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Education

B.S. in Geology, New Mexico Institute of Mining and Technology, Socorro, NM (1992). Senior Thesis: *High-temperature, high-salinity fluid inclusions in igneous and miarolitic quartz of the Capitan pluton, New Mexico.*

M.S. in Geology, University of Maryland, College Park, MD (1995). Thesis: *Estimation of initial and saturation water concentrations of three granitic plutons in the central Great Basin, Nevada.*

Ph.D. in Geology, University of North Carolina, Chapel Hill, NC (1999). Dissertation: *Field, geochemical, and experimental study of mafic to felsic plutonic rocks associated with the intrusive suite of Yosemite Valley, California.*

Qualifications

Technical:

- Integration and interpretation of diverse types of geological data
- Diverse field and analytical experience
- Geologic mapping
- Computer skills: word-processing, spreadsheets, databases, web publishing, and HTML; proficiency with PC, Mac, and UNIX platforms
- GPS and some GIS (ESRI certificate in ArcGIS II: Tools and Functionality)
- Petrographic and ore microscopy
- Fluid inclusion microthermometry
- Major- and trace-element geochemical analysis (electron microanalysis, secondary ion microanalysis, and direct-coupled plasma optical emission spectrometry)
- Isotopic analysis (thermal-ion mass spectrometry and multi-collector inductively-coupled plasma mass spectrometry)

Communication:

- Public speaking and teaching (class lectures, fieldtrips, professional and informal talks, and departmental open houses)
- Technical writing and scientific data presentation
- Proposal preparation
- Peer review of journal articles submitted for publication (e.g., *Geology*, *American Journal of Science*, *Contributions to Mineralogy and Petrology*, and the *Journal of Geoscience Education*)
- Peer review of academic textbooks for various publishers (e.g., Jones and Bartlett, W.H. Freeman, etc.)
- Web authoring and online curriculum development

Teaching and Leadership:

- Mentoring, team interaction, and group motivation
- Field trip leader, teacher
- Academic committee work
- Various community service, including volunteer educational and charitable work

Experience

Positions Held:

- **Senior Lecturer**, University of Kentucky, Lexington, KY (8/13-present)
- **Lecturer**, University of Kentucky, Lexington, KY (8/07-8/13)
- **Assistant Professor**, University of West Georgia, Carrollton, GA (8/05-5/07)
- **Assistant Research Professor**, Montana State University, Bozeman, MT (8/04-7/05) – *post-doc*
- **Visiting Assistant Professor**, The College of William and Mary, Williamsburg, VA (8/03-8/04) – *temporary sabbatical replacement*
- **Visiting Assistant Professor**, Bates College, Lewiston, ME (8/02-7/03) – *temporary sabbatical replacement*
- **Visiting Instructor**, Wheaton College Science Station, Black Hills, SD (2002-2003, 2010-2016) – *summer field course instructor*
- **Visiting Assistant Professor**, Northern Arizona University, Flagstaff, AZ (8/01-7/02) – *temporary sabbatical replacement*
- **Research Associate**, University of Wisconsin, Madison, WI (7/00-8/01) – *post-doc*
- **Visiting Assistant Professor**, Calvin College, Grand Rapids, MI (8/99-7/00) – *temporary sabbatical replacement*

Courses Taught:

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| • Physical Geology (UK: EES 220) | • Mineralogy (UK: EES 360) |
| • Introductory Geology in the Field | • Optical Mineralogy |
| • Introductory Environmental Geology (classroom and online; UK: EES 110) | • Structural Geology |
| • Introductory Environmental Geology in the Field | • Igneous and Metamorphic Petrology |
| • Geology of Natural Resources (UK: EES 120) | • Geology of National Parks (UK: EES 180) |
| • Fundamentals of Geology I (UK: EES 230) | • GSA Short Course: Using Online Igneous Geochemical Databases for Research and Education |
| • Fundamentals of Geology II (UK: EES 235) | • Graduate Seminar (UK: EES 570) |
| | • Experiential Education (UK: EXP 396) |

Senior Projects Advised:

Loveless, W.T., and **Ratajeski, K.**, 2007, High-precision U-Pb zircon geochronology of the Elberton Granite, northeast Georgia: preliminary Ca-TIMS results: Geological Society of America, Southeast Section meeting.

Riley, J.W., 2003, Analysis of structure and petrology of the Chain Lakes massif, western Maine [senior thesis]: Lewiston, Bates College, 57 p.

Scanlon, J., 2003, Mineralogy of the Rattlesnake mountain igneous complex, Casco, Maine: WDS analysis using an electron microprobe [senior thesis]: Lewiston, Bates College, 68 p.

