Sarah K. Swiston

Washington University — Saint Louis, Missouri
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Professional Website: http://sswiston.com

My research focuses on developing phylogenetic methods for inferring where species used to live, using lizards as a primary system of study. I am also interested in teaching, pedagogy, and designing learning tools for current and future researchers.

EDUCATION

Washington University | Saint Louis, MO **2020 – Present**
Ph.D. Candidate in Ecology & Evolutionary Biology (in progress)

University of Oklahoma | Norman, OK **2016 – 2020**
B.A. in Biology, B.S. in Mathematics, minor in Music, Summa Cum Laude

FELLOWSHIPS & AWARDS

National Science Foundation Graduate Research Fellowship Program **2022 – Present**

Washington University Center for Teaching and Learning Educational Development Graduate Fellowship **2025**

ASN Outstanding Student Poster Award

Morris B. Rettner Scholarship

Carl & Pat Bynum Riggs Scholarship **2018**

National Merit Scholar **2016**

Illinois State Scholar

RESEARCH EXPERIENCE

Ph.D. Candidate | Dr. Michael Landis at Washington University **2021 – Present**
- Biogeography & phylogenetic comparative methods
- R package & Docker image development
- Biogeography of *Liolaemus* lizards, Hawaiian plants

Rotation Student | Dr. Jonathan Losos at Washington University **2020 – 2021**
- Global distribution of arboreal lizards
- Herpetology field experience

Research Student & Technician | Dr. Katharine Marske at University of Oklahoma **2019 – 2020**
- Lab work including beetle DNA extraction, PCR, and gel electrophoresis
- Data analysis in Geneious, QGIS, BEAST, R

Research Apprentice | University of Oklahoma Biological Station **2018 – 2018**
- Ant behavioral studies
- Ant heat tolerance testing

Lab Volunteer | Sam Noble Oklahoma Museum of Natural History: Herpetology **2017 – 2018**

- Herpetology field experience
- Specimen preparation and maintenance
- Tissue sampling
- Lab work including DNA extraction and qPCR

PUBLICATIONS

Swiston, S. K., & Landis, M. J. (2025). Testing relationships between multiple regional features and biogeographic processes of speciation, extinction, and dispersal. *Systematic Biology*, 74(2), 282–300.

IN PREP

Swiston, S. K., Kuehne, L., Moore, R., & Landis, M. J. (2025). Assessing the efficacy of computational workshops and participatory live coding in evolutionary biology.

Swiston, S. K., McHugh, S., & Landis, M. J. (2025). EMPIRE: The ellipse model for phylogenetic inference of range evolution.

Lichter-Marck, I., **Swiston, S. K.**, Mendes, F. K., May, M., Neupane, S., Rønsted, N., Baldwin, B., Wagner, W., Wood, K., Zapata, F., Landis, M. J. (2025). Earth and life evolve together: Tracking the insular radiation of Kadua (Rubiaceae) across the Hawaiian conveyor belt.

PRESENTATIONS

CIRTL General Meeting **2025**
IGNITE: The Interdisciplinary Graduate Network for Inquiry, Teaching, & Engagement
Co-Presenters: Nicole Strombom

Evolution Conference
EMPIRE: The ellipse model for phylogenetic inference of range evolution

Midwest Ecology and Evolution Conference
Modeling range evolution using ellipses in continuous space

The CIRTL Network Teaching-as-Research Presentations
Assessing the efficacy of computational workshops and participatory live coding in evolutionary biology

Graduate Research Symposium (Washington University)
Assessing the efficacy of computational workshops and participatory live coding in evolutionary biology

Ecology and Evolution Seminar (Washington University) **2024**
Designing and disseminating phylogenetic models of historical biogeography

Evolution Conference
A model of range evolution using ellipses in continuous space

Society for the Study of Amphibians and Reptiles Conference
Testing relationships between regional features and biogeographic processes of speciation, extinction, and dispersal in *Liolaemus* lizards

Evolution Conference **2023**
Testing relationships between multiple regional features and biogeographic process of speciation, extinction, and dispersal

Living Earth Collaborative Seminar (Washington University)
How the environment shapes diversification and dispersal: A feature-informed phylogenetic method of historical biogeography (+ Lizards!)

International Biogeography Society Conference **2022**
Inferring evolutionary rates in a geographic context: Incorporating region features

Midwest Ecology and Evolution Conference
A phylogenetic model of historical biogeography incorporating regional features

Evolution Conference **2021**
Why are arboreal lizards a tropical phenomenon?

