
STEVEN SEMKEN

Arizona State University
School of Earth and Space Exploration
PO Box 871404 / Bateman PSF Room 686
Tempe, Arizona 85287 USA

Phone 480-965-7965
Fax 480-965-8102
Email: semken@asu.edu
Web: <http://semken.asu.edu>

Professional Preparation

Ph.D. (Ceramics/Materials Science), Massachusetts Institute of Technology, 1989.
M.S. (Geochemistry), University of California, Los Angeles, 1984.
S.B. (Earth and Planetary Sciences), Massachusetts Institute of Technology, 1980.

Professional Experience

Associate Director for Undergraduate Education, School of Earth and Space Exploration, Arizona State University, since 2011.
Associate Professor, School of Earth and Space Exploration, Arizona State University, since 2009.
Deputy Director for Education and Outreach, NSF EarthScope Project National Office, since 2011.
Assistant Professor, School of Earth and Space Exploration (formerly Department of Geological Sciences), Arizona State University, 2003-2009.
Chair of Mathematics, Science, and Technology, Diné College, Navajo Nation, 2000-2003.
Adjunct Professor of Earth Sciences, New Mexico Institute of Mining and Technology, 2002-2003.
Visiting Associate Professor of Geochemistry, United States Air Force Academy, 1998.
Associate Director, WERC, A Consortium for Environmental Education and Technology, 1991-2003.
Geology and Chemistry Instructor, Diné College, Navajo Nation, 1988-2003.
IBM Graduate Fellow in Materials Science, Massachusetts Institute of Technology, 1986-1989.
Graduate Teaching Assistant, Massachusetts Institute of Technology, 1983-1986.
Graduate Teaching Assistant, University of California, Los Angeles, 1980-1983.

Research Interests and Experience

Steven Semken is an ethnogeologist and geoscience education researcher interested in ways that place, culture, and affect influence modes of inquiry, teaching, and learning in the Earth system sciences. He has studied and worked extensively in Native American and Hispanic/Latino communities across the Southwest United States, and was a faculty member at the tribal college of the Navajo Nation for 15 years before joining Arizona State University. His current research activity encompasses place-based science education and the function of sense of place; Native American ethnogeology and Earth science education; strategic K-12 STEM teacher professional development; geoscience interpretation in Southwestern National Parks; diversity in the geoscience community; and regional and environmental geology of the Southwest.

Academic Honors and Awards

Honorary Visiting Professor, Hetao University, Inner Mongolia Autonomous Region, China, 2008.
Institute for Humanities Research Fellow, Arizona State University, 2007-2008.
Honors Disciplinary Faculty, Barrett Honors College, Arizona State University, 2006-2007.
President (Elected), National Association of Geoscience Teachers, 2000-2001.
Distinguished Speaker, National Association of Geoscience Teachers, 1996-2000.
Meritorious Contributions to American Indian People, Northeastern State University, 1999.
Outstanding Educational Papers, WERC Conference on the Environment, 1996 and 1999.
Burlington Resources Foundation Teaching Award, Diné College, 1991 and 1992.
Dean's Award for Outstanding Instruction, Diné College, 1990 and 1995.

Goodwin Medal (Graduate Teaching Assistant of the Year), MIT, 1985.

John Wulff Graduate Teaching Award, Department of Materials Science and Engineering, MIT, 1984.

Professional Affiliations

National and International: American Geophysical Union, American Indian Science and Engineering Society, Geological Society of America, National Association of Geoscience Teachers, National Association for Interpretation, National Association for Research in Science Teaching, National Science Teachers Association, Sigma Xi-The Scientific Research Society, Society for Advancement of Chicanos and Native Americans in Science.

Regional and Local: Arizona Association for Environmental Education, Arizona Educational Research Organization, Arizona Geological Society, Four Corners Geological Society, New Mexico Geological Society.

Bibliography

Notes: *denotes ASU student co-author; †denotes Diné College student co-author.

Refereed Publications

43. **Semken, S.** (2012). Place-based teaching and learning. In N. M. Seel (Ed.), *Encyclopedia of the sciences of learning* (pp. 2641-2642). New York: Springer.
42. Luft, J., Wong, S. *, & **Semken, S.** (2011). Rethinking recruitment: The comprehensive and strategic recruitment of secondary science teachers. *Journal of Science Teacher Education*, 22, 459-474.
41. Kraft, K. *, Sroggi, L., Husman, J., **Semken, S.**, & Fuhrman, M. (2011). Engaging students to learn through the affective domain: A new framework for teaching in the geosciences. *Journal of Geoscience Education*, 59, 71-84.
40. Williams, D. *, & **Semken, S.** (2011). Ethnographic methods in analysis of place-based geoscience curriculum and pedagogy. In A. P. Feig & A. Stokes (Eds.), *Qualitative research in geoscience education: Geological Society of America Special Paper 474* (pp. 49-62). Boulder, CO: Geological Society of America.
39. **Semken, S.**, & Brandt, E. (2010). Implications of sense of place and place-based education for ecological integrity and cultural sustainability in contested places. In D. Tippins, M. Mueller, M. van Eijck, & J. Adams (Eds.), *Cultural studies and environmentalism: The confluence of ecojustice, place-based (science) education, and indigenous knowledge systems* (pp. 287-302). New York: Springer.
38. **Semken, S.**, Williams, D. *, Ross, J., Kerr, B., & Monhardt, R. (2010). Design elements and learning outcomes of two place-based teacher professional development programs situated in the Southwest United States: Concordance with Universal Design for Learning. *Proceedings of the National Association for Research in Science Teaching*, Philadelphia, Pennsylvania.
37. Bueno Watts, N. *, Baker, D. R., **Semken, S.**, & Lang, M. (2010). Improving high school teachers' content knowledge of energy in systems through research-based professional development. *Proceedings of the National Association for Research in Science Teaching*, Philadelphia, Pennsylvania.
36. **Semken, S.**, Butler Freeman, C. *, Bueno Watts, N. *, Neakrase, J. *, Dial, R. *, & Baker, D. (2009). Factors that influence sense of place as a learning outcome of place-based geoscience teaching. *Electronic Journal of Science Education*, 13, 136-159.
35. Gonzales, D., & **Semken, S.** (2009). A comparative study of field-inquiry in an undergraduate petrology course. In S. J. Whitmeyer, D. W. Mogk, & E. J. Pyle (Eds.), *Field geology education:*

Historical perspectives and modern approaches: GSA Special Paper 461 (pp. 205-221). Boulder, CO: Geological Society of America.

