

David B. Finkelstein

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EDUCATION

- 1997 Ph.D., Geology, University of Illinois; "Origin and diagenesis of lacustrine sediments of the Late Oligocene Creede Formation, Southwestern Colorado."
1991 M.S., Geology, University of Massachusetts; "Clay sedimentology of the Cretaceous Mancos Shale."
1987 B.S., Geology, University of Massachusetts; "Sense of shear in a major Mid-Acadian mylonite zone in granulite facies metamorphosed tonalite and Rangeley Formation of the Merrimack Belt, Northeastern Connecticut."

PROFESSIONAL AND TEACHING EXPERIENCE

- 2019- *Associate Professor*, Hobart and William Smith Colleges (HWS), Geneva, NY
2013-19 *Assistant Professor*, Hobart and William Smith Colleges (HWS), Geneva, NY
2010-13 *Stable Isotope and Biogeochemistry Lab Manager and Research Assistant Professor*, Geosciences Department, University of Massachusetts, Amherst, MA
2006-10 *Jones Assistant Professor of Environmental Geochemistry*, Department of Earth and Planetary Sciences, University of Tennessee, Knoxville, TN
2000-06 *Postdoctoral Research Fellow*, Geological Sciences, Indiana University, Bloomington, IN
2001-03 *Assistant Professor*, part time, Geological Sciences, Indiana University, Bloomington, IN
1999-00 *Visiting Assistant Professor*, Department of Geology, Miami University, Oxford, OH
1999 *Lecturer*, Department of Geology, University of Illinois, Urbana, IL
1998-00 *Research Consultant*, Department of Civil Engineering, University of Illinois, Urbana, IL
1997-98 *Postdoctoral Research Associate*, Department of Geology, University of Illinois, Urbana, IL
1996-98 *Visiting Teaching Specialist*, Department of Geology, University of Illinois, Urbana, IL

COURSES TAUGHT AT HWS

First Year Seminars: FSEM 176 – How we talk and learn about climate change; FSEM 180 – The Blue Planet
Introductory Level: Geo 142 – Earth Systems Science; Geo 186 – Introduction to Hydrogeology
Advanced Level: Geo 250 – Oceanography; Geo 280 - Aqueous and Environmental Geochemistry; Geo 299 – Geoscience Field Studies (Pacific Northwest; Yellowstone: Fire and Ice); Geo 330 – Limnology; Geo 335 – Stable Isotope Geochemistry; Geo 450 – Independent Study; Geo 499 – Honors Research; Summ 107 – Exploring the Water Cycle.

COURSES TAUGHT AT OTHER INSTITUTIONS

First Year Seminars: Climate Paradox of the Little Ice Age, The Long Thaw, The Two-Mile Time Machine.
Introductory Level: Earth's Environment; Earth, Our Habitable Planet; Oceanography; Physical Geology; Sedimentary Systems.
Advanced Undergraduate and Graduate Level: Biogeochemistry/Geobiology, Geochemistry of Climate Proxies, Aqueous and Environmental Geochemistry, Global Climate Change, Limnogeology, Climate Change and the Terrestrial Environment, Sedimentary Petrology and Petrography, and Sedimentology/Stratigraphy.

TEACHING RECOGNITION

- 2008 Outstanding Geological Teacher Award, Department of Earth and Planetary Sciences, University of Tennessee
1997 Outstanding Teaching Assistant Award, College of Liberal Arts and Sciences, University of Illinois
1996 Outstanding Teaching Assistant Award, Department of Geology, University of Illinois
1995–99 Rated Outstanding: student rankings, excellent teachers, University of Illinois

