore, Kevin M., Origin of “giant hams”: microbial mini-bioherms from the Laborcita Formation, central New Mexico, August, 2010
- Weeks, Brittany L., Stromatolites and ostracode-bearing ooids from Pleistocene Lacustrine Deposits, Texas, May 2010
- Puckett, Mary Keith, (Co-supervised by K. McNeal), Comparison of biogeochemical data, microbial diversity, and carbonate precipitation in reef- and salt-pond environments, December 2009
- Corely, Margaret E. (Co-supervised by F. Leo Lynch), Using High-Resolution Microscopy (FESEM, ESEM, TEM) to Investigate Carbonate Precipitates and Associated Organics in Hot Springs, Salt Pond, and Reef Environments, August 2009
- Collins, Krystal M. (Co-supervised by F. Leo Lynch), The role of oil migration in diagenesis of Upper Cretaceous Eutaw Formation sandstone from the subsurface of Central Mississippi, May 2008
- Funderburk, William K., Mathematical assessment of distribution of porosity and biofilm in Microbial Permeability Profile Modification (MPPM) in the Stanley sandstone of the Eutaw Formation of Jasper County, Mississippi, August 2008
- Culpepper, Jonathan D. (Co-supervised by F. Leo Lynch) Porosity development in the Table Mesa and Rattlesnake Fields, San Juan Basin, New Mexico, anticipated graduation, May 2009
- Johnston, Julia, Evaluation of improvements to the learning environment of Introduction to Earth Science laboratory exercises, May 2006
- Coffey, Melody (Co-supervised by F. Leo Lynch), Microbially mediated porosity enhancement in carbonate reservoirs including the Sligo, Smackover, and Salem formations, December 2004

B.S. Honors theses:

- Lindsey, Cary, Geothermal energy potential in Oktibbeha County: Is Mississippi really hot? Anticipated graduation, May 2013

The University of Texas at Austin

Ph.D.

- Gournay, Jonas P., Porosity modeling in phylloid algal bioherms, December 1999
- Hoffman, Cory L., Evaluation of cyclicity in Cretaceous sediments, May 2000
- Lundquist, Jason J., Biostratigraphic framework for the Upper Cretaceous in Central Texas, May 2000

M.S.

- Gomez, Alfred D., (co-supervised by R.T. Buffler) Core study and sequence stratigraphic analysis of the Desmoinesian Barker Creek Zone, Table Mesa and Rattlesnake Fields, San Juan County, May 2003
- John, Jason G., (co-supervised by G. Kocurek) Regional correlation and characterization of the Entrada and Todilto formations in the San Juan Basin, northeastern New Mexico, August 2000
- Turich, Courtney H., Paleocology of the lower Capitan Formation, M.S. August 2000
- Beall, Jennifer L., Sequence stratigraphic and diagenetic study of Wolfcampian carbonates, Midland Basin and Hueco Mountains December 1999 (employed by Chevron-Texaco)
- Zahm, Laura C. (co-supervised by C. Kerans) Depositional model and sequence stratigraphic framework for upper Albian/lower Cenomanian carbonate ramp, western Comanche shelf, Texas, August 1997
- Gordon, Ian T., The effect of relative sea level change on the development of phylloid algal bioherms, Laborcita Formation (Lower Permian), Sacramento Mountains, New Mexico, May 1997
- White, James V., Diagenesis and porosity distribution of Pennsylvanian Paradox Formation Carbonates (Upper Ismay), Southeastern Utah, December 1995

- Rahnis, Michael A., Radial calcite in the Capitan Formation, Texas and New Mexico, August 1995
- Tischler, Keith L., Paradox basin source rock, southeastern Utah: organic geochemical characterization of Gothic and Chimney Rock units, Ismay and Desert Creek Zones, within a sequence stratigraphic framework, August 1995

B.S. Honors theses:

- Cirilo, Leslie L., Measured section through a cyclic carbonate shelf sequence and rudist buildup, Walnut and Edwards Formations, Lower Cretaceous, Travis County, Texas Undergraduate Honors Thesis, December 1996
- Beall, Jennifer L., Occurrence of marine radial calcite through Phanerozoic time, Undergraduate Honors Thesis, December 1995

