

**ERIC STEVEN TAYLOR**  
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## **EDUCATION**

*Ph.D., Geological Sciences, Ohio State University* 2012

Dissertation: "Molecular Investigations of the Epidermal Growth Factor Receptor and Its Affinity Toward Asbestos"

I investigated the interaction between asbestos and cell surface proteins via atomic force microscopy and molecular dynamic simulations to help understand the molecular mechanism behind malignant mesothelioma and other asbestos-related diseases. My dissertation was advised by Steven K. Lower, PhD.

*M.S., Geological Sciences, Ohio State University* 2006

Thesis: "Nonspecific and Specific Forces of Interaction Between *Acidithiobacillus ferrooxidans* and Solid Surfaces as Determined by Atomic Force Microscopy"

The interface between mineral surfaces and bacterial cells was investigated by atomic force microscopy within the context of acid mine drainage and biogeochemical iron cycling. Steven K. Lower served as my advisor.

*B.S., Geological Sciences, Brigham Young University* 2004

Mentorship topic: "Atomic Force Microscopy of Phlogopite Mica Acid Dissolution"

I studied the acid dissolution of mica by means of atomic force microscopy under the direction of Barry Bickmore, PhD.

## **EMPLOYMENT**

*Associate Professor of Geology, Kent State University at Stark* 2018-present

*Assistant Professor of Geology, Kent State University at Stark* 2012-2018

Senior Mentor: Carrie Schweitzer (330-244-3303)

I teach undergraduate courses in *Environmental Earth Science*, *How the Earth Works*, *Earth and Life Through Time*, *Scientific Methods in Geology*, and *Earth Materials*. I and II. I also taught Special Topics in Geology on the topics of *Natural Hazards and Geologic Disasters*, *Medical Geology*, and *Natural Resources and the Environment*. My research interest is in geoscience education, particularly geology education online and in the field.

*Instructor, The Ohio State University Marion* 2012

I taught one section of *Geology and the National Parks* at the Delaware Center in Delaware County, Ohio.

*Part-Time Assistant Professor, Ohio Wesleyan University* 2012

Supervisor: Bart S. Martin (740-368-3621)

I taught two sections of introductory geology with a focus on earth systems, with emphasis on hands-on and field experiences.

*Graduate Teaching Associate, School of Earth Sciences, OSU* 2011

Supervisor: Anne Carey (614-292-2375)

I taught weekly labs to science majors enrolled in the physical geology honors course and was the in-class instructor for about 3 weeks.

<i>Instructor, School of Earth Sciences, OSU</i>	2011
Supervisor: Lawrence Krissek (614-292-1924)	
I taught the Natural Hazards course (ES 151) at OSU during Spring Quarter 2011. This included four 1-hour lectures each week plus a 1-hour recitation.	
<i>Graduate Fellow, Robert H. Edgerley Toxicology Fund, OSU</i>	2010-2011
Supervisor: Steven K. Lower (614-292-2721)	
I conducted original research on the molecular binding of human cell surface proteins to asbestos via atomic force and confocal laser scanning microscopy. I also used molecular dynamic simulations to characterize the proteins in silico.	
<i>Graduate Fellow, Presidential Fellowship, Graduate School, OSU</i>	2009-2010
Supervisor: Kathleen Wallace (614-292-6031)	
These funds were used to continue studies concerning my dissertation as described above.	
<i>Graduate Research Associate, School of Earth Sciences, OSU</i>	2008-2009
Supervisor: Steven K. Lower (614-292-2721)	
As a graduate associate, I conducted my own original research on acidophilic bacteria and their biophysical interaction with pyrite. I used atomic force microscopy, scanning electron microscopy, and optical microscopy to complete this work. I supervised undergraduate students on their senior or honors theses.	
<i>Graduate Teaching Associate, School of Earth Sciences, OSU</i>	2004-2007
Supervisor: Steven K. Lower (614-292-2721)	
I taught weekly labs to introductory geology students and served two quarters as head teaching associate managing the labs and instructors.	
<b>SERVICE</b>	
<i>Learning Management Software Advisory Council</i>	2019-present
<i>Center for Teaching and Learning Advisory Council</i>	2019-present
<i>University Teaching Council</i>	2018-present
As a member of this council, I review grant applications for teaching development grants and workshops and offer support to the chair of this council as requested.	
<u><a href="#">Faculty Fellows</a></u>	2017-2018
As part of the Center for Teaching and Learning's faculty fellow program, I have researched best practices for online science education in a laboratory setting. Research that culminated in a working lunch March 2018.	
<i>Member of Faculty Advisory Council, KSU at Stark</i>	2015-present
<i>Campus Representative for <u><a href="#">AURCO</a></u></i>	2015-present
I support AURCO by representing the KSU Stark campus, attend business meetings, and serve as a membership committee members. I have also been a judge for the undergraduate research posters at the annual research conference.	
<i>Member of Scholarship Committee</i>	2014
<i>Advisor of Honors Student, KSU</i>	2014
I am currently serving as an advisor for an honors student in the Department of Geology investigating flood potential and mitigation near	
<i>Co-Advisor for GEODES, KSU</i>	2014-present