HWS INSTITUTIONAL SERVICE AND PROFESSIONAL ACTIVITIES

- 2020 – Member of Subcommittee on Total Faculty Compensation
- 2015 – Member of CoFAC Subcommittee on Faculty Compensation
- 2013 – Science on Seneca
- 2017/18 COAA member
Member of CoFAC Subcommittee on Faculty Compensation
Member of Institutional Review Board
Served on Samuel Bartlett's (Geoscience, H '18) honors committee as the field examiner
Served as Morgan Bayreuther's (Geoscience, WS'18) honor's advisor
"Voice of Experience" in *FSEM Newcomer's Orientation Lunch*
Instructor for the Summer Institute and Bridge programs, Academic Opportunity Program
- 2016/17 Faculty Member of Financial Model Task Force
Instructor for the Summer Institute and Bridge programs, Academic Opportunity Program
Member of CoFAC Subcommittee on Faculty Compensation
Member of Institutional Review Board
Panel member for *FSEM* pedagogy day
Served on James Mandart's (Music, H '17) honors committee as the faculty examiner
- 2015/16 COAA member
Member of CoFAC Subcommittee on Faculty Compensation
Member of Institutional Review Board
Faculty Member of Financial Model Task Force
Faculty facilitator for Provost's Office and FacIT sponsored faculty discussion group for departments interested in developing student ePortfolios
Instructor for the Summer Institute and Bridge programs, Academic Opportunity Program
Panel member for *FSEM* pedagogy day
Served on Keri Geiser's (Geoscience, WS '16) honors committee as the field examiner
- 2014/15 FSEM Symposium (10 FY student authored posters)
HWSTechDay Presenter and participant – Geospatial Thinking and Tools for the Classroom
Instructor for the Summer Institute and Bridge programs, Academic Opportunity Program
Panel member for *FSEM* pedagogy day
Served on Pamela Eck's (Geoscience, WS '15) honors committee as the field examiner
Panel member for *New Faculty Orientation - 'Lessons from Year One'*
Member of Review III Committee for Nan Crystal Arens, Geoscience Department
Participant - GIS workshop entitled "Incorporation of Geo-Spatial Technologies in the Curriculum". This workshop was presented in collaboration with the Office of the Provost with support from the Andrew W. Mellon Foundation (2014 – 2105)
- 2013/14 Instructor for the Summer Institute and Bridge programs, Academic Opportunity Program
Panel member for *FSEM* pedagogy day
Member of *Advising Working Group for our Curriculum Review and Reform Process (Group 6)*
Member of Review I Committee for Nick Metz, Geoscience Department

HWS UNDERGRADUATE RESEARCH ADVISING

- 2019/20 Geo 450 Independent Studies:
Emma Loubsky-Lonergan (WS'20): A Dynamic Model of the Sulfur Budget in Seneca Lake NY: The Belhurst Hole (2019); A GIS Geological Underlay Seneca Lake, *in progress* (2020)
Ian Todd (H'20): The Seasonal Evolution of Agricultural Drainage Tile Waters, Scout Vineyards, Benton, NY (2019)
- 2018/19 Undergraduate Summer Research Assistantship: A dynamic model of the sulfur budget in Seneca Lake, NY. Undergraduate Researcher: Emma Loubsky-Lonergan
- 2018/19 Geo 450 Independent Studies:
Sean Bernieri (H'19): Finger Lakes Riesling: a profile in taste (2018); Finger Lakes Riesling: Tasting the Soil (2019).

- 2017/18 Geo 450 Independent Studies:
Stephen VanHoesen (H'18): Seasonal Variation of Sodium and Calcium in Precipitation at Geneva (2017), NY in 2016; Variation in Precipitation Chemistries at Geneva, NY from 2014-2017 (2018).
Zachary Withers (H'18): The Effects of Eurasian Milfoil on Pond Water Chemistry
- Geo 455 Independent Studies:
Snowden Jones (H'18): Storm Back-Trajectory Analysis and Convective and Stratiform Rain Chemistry in Geneva, NY: Can we determine trends in pH?
- Geo 495 Honors:
Morgan Bayreuther (WS'18) Dissolved Oxygen, Temperature, and pH Study of Maine Lakes for Trout Stocking
- 2016/17 Undergraduate Summer Research Assistantship: Characterization of Storm and Surface Waters in the Finger Lakes. Undergraduate Researchers: Snowden Jones and Aubrey Phillips
- Geo 450 Independent Study:
Breezy Swete (WS'17): Using GIS to integrate morphometric and geochemical analyses of lake waters in the Finger Lakes, NY
- 2015/16 Undergraduate Summer Research Assistantship: Characterization of Storm and Surface Waters in the Finger Lakes. Undergraduate Researchers: Dylan Doeblin and Sarah Warren.
- Geo 450 Independent Study:
Breezy Swete (WS'17): Using GIS to evaluate the relationship between lake volumes and regional geology of the Finger Lakes, NY
- 2014/15 Undergraduate Summer Research Assistantship: Characterization of Storm and Surface Waters in the Finger Lakes. Undergraduate Researchers: Jesse Schaffer, Harrison Simbliaris and Briana (Breezy) Swete
- Geo 450 Independent Studies:
Jason Constantino (H'16): Using X-ray diffraction to characterize the mineralogical variations of glacial tills in western New York. Results from this independent study presented as a student authored abstract at the 2016 Meeting of the Northeast Geological Society of America, Albany, NY.
Breezy Swete (WS'17): Using GIS to reevaluate lake volumes and create hypsometric curves from seismic reflection profiles. Results from this independent study presented as a student authored abstract at the 2016 Meeting of the Northeast Geological Society of America, Albany, NY.
- 2013/14 Undergraduate Summer Research Assistantship: Characterization of Rain, Surface and Lake Waters in the Finger Lakes, Hobart and William Smith Colleges. Undergraduate Researchers: Sarah Bower and Matt Everdyke