Invited Technical Lectures

- Attempts at Imaging the Interface between Organic Matter and Calcium Carbonate: Journeys at the Nanometer-scale, Bathurst Meeting, Edinburgh, Scotland, July 2015.
- Microbial carbonates: Strategies and solutions, Sedimentary Petrology and Reservoir Quality Team, Shell International Exploration and Production, Inc., October 2013
- Geochemistry versus microbes, Department of Geography and Geology, Sam Houston State University, October 2013
- Biologically mediated carbonate precipitation at the nanometer-scale, Carbonate Community Network meeting, Shell International, October 2013
- Petrography/Diagenesis and Carbonate Reservoirs, Symposium honoring the retirement of Prof. Wayne Ahr, Berg-Hughes Center, Texas A&M University, March 2011.
- The role of organic matter in precipitation of calcium carbonate from Italian Hot Springs, a Bahamian salt pond, and a Pleistocene Lake, Petrobras, Rio de Janeiro, Brazil, December 2009
- Organic Matter and Calcium Carbonate Precipitation, Louisiana State University, November 2009
- Research and Career Opportunities in the Geosciences, Delta State University, October 2009
- Research and Career Opportunities in the Geosciences, East Mississippi Community College, October 2009
- Nannobacteria, organic matter and precipitation in hot springs, Viterbo, Italy: distinctions and relevance, Microscopy Society of America, August 2008
- The Capitan Reef of the Guadalupe Mountains, Dallas Geological Society, September 1998
- Phylloid algal bioherms, components, fabrics, and porosity development, Departmental Seminar, New Mexico State University, Las Cruces, April 1998
- Microstratigraphic succession of encrustations in the Capitan, Guest Lecturer, New Mexico State University, Las Cruces, April 1998
- Phylloid algal bioherms, components, fabrics, and porosity development: including the use of high-resolution CT imagery, University of Texas at El Paso, April 1998
- Fossil algae and microbes, examples from the rock record, Department of Biology, Southwest Texas State University, Georgetown, February 1998
- Introduction to phylloid algal bioherms; Controls on formation of phylloid algal bioherms; and Imaging and understanding porosity in phylloid algal bioherms, three separate talks as part of a one-day seminar on phylloid algal bioherms organized by S.A. Longacre, Texaco E&P Technology Department, Houston, January 1998
- Phylloid algal bioherms: components, fabric development, and the use of high-resolution CT imagery in reservoir characterization, Department of Geological Sciences, University of Oklahoma, Colloquium Series, Norman, January 1998
- Microbialite and microstratigraphy, unraveling the succession of encrustations in the Capitan Formation, Department of Geological Sciences, University of Oklahoma, Lunch Time Seminar, Norman, January 1998

- Phylloid algae and phylloid algal bioherms, Department of Geological Sciences, University of Wisconsin, Madison, November 1997
- Exceptionally well preserved phylloid algae: implications for exploration and production, Exxon Production Research, Houston, November 1996
- Revising the depositional model for the Capitan reef system, International Field Symposium on the Capitan Complex, Carlsbad, New Mexico, October 1996
- High-resolution CT imaging of porosity in the Lower Ismay Formation, Geology and Resources of the Paradox Basin Conference, Durango, Colorado, September 1996
- Giant (2m!) selenite crystals, Delaware Basin, Evaporite Research Group Meeting, in conjunction with American Association of Petroleum Geologists Convention, San Diego, May 1996
- The Capitan Reef Complex: evolving hypotheses, Geology Department, University of Texas at Arlington, March 1996
- The Capitan Reef Complex: evolving hypotheses, Geology and Geophysics Department, Texas A&M University, College Station, October 1995
- Capitan Reef Complex: deep questions and partial answers: Dunham Memorial Carbonate Session, J.L. Wilson and R.N. Ginsburg, Session Chairmen, SEPM Congress on Sedimentary Geology, St. Petersburg, August 1995
- Origin of authigenic tourmaline and quartz in Cap Rock, Challenger Dome, central Gulf of Mexico, Evaporite Research Group Meeting, in conjunction with AAPG Convention, Houston, March 1995
- The Capitan turned upside-down: Carbonate Research Group Meeting in conjunction with the AAPG Convention, Houston, March 1995
- Well preserved phylloid algae: the missing link, US Geological Survey, Denver, Colorado, June 1993
- The Permian Reef Complex—an agnostic view: Permian Basin SEPM, Midland, November 1990

Service to Mississippi State University

University Committee Service

- President's Commission on the Status of Minorities, 2015 to present
- University Committee on Courses and Curricula, 2015-2018
- Chair, Subcommittee on Carbon Sequestration, part of the Energy Working Group, 2014-present
- Materials Science Working Group, Treasurer 2010-2012, Secretary 2012-2014, Vice President 2014-2016

Departmental Service

- Faculty Supervisor, Sigma Gamma Epsilon
- Faculty Supervisor, American Association of Petroleum Geologists, Student Chapter
- Foundation and Alumni Relations Committee, 2014-15
- Search Committee Chair, Mineralogy Position, May 2012
- Departmental Booth, American Association of Petroleum Geologists Convention, 2008, 2009, 2010, 2012
- Departmental Booth, Geological Society of America Convention, 2006, 2007
- Search Committee, Distance Learning Tenure Track Position, Fall 2006
- Search Committee, Distance Learning Instructor, Fall 2005
- Museum Committee, 2004-present
- Preparation of departmental display and pamphlet for Geological Society of America Convention, Fall 2001, 2002, 2003, 2004, 2005
- Discovery Day Display Contributor, Fall 2001, 2003

Service to the University of Texas at Austin

Academic Advising

- Undergraduate Honors Advisor, 1995-1998

- Minority Liaison Officer, 1992-1998

University Committee Service

- College Honors Committee, 1995-1998
- Graduate Opportunity Fellowship Review Panel, Spring 1995
- Equal Opportunity Committee, 1993-1994

