Ellen K. Schaal

Instructor, Department of Environmental Science and Studies
DePaul University
1110 West Belden Avenue, Chicago, IL 60614
eschaal@depaul.edu

EDUCATION

2014	Ph.D. Geological & Environmental Sciences, Stanford University
2005	B.A. Geology, B.A. Studio Art, Carleton College

EMPLOYMENT HISTORY

2016-Present	Instructor of Environmental Science, DePaul University
2014-2016	Visiting Assistant Professor of Geology, Lawrence University
2012	Visiting Instructor in the Department of Geology, Carleton College
2006-2014	Research Assistant and Teaching Assistant, Stanford University
2005-2006	Educational Associate in Geology, Carleton College
2004-2005	Undergraduate Teaching and Research Assistant, Carleton College

HONORS AND AWARDS

2024	Excellence in Teaching Award, DePaul University
2014	Certificate of Achievement in Mentoring in the School of Earth Sciences
2008-2011	Eugene Holman Stanford Graduate Fellowship
2007-2008	Thomas D. and Janice H. Barrow Fellowship
2005	Summa Cum Laude
2005	Phi Beta Kappa
2005	Sigma Xi
2005	Distinction in Geology Major
2004-2005	Laurence McKinley Gould Prize in Natural Sciences
2003-2004	Duncan Stewart Fellowship

RESEARCH EXPERIENCE

2006-2014 Dissertation Research, Department of Geological & Environmental Sciences, Stanford University (Research Advisor: Jonathan Payne)

- Quantification of Permian-Triassic body size evolution in multiple marine clades
- Analysis of Early Triassic conodont recovery patterns, including collection and processing of samples from south China
- Sr isotope analysis of Permian-Triassic carbonates and conodonts
- Numerical modeling of the Sr cycle through the Permian-Triassic

2006-2007 Research Assistant, Paleobiology Lab, Stanford University

- Curation of fossil collections

2005-2006 Research Assistant, Department of Geology, Carleton College (Research

Advisor: Clint Cowan, Laboratory Mentor: David Fox [U of Minnesota])

- C and O isotope analysis of Cambrian phosphatic brachiopods
- High viscosity seawater experiments on sedimentary structures

2004-2005 Undergraduate Thesis Research, Department of Geology, Carleton College
(Research Advisors: Bereket Haileab & Dave Barbeau [U of South Carolina])

- Sandstone petrography and provenance in a foreland basin succession

TEACHING EXPERIENCE

2025-2026 Instructor of Environmental Science, DePaul University

- HON 111 - Explore Chicago: Natural History of Chicago (Enrolled: 17 *upcoming*)
- ENV 102 - Introduction to Environmental Science with Lab (Enrolled: 30 *upcoming*)

2024-2025 Instructor of Environmental Science, DePaul University

- ENV 216 - Earth System Science (Laboratory) (Enrolled: 29)
- ENV 117 - Earth through Time with Lab (2 Sections, Enrolled: 30, 28)
- HON 111 - Explore Chicago: Natural History of Chicago (Enrolled: 23)
- ENV 102 - Introduction to Environmental Science with Lab (2 Sections, Enrolled: 29, 30)

2023-2024 Instructor of Environmental Science, DePaul University

- ENV 216 - Earth System Science (Laboratory) (2 Sections, Enrolled: 25, 23)
- ENV 118 - Earth through Time (Enrolled: 23)
- LSP 111 - Explore Chicago: Natural History of Chicago (Enrolled: 28)
- ENV 102 - Introduction to Environmental Science with Lab (2 Sections, Enrolled: 29, 29)

2022-2023 Instructor of Environmental Science, DePaul University

- HON 225 - Honors Lab Science Topics: Environmental Science (Enrolled: 19)
- ENV 216 - Earth System Science (Laboratory) (2 Sections, Enrolled: 24, 14)
- Guest lecturer, ENV 216 - Earth System Science
- ENV 118 - Earth through Time (Enrolled: 30)
- ENV 102 - Introduction to Environmental Science with Lab (Enrolled: 30)

