Petra Kranzfelder, PhD

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Molecular & Cellular Biology
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APPOINTMENTS

Assistant Teaching Professor 2019-Present
University of California, Merced
Department of Molecular & Cellular Biology

Postdoctoral Associate 2017-2019
University of Minnesota
Department of Biology Teaching and Learning
Postdoctoral advisor: Dr. Abdi Warfa

Graduate Research & Teaching Assistant 2009-2017
University of Minnesota
Department of Entomology
Advisor: Dr. Leonard C. Ferrington, Jr.

Visiting Fulbright Scholar 2014-2015
Norwegian University of Science and Technology
Department of Natural History
Advisors: Dr. Torbjørn Ekrem & Dr. Elisabeth Stur

EDUCATION

PhD **University of Minnesota**, Entomology, 2017
Dissertation: *Cumulative Effects of Coastal Watershed Land Use on Chironomidae Communities of Neotropical Estuaries*, Advisor: Leonard C. Ferrington, Jr.

MS **University of Minnesota**, Entomology, 2012
Thesis: *Comparison of Emergence and Taxonomic Composition of Chironomidae (Insecta: Diptera) in Tortuguero National Park, Costa Rica*, Advisor: Leonard C. Ferrington, Jr.

BA **Colorado College**, Biology (major), Spanish & Central American Culture and Society (minors), 2009

TEACHING EXPERIENCES

2019 **University of California, Merced**
BIO 001: *Contemporary Biology for Life Sciences Majors*
Co-taught large enrollment (N = 540 students) introductory college biology course. Specifically, taught the genetics, animal form and function, and ecology units using evidence-based teaching practices.
Instructor of Record

2018 **University of Minnesota**
BIO 1951: *Foundations of Biology for Biological Sciences Majors, Part I*
Co-taught large enrollment (N = 155 students) introductory college biology course. Specifically, taught the evolution units using team- and inquiry-based instruction.
Instructor of Record

Iceland: Landscapes, Natural Resources and Environmental Management
Co-taught small enrollment (*N* = 16 students) upper level college environmental science course.
Co-Instructor

Foundations of Biology for Biological Sciences Majors, Part I
Taught large enrollment (*N* = 175 students) introductory college biology course.
Guest Lecturer

2017 **University of Minnesota**
Environmental Science & Society
Taught small enrollment (*N* =10 students) introductory college environmental science course. Specifically, taught about the history of USA water quality regulations and water pollutants using an interactive watershed game.
Guest Lecturer

2016 *Iceland: Landscapes, Natural Resources and Environmental Management*
Co-taught small enrollment (*N* = 16 students) upper level college environmental science course in Iceland that focused on the interactions between landscapes, natural resources availability, and environmental management.
Co-Instructor

Insects, Aquatic Habitats, and Pollution
Taught small enrollment (*N* = 6 students) upper level college entomology course.
Guest Lecturer

2015 **Northern State University**
Entomology
Taught small enrollment (*N* = 12 students) upper level college entomology course.
Guest Lecturer

Aquatic Ecology & Watershed Management
Taught small enrollment (*N* = 12 students) upper level college ecology course.
Guest Lecturer

2014 **University of Minnesota**
Teaching Assistant for *Aquatic Insects* and *Environmental Science & Society*

2013 **University of Minnesota**
Insects, Aquatic Habitats, and Pollution
Taught small enrollment (*N* = 6 students) upper level college entomology course.
Guest Lecturer

Teaching Assistant for *Environmental Science & Society*, *Forest & Shade Tree Entomology*, *Ornamental & Turf Entomology*, and *Veterinary Entomology*

2012 **University of Minnesota**
Teaching Assistant for *Environmental Science & Society*, *Forest & Shade Tree Entomology*, *Ornamental & Turf Entomology*, and *Veterinary Entomology*

2011 **Saint Olaf College**
Invertebrate Biology
Taught small enrollment ($N = 28$ students) upper level college biology course.
Guest Lecturer

University of Minnesota
Teaching Assistant for *Forest & Shade Tree Entomology*, *Ornamental & Turf Entomology*, and *Veterinary Entomology*