34. **Semken, S.**, Dodick, J., Ben-David, O., Pineda, M.*, Bueno Watts, N.*, & Karlstrom, K. (2009). Timeline and time scale cognition experiments for a geological interpretative exhibit at Grand Canyon. *Proceedings of the National Association for Research in Science Teaching*, Garden Grove, California.
33. Brand, B. D.*, Clarke, A. B., & **Semken, S.** (2009). Eruptive dynamics and depositional processes of Narbona Pass maar volcano, Navajo volcanic field, Navajo Nation, New Mexico (USA). *Bulletin of Volcanology*, 71, 49-77.
32. Karlstrom, K., **Semken, S.**, Crossey, L., Perry, D., Gyllenhaal, E. D., Dodick, J., Williams, M., Hellmich-Bryan, J., Crow, R., Bueno Watts, N.*, & Ault, C. (2008). Informal geoscience education on a grand scale: the Trail of Time exhibition at Grand Canyon. *Journal of Geoscience Education*, 56, 354-361.
31. **Semken, S.**, & Butler Freeman, C.* (2008). Sense of place in the practice and assessment of place-based science teaching. *Science Education*, 92, 1042-1057.
30. Bueno Watts, N. F.*, **Semken, S.**, Pineda, M.*, & Alvarado, C.* (2008). Visitors' geological conceptions and meaning making at Petrified Forest National Park. *Proceedings of the National Association for Research in Science Teaching*, Baltimore, Maryland.
29. **Semken, S.**, Fouch, M., Garnero, E., Zah, P., & Lippert, D. (2007, invited). Meshing American Indian concerns with goals of EarthScope's USArray. *Eos, Transactions, American Geophysical Union*, 88, 309-310.
28. **Semken, S.**, & Butler Freeman, C. L.* (2007). Cognitive and affective outcomes of a Southwest place-based approach to teaching introductory geoscience. *Proceedings of the National Association for Research in Science Teaching*, New Orleans, Louisiana.
27. Butler Freeman, C. L.*, **Semken, S.**, Lawson, A., Oehrtman, M., Schaufele, C., & Jensen, J.* (2007). How old is the Earth: an exploration of geologic time through place-based inquiry. *Proceedings of the National Association for Research in Science Teaching*, New Orleans, Louisiana.
26. Gonzales, D., & **Semken, S.** (2006). Integrating undergraduate education and scientific discovery through field research in igneous petrology. *Journal of Geoscience Education*, 54, 133-142.
25. Hahn, D.*, Brem, S. K., & **Semken, S.** (2005). Exploring the social, moral, and temporal qualities of pre-service teachers' narratives of evolution. *Journal of Geoscience Education*, 53, 456-461.
24. **Semken, S.** (2005). Sense of place and place-based introductory geoscience teaching for American Indian and Alaska Native undergraduates. *Journal of Geoscience Education*, 53, 149-157.
23. Wilson, D., Aster, R., West, M., Ni, J., Grand, S., Gao, W., Baldrige, W. S., **Semken, S.**, & Patel, P. (2005). Lithospheric structure of the Río Grande Rift. *Nature*, 433, 851-855.
22. Wilson, D., Aster, R., Ni, J., Grand, S., West, M., Gao, W., Baldrige, W. S., & **Semken, S.** (2005). Imaging the seismic structure of the crust and upper mantle beneath the Great Plains, Río Grande Rift, and Colorado Plateau using receiver functions. *Journal of Geophysical Research*, 110, B05306, DOI: 10.1029/2004JB003492.
21. Lucas, S. G., **Semken, S. C.**, Berglof, W. R., & Ulmer-Scholle, D. S. (Eds.). (2003). *Geology of the Zuni Plateau: New Mexico Geological Society Guidebook 54*. Socorro, NM: New Mexico Geological Society.
20. **Semken, S.** (2003). Black rocks protruding up: the Navajo volcanic field. In S. G. Lucas, S. C. Semken, W. R. Berglof, & D. S. Ulmer-Scholle (Eds.), *Geology of the Zuni Plateau: New Mexico Geological Society Guidebook 54* (pp. 133-138). Socorro, NM: New Mexico Geological Society.

19. Blackhorse, A.†, **Semken, S.**, & Charley, P. (2003). A Navajo-English thesaurus of geological terms. In S. G. Lucas, S. C. Semken, W. R. Berglof, & D. S. Ulmer-Scholle (Eds.), *Geology of the Zuni Plateau: New Mexico Geological Society Guidebook 54* (pp. 103-108). Socorro, NM: New Mexico Geological Society.
18. Gok, R., Ni, J., West, M., Sandvol, E., Wilson, D., Aster, R., Baldrige, W.S., Grand, S., Gao, W., Tillman, F., & **Semken, S.** (2003). Shear-wave splitting and mantle flow beneath LA RISTRA. *Geophysical Research Letters*, *30*(12), 1614, DOI: 10.1029/2002GL016616.
17. Wilson, D., Leon, J., Aster, R., Ni, J., Schlue, J., Grand, S., **Semken, S.**, Baldrige, S., & Gao, W. (2002). Broadband seismic background noise at temporary seismic stations observed on a regional scale in the southwestern United States. *Bulletin of the Seismological Society of America*, *92*(8), 3335-3341.
16. Riggs, E. M., & **Semken, S. C.** (2001). Culture and science: Earth science for Native Americans. *Geotimes*, *46*, 14-17.
15. **Semken, S. C.** (2001). The Navajo volcanic field. In L. S. Crumpler & S. G. Lucas (Eds.), *Volcanoes of New Mexico: Bulletin 18* (pp. 79-83), Albuquerque, NM: New Mexico Museum of Natural History and Science.
14. Reynolds, S. J., & **Semken, S. C.** (2000). Rocks before terms and tables—from the concrete to the abstract. *Journal of Geoscience Education*, *48*, 572.
13. **Semken, S. C.** (Ed., invited). (2000). Some great ideas for geoscience teachers [special issue]. *Journal of Geoscience Education*, *48*(5).
12. **Semken, S. C.** (1999, invited). Oxygen. In C. P. Marshall & R. W. Fairbridge (Eds.), *Encyclopedia of geochemistry* (pp. 467-469): Dordrecht, Netherlands: Kluwer Academic Publishers.
11. Kelly, M., Ort, M., Tashiro, J., & **Semken, S.** (1999). *VR Excursions: Exploring Earth's Environment*. Upper Saddle River, NJ: Prentice-Hall.
10. Dubiel, R. F., Hasiotis, S. T., & **Semken, S. C.** (1997). Hands-on geology for Navajo Nation teachers. *Journal of Geoscience Education*, *45*, 113-116.
9. **Semken, S. C.**, & Morgan, F. (1997). Navajo pedagogy and Earth systems. *Journal of Geoscience Education*, *45*, 109-112.
8. **Semken, S. C.** (1997). NAGT/GSA symposium on geoscience education in Native American communities. *Journal of Geoscience Education*, *45*, 104-105.
7. Tsosie, B.†, **Semken, S.**, & Harrison, B. (1997). The Shiprock uranium-mill tailings remedial action (UMTRA) site. In O. J. Anderson, B. S. Kues, & S. G. Lucas (Eds.), *Mesozoic geology and paleontology of the Four Corners region: New Mexico Geological Society Guidebook 48* (pp. 279-281). Socorro, NM: New Mexico Geological Society.
6. **Semken, S. C.**, & McIntosh, W. C. (1997). $^{40}\text{Ar}/^{39}\text{Ar}$ age determinations for the Carrizo Mountains laccolith, Navajo Nation, Arizona. In O. J. Anderson, B. S. Kues, & S. G. Lucas (Eds.), *Mesozoic geology and paleontology of the Four Corners region: New Mexico Geological Society Guidebook 48* (pp. 75-80). Socorro, NM: New Mexico Geological Society.
5. **Semken, S. C.**, & Oversby, V. M. (1994). Coal ash as a naturally-occurring radioactive material—regulation before research? *Proceedings, 29th Intersociety Energy Conversion Engineering Conference*, 48-50.
4. Wuensch, B. J., **Semken, S. C.**, Uchikoba, F., & Yoo, H. I. (1991). The mechanisms for self-diffusion in magnesium oxide. *Ceramic Transactions*, *24*, 79-89.
3. Farmer, G. L., Perry, F. V., **Semken, S.**, Crowe, B., Curtis, D., & DePaolo, D. J. (1989). Isotopic evidence on the structure and origin of subcontinental lithospheric mantle in southern Nevada. *Journal of Geophysical Research*, *94*, 7885-7898.