I currently serve as a co-advisor for GEODES, the student geology club at KSU at Stark. Duties include advising students on activities, training and orienting new leaders, and assisting students in their efforts to recruit new members, provide service to the community and gain knowledge and skills pertinent to earth science.

*Award Judge for Student Life and Activities Board, KSU* 2014

I was a judge for end-of-year awards for student groups under the direction of the Student Life and Activities Board.

*Middle School Presentations, KSU* 2012-2014

I present science demonstrations to middle school students from schools in and surrounding Stark County, Ohio on various topics of geology as a means to increase awareness of earth and geological sciences.

*Judge for Denman Undergraduate Research Forum, OSU* 2010

The Denman Forum allows undergraduate students to present a poster of the research they have been undertaking for their senior honors thesis under the direction of a mentor. I served as a judge for their oral and poster presentations.

*Mentor for undergraduate students, OSU* 2006-2011

I have been a mentor for undergraduate students who work in Dr. Steven Lower's laboratory as they work on their own undergraduate research.

*Policy Council Representative, Franklin County, OH* 2010-2011

I was a parent representative for Franklin County's Head Start program in Columbus, OH. I attended monthly councils as the Marburn Head Start representative and engaged parents and faculty in current events and policies.

## **AWARDS & RECOGNITION**

*Undergraduate Research Assistantship (URA)* 2017

I received a URA in collaboration with undergraduate student Joshua Tungate to analyze data collected during my Teaching Scholars program in academic year 2016-2017. The student and I also researched online science education practices for laboratories and began development of laboratory exercises for use in a future comparison study between online and face to face laboratory experiences.

*Undergraduate Research Assistantship (URA)* 2016

I received a URA in collaboration with undergraduate student Justin Miller to create [online instructional videos](#) to be used by all geology faculty as either instructional building materials for a fully online course or as supplemental instruction for traditional instruction.

*[Dominion Foundation Award](#)* 2015

Dominion Foundation awarded the department of geology at KSU at Stark \$34,000 for our Technology-Enhanced Learning & Research in Geology and Environmental Studies programs.

*[Summer Teaching Development Grant, KSU](#)* 2014

This grant (\$3,250), awarded by the University Teaching Council, was used to create online and in-field teaching and learning materials for a service-learning course in environmental geology in conjunction with the Stark County Park District, Stark County, Ohio.

*[Major Research Instrumentation Program \(NSF\), KSU](#)* 2014

“MRI: Acquisition of an Intuitive Multi-Touch Scanning Electron Microscope to Enhance Research as well as Undergraduate Student Research and Natural Science Courses.” The MRI Program awarded funds for the acquisition of a scanning electron microscope to be used both for research and education. I served as a co-PI on this NSF grant.

*Robert H. Edgerley Environmental Toxicology Fund, OSU* 2010-2011

The fellowship provides support for outstanding “graduate students conducting thesis or dissertation research in environmental toxicology.” The fellowship covers tuition and stipend for one year of graduate research plus \$5000 in research funds, which will be used to support experiments and conference participation.