2021-2022 Instructor of Environmental Science, DePaul University

- HON 225 - Honors Lab Science Topics: Environmental Science (Enrolled: 19)
- ENV 216 - Earth System Science (Laboratory) (2 Sections, Enrolled: 31, 22)
- ENV 118 - Earth through Time (2 Sections, Enrolled: 29, 31)
- LSP 111 - Explore Chicago: Natural History of Chicago (Enrolled: 28)

- ENV 102 - Introduction to Environmental Science with Lab (Enrolled: 30)

2020-2021 Instructor of Environmental Science, DePaul University
- HON 225 - Honors Lab Science Topics: Environmental Science (Enrolled: 18)
- ENV 118 - Earth through Time (3 Sections, Enrolled: 30; 30; 30)
- LSP 111 - Explore Chicago: Natural History of Chicago (Enrolled: 28)
- ENV 102 - Introduction to Environmental Science with Lab (Enrolled: 29)

2019-2020 Instructor of Environmental Science, DePaul University
- HON 225 - Honors Lab Science Topics: Environmental Science (2 Sections, Enrolled: 16; 20)
- ENV 118 - Earth through Time (Enrolled: 31)
- LSP 111 - Explore Chicago: Natural History of Chicago (Enrolled: 28)
- ENV 102 - Introduction to Environmental Science with Lab (Enrolled: 23)

2018-2019 Instructor of Environmental Science, DePaul University
- ENV 102 - Introduction to Environmental Science with Lab (2 Sections, Enrolled: 52; 26)
- ENV 101 - Introduction to Environmental Science without Lab (3 Sections, Enrolled: 33; 36; 34)

2017-2018 Instructor of Environmental Science, DePaul University
- LSP 111 - Explore Chicago: Natural History of Chicago (Enrolled: 28)
- ENV 102 - Introduction to Environmental Science with Lab (Enrolled: 54)
- ENV 101 - Introduction to Environmental Science without Lab (2 Sections, Enrolled: 39; 35)

2016-2017 Instructor of Environmental Science, DePaul University
- ENV 102 - Introduction to Environmental Science with Lab (2 Sections, Enrolled: 57; 58)
- ENV 101 - Introduction to Environmental Science without Lab (3 Sections, Enrolled: 36; 28; 36)

2015-2016 Visiting Assistant Professor of Geology, Lawrence University
- GEOL 550 - Geology of the Upper Mississippi River (Enrolled: 10)
- GEOL 520 - Paradigm Shifts in the History of Geology (Enrolled: 7)
- GEOL 360 - Sedimentology & Stratigraphy (Enrolled: 11)
- GEOL 210 - History of Earth and Life (Enrolled: 27)
- GEOL 110 - Introductory Geology (Enrolled: 50)

2014-2015 Visiting Assistant Professor of Geology, Lawrence University
- GEOL 260 - Introduction to Paleobiology (Enrolled: 18)
- GEOL 110 - Introductory Geology (2 Sections, Enrolled: 37; 27)

2015 Guest lecturer, Lawrence University
- CHEM 108 - The Chemistry of Art

2012 Visiting Instructor in the Department of Geology, Carleton College
- GEOL 230 - Paleobiology (Enrolled: 22)

2009	Guest lecturer, Stanford University • GES 123 - Invertebrate Paleobiology
2007-2009	Teaching Assistant, Stanford University • GES 123 - Invertebrate Paleobiology • GES 1 - Fundamentals of Earth Science • Undergraduate Field Trip, San Juan River, Utah • Development of laboratory exercises for Invertebrate Paleobiology
2006	GES 200 - Professional Development in Geoscience Education course
2005-2006	Educational Associate in Geology, Carleton College • Assistance with classes and field trips
2004-2005	Undergraduate Teaching Assistant, Carleton College • GEOL 250 - Mineralogy • GEOL 230 - Paleobiology