RESEARCH INTERESTS

- Deciphering the filter of time on organic and aqueous geochemistry: a comparison of modern versus ancient lacustrine systems.
- Controls on the chemical evolution of till-derived waters.
- Characterizing the intersection of organic and aqueous geochemistry in the evolution of ponds to lake systems.
- Exploring microbial life on the edge of hydration (extreme environments) in lakes, seeps and hot springs, using aqueous (major anions and cations), stable isotope (O, D, and S), organic (molecular and compound specific) geochemistry combined with microbiological methodologies.
- Examining transitions within Holocene/Pleistocene, Cretaceous and Paleocene lacustrine environments using biogeochemistry (biomarkers), stable isotope geochemistry (bulk and compound-specific) and mineralogy to characterize productivity, biodiversity, vegetation, and climate information.
- Investigating the use of polycyclic aromatic hydrocarbons and fusinite reflectance to ascertain signatures of biomass burning events and provenance, diagenetic processes, and records of combustion and burial, with implications for paleoclimate.
- Documenting organic geochemical and isotopic changes of petroleum over time following the April 20, 2010 Gulf of Mexico oil spill.

LABORATORY SKILLS

Organic geochemistry (including compound specific $\delta^{13}\text{C}$, δD), stable isotope geochemistry ($\delta^{13}\text{C}_{\text{inorg}}$ and $\delta^{13}\text{C}_{\text{org}}$, $\delta^{34}\text{S}$, $\delta^{18}\text{O}$, and δD), gas chromatography, gas chromatography – mass spectrometry, gas chromatography

– isotope ratio mass spectrometry, x-ray diffraction, scanning electron microscopy with elemental analysis, ion chromatography, atomic adsorption, microprobe, cathodoluminescence, and petrography.

ANALYTICAL SKILL SETS

Picarro Water Isotope Analyzer – 11 years experience.

Organic and molecular biogeochemistry (bulk organic C, S, N, and including compound specific $\delta^{13}\text{C}$, δH) – 21 years experience. Bitumen for analysis is extracted using both Accelerated Solvent Extraction (Dionex-ASE) and Soxhlet Extraction with differing solvent mixes. Activated copper is used to sequester elemental sulfur.

Gas chromatography (Agilent 7890, 6890; HP 5890) – 21 years experience. Column chromatography for separating samples into multiple fractions (beyond the basic saturate, aromatic and polar phases).

Gas chromatography – mass spectrometry (Agilent 5973N, 5975 B, C; Finnegan TSQ-700) – 21 years experience.

Gas chromatography – combustion - isotope ratio mass spectrometry (HP 5890 coupled to a Finnegan MAT252) – 21 years experience.

Sequential sulfur extraction for isotopic analysis of elemental S, water soluble S, acid soluble S, chrome reducible S, kerogen bound S, bitumen bound S, and barite bound S – 21 years experience.

Fluorination and production of sulfur hexafluoride for analysis of the rare sulfur isotopes (^{33}S and ^{36}S).

Elemental Analyzer (Costech coupled to a Finnegan MAT252, ThermoFisher Delta V, Eltra) – bulk C and S, acid insoluble S, and acid insoluble C (total organic carbon)- 21 years experience.

Kiel (II, III) Carbonate Preparation Device coupled to a mass spectrometer (coupled to a Finnegan MAT252 - 6 years experience; coupled to a Delta XP – 3 years experience) – 25 years experience.

Ion chromatography (Dionex IC 25, ICS2000, anion and cation geochemistry) – 21 years experience.