*Presidential Fellowship, The Graduate School, OSU* 2009-2010

This fellowship was awarded to “recognize the outstanding scholarly accomplishments and potential of graduate students entering the final phase of their dissertation research...Recipients of this award embody the highest standards of scholarship in Ohio State graduate programs.” Travel funds were also awarded and used to participate in the North-South combined regional meeting of The Geological Society of America, where my work was presented on the binding of epidermal growth factor receptor (EGFR) to asbestos and non-asbestos minerals.

*Summer Research Institute Fellowship, Pacific Northwest National Laboratory* 2009

The ten-week fellowship program in interfacial and condensed phase sciences at the Pacific Northwest National Laboratory, which is one of DOE's national laboratories, allowed me to I engage myself full-time in learning and using molecular dynamic simulations under the tutelage of Roberto Lins, Ph.D., to investigate the binding of the epidermal growth factor receptor to crocidolite asbestos.

*Preparing Future Faculty Award, The Graduate School, OSU* 2009-2010

PFF is a nationally recognized program for gaining first-hand mentorship and counseling on teaching and working at a small college or university. The two-quarter program included regular visits to Wittenberg University (Springfield, OH) with John Ritter, Department Chair of Geological Sciences, as well as regular in-class discussions and evaluations with peers and Kathleen Wallace of the Graduate School.

*Press Release* 2008

Press release ‘Scientists study how asbestos fibers trigger cancer in human cells’ by Emily Caldwell. See <http://researchnews.osu.edu/archive/asbescells.htm>

*Department of Energy Grant Award* 2008-2011

User Grant awarded by the Environmental Molecular Sciences Laboratory at the Pacific Northwest National Laboratory for the study of the protein-mineral interface using a combined computational and experimental approach.

*Cover of Applied & Environmental Microbiology* 2008

First author paper was featured on the cover of volume 74 issue 1 of AEM.

*Graduate Teaching Award, School of Earth Sciences, OSU* 2006

This award is given for “excellence in classroom teaching, diligence in academics, and meritorious service to students.”

## PROFESSIONAL MEMBERSHIPS

[The Geological Society of America](#)

2010-present

[AAUP \(KSU\)](#)

2013-present

[National Association of Geoscience Teachers](#)

2016-present

## **PROFESSIONAL DEVELOPMENT**

*Faculty Academy for Student Success*

2019

I participated in a group of faculty who each created and implemented a project designed to improve student success in or out of the class. My goal is to improve student performance by engaging students in team-based learning. This is currently being piloted in lower and upper-division courses I teach.

[Faculty Fellows](#)

2017-2018

As 1 of 2 faculty selected by the Center for Teaching and Learning to provide their fellow faculty with a service, I have been researching best practices for online science education in a laboratory setting. Research to culminate in a working lunch March of 2018.

[Teaching Scholars](#)

2016-2017

I was one of eleven faculty from KSU who participated in a year-long community of practice to develop, implement and publish a study related to the scholarship of teaching and learning. Highlights of the program were attendance at the Lilly Conference in Oxford, OH and a seminar on our research for fellow faculty.

[Earth Educators Rendezvous \(EER\)](#)

2016

I attended and presented at the EER in Madison, WI hosted by the National Association of Geoscience Teachers and SERC on the topic of service learning in undergraduate environmental earth science.

*Celebrating College Teaching at Kent State University*

2015

I was a participant in discussions and a presenter at the University Teaching Council's annual conference. The topic of my poster presentation was "A Walk in the Park: Environmental Earth Science Service-Learning".

[Online Learning Symposium at Kent State University](#)

2015-2016

I attended and participated in the workshops on online learning and teaching hosted by the Office of Continuing and Distance Education on the Kent campus of KSU in both 2015 and 2016.

[Distance Learning Community of Practice \(DLCOP\), KSU](#)

2014-present

I regularly participate in KSU at Stark's DLCOP, whose aim is to provide workshops and a community designed to introduce, train, and provide feedback to faculty in their efforts to offer part or full online course instruction.

*Learning Institute at Kent State University*

2012-2013

I attended the Fall and Spring Learning Institutes at Kent State University, hosted by the Faculty Professional Development Center, focused on engaging students in the classroom and on promoting the scholarship of teaching and learning.