ADDITIONAL EDUCATION & TRAINING

2013	Short Course "Applied Ichnology: The Use of Trace Fossils in Sequence Stratigraphy, Exploration & Production Geology." Taught by George Pemberton (University of Alberta)
2011	Short Course "Carbonates Applied to Hydrocarbon Exploration and Exploitation." Taught by Jeffery J. Dravis (Dravis Interests, Inc., Houston, TX)
2009	Short Course on Foraminifera. Taught by Demir Altiner (Middle East Technical University)
2008	Field Course "Carbonate Reservoir Architecture and Applied Sequence Stratigraphy, West Texas & Southeast New Mexico." Lead by Art Saller (Chevron)
2007	Lecture and Laboratory Short Course "Stable Isotope Ecology." Lead by Jim Ehleringer and Thure Cerling (SIRFER Stable Isotope Ratio Facility for Environmental Research, University of Utah)

MENTORING

2017-2025	Mentored 25 Teaching Assistants, DePaul University
2016	Directed 3 Independent Studies: senior project in paleoecology; junior project in sedimentology; junior project in quantitative paleobiology, Lawrence University
2015	Directed 1 Independent Study: biomineralization, Lawrence University
2013	SES Mentoring in Research Workshop, Stanford University

Students:

2016	Miriam Barney, Undergraduate Independent Study, Lawrence University
2016	Chris Toivonen, Undergraduate Independent Study, Lawrence University
2016	Tae Gyeong Hamm, Undergraduate Independent Study, Lawrence University
2015	Jonah Sorell, Undergraduate Independent Study, Lawrence University
2012-2014	Daniel Javier Morgan, Undergraduate Research Student, Stanford University

- Presented his project at AGU Annual Meeting, San Francisco, CA. Abstract #PP13A-1863.

2010-2012 Kathryn (Kit) Vanderboll, Undergraduate Research Student, Stanford University

2009-2010 Margaret Chapman, Undergraduate Research Student, Stanford University

PRINCIPAL FIELD EXPERIENCE

2015 Co-lead student field trip on the geology of the Upper Mississippi River Valley. One week.

2011 Geological transect of the Himalayas and the Tethyan sediments of Ladakh, India. Two weeks.

2009, 2010 Paleozoic carbonates, paleontology, and stratigraphy of Death Valley and Owens Valley, California. Two weeks.

2009 Geology of Iceland. Two weeks.

2009 Ordovician, Carboniferous, and Triassic paleontology and stratigraphy of the Basin and Range, Nevada and Utah. One week.

2009 Permian sequence stratigraphy, Guadalupe Mountains, west Texas. One week.

2007, 2008 Permian-Triassic paleontology and stratigraphy of carbonate platforms in the Nanpanjiang Basin, Guizhou Province, China. Three months.

2006 Geology of the St. Francois Mountain region, Missouri. One week.

2005 Geology of the Salt Lake City region, Utah. One week.

2004 Foreland basin stratigraphy, Catalan Coastal Range, Spain. Three weeks.

2003 Modern carbonate systems, San Salvador Island, Bahamas. Two weeks.

SERVICE

2017-2025 Wrote 7 student recommendation letters, DePaul University

2017, 2025 Reviewer for *DePaul Discoveries* (Undergraduate Research Journal), DePaul University

2014-2015 Environmental Studies Program Planning Committee, Lawrence University

2011-2012 School of Earth Sciences Space Subcommittee, Stanford University

2009-2012 Financial Officer, Stanford Alpine Project student group (educational geology field trips), Stanford University

Reviews for Journals:

Geochemistry, Geophysics, Geosystems	2020
Science	2016
Proceeding of the Royal Society B: Biological Sciences	2016
Ecology	2014

PROFESSIONAL AFFILIATIONS

2011-Present The Paleontological Society (PS)

2011-Present American Geophysical Union (AGU)

2011-Present The Geological Society of America (GSA)

2010-Present Society for Sedimentary Geology - Pacific Section (SEPM)

SOFTWARE & PROGRAMMING LANGUAGES

R – statistical programming language
STELLA – numerical modeling software
PAST – paleontological statistics software

PUBLICATIONS

2021 Li X, Trower EJ, Lehrmann DJ, Minzoni M, Kelley BM, **Schaal EK**, Altiner D, Yu M, and Payne JL. Implications of giant ooids for the carbonate chemistry of Early Triassic seawater. *Geology* 49 (2): 156-161. doi: 10.1130/G47655.1.