Stable isotope geochemistry (inorganic C, S, O, and H) – 26 years experience. Preparation of samples includes monomineralic separation by drilling, heavy liquid separation (using sodium polytungstate), and acid digestion.

Atomic absorption spectrometry (Perkin Elmer, cation geochemistry) – 29 years experience.

Microprobe – 26 years experience.

X-ray diffraction (Siemens D-500; Scintag Pad 5, 10) – 33 years experience. Sample preparation and characterization of both bulk (micronized) and clay (centrifuged) mineral fractions. Analysis of clays and zeolites includes glycolation, step heating, and cation exchanges (Na, K, Ca, Mg).

Petrography including cathodoluminescence and scanning electron microscopy with elemental analysis (sedimentary, igneous and metamorphic rocks) – 34 years experience.

PROFESSIONAL ACTIVITIES

- Springer Editorial Board member: Syntheses in Limnogeology Book Series, 2015 – 2021
- 2015 Congress Organizing Committee for the International Limnogeology Congress (ILIC6), Reno, Nevada.
- Treasurer—Limnogeology Division, Geological Society of America, 2004 – present.
- On the Cutting Edge Course and Teaching Strategies Review Camps participant: AGU14reviewcamp, San Francisco, CA; CE-reviewcamp13, Denver, CO. Sponsored by NAGT and NSF.
- Initial planning stages for a Penrose Conference on 'Lacustrine Archives of Dynamic Landscape Evolution.' The conference will focus on New rifting models of continental breakup, temporal resolution of climate and paleoclimate signals, molecular markers characterizing lake-type and biological evolution, lacustrine carbonates, origins of biological life, extreme environments - Earth and beyond.
- American Geophysical Union, Member of the Paleoceanography/Paleoclimatology Focus Group Student Presentation Award Committee, 2008-2010; Vice-Chair, 2009-2012.
- Invited Session Chair:
 - Geomicrobiology: Microbe-Mineral Interactions, Life in Extreme Environments, and Early Microbial Life on Earth, Annual Meeting of the Geological Society of America, 2004, Denver CO;
 - Molecular Paleolimnology at the International Limnology Congress 3, 2003, Tucson, AZ; Annual Meeting of the Geological Society of America, 2002, Denver, CO.
- Sessions Convened:
 - Limnogeology-Progress, Challenges, and Opportunities on Earth and Beyond: A Tribute to Beth Gierlowski-Kordesch, Annual Meeting of the Geological Society of America, 2017, Seattle, WA
 - Continental Carbonates, Annual Meeting of the Geological Society of America, 2013, Denver, CO
 - Session 7 Lake models and carbonates (including Wetlands), 5th International Limnogeology Congress, Konstanz, Germany

Lakes in Extreme Environments: Earth and Beyond, Annual Meeting of the Geological Society of America, 2008, Houston, TX
Climatic and Environmental Significance of Charcoal in the Geologic Record, American Geophysical Union, 2006
Multi-Proxy Terrestrial Records and the Ocean-Climate System: Links and Perturbations in the Cretaceous, Annual Meeting of the Geological Society of America, 2003, Seattle, WA.

- Peer Reviewing—Granting Agencies:
American Association for the Advancement of Science (International Office)
NASA Astrobiology Program
National Science Foundation, Earth Science Division (Geobiology and Low Temperature Geochemistry, Sedimentary Geology and Paleobiology, Geology/Paleontology, and Earth System History Programs)
- Peer Reviewing—Journals:
Chemical Geology; Cretaceous Research; Geology; Limnology and Oceanography, Journal of Geoscience Education; Journal of Paleolimnology; Journal of Sedimentary Research; Nature Geoscience; Palaios; Palaeogeography Palaeoclimatology Palaeoecology; and Proceedings of the National Academies of Science.