2. Ingel, R. P., Lewis, D., III, Bender, B. A., & **Semken, S. C.** (1988). Properties and microstructures of rapidly solidified zirconia-based ceramic alloys. In S. Somiya (Ed.), *Science and technology of zirconia III: Advances in Ceramics 24* (pp. 385-396). Cincinnati, OH: American Ceramic Society.
1. Sclater, J. G., Royden, L., Horváth, F., Burchfiel, B. C., **Semken, S.**, & Stegena, L. (1980). The formation of the intra-Carpathian basins as determined from subsidence data. *Earth and Planetary Sciences Letters*, *51*, 139-162.

Papers In Review or In Preparation

- Bueno Watts, N.*, Baker, D. R., **Semken, S.**, & Lang, M. (in review). Looking beyond statistical significance to measure conceptual understanding of energy. *Journal of Environmental and Science Education*.
- Frus, R.*, **Semken, S.**, & Dodick, J. (in preparation). Visitors' understanding of geologic time principles at the Trail of Time Exhibition at Grand Canyon National Park.
- Perkins, T.*, & **Semken, S.** (in preparation). Psychometric measurements of place attachment in geology students and the general public.
- Howe, M.*, & **Semken, S.** (in preparation). Teaching geology to visually disabled students.

Outreach and General Interest Publications

- Semken, S.**, Schaufele, C., & Zumoff, N. (in press). Math and geoscience “placed” in context. *In the Trenches*, *2*(2), 12-13.
- Peterson, V. L., Garver, J. I., **Semken, S.**, & Williams, W. J. W. (2011). Enhancing participation of two-year college faculty in the Geological Society of America. *GSA (Geological Society of America) Today*, *21*(12), 36-38.
- Semken, S.** (2011). A sense of the American Southwest: Place-based Earth system science for diverse students. *In the Trenches*, *1*, 1-4.
- Semken, S.** (2011). Place, place knowledge, and sense of place as themes for cross-cultural science curriculum: A photoessay. *Indigenous Science Network Bulletin*, *14*(1). Retrieved 01 February 2011 from http://members.ozemail.com.au/%7Emmichie/bulletin_feb11.pdf.
- Crow, R., Karlstrom, K., Crossey, L., **Semken, S.**, Perry, D., Williams, M., & Bryan, J. (2011). It's about time: Innovations in geoscience education at the Grand Canyon. *Legacy*, *22*, 26-27.
- Semken, S.** (2010). Ship Rock and the Navajo volcanic field. In L. G. Price (Ed.), *The geology of northern New Mexico's parks, monuments, and public lands* (pp. 85-91). Socorro, NM: New Mexico Bureau of Geology and Mineral Resources.
- Semken, S.**, Dodick, J., Frus, R.*, Wells, M., Perry, D., Bryan, J., Williams, M., Crow, R., Crossey, L., & Karlstrom, K. (2009, November-December). Studies of informal geologic time learning at the “Trail of Time” in Grand Canyon National Park. *Informal Learning Review*, *1*(99), 1-5.
- Semken, S.** (2009, April). Putting Earth science back in its place. *Arizona Geology*. Retrieved 08 April 2009 from http://www.azgs.az.gov/arizona_geology/april09/article_earthscience%20.html.
- Semken, S.** (2008). A sense of the Southwest. *Newsletter, Bioregional Outdoor Education Project*, *9*(3), 1-12.
- Heckert, A. B., Kues, B. S., & **Semken, S. C.** (2003). From Bear Spring to Fort Wingate. In S. G. Lucas, S. C. Semken, W. R. Berglof, & D. S. Ulmer-Scholle (Eds.), *Geology of the Zuni Plateau: New Mexico Geological Society Guidebook 54* (pp. 37-40). Socorro, NM: New Mexico Geological Society.
- Lucas, S. G., Heckert, A. B., Berglof, W. R., Kues, B. S., Crumpler, L. S., Aubele, J. C., McLemore, V. T., Owen, D. E., & **Semken, S. C.** (2003). Second-day road log, from Gallup to Fort Wingate,