2020 Kelley BM, Lehrmann DJ, Yu M, Jost AB, Meyer KM, Lau KV, Altiner D, Li X, Minzoni M, **Schaal EK**, and Payne JL. Controls on carbonate platform architecture and reef recovery across the Paleozoic to Mesozoic transition: a high-resolution analysis of the Great Bank of Guizhou. *Sedimentology* 67 (6): 3119-3151. doi: 10.1111/sed.12741.

2016 **Schaal EK**, Clapham ME, Rego BL, Wang SC, and Payne JL. Comparative size evolution of marine clades from the Late Permian through Middle Triassic. *Paleobiology* 42: 127-142. doi: 10.1017/pab.2015.36.

2016 Lehrmann DJ, Bentz JM, Wood T, Goers A, Dhillon R, Akin S, Li X, Payne JL, Kelley BM, Meyer KM, **Schaal EK**, Suarez MB, Yu M, Qin Y, Li R, Minzoni M, and Henderson CM. Reply: Permian-Triassic microbialite and dissolution surface environmental controls on the genesis of marine microbialites and dissolution surface associated with the end-Permian mass extinction: new sections and observations from the Nanpanjiang Basin, south China. *Palaios* 31: 118-121. doi: 10.2110/palo.2016.016.

2015 Heim NA, Knope ML, **Schaal EK**, Wang SC, and Payne JL. Cope's rule in the evolution of marine animals. *Science* 374: 867-870. doi: 10.1126/science.1260065.

2015 **Schaal EK**, Payne JL, Meyer KM, Lau KV, and Silva-Tamayo JC. Ocean anoxia during the Permian-Triassic transition and links to volcanism. In *Volcanism and Global Environmental Change* L. Elkins-Tanton, A. Schmidt, and K. Fristad *eds*. Cambridge University Press.

2015 Lehrmann DJ, Bentz JM, Wood T, Goers A, Dhillon R, Akin S, Li X, Payne JL, Kelley BM, Meyer KM, **Schaal EK**, Suarez MB, Yu M, Qin Y, Li R, Minzoni M, and Henderson CM. Environmental controls on the genesis of marine microbialites and dissolution surface associated with the end-Permian mass extinction: new sections and observations from the Nanpanjiang Basin, south China. *Palaios* 30: 529-552. doi: 10.2110/palo.2014.088.

2015 Lehrmann DJ, Stepchinski L, Altiner D, Orchard MJ, Montgomery P, Enos P, Ellwood BB, Bowring SA, Ramezani J, Wang H, Wei J, Yu M, Griffiths JD, Minzoni M, **Schaal EK**, Li X, Meyer KM, and Payne JL. An integrated biostratigraphy

(conodonts and foraminifers) and chronostratigraphy (paleomagnetic reversals, magnetic susceptibility, elemental chemistry, carbon isotopes and geochronology) for the Permian–Upper Triassic strata of Guandao section, Nanpanjiang Basin, south China. *Journal of Asian Earth Sciences* 108: 117-135. doi: 10.1016/j.jseaes.2015.04.030.

2014 Minzoni M, Lehrmann DJ, Payne JL, Enos P, Wei J, Kelley BM, **Schaal EK**, Meyer KM, Montgomery P, Goers A, and Wood T. Triassic tank: platform margin and slope architecture in space and time, Nanpanjiang Basin, south China, in Verwer K, Playton TE, and Harris PM, eds. Deposits, architecture, and controls of carbonate margin, slope, and basinal settings. *SEPM Special Publication* 105: 83-113. doi: 10.2110/sepmsp.105.10.

