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Education

2021	Ph.D. Geosciences	University of Wisconsin – Milwaukee
2016	M.S. Geology	Iowa State University
2013	B.S. Earth Science	Northern Michigan University

Positions Held

2022 – present	JPL Postdoctoral Fellow	Jet Propulsion Laboratory	Mars 2020 Science Office	Pasadena, California
2023	Expedition Sedimentologist	Int. Ocean Dis. Program	Expedition 400	Greenland/Baffin Bay
2022	Geologist	U.S. Geological Survey	Glacial Geologic Mapping	Reston, Virginia
2021 – 2022	Student Trainee (Geology)	U.S. Geological Survey	Glacial Geologic Mapping	Reston, Virginia
2018 – 2020	Student/Project Geologist	Wis. Geological Survey	Glacial Geologic Mapping	Madison, Wisconsin
2020	Hydrologic and Soils Technician	U.S. Forest Service	Hiawatha National Forest	St. Ignace, Michigan
2019 – 2020	Distinguished Dissertator Fellow	Uni. Wisc. – Milwaukee	Dept. of Geosciences	Milwaukee, Wisconsin
2020	Lecturer	Uni. Wisc. – Milwaukee	Dept. of Geosciences	Milwaukee, Wisconsin
2018 – 2019	Distinguished Graduate Fellow	Uni. Wisc. – Milwaukee	Dept. of Geosciences	Milwaukee, Wisconsin
2017 – 2018	Graduate Research Assistant	Uni. Wisc. – Milwaukee	Dept. of Geosciences	Milwaukee, Wisconsin
2015 – 2016	Graduate Research Assistant	Iowa State University	Dept. of Geology	Ames, Iowa
2015	Graduate Teaching Assistant	Iowa State University	Dept. of Geology	Ames, Iowa
2013 – 2014	Graduate Research Assistant	Uni. Wisc. – Milwaukee	Dept. of Geosciences	Milwaukee, Wisconsin

Peer-Reviewed Publications

- Ives, L.R.W.** and the Mars 2020 science team (*in prep*) Depositional origins of the Skrinkle Haven member, Tenby formation (the “curvilinear unit”) Jezero crater, Mars.
- Tebolt, M., Stack, K.M., Goudge, T.A., **Ives, L.R.W.**, Gupta, S., Barnes, R., Caravaca, G. (*in review*). Characterizing the Facies and Stratigraphy of the Enchanted Lake area in Jezero Crater, Mars. *Journal of Geophysical Research: Planets*.
- Broz, A., Horgan, B., Kalucha, H., 31 others (including **L.R.W. Ives**) and the Mastcam-Z and Supercam teams (*in review*) Diagenesis of Hogwallow Flats, Jezero Crater, Mars as seen by the Mastcam-Z instrument on board Mars 2020 Perseverance Rover. *Journal of Geophysical Research: Planets*.
- Stack, K.M., **Ives, L.R.W.**, Gupta, S., Lamb, M.P., Tebolt, M., Caravaca, G., Grotzinger, J.P., and 28 others (2024). Sedimentology and Stratigraphy of the Shenandoah Formation, Western Sediment Fan, Jezero Crater, Mars. *Journal of Geophysical Research: Planets*. <https://doi.org/10.1029/2023JE008187> 
- Ives, L.R.W.** and Isbell, J.L. (2023) Glacimarine sedimentation and sequence stratigraphy of the lower Wynyard Formation (Pennsylvanian – Early Permian, Tasmanian Basin). *Sedimentary Geology*. <https://doi.org/10.1016/j.sedgeo.2023.106482>
- Ives, L.R.W.** and Rawling, J.E. (2022) Pleistocene Geology of Jefferson County, Wisconsin, 1:100,000. Wisconsin Geological and Natural History Survey. (Map and Peer Reviewed Report) <https://wgnhs.wisc.edu/catalog/publication/000990> 
- Ives, L.R.W.**, Isbell, J.L., and Licht, K.J. (2022) A “local first” approach to glacial sediment provenance demonstrated using U-Pb detrital zircon geochronology. *The Sedimentary Record*. <https://doi.org/10.2110/001c.38180> 
- Isbell, J.L.; Vesely, F.F.; Rosa, E.L.M; Pauls, K.N.; Fedorchuk, N.D.; **Ives, L.R.W.**; McNall, N.B., Litwin, S.A.; Borucki, M.K.; Malone, J.E. Kusick, A.R. (2021) Evaluation of physical and chemical proxies used to interpret past glaciations with a focus on the late Paleozoic Ice Age. *Earth Science Reviews*, 103756. <https://doi.org/10.1016/j.earscirev.2021.103756>
- Ives, L.R.W.** and J.L. Isbell. (2021) A lithofacies analysis of a South Polar glaciation in the early Permian: Pagoda Formation, Shackleton Glacier region, Antarctica. *Journal of Sedimentary Research*, 91(6), 611-635. <https://doi.org/10.2110/jsr.2021.004>
- Ives, L. R. W.** and Iverson, N. R. (2019). Genesis of glacial flutes inferred from observations at Múlajökull, Iceland. *Geology*, 47(5), 387-390. <https://doi.org/10.1130/G45714.1>

