

# KYLE DAHLIN

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## PROFESSIONAL EXPERIENCE

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- NSF MPS Ascending Postdoctoral Research Fellow** 2023 - Present  
*Department of Mathematics, Virginia Tech*  
Supervisors: Lauren Childs and Michael Robert
- Postdoctoral Research Associate** 2020 - 2023  
*Odum School of Ecology, University of Georgia*  
Supervisor: John Drake
- Ph.D. Candidate** 2015 - 2020  
*Purdue University*  
Thesis: Mathematical Models for Mosquito-borne Infectious Diseases of Wildlife  
Advisor: Zhilan Feng
- Graduate Teaching Assistant** 2015 - 2020  
*Purdue University*  
Applied and general calculus instructor, including active learning sections

## EDUCATION

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- Purdue University**  
*Ph.D.*, Mathematics May 2020  
*M.S.*, Mathematics August 2015
- University of Hawai'i at Mānoa**  
*B.A.*, Mathematics May 2013

## PUBLICATIONS

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- Howerton, Emily\*, **K. Dahlin\***, C. Edholm, L. Fox, M. Reynolds, B. Hollingsworth, G. Lytle, M. Walker, J. Blackwood, and S. Lenhart (2022). The effect of governance structures on optimal control of two-patch epidemic models. Under revision.
- Dahlin, Kyle**, S. O'Regan, B. Han, J.P. Schmidt, and J. Drake (2022). Vertebrate host availability and the thermal properties of mosquito-borne parasite transmission. Under revision.
- Drake, John, **K. Dahlin**, P. Rohani, A. Handel (2021). Five approaches to the suppression of SARS-CoV-2 without intensive social distancing. *Proceedings of the Royal Society B*. 288: 20203074. doi.org/10.1098/rspb.2020.3074
- Dahlin, Kyle** and Z. Feng (2019). Modelling the population impacts of avian malaria on Hawaiian honeycreepers: bifurcation analysis and implications for conservation. *Mathematical Biosciences* 318. doi.org/10.1016/j.mbs.2019.108268
- Dahlin, Kyle**, E. Koenig, A. Laubmeier, A. Wehn, and K. Rios-Soto (2012). Competition Model between the Invasive Sahara Mustard and Native Plants in the Sonoran Desert. *Mathematical and Theoretical Biology Institute Technical Reports* 09-01M 2012.

## GRANTS

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National Science Foundation to **Kyle Dahlin** (\$200,000), 2023. Title: *MPS-Ascend: Advancing Mosquito-borne Disease Models with Distributed Delay Equations*. NSF DMS 2316455

MIDAS Coordination Center to **Kyle Dahlin** (\$9,939.00), 2021. Title: *Modelling University Responses to COVID19*. MIDASSUGP2020-7

### Travel grants

Postdoctoral Scholar Domestic and Foreign Travel Program, **University of Georgia** 2021  
MRC Travel grant, **American Mathematical Society** 2021  
Modern Math Workshop Travel Grant, **Mathematical Sciences Institutes** 2019  
Native Student Professional Development Program Grant, **The Wildlife Society** 2019  
Student Travel Grant, **The Wildlife Society** 2019  
Landahl Travel Award, **Society for Mathematical Biology** 2018, 2019  
College of Science Graduate Student International Travel Award, **Purdue University** 2018

## FELLOWSHIPS AND AWARDS

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- ◇ Ascending Postdoctoral Research Fellowship (National Science Foundation - Directorate for Mathematical and Physical Sciences) 2023 - 2026
- ◇ MGB-SIAM Early Career Fellowship (Society for Industrial and Applied Mathematics) 2022
- ◇ UCR Contributed Talk Award for Mathematical Epidemiology (Society for Mathematical Biology) 2021
- ◇ Excellence in Teaching Award (Purdue University Math Department) 2019
- ◇ Cagiantas Fellowship (Purdue University) 2018
  - Awarded to “a senior Ph.D. student who has demonstrated a high level of accomplishment in their research and has participated in activities that have had a positive impact on the climate of their department, University, or community.”
- ◇ AGEP Mentoring Award (Purdue University) 2017
- ◇ Lighting the Pathway Fellowship (American Indian Science and Engineering Society) 2016
- ◇ AGEP Scholarship (Purdue University) 2015 - 2019
- ◇ Purdue Doctoral Fellowship (Purdue University) 2013
- ◇ Sloan Indigenous Graduate Partnership Scholar (Sloan Foundation) 2013 - 2019
- ◇ SACNAS Undergraduate Student Poster Presentation Award (SACNAS National Conference) 2012
  - with Erika Koenig, Amanda Laubmeier, and Austin Wehn
- ◇ Mathematical and Theoretical Biology Institute Fellowship (Arizona State University) 2012
- ◇ Undergraduate Math and Biology Research Program Fellowship (University of Hawai'i at Mānoa) 2010

## LEADERSHIP AND PROFESSIONAL SERVICE

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### **Indigenous Mathematicians**

Co-founder and Newsletter Editor 2020 - present

### **American Mathematical Society (AMS)**

Member 2016 - present

MRC Dynamics of Infectious Diseases: Ecological Models Across Multiple Scales 2020 - 2022

## **Society for Mathematical Biology (SMB)**

Membership Committee	2021 - 2024
Member	2018 - present
Mini-symposium Co-organizer with Amanda Laubmeier	2021
· “Ecological models at the interface of empirical and theoretical research”	
Mini-symposium Co-organizer with Joan Ponce	2019
· “Mathematical models for infectious diseases at population and individual levels”	
Mini-symposium Co-organizer with Lauren Childs	2018
· “Mathematical modeling of malaria: Dynamics within-host and between-hosts”	