2012 Lehrmann DJ, Minzoni M, Li X, Yu M, Payne JL, Kelley BM, **Schaal EK**, and Enos P. Lower Triassic oolites of the Nanpanjiang Basin, south China. *AAPG Bulletin* 96: 1389-1414. doi: 10.1306/01231211148.

FIELD GUIDES & ONLINE TEACHING TOOLS

2011 India: A Geologic Field Guide. Stanford Alpine Project student group. (http://pangea.stanford.edu/groups/SAP/himalayainfo.html)

2009 Iceland: A Geologic Field Guide. Stanford Alpine Project student group. (http://pangea.stanford.edu/groups/SAP/previous_expeditions/Iceland/Iceland_2009.html)

PRESENTATIONS

Advisees underlined

2018 **Invited Talk** – DePaul University, Chicago, IL. Climate change: past and present.

2016 **Schaal EK** and Toivonen CA. Body size trends in Mesozoic marine reptiles. GSA Annual Meeting, Denver, CO. *Abstracts with Programs,* Vol. 48, No. 7. doi: 10.1130/abs/2016AM-287661. Poster.

2016 **Invited Talk** – Oklahoma State University, Stillwater, OK. Permian-Triassic global change: The strontium cycle and body size evolution in marine clades.

2016 **Invited Talk** – State University of New York – Potsdam, NY. Permian-Triassic global change: The strontium cycle and body size evolution in marine clades.

2016 **Invited Talk** – Appalachian State University, Boone, NC. Permian-Triassic global change: The strontium cycle and body size evolution in marine clades.

2014 **Schaal EK**, Morgan DJ, Jost AB, Heim NA, and Payne JL. Measuring body size from genus-level compendia captures size evolution trends in component species: validation using Forminifera, Ostracoda, and Conodonta. GSA Annual Meeting, Vancouver, BC. *Abstracts with Programs*, Vol. 46, No. 6, p. 643. Talk.

2013 Morgan DJ, Payne JL, and **Schaal EK** (presenting author). Body size evolution in conodonts from the Cambrian through the Triassic. GSA Annual Meeting, Denver,

CO. *Abstracts with Programs*, Vol. 45, No. 7, p. 108. Poster.

2012 **Schaal EK**, Morgan DJ, Clapham ME, Rego BL, Wang SC, and Payne JL. Conodont body size and diversity trends after the end-Permian extinction: implications for the recovery of pelagic vs. benthic ecosystems. AGU Annual Meeting, San Francisco, CA. Abstract #PP31A-1994. Poster.

2012 **Schaal EK**, Morgan DJ, Clapham ME, Rego BL, Wang SC, and Payne JL. Conodont body size and diversity trends after the end-Permian extinction: implications for the recovery of pelagic vs. benthic ecosystems. GSA Annual Meeting, Charlotte, NC. *Abstracts with Programs*, Vol. 44, No. 7, p. 166. Talk.

2011 **Schaal EK**, Paytan A, and Payne JL. Strontium isotope constraints on Permian-Triassic global change. AGU Annual Meeting, San Francisco, CA. Abstract #PP13D-1863. Poster.

2011 **Schaal EK**, Paytan A, and Payne JL. Strontium isotope constraints on Permian-Triassic global change. GSA Annual Meeting, Minneapolis, MN. *Abstracts with Programs*, Vol. 43, No. 5, p. 506. Talk.

2010 **Schaal EK**, Clapham ME, Rego BL, Wang SC, and Payne JL. Comparative size evolution of marine clades from the Late Permian through Middle Triassic. GSA Annual Meeting, Denver, CO. *Abstracts with Programs*, Vol. 42, No. 5, p. 481. Talk.

2008 **Invited Talk** – Chevron-Texaco, San Ramon, CA. Geochemical & paleobiological perspectives on the Early Triassic: the strontium cycle and conodont recovery patterns.