2010 **University of Minnesota**
Freshmen Orientation to Environmental Science, Policy, and Management
Guest Lecturer

REFEREED PUBLICATIONS (N=12)

2019: Kranzfelder, P., J. Bankers-Fulbright, M. García-Ojeda, M.P. Melloy, S. Mohammed, and A.R. Warfa. The Classroom Discourse Observation Protocol (CDOP): A quantitative method for characterizing teacher discourse moves in undergraduate STEM learning environments. *PLOS ONE* 14(7): e0219019. https://doi.org/10.1371

2019: Kranzfelder, P., A.T. Lo, M.P. Melloy, L.E. Walker, and A.R. Warfa. Instructional Practices in Reformed Undergraduate STEM Learning Environments: A Study of Instructor and Student Behaviors in Biology Courses. *International Journal of Science Education.* https://doi.org/10.1080/09500693.2019.1649503

2018: Kranzfelder, P. and L.C. Ferrington, Jr. Chironomidae (Diptera) Species Diversity of Estuaries Across a Land Use Gradient on the Caribbean Coast of Costa Rica. *Revista de Biologia Tropical.* 66(3): 1118-1134.

2017: Kranzfelder, P., T. Ekrem, and E. Stur. DNA barcoding for identification of insect skins: test case on chironomid pupal exuviae. *Journal of Insect Science.* 17(6): 1-7.

2016: Kranzfelder, P., T. Ekrem, and E. Stur. Trace DNA from Insect Skins: A Comparison of Five Extraction Protocols and Direct PCR on Chironomid Pupal Exuviae. *Molecular Ecology Resources* 16(1): 353-363.

2016: Kranzfelder, P. and L.C. Ferrington, Jr. Temporal and Spatial Variability of Chironomidae (Diptera) Species Emergence in a Neotropical Estuary. *Freshwater Science*. 35(2): 631-643.

2016: Anderson, A.M., P. Kranzfelder, A. Egan, and L.C. Ferrington, Jr. The Chironomidae (Insecta: Diptera) of San Salvador Island: A Preliminary Survey and Look to the Future. *Proceedings of the 15th Symposium of the Natural History of The Bahamas*. p. 13-21.
2015: Kranzfelder, P., A.M. Anderson, A.T. Egan, J.E. Mazack, R.W. Bouchard Jr., M.M. Rufer, and L.C. Ferrington, Jr. Use of Chironomidae Surface-Floating Pupal Exuviae as a Rapid Bioassessment Protocol for Water Bodies. *Journal of Visualized Experiments (JoVE)* 101: e52558.

2015: Kranzfelder, P. and L.C. Ferrington, Jr. Characterization of Chironomidae (Diptera) Surface-Floating Pupal Exuviae Sample Sort Time from Coastal Tropical Aquatic Systems. *Environmental Monitoring and Assessment* 87(3): 1-8.

2014: Mazack, J.E., P. Kranzfelder, A.M. Anderson, R.W. Bouchard, and L.C. Ferrington, Jr.

2014. Survivorship and Longevity of Adult *Diamesa mendotae* Muttkowski, 1915 (Diptera: Chironomidae) at Controlled, Sub-Freezing Temperatures. *Aquatic Insects* 36(1): 35-42.

2014: Anderson, A.M., P. Kranzfelder, A. Egan, and L.C. Ferrington, Jr. 2014. A Survey of Neotropical Chironomidae (Diptera) on San Salvador Island, Bahamas. *Florida Entomologist* 97(1): 304-308.

2013: Anderson, A.M., P. Kranzfelder, R.W. Bouchard Jr., and L.C. Ferrington Jr. Survivorship and Longevity of *Diamesa mendotae* Muttkowski (Diptera: Chironomidae) Under Snow. *Journal of Entomological and Acarological Research.* 45:e6.