GRANTSMANSHIP (TOTAL AWARDED: \$192,924)

- 2020 Hobart & William Smith Faculty Research Grant: Chemical indicators of sub-lacustrine spring flow in Seneca Lake, NY **Awarded: \$1,206.**
- 2019 Hobart & William Smith Faculty Research Grant: Belhurst Hole sediments as a portal to past climate conditions in Seneca Lake **Awarded: \$826.**
- 2018 Hobart & William Smith Faculty Research Grant: Do stable isotopic measurements of bulk organic carbon from muds subjected to internal waves genuinely reflect climate conditions? **Awarded: \$1,193.**
- 2017 NSF-MRI: Acquisition of a cavity ring-down spectrometer system for measuring stable carbon isotopes for research and research training at Hobart and William Smith Colleges, **requested: \$325,177; not funded.**
- 2016 Hobart & William Smith Faculty Research Grant: Insights into the early chemical evolution of lakes in terrains dominated by unconsolidated sediments: Geochemical characterization of till-hosted surface waters in western NY. **Awarded: \$1,400.**
- 2016 NSF-MRI: Acquisition of a cavity ring-down spectrometer system for measuring stable carbon isotopes for research and research training at Hobart and William Smith Colleges, **requested: \$207,893; not funded.**
- 2015 NSF- RUI: Cretaceous wildfires and landscape response recorded in lacustrine sediments of the Bisbee Basin, Arizona, **requested: \$242,076; not funded.**
- 2015 NSF-MRI: Acquisition of a Cavity Ring-down Spectrometer for Interdisciplinary Research in Aquatic and Terrestrial Sciences, **requested: \$239,673; not funded.**
- 2014 NSF- RUI: Cretaceous wildfires and landscape response recorded in lacustrine sediments of the Bisbee Basin, Arizona, **requested: \$204,087; not funded.**
- 2014 NSF-MRI: Acquisition of a cavity ring-down spectrometer system for tracing carbon isotopes in the Finger Lakes, New York, **requested: \$205,464; not funded.**
- 2013 NWIR, Controls on the stable isotopic composition of shallow and deep ground waters in the Northeast US: Implications for stream baseflow - Boutt (UMass) and Finkelstein (HWS), **Submitted for \$188,692, not funded**
- 2010 National Science Foundation / Geobiology and Low Temperature Geochemistry, RAPID Collaborative Research: Geochemical and isotopic time-series of marine and terrestrial degradation of petroleum in the 2010 Gulf of Mexico oil spill NSF-EAR-1046679 (D. Finkelstein, PI). **Awarded \$65,505**
- 2009 **Finkelstein, D.B.**, University of Tennessee Stimulus Instructional Equipment Funds for the purchase of Portable Water Testing Kits for lake studies. **Awarded \$45,000**
- 2009 **Finkelstein, D.B.**, University of Tennessee, SARIF Small Grant Support for Liquid Water Isotope Analyzer for direct injection and measurement of ¹⁸O/¹⁶O, and D/H isotope ratios in liquid water, **Awarded \$12,316**
- 2008 **Finkelstein, D.B.**, Lewis, D., Grissino-Mayer, H., NSF-DDR, Multiproxy analysis of tropical cyclones and climate variability at Big Thicket National Preserve, Texas. **Awarded \$8,500**

- 2008 **Finkelstein, D.B.**, University of Tennessee, SARIF Equipment & Infrastructure Awards. **Awarded \$12,316** toward the acquisition of a liquid water isotope analyzer.
- 2008 Horn S.P., Taylor, Z., and **Finkelstein, D.B.**, NSF-Doctoral Dissertation Research, Interpreting Prehistoric Agriculture from Isotope and Pollen Indicators in Neotropical Lake Sediments. **Awarded \$11,388**
- 2007 **Finkelstein, D.B.**, University of Tennessee, SARIF Equipment and Infrastructure Award, CM150 Carbon Analyzer for the analysis of total carbon, total inorganic carbon and organic carbon in both solid and liquid samples. **Awarded \$30,500**
- 2007 **Finkelstein, D.B.**, "Professional Development Award" Hydrogen isotopic determination of cellulose as a precipitation/evaporation indicator, University of Tennessee. **Awarded \$3,600**