- Sixmile Canyon, Ciniza, Red Rock Park, Church Rock, White Mesa, Thoreau, and Grants. In S. G. Lucas, S. C. Semken, W. R. Berglof, & D. S. Ulmer-Scholle (Eds.), *Geology of the Zuni Plateau: New Mexico Geological Society Guidebook 54* (pp. 35-68). Socorro, NM: New Mexico Geological Society.
- Lucas, S. G., **Semken, S. C.**, Heckert, A. B., Berglof, W. R., Hoffman, G., Kues, B. S., Crumpler, L. S., & Aubele, J. C. (2003). First-day road log, from Gallup to Gamerco, Yah-Ta-Hey, Window Rock, Fort Defiance, Navajo, Todilto Park, Crystal, Narbona Pass, Sheep Springs, Tohatchi, and Gallup. In S. G. Lucas, S. C. Semken, W. R. Berglof, & D. S. Ulmer-Scholle (Eds.), *Geology of the Zuni Plateau: New Mexico Geological Society Guidebook 54* (pp. 1-34). Socorro, NM: New Mexico Geological Society.
- Riggs, E., & **Semken, S.** (2003). Earth science education for Native Americans. *Newsletter, Bioregional Outdoor Education Project*, 4(3), 1-10.
- Hall-Wallace, M., Benthien, M., Boyd, T., Marvinney, R., Meertens, C., **Semken, S.**, Taber, J., & Wald, L. (2002). *EarthScope education and outreach programPlan*. Washington, DC: EarthScope.
- Semken, S.**, & Gonzales, D. (2002, October 15). Rainbows in the rocks. *Daily Times, Farmington, New Mexico*, pp. A1, A5.
- Semken, S. C.** (2002, invited). Citation: National Association of Geoscience Teachers 2001 Neil Miner Award. *Journal of Geoscience Education*, 50, 221-223.
- Semken, S. C.** (2002). *Ch'óoshgai doo Tsézhiin 'íí 'áhi: the Chuska Mountains, Defiance Plateau, and Navajo Volcanic Field: Western Slope Intercollegiate Field Conference Guidebook 14*. Shiprock, NM: Diné College.
- Semken, S. C.** (2001). Comments on a list of references on science teaching and Native cultures. *Tribal College Journal*, 12, 7.
- Semken, S. C.**, Drummond, C., & Harder, V. (2001). The National Association of Geoscience Teachers: dedicated to geoscience education. *GSA (Geological Society of America) Today*, 11(10), 53.
- Semken, S. C.** (1999). Aboriginal cultures and Earth science. *GSA (Geological Society of America) Today*, 9(8), 18.
- Ridgway, K., Dowse, M., Geary, E. E., Maxson, J., **Semken, S.**, Stephenson-Hawk, D., & Winkler, J. (1997, invited). How can we increase diversity, recruitment, and retention of students in the Earth and space sciences? In M. F. W. Ireton, C. A. Manduca, & D. W. Mogk (Eds.). *Shaping the future of undergraduate Earth science education: Innovation and change using an Earth system approach* (pp. 39-43). Washington, DC: American Geophysical Union.
- Anderson, O. J., Lucas, S. G., **Semken, S. C.**, Chenoweth, W. L., & Black, B. A. (1997). Third-day road log, from Durango, Colorado, to Aztec, Farmington, and Shiprock, New Mexico. In O. J. Anderson, B. S. Kues, & S. G. Lucas (Eds.), *Mesozoic geology and paleontology of the Four Corners region: New Mexico Geological Society Guidebook 48* (pp. 35-56). Socorro, NM: New Mexico Geological Society.
- Lucas, S. G., Anderson, O. J., Leckie, R. M., Wright-Dunbar, R., & **Semken, S. C.** (1997). Second-day road log, from Cortez, Colorado, to Mesa Verde National Park, Mancos, and Durango. In O. J. Anderson, B. S. Kues, & S. G. Lucas (Eds.), *Mesozoic geology and paleontology of the Four Corners region: New Mexico Geological Society Guidebook 48* (pp. 19-33). Socorro, NM: New Mexico Geological Society.
- Anderson, O. J., Lucas, S. G., Chenoweth, W. L., & **Semken, S. C.** (1997). First-day road log, from Cortez, Colorado, to Montezuma Creek, Bluff, Aneth, and Four Corners. In O. J. Anderson, B. S. Kues, & S. G. Lucas (Eds.), *Mesozoic geology and paleontology of the Four Corners region: New Mexico Geological Society Guidebook 48* (pp. 1-18). Socorro, NM: New Mexico Geological Society.

- Brown, L. F., Hickmott, D. D., Currier, R. P., **Semken, S. C.**, Lameman, T.†, Martin, S.†, & Yazzie, S.† (1996). *Reducing adverse health effects and improving performance of stoves on the Navajo Reservation, a plan for action: Los Alamos National Laboratory Report LA-UR-96-4016*. Los Alamos, NM: Los Alamos National Laboratory.
- Semken, S. C.** (1996). Introduction to the geology and hydrogeology of northwestern New Mexico. *Proceedings, New Mexico Water Conference, New Mex. Water Resources Research Institute*, 13-21.
- Semken, S.** (1996, February 2). Creationist beliefs refuted. *Daily Times, Farmington, New Mexico*, p. B4.
- Semken, S.** (1996, January 12). Scientists are curious human beings. *Daily Times, Farmington, New Mexico*, p. B4.
- Semken, S. C.** (1992). Looking after the land. *Tribal College Journal*, 3, 11-12.
- Semken, S. C.**, Slate, C., & Crank, L., Jr.†. (1992). Geologic road log from Shiprock to Chinle, Navajo Nation. In S. C. Semken (Ed.), *Ti' Diné bitsé' dadíniil': Field guide to a geologic excursion in the northeastern Navajo Nation: Western Slope Intercollegiate Field Conference Guidebook 4* (pp. 5-32). Shiprock, NM: Navajo Community College.
- Semken, S. C.** (Ed.). (1992). *Ti' Diné bitsé' dadíniil': Field guide to a geologic excursion in the northeastern Navajo Nation: Western Slope Intercollegiate Field Conference Guidebook 4*. Shiprock, NM: Navajo Community College.
- Semken, S. C.** (1983, *invited*). Geology of Cima Dome, Cima Volcanic Field, Afton Canyon, and Manix Fault areas, California. In D. Casebier (Ed.), *Guide to the Mojave Road* (pp. 137, 173-174, 177, 216-219). Los Angeles: Mojave Road Publications.