REFEREED PUBLICATIONS UNDER REVIEW (N=2)

Kranzfelder, P., J. Bankers-Fulbright, M. García-Ojeda, M.P. Melloy, S. Mohammed, and A.R. Warfa. Classroom discourse patterns of biology instructors in undergraduate STEM classrooms. Under review for *CBE-Life Sciences Education*

Kranzfelder, P., J.M. Corcoran, L. P. Rampi, J.F. Knight, L.C. Ferrington, Jr. Land Use and Land Cover Change Detection of Six Watersheds on the Caribbean Coast of Costa Rica with Implications for Estuarine Monitoring. Under review for *Journal of Coastal Conservation.*

EXTENSION PUBLICATIONS

2019: Warfa, A.R. & P. Kranzfelder. Eavesdropping on "Classroom Talk" in Undergraduate STEM Classrooms. *Science Trends.*

2015: Kranzfelder, P. Is there DNA in Insect Skins? *Evolusjon - Evolution!* Museum of Natural History and Archaeology, Norwegian University of Science and Technology.

2012: Kranzfelder, P. Identification Guide and Key to the Chironomid Pupal Exuviae of Tortuguero National Park, Costa Rica (English & Spanish). *Chironomidae Research Lab*, University of Minnesota.

SCHOLARSHIPS, GRANTS, AND AWARDS

2019	Promoting Active Learning and Mentoring (PALM) Network Grant, $3,000
2018	College of Biological Sciences Postdoc Award for Teaching and Mentoring
	College of Biological Sciences Postdoc Symposium, second place winner of the 3-minute lightning talk
2017-2018	Biology Teaching and Learning Professional Development Grant, $2,500
2016	Morris and Elaine Soffer Rockstein Fellowship for Ph.D. students, $2,000
2015-2016	Doctoral Dissertation Fellowship, $23,000
2015	Systematics Fund Award, Society for Freshwater Science, $600
2014-2015	Fulbright Exchange Program, Norwegian University of Science and Technology, $16,000
	Torske Klubben Graduate Fellowship, $15,000
2014	Marion Brooks Wallace Graduate Fellowship, $4,500
	Thesis Research Travel Grant, $1,550
2013	Alexander and Lydia Anderson Fellowship, $3,000
	Dayton-Wilkie Natural History Fund, $1,500
2012	Master's, Professional, or Doctoral International Research Grant, $7,200
	Dayton-Wilkie Natural History Fund, $1,500

2011 Dr. Alan G. Peterson Fellowship, $1,000

PROFESSIONAL DEVELOPMENT

Facilitated training

2019 University of California, Merced, School of Natural Sciences
Science in the Classroom training for students, staff, and faculty on evidence-based teaching practices in undergraduate STEM classrooms

2018 University of Minnesota, Biology Teaching and Learning
Classroom Observation Protocol for Undergraduate STEM (COPUS) training for international research team using WebEx video conferencing

University of Minnesota, College of Biological Sciences
Graduate Teaching Assistant (GTA) pre-semester workshop on inquiry-based laboratories and inclusive-teaching practices

Participated in training

2019-Present Promoting Active Learning and Mentoring (PALM) Mentoring Network
PALM fellow

2019 University of Minnesota, Center for Educational Innovation
Teaching Enrichment Workshop Series Participant

2018 University of Minnesota, Boreas Leadership Program
Speaking Science Improv Series Participant (Improving Science Communication)

Yale Center for Teaching and Learning
Summer Institutes on Scientific Teaching Fellow

Society for the Advancement of Biology Education Research
Data Science in R Workshop Participant

Society of Freshwater Science
Inclusive and Accurate Approaches for Teaching Sex and Gender in Biology Workshop Participant

2015-2018 University of Minnesota, Office of Equity and Diversity
Equity and Diversity Certificate Program Participant

2017 University of Minnesota, Center for Educational Innovation
Post-Doc Professional Development Program Participant

2014 Norwegian University of Science and Technology
Norwegian for Foreigners Level 1 Course Participant

2013 Organization for Tropical Studies, La Selva Biological Station
Latin American DNA Barcoding of Aquatic Invertebrates Workshop Participant

University of Minnesota, Center for Educational Innovation
Teaching and Learning in Active Learning Classrooms Certificate Program Participant

2012 University of Minnesota, Center for Educational Innovation
Preparing Future Faculty Program Participant (Teaching in Higher Education)

SELECT PRESENTATIONS
*Presentation by undergraduate student mentored, †Invited presentation