*The Protein Society*

2011

I presented the results of the molecular dynamics simulations of the binding of the epidermal growth factor receptor to its ligand and to asbestos at the annual symposium of the Protein Society in Boston, MA. The simulations were completed at the Pacific Northwest National Laboratory as part of the Department of Energy Award.

*The Biophysical Society* 2011

I presented the results of my continued study of the biophysical relationship between proteins and asbestos as it pertains to the study of mesothelioma.

*The Geological Society of America* 2010

My PhD advisor, Steven K. Lower, and I were invited to present my work on the binding of EGFR to asbestos and non-asbestos minerals at the combined North-South Regional Meeting.

*The American Geophysical Union* 2008

I presented preliminary findings of the binding of EGFR to crocidolite at their annual meeting.

## PUBLICATIONS

- Taylor, E. S., Pol-Fachin, L., Lins, R. D., and Lower, S. K. 2016. "Conformational stability of the epidermal growth factor (EGF) receptor as influenced by glycosylation, dimerization and EGF hormone binding." *Proteins*. 85: 561-570.
- Taylor, E. S., Wylie, A. G., Mossman, B. T., and S. K. Lower. 2013. "Repetitive Dissociation from Crocidolite Asbestos Acts as Persistent Signal for Epidermal Growth Factor Receptor." *Langmuir*. 29: 6323-6330.
- Lower, S. K., Lamlerthton, S., Casillas-Iltuarte, N. N., Lins, R. D., Yongsunthon, R. Taylor, E. S., DiBartola, A. C., Edmonson, C., McIntyre, L. M., Reller, L. B., Que, Y.-A., Ros, R., Lower, B. H., and Fowler, Jr., V. G. 2011. "Polymorphisms in fibronectin binding protein A of *Staphylococcus aureus* are associated with infection of cardiovascular devices." *Proceedings of the National Academy of Sciences*. 108: 18372-18377.
- Taylor, E. S., Lower, S. K., and Lins, R. D. 2011. Molecular Dynamic Simulations of the Epidermal Growth Factor Receptor (EGFR): Effects of Glycosylation, Dimerization, and the Presence of Inorganic Solids. In: The 25th Anniversary Symposium of The Protein Society Program with Abstracts. *Protein Science*. 20: 205.
- Taylor, E. S., Mossman, B. T., Wylie, A. G., and Lower, S. K. 2011. "Molecular Mechanism for the Induction of Mesothelioma by Asbestos." *Biophysical Journal*. 100, 160a.
- Taylor, E. S., Mossman, B. T., Wylie, A. G., and Lower, S. K. 2010. Molecular Mechanism for the Induction of Mesothelioma by Asbestos. *Geological Society of America: Abstracts with Programs*. 42: 57.
- Lower, S. K.; Yongsunthon, R.; Casillas-Iltuarte, N. N.; Taylor, E. S.; DiBartola, A. C.; Lower, B. H.; Beveridge, T. J.; Buck, A. W.; Fowler, V. G., 2010. A Tactile Response in *Staphylococcus aureus*. *Biophysical Journal*. 99 (9), 2803-2811.
- Schoenbohm, L., Bancroft, A., Barta, N., Bartkowiak, B., Stutz, J., Borkow, P., Carey, A., Drew, S., Goldsmith, S., Lower, S., McKenzie, G., Miller, J., Taylor, E., Tierney, K., Williams, M., and Young, S. 2010. *Exercises for Earth Sciences 100*. Hayden-McNeil: Plymouth, p 122.
- Taylor, E. S.; Lower, S. K., 2008. Thickness and surface density of extracellular polymers on *Acidithiobacillus ferrooxidans*. *Applied and Environmental Microbiology*. 74 (1), 309-311.
- Taylor, E. S.; Lower, S. K.; Wylie, A. G.; Mossman, B. T., 2008. The Strength of Disease: Molecular Bonds Between Asbestos and Human Cells. *EOS Trans*. 89 (53), Abstract B53B-0479-Fall Meet. Suppl.