POSTERS

Evolution Conference **2025**
EMPIRE: The ellipse model for phylogenetic inference of range evolution

Graduate Research Symposium (Washington University)
Education in phylogenetic modeling: The pedagogy of tutorials, software, and workshops

Society for the Advancement of Biology Education Research Midwest Conference **2024**
Education in phylogenetic modeling: the pedagogy of tutorials, software, and workshops

Evolution Conference
Education in phylogenetic modeling: The pedagogy of tutorials, software, and workshops

University of Oklahoma Undergraduate Research Day **2017**
Amphibious infectious disease in Oklahoma: A citizen science project

THESES

Honors Thesis | University of Oklahoma **2019**
Phylogeography of New Zealand weevil *Geochus tibialis* (Curculionidae)

PRESS

News Article | Neighbors of Glen Ellyn **2024**
A Science Grad Student's Journey

TEACHING

Planned Spring 2026 **2026**
Instructor of Record | Mathematical Modeling in Ecology & Evolution
Co-Instructors: Dr. Abigail Jager

Workshop Instructor | Phylogenetic Biogeography Workshop **2024 – 2025**
Co-Instructors: Michael Landis, Felipe Zapata, Isaac Lichter-Marck, Fábio Mendes, Michael May, Ixchel González Ramírez
Locations: Botany Conference (2025), Evolution Conference (2025), Washington University (2024)

Guest Lecture | Webster University
The Mathematics of Plant Structures

Peer Tutor | Population Genetics

Assistant Instructor | Graduate Research Fundamentals **2023 – 2025**

Participant | Skype a Scientist **2023 – Present**

Workshop Facilitator | Data Analysis and Visualization in R for Ecologists **2023**
Workshop Instructor: Kaija Gahm, through Carpentries

Assistant Instructor | Evolution **2022**
Course Instructor: Dr. Ken Olsen

Assistant Instructor | Population Genetics **2021**
Course Instructor: Dr. David Queller

Teaching Team Member | Young Scientist Program **2020 – Present**

MENTORSHIP

Research Mentor | Washington University **2025**
Mentee: Matthew Pottinger, Washington University in Saint Louis (Undergraduate)

Copy Editor & Reviewer | Journal of Emerging Investigators **2022 – Present**

Research Mentor | Young Scientist Program Summer Focus Program **2022**
Mentee: Benjamin Gondzur, Metro Academic and Classical High School (Senior)

Teaching Team Member | Young Scientist Program **2020 – Present**

TEACHING PROFESSIONAL DEVELOPMENT

Educational Development Graduate Fellowship | Center for Teaching and Learning **2025**

Member | IGNITE Learning Community **2024 – Present**
(Interdisciplinary Graduate Network for Inquiry, Teaching, and Engagement)

Member | Washington University Education Research Group **2024 – Present**

Teaching Citation | Washington University **2023**
Professional Development in Teaching Program

Member | Center for Teaching and Learning Graduate Student Advisory Council **2022 – 2024**

Member | EPIC Learning Community **2020 – 2021**
(Exploring Practices in the Classroom)

Member | Washington University in Saint Louis Future Educators **2020**

WORKSHOPS ATTENDED

Using Game-Inspired Design to Spark Engagement and Deep Learning **2025**
Washington University
Instructor: Dr. Tori Mondelli, University of Missouri

Sparking Joy in Biology Education | SABER 2025 Conference

Scholarship of Teaching and Learning Seminar **2024**
Washington University Center for Teaching and Learning

Introduction to CODON Learning | SABER Midwest 2024 Conference

Data Management | Washington University Libraries Data Services **2023**
Responsible data management, storage, security, and availability

The Inclusive STEM Teaching Project

Evolutionary Quantitative Genetics | Dr. Stevan J. Arnold & Dr. Joe Felsenstein **2022**
Lecturers: Dr. Patrick Carter, Dr. Adam Jones, Dr. Brian O'Meara, Dr. Samantha Price, Dr. Josef Uyeda

Short Teaching Workshops | Washington University Center for Teaching and Learning
Applying Cognitive Science (2021), Engaging in Equity Pedagogy (2021), Introduction to Pedagogical Scholarship (2021), Developing Effective Summative Assessments (2022), Planning and Organizing a Class Session (2023), Process Oriented Guided Inquiry Learning – POGIL (2024)

PROGRAMMING

PhyloDocker | Docker Image: hub.docker.com/r/sswiston/phylo_docker **2022 – Present**

Competent in the following tools: R, R Devtools, R Shiny, RevBayes, Python, Java, Docker, QGIS, Unix

GRADUATE COURSEWORK

Population Genetics, Genomics, Community Ecology, Stochastic Processes, Data Structures & Algorithms, Genomics, Ethics and Research Science

SOCIETY MEMBERSHIPS

American Society of Naturalists (ASN)

National Association of Biology Teachers (NABT)

Partners in Amphibian and Reptile Conservation (PARC)

Professional and Organizational Development Network in Higher Education (POD)

Society for the Advancement of Biology Education Research (SABER)

Society for the Study of Amphibians and Reptiles (SSAR)

Society of Systematic Biologists (SSB)

Society for the Study of Evolution (SSE)

REVIEWED FOR

Evolution

Journal of Emerging Investigators

Methods in Ecology & Evolution

Molecular Phylogenetics & Evolution

Proceedings of the Royal Society B

Systematic Biology

REFERENCES

Dr. Michael Landis
Assistant Professor, Department of Biology
Washington University in Saint Louis
CB 1137
One Brookings Drive
St. Louis, MO 63130
michael.landis@wustl.edu
314-935-8082
Relationship: Ph.D. Advisor

Dr. Felipe Zapata
Associate Professor, Department of Ecology and Evolutionary Biology
University of California Los Angeles
612 Charles E. Young Drive South
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Los Angeles, CA 90095
fzapata@ucla.edu
Relationship: Collaborator

Dr. Lisa Kuehne
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Relationship: Teaching Center Fellowship Supervisor