Teaching and Mentoring

Teaching

2020	Lecturer	Stratigraphy and Sedimentology (Geo Sci 511)	University of Wisconsin - Milwaukee
2015	Teaching Asst.	Surficial Processes (GEOL 479)	Iowa State University

Mentoring and Supervision

2023	Jet Propulsion Laboratory: Supervised post-baccalaureate intern research on soft-sediment deformation of sedimentary rocks in Jezero crater, Mars (see Lesh et al., 2023 in abstracts)
2022	US Geological Survey: Organized and supervised graduate intern Quaternary mapping fieldwork
2014	UW - Milwaukee: Organized and supervised undergraduate research experiences in laboratory and international fieldwork settings

Grants and Awards

Pending

Grants

2023	Post-Cruise Research Grant – Exp. 400	International Ocean Discovery Program	\$ 20,000
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Awarded

Grants (Sole Writer and Recipient)

2020	Travel Award, SEPM 2020	NSF-ISGC-SEPM	\$ 1,700
2020	Travel Award	SEPM	\$ 300
2019	Travel Grant, GIA Training School	POLENET/NSF	\$ 1,500
2019	Graduate School Conference Travel	University of Wisconsin - Milwaukee	\$ 1,000
2019	Department Travel Award	University of Wisconsin - Milwaukee	\$ 200
2018	Bighorn Basin Field Award	ExxonMobil/GSA	<i>declined</i>
2018	Summer School Travel Grant	IAS	\$ 570
2018	A.L. Medlin Research Scholarship	GSA Energy Division	\$ 1,500
2018	Research Grant	Wisconsin Geological Society	\$ 400
2018	Graduate Student Grant	Geological Society of America	\$ 1,900
2018	Tinker Research Grant	UWM Center for Latin American Studies	\$ 4,750
2018	Student Travel Grant	North-Central GSA	\$ 125
2014	Graduate Student Grant	Geological Society of America	\$ 1,500
2011	Spooner Student Research Grant	Northern Michigan University	\$ 500

Fellowships

2019 – 2020	P.E.O. Scholar Award	P.E.O.	\$ 15,000
2019 – 2020	Distinguished Dissertator Fellow	University of Wisconsin - Milwaukee	\$ 16,500
2018 – 2019	Distinguished Graduate Fellow	University of Wisconsin - Milwaukee	\$ 15,000
2015	U.S. Student Visiting Fellow	Institute for Rock Magnetism	\$ 500
2010 – 2013	Presidential Harden Scholar	Northern Michigan University	Full Tuition

Scholarships

2020 – 2021	Chancellor's Scholarship	University of Wisconsin - Milwaukee	\$ 1,200
2019 – 2020	Chancellor's Scholarship	University of Wisconsin - Milwaukee	\$ 1,200
2018 – 2019	Chancellor's Scholarship	University of Wisconsin - Milwaukee	\$ 1,200
2018	Lukowicz Memorial Scholarship	University of Wisconsin - Milwaukee	
2018	American Federation of Mineralogical Soc.	--	\$ 4,000
2018	Wisconsin Geological Society	--	\$ 500
2017 - 2018	Chancellor's Scholarship	University of Wisconsin - Milwaukee	\$ 1,200
2014	Nelson Memorial Field Camp Scholarship	University of Wisconsin - Milwaukee	
2014	Graduate Field Work Scholarship	Wisconsin Geological Society	
2013 – 2014	Chancellor's Scholarship	University of Wisconsin - Milwaukee	
2011 – 2013	Earth Science Award	Ishpeming Rock and Mineral Club	