Departmental Committee Service

- Admissions and Support Committee, Fall 1992-Spring 1997
- Research Programs Task Force, Spring 1996
- Foundation Review Committee, 1993-1996

Professional and Public Service

Panelist

- National Science Foundation, Sedimentary Geology and Paleontology, October 2012

Professional Committee Service

- American Association of Petroleum Geologists Division of Environmental Geosciences, Continuing Education Committee Chair, 2000-2003, Member 1998-2000, Subcommittee on K-12 initiatives, Chair 1999-2000, Member 1998-1999
- American Association of Petroleum Geologists, Delegate Representing Austin Geological Society, 1999-2001

Professional Meetings

- Session chair, along with H.S. Chafetz, Bacterially Mediated Mineral Crystallization, SEPM Oral Session, National Meeting of the American Association of Petroleum Geologists, April 11-14 1999
- Co-convenor, along with A.H. Saller, J.A.D. Dickson, and P.M. Harris, International Field seminar on the Permian Capitan System, October 4-6, 1996
- Session chair, along with Jay L. Banner and Clyde H. Moore, Records in Preserved Carbonate Rocks: Cycles, Ocean Chemistry, Sedimentation, and Diagenesis, South-Central Section meeting of the Geological Society of America, Austin, Texas, March 11, 1996
- Chair SEPM Evaporite Research Group Meeting, San Diego, 1996
- Co-chair SEPM Evaporite Research Group Meeting, Houston, 1995

Field Trips

- Field Trip Leader, along with J.A.D. Dickson, A.H. Saller, S. Conway-Morris, R.A. Wood, University of Cambridge / University of Texas Field Trip Exchange, Field trip to the Guadalupe and Sacramento Mountains, 1995, 1997
- Field Trip Organizer along with J.A.D. Dickson, S. Conway-Morris, R.A. Wood, University of Cambridge / University of Texas Field Trip Exchange, Field trip to the Dorset Coast, 1994, 1996
- Field Trip Leader, along with Jay L. Banner and Clyde H. Moore, Cretaceous Cyclic Platform Carbonates of Central Texas, March 10, 1996, South-Central Section meeting of the Geological Society of America

Consulting

- SEM imaging of samples for Petrobras, 2010
- Academic consultant for a National Geographic article on the Permian extinction, 1999

K-12 Outreach

- Curriculum Development, Texas High School Coastal Monitoring Program, in Conjunction with The Texas Bureau of Economic Geology and Ball High School, Galveston, Texas, 1997-1999
- Workshop leader, Expanding Your Horizons, Workshops in scientific and mathematical fields for young women in middle school, held on the University of Texas at Austin Campus
 - "Country Creeks and City Creeks" (assessing the impact of urbanization on surface water quality) 1996
 - "First Aid for Old Building Stone" (building stone deterioration and solutions, including a lesson in capillarity) 1993, 1995

Community Service

- Autism Education
 - Presentation to Jigsaw, MSU autism student group, 2014-Tour of Treatments, 2012-Positive Perspectives from a Parent
 - Presentation to Mississippi House Committee on Health and Human Services, January 2009
 - Presentation to Starkville Autism Support Group, An introduction to treatments for autism, October 2009
- Classroom volunteer
 - Armstrong Middle School, Starkville, Mississippi, 2007, Earth Science Career Opportunities Presentation
 - Ward-Stewart Elementary, Starkville, Mississippi, 2003-2004, Science Cadre Member, contributed to development of science curriculum, classroom presentation on rocks and minerals
 - Sudduth Elementary School, Starkville, Mississippi, Spring 2004, Fall 2004, Presentation on minerals
 - Ward-Stewart Elementary, Starkville, Mississippi, 2003-2004, Presentation on minerals; assisted with Science Fair
 - Overstreet Elementary School, Starkville, Mississippi, 2002-2003, Assisted with Science Fair and Pioneer Day; field trip volunteer
 - Sudduth Elementary School, Starkville, Mississippi, 2001-2002, Presentation on caves and bats; field trip volunteer
 - Hill Elementary School, Austin, Texas, 2000-2001; Demonstration on cave formation and discovery-based exercise on mineral precipitation, assisted with weekly lessons in computer skills, language arts, and mathematics; assisted teachers with classroom paperwork; field trip volunteer
 - University of Texas at Austin Child and Family Lab School, 1999-2000; Discovery-based presentation on minerals and hardness, field trip volunteer
 - First Presbyterian Day School, Austin, Texas, 1998-1999; Presentation on dinosaurs and skeletons to four-year-olds, field trip volunteer

Professional Reviews

- Associate Editor, Journal of Sedimentary Research 2007-2008
- Reviewed papers for Sedimentology, Journal of Sedimentary Research, Palaios, Geology, Treatise on Invertebrate Paleontology, Facies, Clays and Clay Minerals
- Reviewed proposals for National Science Foundation, American Chemical Society

Professional Society Memberships

- American Association of Petroleum Geologists
- Association for Women Geoscientists
- National Association of Geology Teachers
- The Society for Sedimentary Geology (SEPM)
- Geological Society of America

Professional Registration

- State of Texas Licensed Professional Geologist # 1847