PROFESSIONAL DEVELOPMENT

- 2008 "Strategic Persuasion." On the Cutting Edge professional development program for current geoscience faculty sponsored by National Association of Geoscience Teachers (NAGT) and National Science Foundation (NSF).
- 2007 "Making the Case for Tenure." On the Cutting Edge professional development program for current and future geoscience faculty sponsored by National Association of Geoscience Teachers (NAGT) and National Science Foundation (NSF).
- 2006 "Early Career Workshop." On the Cutting Edge professional development program for current and future geoscience faculty sponsored by NAGT and NSF.
- 2005 "Workshop on Scientific Coring at Lake Tahoe." NSF- and U.C. Davis-sponsored workshop. Invited participant.
- 2004 "Workshop on Desert Surficial Processes and Landscape Dynamics on Military Lands: Scientific Advances, New Challenges, and Technology Transfer." Invited participant, DOD-, YPG-, AOR-, and DRI-sponsored workshop and fieldtrip.
- 2004 Invited and attended NSF Polar Programs Workshop.
- 2004 Invited and attended ExxonMobil field trip: Ridge Basin, CA.
- 2002 Workshop on Cretaceous Climate and Ocean Dynamics, Florissant, CO, NSF-sponsored workshop and field trip.
- 2001 "Sedimentology, Sequence Stratigraphy, and Basin Evolution of the Green River Formation in the Uinta and Washakie Basins: Insights for Lacustrine Hydrocarbon Systems." AAPG Field Trip.
- 2000 "Event and Cyclic Stratigraphy of Mid-Paleozoic Strata of the Cincinnati Arch." Annual SEPM Great Lakes Field Trip Meeting.
- 1998 Exxon Sequence Stratigraphy Short Course, Geological Society of America.
- 1997 "Geochemistry and Hydrology of Great Salt Lake." Geological Society of America Field Trip.
- 1996 "Isotope Geology of Clay Minerals: From Isotope Crystal Chemistry to Petrogenesis." Clay Mineral Society Workshop.
- 1995 "Reactions of Organic Pollutants with Clays." Clay Mineral Society Workshop.
- 1994 "Computer Applications to X-Ray Powder Diffraction." Clay Mineral Society Workshop.
- 1994 "Geology and Limnology of Pyramid Lake, Nevada." Geological Society of America Pre-meeting Field Trip.
- 1993 "Zeo-Trip '93: An Excursion to Selected Zeolite and Clay Deposits in Southwestern Idaho and Southeastern Oregon." Meeting of the International Committee on Natural Zeolites.
- 1989 "Powder Diffraction." Mineralogical Society of America Short Course.

PROFESSIONAL AFFILIATIONS

American Chemical Society	International Association of Limnogeology
American Geophysical Union	International Association of Sedimentologists
Geological Society of America	International Society for Salt Lake Research
Geochemical Society	SEPM (Society for Sedimentary Geology)

FIELD EXPERIENCE

- 2020 24 weeks, field sampling and measurements of storm events, pond, lake, groundwater and creek water chemistries in the Seneca Lake watershed, western NY
- 2019 16 weeks, field sampling and measurements of storm events, pond, lake, groundwater and creek water chemistries in the Seneca Lake watershed, western NY

2018	15 weeks, field sampling and measurements of storm events, pond, lake, groundwater and creek water chemistries in the Seneca Lake watershed, western NY 1 week, field sampling and measurements of lake water chemistries and sampling Coast and Cascade Range lakes, OR; Freeze coring Seneca Lake.
2017	12 weeks, field sampling and measurements of storm events, pond, lake, groundwater and creek water chemistries in the Seneca Lake watershed, western NY
2016	19 weeks, field sampling and measurements of storm events, pond, lake, groundwater and creek water chemistries in the Seneca Lake watershed, western NY
2015	1 week, field sampling and measurements of lake water chemistries and sampling Coast and Cascade Range lakes, OR 8 weeks, field sampling and measurements of storm events, pond, lake, groundwater and creek water chemistries in the Seneca Lake watershed, western NY
2014	8 weeks, field sampling and measurements of pond, lake, groundwater and creek water chemistries in the Seneca Lake watershed, western NY
2011	1 week, field sampling and measurements of saline lake water chemistries and sampling of algal/bacterial mats, Warner Valley and Alvord Dry Lake Valley, OR
2010	3 weeks, field sampling and section measurements of early Cretaceous lacustrine black shales in Utah and Colorado.
2009	2 weeks, field sampling and measurements of saline lake water chemistries and sampling of algal/bacterial mats, Warner Valley and Alvord Dry Lake Valley, OR
2007	3 weeks, field sampling and measurements of saline lake water chemistries and sampling of algal/bacterial mats, Warner Valley, OR and Death Valley, CA
2004/05/06	12 weeks, field sampling and measurements of saline lake water chemistries and sampling of algal/bacterial mats, Warner Valley, OR
2004	1 week field trip to CA with ExxonMobil
2003	1 week field sampling of surface- and deep-waters from Seneca Lake, NY
2002/03	6 weeks, field sampling and measurements of saline lake water chemistries and sampling of algal/bacterial mats, Warner Valley, OR
2000/01/02	9 weeks, Cretaceous alluvial and lacustrine deposits of southeastern Arizona: detailed stratigraphic descriptions and sampling within a sequence stratigraphic framework.
1999	6 weeks, Ischigualasto Provincial Park, San Juan, Argentina: Triassic fluvial, paleosol, and lacustrine sediments.
1998	1 week, Island of Bonaire, Netherlands Antilles: Modern and ancient carbonates including modern/ancient invertebrate tropical benthic ecology.
1996	1 week, Creede, CO Facies control on the recrystallization of carbonates in outcrop.
1995	1 week, Narraganset Basin, CT, Massachusetts, and Rhode Island: stratigraphic descriptions and preliminary sampling within selected marine/terrestrial transitions.
1991	2 weeks, Creede, CO: Overview of current work on the Oligocene Creede Formation prior to Continental Scientific Drilling Program coring.
1988/89	12 weeks, Mesa Verde National Park, CO: Stratigraphy, sedimentology, and sampling of a composite section of the Late Cretaceous Mancos Shale.