Awards

2013	Outstanding Graduating Senior	Northern Michigan University
2012	Volunteer of the Month (March)	Northern Michigan University

Abstracts

**presenting author, ^invited, ° student or intern*

- Gupta, S.* (and 40 others, including **L. Ives**) (2024). Going with the Flow: Sedimentary Evolution of the Jezero Western Fan, Mars. 55th Lunar and Planetary Science Conference, March 11 – 15, The Woodlands, Texas. [Abstract #2607](#).
- Gwizd, S.* (and 23 others, including **L. Ives**) (2024). Depositional History of the Upper Sequence of the Western Fan: Evidence for Late-Stage Fluvial and Potential Igneous Activity, Jezero Crater Mars. 55th Lunar and Planetary Science Conference, March 11 – 15, The Woodlands, Texas. [Abstract #2117](#).
- Deahn, M.C.*, B. Horgan (and 24 others, including **L. Ives**) (2024). An Orbital Photogeologic Map of the Jezero Crater Rim: Diverse Targets for Mars 2020 Future Exploration. 55th Lunar and Planetary Science Conference, March 11 – 15, The Woodlands, Texas. [Abstract #2302](#).
- Mangold, N.*, G. Caravaca (and 18 others, including **L. Ives**) (2024). Past variations of water level of the Jezero Paleolake. 55th Lunar and Planetary Science Conference, March 11 – 15, The Woodlands, Texas. [Abstract #1555](#).
- Caravaca, G.* (and 20 others, including **L. Ives**) (2024) Surface expression and geometries of deltaic deposits of Jezero western fan top (Mars). 55th Lunar and Planetary Science Conference, March 11 – 15, The Woodlands, Texas. [Abstract #1246](#).
- Broz A.P.* (35 others, including **L. Ives**) and the Mastcam-Z and SuperCam Teams (2024). Biosignature preservation potential of sulfate-rich rocks from Hogwallow Flats, Jezero crater, Mars. 55th Lunar and Planetary Science Conference, March 11 – 15, The Woodlands, Texas. [Abstract #1259](#).
- Jennings, A.E.*^, P.C. Knutz, L.B. Childress, **Expedition 400 Scientists** (2023). Preliminary Results of IODP Expedition 400 to Northwest Greenland. American Geophysical Union Annual Meeting, December 11 – 15, San Francisco, USA.
- Ives, L.R.W.*** (and 17 others) (2023c). Reassessing the sedimentary depositional origin of the Jezero crater western fan's curvilinear unit: reconciling orbital and rover observations. American Geophysical Union Annual Meeting, December 11 – 15, San Francisco, USA.
- Lesh, C. *, **L.R.W. Ives**, K.M. Stack (2023). Characterization of soft sediment deformation within the Hogwallow Flats member, Shenandoah formation, Jezero crater, Mars. American Geophysical Union Annual Meeting, December 11 – 15, San Francisco, USA.
- Broz, A.P.* (and 30 others, including **L.R.W. Ives**) (2023). A comparison of diagenesis between sulfate-rich rocks at Jezero, Gale, and Victoria Craters, Mars: Implications for biosignature preservation. American Geophysical Union Annual Meeting, December 11 – 15, San Francisco, USA.
- Farley, K.A.*, K.M. Stack, **Mars 2020 Science Team** (2023). The Geologic History of Jezero Crater and Implications for the Perseverance MSR Sample Collection. American Geophysical Union Annual Meeting, December 11 – 15, San Francisco, USA.
- Gwizd, S.* (and 11 others, including **L.R.W. Ives**) (2023). Hydrology and depositional history of the blocky unit at Jezero crater. American Geophysical Union Annual Meeting, December 11 – 15, San Francisco, USA.
- Siebach, K.* (and 22 others, including **L.R.W. Ives**) (2023). Overview of Perseverance's Upper Fan Campaign. American Geophysical Union Annual Meeting, December 11 – 15, San Francisco, USA.
- Weiss, B.P.* (and 31 others, including **L.R.W. Ives**) (2023). An Ancient Detrital Rock Record from Outside Jezero Crater Collected by the Perseverance Rover. American Geophysical Union Annual Meeting, December 11 – 15, San Francisco, USA.
- Kusick, A.R.*°, J.E. Rawling III, **L.R.W. Ives**, E. Carson, J.L. Isbell (2023). Glacial Lake Scuppernong in the southern footprint of the MIS 2 Green Bay Lobe. Geological Society of America Connects 2023, 15 – 18 October, Pittsburgh, USA.
- Williams, R.* (and 10 others, including **L.R.W. Ives**) (2023). Investigation of sedimentary fan deposits along the Beagle Gap traverse at Jezero crater, Mars. Geological Society of America Connects 2023, 15 – 18 October, Pittsburgh, USA.
- Ives, L.R.W.*** (and 29 others) (2023b). Physical Sedimentology and Stratigraphy of the lower Western Fan (Shenandoah formation) Jezero Crater, Mars: Results from the Mars 2020 "Delta Front" Campaign. International Conference on Fluvial Sedimentology 2023, July 2 – 8, Riva del Garda, Italy.
- Ives, L.R.W.***, K.M. Stack, R. Barnes, S. Gupta, G. Caravaca, P. Russell, A.M. Annex (2023a). Lithofacies, Flow Directions, and Preliminary Depositional Interpretations of Ledge-Forming Sandstones at Alagnak, Jezero Crater, Mars. 54th Lunar and Planetary Science Conference, March 12 – 17, The Woodlands, Texas. [Abstract #2556](#).