Grants Awarded:

- Distance Learning new course development grant, University of Kentucky (2014), \$3000
- e-Learning Innovation Initiative, Cohort 1.0, University of Kentucky (2014), \$4000
- Pilot program to develop new online courses, University of Kentucky (2009), \$5000
- National Science Foundation Research Opportunity Award (2005) - "Earthchem: Advancing Data Management in Solid Earth Chemistry", under the direction of Dr. Douglas Walker, Univ. of Kansas, \$5400
- University of West Georgia Student Research Assistant Program (2006) - "High-precision U-Pb zircon geochronology of the Elberton Granite, Eastern Georgia, \$1200
- Teaching Assistant Technology Supplement Award, UNC Graduate School (1997)
- Martin Research Fellowship, UNC Geology Department (1997)
- Geological Society of America Research Grant (1996)
- Sigma Xi Grant-in-Aid of Research (1996)

Conferences Organized:

Teaching Workshop, Dept. of Earth and Environmental Sciences, University of Kentucky, April 2-3, 2009

Web-based Education Projects

<http://www.geolab.unc.edu/Petunia/IgMetAtlas/mainmenu.html>

An online atlas of igneous and metamorphic rocks, minerals, and textures. This site has been featured in the journal *Science* and is used by undergraduate mineralogy and petrology students worldwide.

http://serc.carleton.edu/research_education/cyberinfrastructure/index.html

A digital resource collection housed at the Science Education Resource Center (SERC) at Carleton College devoted to exploring ways that new cyberinformatic databases and related tools can enhance geoscience education, using undergraduate petrology courses as a case study. The site features online and downloadable tutorials, exercises, and activities that instructors and students can use in their petrology courses.

http://serc.carleton.edu/research_education/crystallography/index.html

A digital resource collection housed at SERC containing educational materials to support online crystal structure databases and crystallographic visualization software. The site features online and downloadable tutorials, exercises, and activities that instructors and students can use in their undergraduate mineralogy and petrology courses.

http://serc.carleton.edu/research_education/mtroadlogs/index.html

A pilot project for making the field guide literature of a geologic region more accessible and useful to geoscience educators, students, and researchers.

Professional Memberships

- National Association of Geology Teachers
- Geological Society of America

Honors

- Bowman Award, awarded by the University of Kentucky Department of Earth and Environmental Sciences (2008)
- Roy Ingram Research Award from the UNC Geosciences Department (1999)
- Martin Research Fellowship, UNC Geosciences Department (1997)
- National Science Foundation Graduate Research Fellowship (1993-1996)
- Graduate Fellowship from the University of Maryland Graduate School (1992-1993)

- Tarr Award, sponsored by the New Mexico Tech chapter of Sigma Gamma Epsilon (1992)
- New Mexico Geological Society Award, recognizing the outstanding graduating senior in geology (1992)
- Estwing Award, recognizing the outstanding graduating senior in geology (1992)
- Best Student Paper, New Mexico Geological Society annual spring meeting (1992)
- Named "Top Senior" by the Geological Society of America (1991)
- Scholarship/Loan Award from the Women's Auxiliary to the American Institute of Mining and Metallurgical Engineering (1991-1992)
- New Mexico Geological Society Fall Field Conference Scholarship (1990)
- New Mexico Tech Competitive Scholarship (1988-1992)

Publications

Ratajeski, K., Duff, J.R., and Phelps, D.J., 2016, The Ark Encounter: a new obstacle for scientific understanding for the religious public in northern Kentucky: Geological Society of America Abstracts with Programs, v. 48.

Ratajeski, K., Barth, A.P., Miller, R.B., and Pignotta, G., 2015, How deep was the Intrusive Suite of Buena Vista Crest? Contrasting results from hornblende-plagioclase thermobarometry of granodiorites and zircon geochronology of broadly coeval volcanics (Minarets and Merced Peak complexes), Sierra Nevada batholith, California: Geological Society of America Abstracts with Programs, v. 47, p. 47.

Ratajeski, K., Greenberg, J.K., Allard, S.T., Schwandt, C.S., Tulimiero, C.J., and Gates, C.H., 2013, Diverse, widespread static porphyroblasts: the last gasp of Proterozoic metamorphism in the Black Hills, South Dakota?: Geological Society of America Abstracts with Programs, v. 45, p. 113.

Campbell, D., Campbell, L.D., Cates, C., Davidson, G., Long, K., Mercer, R., **Ratajeski, K.**, Young, D.A., 2010, PCA geologists on the antiquity of the Earth: Modern Reformation, v. 19, no. 3, p. 6-9.

Ratajeski, K., 2010, Coeval mafic-felsic magmatism in the intrusive suite of Yosemite Valley, in Putirka, K. (ed.), From the Coast Ranges to the Sierra Nevada: the geology of central California: National Association of Geoscience Teachers Far Western Section Fall Conference, Oct. 8-10, 2010.

Loveless, W.T., and **Ratajeski, K.**, 2007, High-precision U-Pb zircon geochronology of the Elberton Granite, northeast Georgia: preliminary Ca-TIMS results: Geological Society of America, Southeast Section meeting.

Ratajeski, K., 2006, A digital resource collection supporting the use of Earthchem databases in geoscience courses: Geological Society of America Abstracts with Programs, v. 38, p. 524.