2019 Society for the Advancement of Biology Education Research, Minneapolis, MN
Classroom discourse patterns of biology instructors in undergraduate STEM classrooms

Gordon Research Seminar Undergraduate Biology Education Research, Lewiston, Maine, *Diversifying discussions: How do we facilitate talking about biology in our classes?*

University of Minnesota Undergraduate Research Symposium, Minneapolis, MN
**Diversifying discussions: How do we facilitate talking about biology in our classrooms?*

National Association for Research in Science Teaching, Baltimore, Maryland
The Classroom Discourse Observation Protocol (CDOP) for Undergraduate STEM Classrooms: A New Instrument to Characterize Teacher Discourse Moves

2018 Society for the Advancement of Biology Education Research, Minneapolis, MN
The Classroom Discourse Observation Protocol (CDOP) for Undergraduate STEM Classrooms: A New Instrument to Characterize Teacher Discourse Moves

Society for Freshwater Science Annual Meeting, Detroit, Michigan
Instructional Practices in Reformed Undergraduate STEM Learning Environments: A Study of Instructor and Student Behaviors in Biology Courses

University of Minnesota Undergraduate Research Symposium, Minneapolis, MN
**Teacher-Initiated Discourse Moves in Reformed Undergraduate STEM Learning Environments*

University of Minnesota Undergraduate Research Symposium, Minneapolis, MN
**Instructional Practices in Reformed Undergraduate STEM Learning Environments: A Study of Instructor and Student Behaviors in Biology Courses*

2017 Carnegie Mellon Natural History Museum, Pittsburgh, Pennsylvania
†A Summary of Five Years of InvertNet at the University of Minnesota Insect Collection

Society for Freshwater Science Annual Meeting, Raleigh, North Carolina
Does Chironomid Species Diversity Differ Across a Land Use Gradient of Estuaries on the Caribbean Coast of Costa Rica?

2016 St. Olaf College, Northfield, Minnesota
†From River to Sea: Impacts of Land Use of Water Quality of Estuaries in Costa Rica

Society for Freshwater Science Annual Meeting, Sacramento, California
Remote Sensing of Land Cover Change in Tropical Watersheds Predicts Differences in Water Quality along Caribbean Coast of Costa Rica

2015 International Barcode of Life (iBOL) Conference, Guelph, Canada
Barcoding of Trace DNA in Chironomid Pupal Exuviae Reveals Quality Differences in DNA Extraction Protocols

Norwegian University of Science and Technology, Museum of Natural History and Archaeology, Trondheim, Norway
†*Barcoding of Trace DNA in Chironomid Pupal Exuviae Reveals Quality Differences in DNA Extraction Protocols*

2014 Norwegian University of Science and Technology, Museum of Natural History and Archaeology, Trondheim, Norway
Small Species with Big Sensitivity: Using DNA Barcoding to Identify Chironomidae (Diptera) and Enhance Biological Monitoring

Joint Aquatic Sciences Annual Meeting, Portland, Oregon
Variability of Chironomidae (Insecta: Diptera) Emergence and Species Richness in a Neotropical Estuary

2013 Society for Freshwater Science Annual Meeting, Jacksonville, Florida
Identification Guide to Chironomidae Surface-Floating Pupal Exuviae in Tortuguero National Park, Costa Rica

University of Minnesota Undergraduate Research Symposium, Minneapolis, Minnesota
**From River to Sea: Relationship of Salinity Gradients on Aquatic Insect Community Composition in Neotropical Estuaries*

2012 University of Minnesota, Environmental Science, Policy and Management Honor's Thesis Presentation, Saint Paul, Minnesota
**Integration of Environmental Education into Spanish Language Learning at the University of Minnesota: A Case Study*

Society for Freshwater Science Annual Meeting, Louisville, Kentucky
Variability of Chironomidae (Insecta: Diptera) Emergence in Neotropical Brackish Waters of Costa Rica

First Latin American Macroinvertebrate Congress, San José, Costa Rica
†*Comparación de emergencia y la composición taxonómica de Chironomidae (Insecta: Diptera) en Parque Nacional Tortuguero, Costa Rica*