- Stack, K.M.* (and 24 others, including **L.R.W. Ives**) (2023). Sedimentology and Stratigraphy of the Lower Delta Sequence, Jezero Crater, Mars. 54th Lunar and Planetary Science Conference, March 12 – 17, The Woodlands, Texas. [Abstract #1422](#).
- Ives, L.R.W.***, J.E. Rawling III, E.C. Carson, K.C. Stolzman (2022). Reframing Glacial Lake Scuppernong: Lakes of the Laurentide Ice Sheet's Southern Green Bay Lobe in Jefferson County, Wisconsin. American Quaternary Association Biennial Meeting, June 7-11, 2022 Madison, Wisconsin. [Abstract](#).
- Carson, E.C.*[^], **L.R.W. Ives**, K.C. Stolzman, J.E. Rawling III (2021). Glacial lakes in the footprint of the southern Green Bay Lobe of the Laurentide Ice Sheet. GSA Connects 2021.
- Carson, E.C.*[^], **L.R.W. Ives**, K.C. Stolzman, J.E. Rawling III (2021). Tracking the evolution of glacial lakes Yahara and Scuppernong, south-central Wisconsin, USA. Geological Society of America Annual North-Central and South-Central Joint Section Meeting.
- Ives, L.R.W.** and J.L. Isbell (2019). South Polar Glaciation during the Late Paleozoic: Observations from the Shackleton Glacier Region, Transantarctic Mountains. U.S. Interdisciplinary Antarctic Earth Sciences Meeting and Deep Field Camp Planning Workshop, Julian, California, USA, October 13-16, 2019.
- Ives, L.R.W.*** and N.R. Iverson (2019). Genesis of glacial flutes: a case study from Múlajökull, Iceland. International Symposium on Glacial Erosion and Sedimentation, Madison, Wisconsin, USA, May 12-17, 2019.
- Ives, L.R.W.*** and J.L. Isbell (2019). Preliminary sedimentology of the early Permian, glaciogenic Pagoda Fm., Mt. Butters, Shackleton Glacier Region, Central Transantarctic Mountains, Antarctica. DEEPDUST ICDP Workshop, Norman, Oklahoma, USA, March 6 – 10, 2019.
- Isbell, J.L.[^] and **L.R.W. Ives*** (2018). Antarctica, the heart of it all: a South Polar view of glaciation during the Late Paleozoic Ice Age. American Geophysical Union Fall Meeting, Washington, DC, USA, December 10 – 14, 2018. [C22B-01](#).
- Ives, L.R.W.*** and J.L. Isbell. (2018). Preliminary sedimentological and stratigraphic analysis of the basal glaciogenic Wynyard Formation (Wynyard, Tasmania, Australia). Geological Society of America, North-Central 52nd Annual Meeting, Ames, Iowa, USA, April 16-17, 2018. [Paper 31-4](#).
- Ives, L.R.W.*** and J.L. Isbell. (2018). Preliminary sedimentological and stratigraphic analysis of the basal glaciogenic Wynyard Formation (Wynyard, Tasmania, Australia). VII Simposio del Paleozoico Superior; Esquel, Chubut, Argentina, March 26-28, 2018, [p. 13](#).
- Ives, L.R.W.***, T.S. Hooyer, N.R. Iverson, A. Schomaker (2014). Measuring fabrics of glacial flutes using anisotropy of magnetic susceptibility, Múlajökull, Iceland. Geological Society of America Annual Meeting, Vancouver, B.C., Canada, October 19-22, 2014. [paper # 137-22](#).
- Woodford, L.R.*** and R.S. Regis (2013). Paleogeographic interpretation of the late Cambrian Groveland Mine stratigraphy, Dickinson County, Michigan. Geological Society of America North-Central Section, Kalamazoo, MI, USA, May 2-3, 2013. [paper # 28-32](#).