Dissertation and Thesis

- Semken, S. C.** (1989). *Epitaxial crystal growth and oxygen diffusion studies in MgO and CaO*. Unpublished doctoral dissertation, Department of Materials Science and Engineering, Massachusetts Institute of Technology. (Advisor: B. J. Wuensch)
- Semken, S. C.** (1984). *A neodymium and strontium isotopic study of late Cenozoic basaltic volcanism in the southwestern Basin and Range province*. Unpublished master's thesis, Department of Earth and Space Sciences, University of California, Los Angeles. (Advisor: D. J. DePaolo)

Invited Lectures, Colloquium Presentations, and Workshop Facilitation at Other Institutions

Note: ¶ denotes presentation as *National Association of Geoscience Teachers Distinguished Speaker*.

- 2012 University of Nebraska-Lincoln Stout Lecture Series
- 2011 University of Oklahoma Native Science Series
- 2010 NAGT-NSF Cutting Edge Workshop on Academic Career Preparation, Stanford University
- 2009 NAGT-NSF Cutting Edge Workshop on the Affective Domain, Mesa Community College
- 2008 Ningxia University and Northwest University for Nationalities (Yinchuan, China)
- 2008 University of Northern Colorado
- 2006 University of Oklahoma
- 2006 New Mexico State University
- 2006 New Mexico Institute of Mining and Technology
- 2005 Diné College
- 2004 Mesa Community College
- 2004 Southwestern Indian Polytechnic Institute
- 2004 Fort Lewis College
- 2003 New Mexico Bureau of Geology and Mineral Resources

2003 University of North Dakota
 2002 NAGT-NSF Workshop for Early-Career Geoscience Faculty, College of William & Mary
 2002 Navajo Nation Department of Health
 2002 University of Arizona
 2002 University of New Mexico
 2001 NAGT-NSF Workshop for Early-Career Geoscience Faculty, College of William & Mary
 2000 Prescott College¶
 2000 San Juan College
 2000 Monument Valley Navajo Tribal Park
 2000 Navajo Nation Department of Emergency Management
 2000 Northwest Indian College¶
 1999 Snow College¶
 1999 University of California, Riverside¶
 1999 Northeastern State University (Oklahoma)¶
 1998 Colorado College¶
 1998 Mount Holyoke College¶
 1998 Northern Arizona University
 1997 Cerritos College¶
 1997 Michigan Technological University¶
 1997 Hamilton College¶
 1997 University of Delaware¶
 1997 University of British Columbia¶

Other Invited Presentations and Field Trips Led for Education and Outreach

Freq. Boyce Thompson Arboretum State Park, Superior, AZ
 2012 Legends of Superior Trail Ecotourism Festival, Superior, AZ
 2011 Sun City Anthem Hiking Club, Florence, AZ
 2010 Arcadia Neighborhood Learning Center, Scottsdale, AZ
 2009 Southwest Cultures Club, Fountain Hills, AZ
 2008 International Yin Shan Rock Art Scientific Inspection, Inner Mongolia, China
 2008 Yinchuan Middle School #1, Yinchuan, Ningxia Hui, China
 2008 McDowell Sonoran Conservancy, Scottsdale
 2005 ASU President Crow's *Community Enrichment Program*, Heard Museum, Phoenix
 2005 Pueblo Grande Museum, Phoenix
 2004 Society for Advancement of Chicanos and Native Americans in Science, Austin, TX
 2004 Four Corners Geological Society, Farmington, NM
 2000 American Indian Science and Engineering Society, Gallup, NM
 1997 Society of Mining and Metallurgical Engineers, Albuquerque, NM

Active Grant-Funded Projects

#	Title	Agency	Funds	Duration	Semken Percentage and Role
19	ESNO Earth Science Education and Outreach Provider Summit	NSF-EAR EAR-1216301	\$ 33,050	01/10/12 to 01/09/13	50% PI <i>Co-PI:</i> R. Arrowsmith, ASU
18	Copper Triangle Pilot Project: Enhancing Opportunities for Geoscience Studies and Careers in a Culturally Diverse, Underserved Rural Mining Area	NSF-GEO Opportunities for Enhancing Diversity in the Geosciences GEO-1108044	\$ 198,975	08/15/11 to 07/31/12	35% PI <i>Co-PIs:</i> E. Vivoni, J. Snyder, ASU
17	Bridging Data, New Technologies, and Communities to Enable and Communicate EarthScope Exploration and Discovery (EarthScope National Office at ASU)	NSF EarthScope EAR-1101100	\$2,450,744	05/01/11 to 04/30/15	20% Co-PI <i>PI:</i> J.R. Arrowsmith, ASU
16	Collaborative Research: Cultural Validation of Geoscience Assessment	NSF-GEO Geoscience Education GEO-1034926	\$ 59,311	10/01/10 to 09/30/12	100% Sole ASU PI <i>Lead PI:</i> E. Ward, MSU
15	NASA Triad: A Triangulated Program to Promote NASA STEM Education Nationwide	NASA Goddard Space Flight Center K-12 CAN	\$597,829	09/01/10 to 08/31/12	20% Lead ASU Co-PI <i>PI:</i> A. Benbow, AGI
14	Follow the Elements	NASA Astrobiology Institute	\$7,517,437	01/01/09 to 12/31/13	4% Co-PI <i>PI:</i> A. Anbar, ASU
13	Science Teachers in Arizona: Recruitment and Retention (STARR)	NSF-DUE Robert Noyce Scholarship Program DUE-0833311	\$750,000	09/01/08 to 08/31/13	25% Co-PI <i>PI:</i> J. Luft, ASU
12	Collaborative Research: Evaluating Student Learning in Geoscience Curricula that Employ Concepttests Using Electronic Student Response Systems	NSF-DUE Course, Curriculum, and Lab Improvement DUE-0716296	\$ 64,889	08/01/07 to 07/31/12	100% Sole ASU PI <i>Lead PI:</i> D. Steer, Univ. Akron

Completed Grant-Funded Projects

#	Title	Agency	Funds	Duration	Semken Percentage and Role
11	Collaborative Research: The Trail of Time: Integrated Geoscience Education at Grand Canyon National Park	NSF-EHR Informal Science Education ISE-0610345	\$272,909	08/01/06 to 05/31/11	100% Sole ASU PI <i>Lead PI:</i> K. Karlstrom, UNM