Lehnert, K., **Ratajeski, K.**, and Walker, D., 2006, Using online igneous geochemical databases for research and teaching: handbook for short course at the Geological Society of America Meeting, Philadelphia, October, 2006.

Ratajeski, K., 2005, Students as field trip leaders: promoting active learning and group collaboration with a semester-culminating field trip project in Montana: Geological Society of America Abstracts with Programs, v. 37, p. 412.

Ratajeski, K., Mogk, D., and Warnick, M., 2005, The Montana-Yellowstone geologic field guide database: a digital resource to integrate field-based research, teaching, and learning: Geological Society of America Abstracts with Programs, v. 37, p. 283.

Ratajeski, K., Mogk, D., and Downs, R.T., 2005, Teaching mineralogy with crystal structure databases and visualization software: a digital resource collection: *Geochimica et Cosmochimica Acta*, 15th Annual Goldschmidt Conference, Moscow, Idaho, May 20-25, v. 69, p. A665.

Ratajeski, K., Sisson, T.W., and Glazner, A.F., 2005, Experimental and geochemical evidence for derivation of the El Capitan Granite, California, from hydrous, mafic lower crust: *Contributions to Mineralogy and Petrology*, v. 149, p. 713-734.

Sisson, T.W., **Ratajeski, K.**, Hankins, W.B., and Glazner, A.F., 2005, Voluminous granitic magmas from common basaltic sources: *Contributions to Mineralogy and Petrology*, v. 148, p. 635-661.

Ratajeski, K., Glazner, A.F., and Miller, B.V., 2001, Geology and geochemistry of mafic to felsic plutonic rocks in the Cretaceous intrusive suite of Yosemite Valley, California: *Geological Society of America Bulletin*, v. 113, p. 1486-1502.

Ratajeski, K., and Sisson, T.W., 1999, Loss of iron from gold capsules in rock-melting experiments: *American Mineralogist*, v. 84, p. 1521-1527.

Taylor, R.Z., Frankel, K.L., and **Ratajeski, K.**, 1999, Variation in composition and texture with elevation within the El Capitan Granite, Yosemite National Park, California: *Geological Society of America Abstracts with Programs, Cordilleran Section*, p. A101.

Ratajeski, K., Sisson, T.W., and Glazner, A.F., 1999, Fluid-absent partial melting of mafic lower crust in continental-margin arcs: implications for the origin of low silica granites of the Sierra Nevada Batholith: *Geological Society of America Abstracts with Programs, Cordilleran Section*, v. 31, p. A-86.

Ingersoll, R.V., **Ratajeski, K.**, Glazner, A.F., and Cloos, M., 1999, Mesozoic convergent margin of central California, in Wagner, D.L., and Graham, S.A. (eds.), *Geologic field trips in northern California: California Division of Mines and Geology, Special Publication 119*.

Ratajeski, K., Sisson, T.W., and Glazner, A.F., 1998, Generation of Sierran granite from mafic lower crust: preliminary results from partial melting experiments at 8 kbar and 800-975 C: *Geological Society of America Penrose Conference on Crustal Differentiation, Verbania, Italy, July 4-10 (poster)*.

Ratajeski, K., and Glazner, A.F., 1997, Field and isotopic characteristics of mafic rocks associated with the El Capitan granite in Yosemite Valley, California: *Geological Society of America Abstracts with Programs, Cordilleran Section*, v. 29, p. A58.

Ratajeski, K., and Candela, P.A., 1995, Estimation of initial and saturation water contents of three Mesozoic granitic plutons in the north-central Great Basin, Nevada, in Brown, M., and Piccoli, P. (eds.), *The Origin of Granites and Related Rocks (Abstracts)*, U.S.G.S. Circular 1129.

Ratajeski, K., and Candela, P.A., 1994, Predicted crystallization paths and oxygen fugacity-temperature trends for some Mesozoic granitic rocks of the central Great Basin: comparisons with published phase equilibria and the "MELTS" model of Ghiorso and Sack: *Geological Society of America, Abstracts with Programs*, v. 26, p. A-295.

Ratajeski, K., and Campbell, A.R., 1994, Distribution of fluid inclusions in igneous quartz of the Capitan pluton, New Mexico, USA: *Geochimica et Cosmochimica Acta*, v. 58, p. 1161-1174.

Ratajeski, K., and Campbell, A.R., 1992, Distribution of high-temperature, high-salinity fluid inclusions in igneous and miarolitic quartz of the Capitan pluton, NM: *New Mexico Geological Society, Annual Spring Meeting, Proceedings Volume*, p. 27.

Ratajeski, K., and Campbell, A.R., 1992, High-temperature, high-salinity fluid inclusions in igneous and miarolitic quartz of the Capitan pluton, NM: PACROFI IV (4th Pan-American Conference on Research on Fluid Inclusions), Lake Arrowhead, CA, May 21-25, p. 68.