Mission and Expedition Reports

- Knutz, P., Jennings, A., Childress, L.B., and the **Expedition 400 Scientists**, 2024. Expedition 400 Preliminary Report: NW Greenland Glaciated Margin. International Ocean Discovery Program. https://publications.iodp.org/preliminary_report/400/

Invited Talks

2024	Sedimentology of the Jezero crater western fan, Mars	Indiana University – Indianapolis
2023	Sedimentary Geology from Earth to Mars	University of Wisconsin – Eau Claire
2023	Upper Jezero Fan Sedimentology	Mars 2020 Science Team Meeting (co-lead)
2022	What is Till? ID-ing Subglacial Deposition in the Field	State of Michigan Geology Outreach Committee Training
2022	Karst Formation and Michigan Bedrock Geology	Hiawatha National Forest Karst Management Team
2022	Glaciation in the Rock Record	University of Wisconsin – Eau Claire
2022	South Polar Glaciation during the Paleozoic	Florence Bascom Geoscience Center, U.S. Geological Survey

Professional Service

2023	Technical Session Co-Chair	2024 SEPM International Sedimentary Geoscience Conference
2022 - 2026	Early Career Scientist Committee	International Association of Sedimentologists
2021	URGE Pod Organizer	Dept. of Geosciences, University of Wisconsin – Milwaukee
2017 - 2020	Sed. Group Meetings Coordinator	University of Wisconsin – Milwaukee
2020	Technical Session Co-Chair	GSA2020
2019	Host, Special Lecture Tour	International Association of Sedimentologists
2018	Student Representative (Geoscience)	University of Wisconsin – Milwaukee Student Association
2018 - 2019	President, Great Lakes Chapter	Association for Women Geoscientists
2011 – 2013	President, Rock and Mineral Club	Northern Michigan University
2012 – 2013	President, Gamma Theta Upsilon	Northern Michigan University
2011 – 2012	Grader and Supervisor	Michigan Science Olympiad

Reviewer for

Journals

Journal of Geophysical Research – Planets
Sedimentary Geology
Palaeogeography, Palaeoclimatology, Palaeoecology
Frontiers in Earth Science
Geology
Journal of Quaternary Science

Grants

NSF Office of Polar Programs
Great Lakes Geologic Mapping Coalition Panel

Book Chapters

“Glacial Sediments” chapter in forthcoming Sedimentary Environments Process and Facies, Ed. Bruce Level (Oxford)

Geologic Fieldwork Experience

2023	IODP Expedition 400 – Greenland Glaciated Margin	Northwest Greenland/Baffin Bay
2018 – 2022	Glacial Geology Mapping and Core Collecting	Wisconsin & Michigan, USA
2020	Forest Soil Monitoring Surveys	Michigan, USA
2018	Sedimentology of Esquel and Valle Chico Fms	Patagonia, Argentina
2018	Sedimentology of Sierra de Tepuel	Patagonia, Argentina
2018 – 2017	Sedimentology of Permian – Triassic strata	Shackleton Glacier, Antarctica
2017	Sedimentology of the Wynyard Fm	Tasmania, Australia
2017	Sedimentology of Sierra de Tepuel	Patagonia, Argentina
2014	Glacial geology of Breiðamerkurjökull	Iceland
2014	Glacial geology of Múlajökull	Iceland
2014	Glacial geology of Múlajökull	Iceland