CURRENT RESEARCH COLLABORATORS

Simon C. Brassell (Indiana University), Alan R. Carroll (University of Wisconsin), Tara M. Curtin (Hobart and William Smith Colleges), Walter E. Dean (emeritus U.S. Geological Survey), Peter Drzewiecki (Eastern Connecticut State University), Erika Elswick (Indiana University), John Halfman (Hobart and William Smith Colleges), James Kirkland (State of Utah), R. Mark Leckie (University of Massachusetts), Daniel Lewis (Exxon-Mobil), Kathleen Nicoll (University of Utah), Lisa M. Pratt (Indiana University, NASA), Michael Rosen (U.S. Geological Survey), Andrew Scott (Royal Holloway University), Oona Snoeyenbos-West (Swedish Museum of Natural History & University of Southern Denmark).

NON-HWS ACADEMIC INSTITUTIONAL SERVICE

2007–2008	Committee on teaching sustainability in the UT curriculum and promoting ecological/environmental understanding university-wide, University of Tennessee
2007–2010	Dean's Council, Arts and Sciences, University of Tennessee
2007–2008	Earth and Planetary Sciences, University of Tennessee - Planetary Faculty Search Committee

- 2007–2010 College Honors Committee in Arts and Sciences, University of Tennessee
 2006–2008 Earth and Planetary Sciences, University of Tennessee - Graduate Admissions Committee.
 2006–2007 Earth and Planetary Sciences, University of Tennessee - GICSEC
 1993–1996 Student Member, Engineering and Physical Sciences Area Subcommittee of the Graduate College, University of Illinois.
 1992–1995 Member, Advisory Committee of the Graduate College, University of Illinois.

NON-HWS UNDERGRADUATE RESEARCH AND CAPSTONE ADVISING

- 2012–13 Undergraduate Honors College First Year Research Experience, Department of Geosciences, University of Massachusetts: Is Seasonality Preserved in the Hydrologic Cycle?
 2011 Undergraduate Honors College Capstone Project Supervisor, Department of Geosciences, University of Massachusetts, "Investigating extreme precipitation events and climatic changes of western Massachusetts through tree-ring stable isotopes ($\delta^{13}\text{C}$ and $\delta^{18}\text{O}$) in Red Oak."
 2011 Undergraduate Capstone Senior Project Supervisor, Department of Geosciences, University of Massachusetts, "Characterizing the Holocene climate history of Seneca Lake using stable isotope geochemistry."
 2010 Undergraduate Senior Project Supervisor, Department of Earth and Planetary Sciences, University of Tennessee, "Characterizing the seasonal water chemistry of constructed wetlands, Farragut, TN."
 2010 Undergraduate Senior Project Supervisor, Department of Earth and Planetary Sciences, University of Tennessee, "Differentiating biochemical differences between lacustrine and cold-spring microbial mats."
 2009 Undergraduate Senior Project Supervisor, Department of Earth and Planetary Sciences, University of Tennessee, "Characterization of the runoff, turbidity and lacustrine productivity and the impact of acid mine drainage, south central Tennessee."
 2005 Student Project Supervisor, Department of Geological Sciences, Indiana University, "Characterization of the different forms of sulfur from a evaporative, hypersaline setting, southeastern Oregon."
 2002 Senior Honors Project Co-Advisor, Department of Geological Sciences, Indiana University, "Characterization and identification of point sources of agricultural fertilizers and herbicides found in the local caves of Southern Indiana."
 2000 Senior Project Advisor, Department of Geology, Miami University, "Analysis and evaluation of paleobotanical methods used for interpreting Cretaceous paleoclimate of the U.S. Western Interior."
 1996 Senior Project Advisor, Department of Geology, University of Illinois, "Sedimentology and stratigraphy of deltaic sedimentation on the southeastern edge of the Illinois Basin."
 1992–1993 Project Advisor, Research Experience for Undergraduates, Department of Geology, University of Illinois, "Sedimentology and petrography of rhythmic laminae from the Continental Scientific Drilling Program Drillcores of the Oligocene Creede Formation, southwestern Colorado."