2011 North American Benthological Society Annual Meeting, Providence, Rhode Island
†*Emergence Composition and Taxonomic Richness of Chironomidae (Insecta: Diptera) in Laguna del Tortuguero and Quebrada, Tortuguero National Park, Costa Rica*

2010 Tortuguero National Park Community Meeting, National System of Conservation Areas, Tortuguero, Costa Rica
†*Que podemos aprender de un insecto? La vida sostenible en Tortuguero*

North American Benthological Society and American Society of Limnology and Oceanography Annual Meeting, Santa Fe, New Mexico
Survivorship and Longevity of Diamesa Mendotae (Diptera: Chironomidae) Buried in Snow Banks

SERVICE

2013-Present Peer-Reviewer for *CBE-Life Sciences Education*, *Dugesiana*, *Freshwater Biology*, *Hydrobiologia*, *Molecular Ecology Resources*, *Neotropical Biodiversity*, *PLOS ONE*, and *Revista de Biología Tropical*

2019 Society for the Advancement of Biology Education Research (SABER)
Annual Meeting Abstract Reviewer

2018-2019 National Association of Research in Science Teaching
Annual Meeting Proposal Reviewer

University of Minnesota, College of Biological Sciences
Nature of Life Focus Scientist

University of Minnesota, Office of Undergraduate Education
Undergraduate Research Symposium Judge

2017-2019 University of Minnesota, Office of Undergraduate Education
Undergraduate Research Opportunities Program (UROP) Proposal Reviewer

2016-2019 Society for Freshwater Science
Long-Range Planning Committee Member
Meetings Code of Conduct Committee Member
Education and Diversity Committee Member

2012-2018 Society for Freshwater Science
Student Presentation Judge

2017 University of Minnesota, College of Biological Sciences
Grand Challenge Curriculum Reviewer
Welcome Week Lab Tour Guide

2016-2017 Society for Freshwater Science
Instars Mentoring Program Fellowship Reviewer

2011-2017 University of Minnesota, Chironomidae Research Group
Laboratory Manager
Website Manager

2015-2016 Society for Freshwater Science
Student Representative to the Board of Directors

2015 Society for Freshwater Science
Contributing Writer to *In the Drift* Newsletter

2014-2015 Society for Freshwater Science

President of Student Resources Committee

2014 University of Minnesota, Bell Museum of Natural History
Saturday with a Scientist K-12 Science Educator

WCCO-TV/CBS
Expert Local Aquatic Entomologist

2012-2014 Society for Freshwater Science
Chair of Undergraduate Travel Awards Committee

2010-2014 University of Minnesota, Insect Museum
Science Educator

2010 University of Minnesota, Teaching SMART
Science, Math, and Research Technology Education Coordinator

2009-2010 University of Minnesota, Department of Entomology
Secretary of FRENATAE Graduate Student Club

MENTORSHIP EXPERIENCE

Visiting sabbatical faculty mentorship
Jennifer Bankers-Fulbright, Augsburg University, 2018
Marcos Garcia-Ojeda, University of California-Merced, 2018

Masters student mentorship
Corrie Nyquist, 2019-Present

Undergraduate student mentorship
Marin Melloy, University of Minnesota, 2017-Present
Sagal Mohammed, University of Minnesota, 2018-2019
Ian Johnson, University of Minnesota, 2018
Vinit Vaghani, University of Minnesota, 2018
Lindsey Walker, University of Minnesota, 2017-2018
Alexander Lo, University of Minnesota, 2017
Hanna Lisa Leffever, Federal Rural University of Rio de Janeiro, 2015
Katherine Kemmitt, University of Minnesota, 2014
Jenna McCullough, University of Minnesota, 2013
Miranda Roberts, Oakland University, 2012
Jessica Miller, University of Minnesota, 2011
Catherine DeGuire, University of Minnesota, 2010-2012
Amy Maas, University of Minnesota, 2010-2011

PROFESSIONAL SOCIETY MEMBERSHIPS

Society for the Advancement of Biology Education Research (SABER)
National Association for Research in Science Teaching (NARST)
Society for Freshwater Science (SFS)

REFERENCES

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Minneapolis, MN, 55455, USA
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