10	CRESMET Project Pathways MSP: Opening Routes to Math and Science Success for All Students	NSF-EHR Math/Science Partnerships EHR-0412537	\$12,500,000	08/01/04 to 07/31/10	4%	Collaborator <i>PI:</i> M. Carlson, ASU
9	Communication in English and Science Inquiry Project for High Schools (CESIP-HS)	Arizona Board of Regents Improving Teacher Quality Program	\$238,184	01/03/08 to 06/30/10	8%	Collaborator <i>PI:</i> M. Lang, MCCC
8	Situating Earth Science and Mathematics in Superior: Outcomes and Applications of Place-Based Earth Science Teaching	NSF-GEO Small Grants for Exploratory Research GEO-0706653	\$ 49,821	11/15/06 to 01/31/09	100%	Sole PI
7	Sustainability and Sense of Place in Cultural Landscapes	ASU Institute for Humanities Research Fellows Program	\$ 36,828	05/01/07 to 08/15/08	33%	Co-PI <i>PI:</i> B. Brandt, ASU
6	Kéyah Math: Place-Based, Culturally-Responsive, Technology-Intensive, Quantitative Modules for Introductory Undergraduate Geoscience	NSF-GEO Opportunities for Enhancing Diversity in the Geosciences GEO-0355224	\$429,629	09/01/03 to 04/30/08	25%	Lead PI <i>Co-PIs:</i> C. Schaufele, Diné Coll., et al.
5	Native American Perspectives and Preferences Bearing on EarthScope Deployments in the Southwest	NSF-EAR EarthScope EAR-0454502	\$ 29,998	03/01/05 to 12/31/07	25%	Lead PI <i>Co-PIs:</i> M. Fouch, ASU, et al.
4	Technology Assistance with Implementation and Operation of Transportable Array Element of USArray and EarthScope	EarthScope USArray Program	\$105,552	04/01/05 to 06/30/06	50%	Co-PI <i>PI:</i> M. Fouch, ASU
3	USArray Transportable Array Siting Outreach	IRIS Education and Outreach Program	\$ 30,179	01/01/05 to 06/30/06	50%	Lead PI <i>Co-PI:</i> M. Fouch, ASU
2	Indigenous Geology: Development and Assessment of a Culturally-Resonant, Place-Based Model of Geology Education for American Indian Pre-Service Teachers	Arizona Board of Regents Learner-Centered Education Program	\$ 25,000	01/01/04 to 03/31/06	25%	Lead PI <i>Co-PIs:</i> D. Baker, ASU, et al.
1	Enhancing Large-Enrollment Geology Lecture Classes with Technology-Assisted, Real-Time Peer Interaction	ASU CLAS Quality of Undergraduate Education Program	\$ 10,340	07/01/04 to 06/30/05	100%	Sole PI

Teaching History

Courses Taught at Arizona State University

(In the School of Earth and Space Exploration and the Mary Lou Fulton Teachers College)

Introduction to Physical Geology (GLG 101): Spring 2004, Fall 2005 and 2006.

Introduction to Historical Geology (GLG 102/104): Fall 2008, Spring 2011.

Earth Science in Arizona and the Southwest (GLG 301): Fall 2010 (created the course), Fall 2011.

Geological Sciences Colloquium (GLG 400/500): Spring 2006.

Computers in Geology (GLG 410): Fall 2004.

Field Geology I (GLG 451): Spring 2008, 2009, and 2010.

Field Geology II (GLG 452): Summer 2007, 2008, 2009, and 2010 (co-taught with Thomas Sharp).

Advanced Field Geology (GLG 455): Spring 2007.

Cordilleran Regional Geology (GLG 456); Spring 2006 (co-taught with Stephen Reynolds).

Teaching Earth and Space Sciences (GLG 490): Fall 2003, Fall 2005 (expanded course to 3 units), Spring 2011 (co-taught with Katrien Kraft).

Pro-Seminar (GLG 498): Spring 2012 (co-taught with Kip Hodges).

Connecting Biology, Geology, and Mathematics (GLG 593/598): Spring 2006 (co-created the course; co-taught with Anton Lawson).

Situating Earth and Space Sciences (GLG 598): Spring 2007 and 2008 (created the course).

Exploration of Science Teaching (SES/SED 111): Spring 2007, Fall 2007 and 2008, Spring 2009, Fall 2010 (co-created the course; co-taught with Julie Luft and Sissy Wong Kavas).

Patterns in Nature (BLE 498, ASU-Diné College Teacher Education Program): Fall 1997.

Courses Taught at United States Air Force Academy, 1998

(In the Department of Chemistry)

General Chemistry I Lecture and Lab (Chem 141): Spring and Fall 1998.

General Chemistry II Lecture and Lab (Chem 142): Spring 1998.

Space Chemistry: Inner Solar System (Chem 325): Fall 1998.

Courses Taught at Diné College, 1988-2003

(In the Division of Mathematics, Science, and Technology)

Indigenous Physical Geology Lecture and Laboratory (GLG 101).

Historical Geology Lecture and Laboratory (GLG 102).

Environmental Geology (GLG 203).

Field and Laboratory Geology for Navajo Nation Teachers (GLG 229).

Practicum in Earth and Environmental Sciences (ENV 297).

Fundamental Chemistry Lecture and Laboratory (CHM 100).

General Chemistry I Lecture and Laboratory (CHM 151).

General Chemistry II Lecture and Laboratory (CHM 152).

Introduction to Physics I Lecture and Laboratory (PHY 101).

College Algebra (MTH 110).

Other ASU Teaching Activities

Physics of Earth and Planetary Surfaces and Interiors (PEPSI) Seminar Series: Organized and ran this weekly seminar series in the School of Earth and Space Exploration during Spring 2007.

Noteworthy Teaching Contributions

- Presented webinar on *The Energy-Water Nexus: A theme for interdisciplinary Earth Science inquiry* for the *NAGT/NSF On the Cutting Edge Climate and Energy Webinar Series*, April 2011.
- Directed the design and 2006-07 implementation, and the 2009-2010 revision, of the *Bachelor of Arts in Education/Initial Teacher Certification degree program in Secondary Earth and Space Sciences Education* (a joint degree with the Mary Lou Fulton Teachers College).
- Developed and piloted new CRESMET courses *Exploration of Science Teaching*, *Teaching Earth and Space Sciences*, *Situating Earth and Space Sciences in the Southwest*, and *Connecting Biology, Geology, and Mathematics*. The latter two courses are specifically aimed at in-service middle-school and high-school teachers. Taught the two courses for in-service teachers in school districts in Chandler, Mesa, Superior, and San Carlos Apache Nation, AZ. The latter two are high-need, minority-majority school districts.
- Infused Southwestern place-based teaching and learning approach into large-lecture *Introduction to Physical Geology* and *Introduction to Historical Geology* courses in SESE.
- Collaborator in the ASU *College of Liberal Arts and Sciences Information Infusion Initiative (CLAS I³)* during 2003 and 2004, helping to develop Information Literacy standards for CLAS curricula and disseminating Information Literacy resources to colleagues.
- Guided implementation of *Blackboard course management software* and *student response systems* (“clickers”) by School of Earth and Space Exploration faculty, under the auspices of the CLAS I³. Presented several day-long Blackboard training sessions for faculty colleagues. Installed response-system receivers in lecture rooms with funding from a CLAS *Quality of Undergraduate Instruction* grant.