NON-HWS RESEARCH ADVISING

COMPLETED PHD STUDENTS

Daniel Lewis (University of Tennessee)

"Stable isotopic analysis of the frequency and variability of tropical cyclone events over the last 200 years from Big Thicket National Preserve, Texas." December 2009, Current Position: Exploration and Production, ExxonMobil, Houston Texas.

Zack Taylor (University of Tennessee)

"Spatial variation in organic carbon and stable isotopic composition of lake sediments at Laguna Zoncho, Costa Rica." May 2011, Current Position: Assistant Professor, Berry College, Georgia.

COMPLETED MS STUDENTS

Carrie Petrik-Huff (University of Massachusetts)

"Another look at carbon sequestration: Basalt catalyzed carbonate precipitation reactions using carbon dioxide at low temperatures and low pressures." May 2013, Current Position: Smart Homes coordinator and member of Town Council in Greenfield, MA.

MEMBER OF GRADUATE STUDENT COMMITTEES

MS Students

Terri Brown (Univ. of Tennessee)
Robert D'Anjou (Univ. of Massachusetts)
Miles Henderson (Univ. of Tennessee)
Elizabeth Johnson (Univ. of Tennessee)
Jeremy Wei (Univ. of Massachusetts)

PhD Students

Maria Cafferty (Geography, Univ. of Tennessee)
Megan Carr (Univ. of Tennessee)
Mike DeAngelis (Univ. of Tennessee)
Christopher Gulvik (Microbiology, Univ. of Tennessee)
Kate Murdock (Univ. of Massachusetts)
Cara Thompson (Univ. of Tennessee)
Kenna Wilkie (Univ. of Massachusetts)

COMPLETED UNDERGRADUATE STUDENTS

Devon Colcord (Geoscience Senior Capstone, University of Massachusetts)

"Characterizing the holocene climate history of Seneca Lake using stable isotope geochemistry." May 2012, Current Position: Doctoral Student, Indiana University.

Amy Goldman (Honors College Senior Thesis, University of Massachusetts)

"Investigating extreme precipitation events and climatic changes of western Massachusetts through tree-ring stable isotopes ($\delta^{13}\text{C}$ and $\delta^{18}\text{O}$) in Red Oak." May 2012, Current Position: Research Coordinator, Pacific National Laboratories.

INVITED TALKS

"Seiches or springs? Possible drivers of chemical change in Seneca Lake, NY" September 2017, Colby College.

"Isotopes as assessments for climate change," November 2014, Annual Finger Lakes Institute Research Conference, Geneva, NY.

"Life in Extreme Environments" April 2014, Binghamton University, Department of Earth Sciences.

"At the Intersection of Organic and Aqueous Geochemistry in the Evolution of Lake Systems: What is real?" April 2013, Lamont-Doherty Earth Observatory

"Life on the Edge of Hydration" April 2010, University of Massachusetts, Department of Geosciences.

"Extreme Lakes and Microbial Mechanisms for Surviving Desiccation" May 2009, Ohio University, Department of Geology.

"Microbial biosynthesis of wax esters during desiccation: an adaptation for colonization of the earliest terrestrial environments?" February 2009, Syracuse University, Department of Earth Sciences.

"Microbial biosynthesis of wax esters during desiccation: an adaptation for aridity and climate change?" February 2009, Skidmore College, Department of Geosciences.

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