Relevant Computer Skills

GIS: ESRI ArcGIS Suite, QGIS
Languages: Python, Matlab, R

Outreach

Public Events

2024	Public Lecture	Northern California Geological Society, Orinda, CA
2024	Public Lecture	Riverside Astronomical Society, Riverside, CA
2023	Public Lecture	Geoscience Exchange, University of Wisconsin – Milwaukee, Milwaukee, WI
2023	JPL/Mars2020 Representative	DiscoverCaltech , Pasadena, CA
2023	JPL Outreach Booth	Yuri's Night Los Angeles , LA, CA
2022	Les Cheneaux Geology Field Trip	Aldo Leopold Festival, Cedarville, MI
2022	Public Lecture	Tap Talk, Mackinaw City, MI
2021	Dinosaurs of Antarctica Panel	Clarke Planetarium, Salt Lake City, UT
2021	Dinosaurs of Antarctica Panel	Awesomecon, Washington, DC
2021	Les Cheneaux Geology Field Trip	Aldo Leopold Festival, Cedarville, MI
2021	Public Lecture	Mackinaw Area Historical Society
2021	Public Lecture	Museum of Discovery & Science, Ft. Lauderdale, FL
2020 – 2021	Voices for Science Fellow	American Geophysical Union
2019	Public Lecture	P.E.O. Mankato, MN
2019	Public Lecture	Kettle Moraine Geological Society
2019	Public Lecture	Wisconsin Geological Society
2014	“Science Bag” Assistant	University of Wisconsin – Milwaukee

Primary & Secondary Schools

2019 – 2020	Pen pal	Letters to a Pre-Scientist
2020	Science-A-Thon	Earth Science Women's Network
2020	7th Grade Classroom Visit	Learn 6 Campus, North Chicago, IL
2020	1st Grade Classroom Visit	Lake Bluff Elementary, Shorewood, WI
2011- 2012	Assistant Coach, LEGO Robotics	Bothwell Middle School, Marquette, MI

Media

2023	Press Release and Conference	1,000 Days of Perseverance Press Release Press Conference
2023	Press Release, JPL	Martian River in Jezero Crater Press Release Short Video News Segment
2021	Print Interview, LiveScience	When did Antarctica become a Continent?
2021	Podcast Interview	Under Our Feet (S1:E8 – An Icy Visitor)
2017 – present	Science Adviser/Character	“Dinosaurs of Antarctica” (IMAX Film) Dinosaurs of the Frozen Continent (TV Series)

Blog Posts

Ives, L.R.W. and P. Matheny. “Cryo-Adventures – The Glacial Isostatic Adjustment (GIA) Training School: Personal and Virtual Attendance”, EGU Cryospheric Sciences Division Blog, October 4, 2019. [LINK](#)

Career

2023	Mentor – LET'S GEO	University of Wisconsin – Milwaukee, Department of Geosciences
2023	Guest Lecture, Case Studies Course	University of Wisconsin – Milwaukee, Department of Geosciences
2023	Career Panel Participant	AWG – University of Wisconsin chapter
2022	Geoscience Career Discussion	Go FoRWARD , Milwaukee, WI

Additional Training

2023	Workshop	Bystander Intervention Training	USGS, Step-Up!
2023	Short Course	Summer School for Sandstone Diagenesis	GeoZentrum NordBayern/Uni. of Iowa
2020 – 2021	Graduate Certificate	Earth Data Analytics	University of Colorado – Boulder
2021	Geology Short Course	High-Resolution X-ray CT Facility	University of Texas – Austin
2020	Workshop	Geology Image Processing w/ Python	Nordic Sedimentology Research Group
2020	Workshop	Introductory Storytelling	The Story Collider
2020	Short Course	How to Build Coupled Models	GSA Annual Meeting
2020	Short Course	Geoscience & Society, Teaching Workshop	GSA Annual Meeting
2019	Short Course	Glacial Isostatic Adjustment	Gävle, Sweden (POLENET/NSF)
2018	Short Course	IAS Summer School of Sedimentology	Neuquén, Argentina
2018	Semester Course	Glacial and Marine Environmental History	UNIS, Svalbard
2017	Short Course	U-Pb Geochronology	GSA Annual Meeting
2014	Semester Course	Geology Field Camp	Black Hills, USA
2012	Short Course	Volcanology Field Camp	Kamchatka, Russia