Mentoring

Graduate Students Currently Supervised or Co-Supervised

Carol Butler Freeman, Ph.D. 2012 candidate, Inquiry science teaching and Geomorphology of the Chuska Mountains landslide, School of Earth and Space Exploration.

Chris Mead, Ph.D. 2013 candidate, Mercury isotope geochemistry and Biogeochemical concept inventory studies, School of Earth and Space Exploration.

Katrien van der Hoeven Kraft, Ph.D. 2014 candidate, Affective domain in geoscience teaching and learning, Mary Lou Fulton Teachers College.

Sandra Carolina Londoño, Ph.D. 2014 candidate, Medical geology and ethnogeology of clay minerals, School of Earth and Space Exploration.

Heather Anne Pacheco, Ph.D. 2015 candidate, Geoscience education and outreach policy development, Mary Lou Fulton Teachers College and School of Earth and Space Exploration.

Kathleen Hill, Ph.D. 2015 candidate, Research-based geoscience teacher preparation, Mary Lou Fulton Teachers College.

Graduate Students Previously Supervised or Co-Supervised

- Rebecca Mathews Frus*, M.S., 2011, A study on how the public uses the landscape to understand principles of geologic time while experiencing the Trail of Time interpretative exhibition in Grand Canyon National Park, School of Earth and Space Exploration.
- Brian Gleim*, M.N.S., 2010, Informal high-school astronomy resources for Arizona, School of Earth and Space Exploration.
- Brittany Brand*, Ph.D., 2008, Mafic phreatomagmatic volcanism and density current dynamics, School of Earth and Space Exploration.
- Tracy Perkins*, M.S. 2008, Place attachment in geology students and the general public, School of Earth and Space Exploration.
- Megan O'Shea*, M.S. 2008, Hydropolitics: Examining the role of science in Arizona's Groundwater Management Act of 1980, School of Earth and Space Exploration and Center for Science, Policy, and Outcomes.
- Nievita Bueno Watts*, M.S., 2007, Visitor preconceptions and meaning-making at Petrified Forest National Park, School of Earth and Space Exploration.
- Leslie Ann Field*, M.N.S., 2004, A model 400-level Field Hydrogeology course, Department of Geological Sciences.

Honors Undergraduate Student Previously Supervised

- Kara Gasperone*, Honors B.A., 2009, Family outdoor experiences and student's selection of an introductory science course, Barrett Honors College and School of Social and Family Dynamics.

Graduate Students Currently Advised

- Deborah Williams*, Ph.D. 2012 candidate, Cultural diversity, negotiating place, and public discourse, School of Human Evolution and Social Change.
- Brad Vance*, M.S. 2012 candidate, Structural evolution of the McDowell Mountains, Maricopa County, Arizona, School of Earth and Space Exploration.
- Kirsten Chojnicki*, Ph.D. 2013 candidate, Dynamics of volcanic plumes, School of Earth and Space Exploration.
- David Haddad*, Ph.D. 2015 candidate, Structural characterization of fault zones and Geologic hazards education for special-needs students, School of Earth and Space Exploration.

Graduate Students Previously Advised

- Alka Tripathy*, Ph.D., 2011, Exploring the history of India-Eurasia collision and subsequent deformation in the Indus Basin, NW Indian Himalaya, School of Earth and Space Exploration.
- Ashley Tillman*, M.A., 2011, Students' understanding of weathering and erosion, Mary Lou Fulton Teachers College.
- Melanie Busch*, Ph.D., 2011, Late Quaternary normal faulting and hanging wall basin evolution of the southwestern rift-margin from gravity and geology, B.C.S., MX; and Exploring the influence of text-figure format on introductory geology learning, School of Earth and Space Exploration.
- Joshua Coyan*, Ph.D., 2011, Eye-tracking investigations exploring how students learn geology from photographs; and The structural setting of hydrothermal gold deposits in the San Antonio area, B.C.S., MX, School of Earth and Space Exploration.
- Sissy Sze-Mun Wong*, Ph.D., 2010, Exploring the beliefs of persisting secondary science teachers in general induction programs: A longitudinal study, Mary Lou Fulton Institute and Graduate School of Education.

- Jennifer Neakrase*, Ph.D., 2010, A characterization of the knowledge and practices of beginning secondary physics teachers, Division of Curriculum and Instruction, Mary Lou Fulton Institute and Graduate School of Education.
- Sarah Robinson*, M.S., 2011, Integrating LiDAR topography into the study of earthquakes and faulting, School of Earth and Space Exploration.
- Tracy Lund*, M.S., 2010, Major-ion and trace-element cycling in an arid, spring-fed stream, School of Earth and Space Exploration.
- Gerardo Lopez*, M.S., 2010, Changes in inquiry practices for beginning chemistry teachers, Mary Lou Fulton Institute and Graduate School of Education.
- Shawn Wright*, Ph.D., 2009, Terrestrial fieldwork and laboratory thermal infrared spectroscopy of basaltic impactites from the Earth and Mars, School of Earth and Space Exploration.
- Elizabeth Lewis*, Ph.D., 2009, Secondary science teachers' views toward and classroom translation of sustained professional development, Division of Curriculum and Instruction, Mary Lou Fulton College of Education.
- Valeria Routt*, M.S., 2009, Microbialites in Cuatro Ciénegas, Mexico, School of Earth and Space Exploration.
- Kevin Goldman*, M.S., 2009, Diabase alteration and relation to low-temperature mineral deposits, Salt River Canyon area, Arizona, School of Earth and Space Exploration.
- Sharon Schleigh*, Ed.D., 2008, The interaction of assessment format and sex in assessing the knowledge structure coherence of middle school students' understanding of the concept of force, Division of Curriculum and Instruction, Mary Lou Fulton College of Education.
- Nathan Wilkens*, Ph.D., 2008, Paleocology of Early Jurassic Navajo Sandstone interdune deposits, School of Earth and Space Exploration.
- Sian Proctor*, Ph.D., 2006, Student visual-spatial abilities in map use, Division of Curriculum and Instruction, Mary Lou Fulton College of Education.
- Rebecca Escobar Dial*, M.S., 2006, The origin and modification of the Medusae Fossae Formation (MFF), Mars, Department of Geological Sciences.
- Deirdre Hahn*, Ph.D., 2005, Psychological, moral, and intellectual dimensions of pre-service teachers' attitudes toward teaching evolution, Division of Psychology in Education, Mary Lou Fulton College of Education.
- Joshua Coyan*, M.S., 2005, Subsurface geology of a groundwater remediation site, eastern Phoenix basin, Arizona, Department of Geological Sciences.
- Anthony Salem*, M.S., 2005, Structural geology and stratigraphy of Paleozoic rocks of the Big Maria syncline, southeastern California, Department of Geological Sciences.
- Kathleen McFadden*, M.S., 2004, End-Permian karst stratigraphy and geochemistry at the Kaibab-Moenkopi contact and its relationship to the Permian-Triassic boundary for northern Arizona, Department of Geological Sciences.
- Bernadette Tsosie*, M.S., 1997, Hydrogeologic characterization of the floodplain that lies below the Uranium-Mill Tailings Remedial Action Site at Shiprock, New Mexico, Department of Earth and Environmental Sciences, New Mexico Institute of Mining and Technology.
- Edward Henry*, M.S., 1994, Groundwater modeling at the Shiprock Uranium-Mill Tailings Remedial Action Site, Department of Civil Engineering, University of New Mexico.

Service History

Service to the Profession

Associate Editor, *Journal of Geoscience Education* (National Association of Geoscience Teachers), since 2002.

Associate Editor, *Geosphere* (Geological Society of America), since 2004.

Treasurer, Southwest Section, National Association of Geoscience Teachers.

EarthScope Program, Education and Outreach Steering Committee Member, 2005-2008; *ex officio* Member, since 2011.

Incorporated Research Institutions for Seismology (IRIS), Education and Outreach Committee Member, 2002-2005; *ex officio* Member, since 2011.

UNAVCO, Education and Outreach Committee *ex officio* Member, since 2011.

Advisory Board Member and Presenter, *Native American Geoscience Alliance Conference*, Salish Kootenai College, Montana, March 2012.

Host and Co-Leader, *NAGT/NSF On The Cutting Edge* Workshop on “Teaching About Time,” Arizona State University, February 2012.

Co-Convener, Topical Session on “Time, Events, and Places: Understanding Temporal and Spatial Learning in Geoscience Education,” *Geological Society of America Annual Meeting*, Minneapolis, MN, October 2011.

Geological Society of America, Education Standing Committee Member, 2006-2010.

American Geophysical Union, Waldo Smith Medal Selection Committee Chair, 2010.

Advisory Board Member and Presenter, *Native American Geoscience Alliance Conference*, Fond du Lac Nation, Minnesota, September 2010.

Co-Leader, *EarthScope Colorado Plateau-Río Grande Rift Interpretative Workshop* for Park professionals and K-12 teachers, Albuquerque, NM, October 2009.

Co-Convener, Topical Session on “Place-based Education in Earth Science,” *Geological Society of America Annual Meeting*, Portland, OR, October 2009.

Co-Leader, *EarthScope Geoscience Professional Development Workshop* for Native American K-12 teachers, Flagstaff, September 2009.

Incorporated Research Institutions for Seismology (IRIS), Education and Outreach Program Review Panel, Invited Member, 2009.

National Science Foundation, *Geoscience Education Working Group II*, Invited Member, 2004.

National Association of Geoscience Teachers, President (Elected), 2000-2001.

Haskell Indian Nations University, Environmental Research Studies Board Member, 1996-2001.

American Geophysical Union, Committee on Education and Human Resources Member, 1996-2000.

National Association of Geoscience Teachers, *Southwest Section*, Treasurer, since 1996.

Geological Society of America, Committee on Women and Minorities in Geology Member, 1995-1996.

Western Partnership for Environmental Technology Education (Western PETE), Chair, 1995-1996.

National Association of Geoscience Teachers, *Southwest Section*, President, 1993-1996.

Four Corners Geological Society, President, 1993-1994.

Service to the Community

Resolution Copper Mining Company, *Education Advisory Committee*, Member, since 2010.

Arizona State Parks, Volunteer Geological Guide, since 2009.

Salt River Project/WESTCARB Carbon Sequestration Project, Advisory Board Member, since 2006.

Arizona Department of Education: Arizona Educator Proficiency Assessments, ASU Faculty Member of Development and Review Panel for Earth Science AEPA, 2009-2011.

New Mexico EPSCoR Climate Change Project, External Advisory Committee Member, 2009-2011.

Superior, Arizona, Community Education Committee, Advisor, 2006-2008.

Four Corners School of Outdoor Education, NSF Bioregional Outdoor Education Program, Advisory Board Member, 2002-2008.

Navajo Nation Environmental Protection Agency, Committee on Water Quality, Advisor, 2001-2003.

Navajo Uranium Education Program, Advisory Panel Member, 2001-2003.

Service to Arizona State University and the School of Earth and Space Exploration

College of Liberal Arts and Sciences, Committee on Quality of Instruction, Member, 2011-2014.

College of Liberal Arts and Sciences, Senator for SESE, 2010-2013.

School of Earth and Space Exploration, Associate Director for Undergraduate Education, since 2011.

School of Earth and Space Exploration, Faculty Evaluation Subcommittee Member, since 2010.

Navajo Nation-ASU Intergovernmental Agreement, High School Completion and College Preparation Subcommittee, Member, since 2009.

Rho (ASU) Chapter of Kappa Sigma Fraternity, Faculty Advisor, since 2007.

School of Earth and Space Exploration, Student GeoClub, Faculty Advisor, since 2006.

Initial Teacher Certification Council, SESE Representative, since 2006.

Arizona Geology Articulation Task Force, Alternate SESE Representative, since 2005.

Interdisciplinary Ph.D. Committee in Curriculum and Instruction, Mentor, since 2003.

University-wide American Indian Academic Council, Member, since 2003.

Provost's Education Envoy Working Group, CLAS Faculty Representative, 2009-2011.

School of Earth and Space Exploration, Vision and Curriculum Subcommittee Member, 2004-2006.

College of Liberal Arts and Sciences, Information Technology Committee Member, 2003-2005.