## **Society for Industrial and Applied Mathematics (SIAM)**

Member	2021 - present
Mini-symposium Co-organizer with Suzanne Lenhart	2023
· “Applications of Control in Biological Systems”	

## **American Association for the Advancement of Science (AAAS)**

Member (Program for Excellence in Science)	2019 - 2020
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## **Mathematical Association of America (MAA)**

Graduate Student Member	2013 - 2020
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## **Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)**

Member	2018 - present
Mentor-judge	2020

## **Purdue University Mathematics Department**

Graduate Representative	2016 - 2017
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## **American Indian Science and Engineering Society (AISES), Purdue Chapter**

Treasurer	2015 - 2018
Vice President	2014 - 2015
Judge, Student Research Competition	2013

## **Native American Student Association, Purdue Chapter**

Treasurer	2015 - 2018
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## **C. Richard Pettit Forum (Purdue Collegiate Debate Team)**

Assistant Debate Coach	2013 - 2016
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## **TEDx Purdue U**

Speaker Liaison	2013
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## **PRESENTATIONS AND INVITED TALKS**

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808 State Math Challenge. **University of Hawai'i at Mānoa and Dreamhouse 'Ewa Beach.** Apr 28, 2023. *Mosquito-borne disease in Hawai'i: Current status and predictions for the future.*

Undergraduate Math Club Meeting. **University of Hawai'i at Mānoa.** Apr 27, 2023. *Social and ecological dynamics in mathematical models of disease transmission.*

Applied Math Seminar. **University of Hawai'i at Mānoa.** Apr 26, 2023. *Mathematical Modeling of Mosquito-borne Disease Transmission in Wildlife.*

**Society for Vector Ecology Annual Conference.** University of New South Wales, Sydney, Australia. September 19, 2022. *Host availability shapes the thermal determinants of mosquito-borne parasite transmission.* (Poster presentation)

**SIAM Annual Meeting.** Pittsburgh, Pennsylvania, USA. July 13, 2022. *Interactions between host traits and temperature drive shifts in the thermal characteristics of mosquito-borne pathogen transmission.*

**Ecology & Evolution of Infectious Diseases.** Emory University, Atlanta, Georgia, USA. June 7, 2022. *Host availability shapes the thermal determinants of mosquito-borne parasite transmission.*

**Joint Mathematics Meetings.** *Virtual.* Apr 6, 2022. *Exploring the role of host traits on the transmission of mosquito-borne pathogens in wildlife populations*

Mathematical Biology Seminar. **University of California, Davis.** *Virtual.* Feb 2, 2022. *Exploring the role of vertebrate host traits on the transmission of mosquito-borne parasites.* (Invited presentation)

**Society for Mathematical Biology Annual Conference.** *Virtual.* June 16, 2021. *Predicting reservoirs of mosquito-borne zoonoses: Modelling interactions between temperature and pace of host life history.* (UCR Contributed Talk Award for Mathematical Epidemiology)

MIDAS Webinar: COVID-19 Urgent Grant Program Awards. **MIDAS Coordination Center.** *Virtual.* March 26, 2021. *Modelling University Responses to COVID-19.*

Mathematical Biology Seminar. **Virginia Tech.** March 3, 2021. *Investigating the role of host competition in the spread of mosquito-borne pathogens of wildlife.*

CEID Disease Ecology Workshop. **University of Georgia.** Nov 18, 2020. *Using mathematical models to understand the role of host competition in the spread of mosquito-borne pathogens in wildlife.*

**SACNAS National Conference.** *Virtual.* Oct 22, 2020. *Assessing the role of competition in multi-host systems of mosquito-borne disease transmission.*

**SACNAS National Conference.** Honolulu, Hawai'i. Nov 1, 2019. *Avian Malaria & Hawaiian Honeycreepers: Modelling of the Effectiveness of Vector Control, Captive Propagation, and Translocation for Long-Term Population Viability.* (Oral Presentation award)

**Society for Mathematical Biology Annual Conference.** University of Montreal, Montreal, Canada. July 24, 2019. *Enzootic Avian Malaria in Hawaiian Honeycreepers: modeling the effects of vector control and captive propagation.*

**AMS Spring Central and Western Joint Sectional Meeting,** University of Hawai'i at Mānoa. Mar 23, 2019. *Modelling the population impacts of avian malaria on Hawaiian honeycreepers: bifurcation analysis and implications for conservation.* (Invited presentation)

**University of Hawai'i - West O'ahu,** Kapolei, HI. Nov 30, 2018. *Mathematical Modelling of Avian Malaria in Hawaiian Honeycreepers.* (Invited presentation)

**AISES National Conference.** Oklahoma City, OK. Oct 5, 2018. *Mathematical Modelling of Avian Malaria in Hawaiian Honeycreepers.*

**University of Wollongong,** Wollongong, NSW, Australia. July 12, 2018. *Mathematical Modelling of Avian Malaria in Hawaiian Honeycreepers.* (Invited presentation)

**Society for Mathematical Biology Annual Conference.** University of New South Wales, Sydney, Australia. July 11, 2018. *Bifurcation Analysis of an Epizootiological Model of Avian Malaria.* (Poster presentation, *Honorable mention*)

**6th International Conference on Mathematical Biology.** Beijing University of Civil Engineering and Architecture, Beijing, China. June 23, 2018. *Bifurcation Analysis of an Epizootiological Model of Avian Malaria.* (Invited presentation)

Math Department Student Colloquium, Purdue University. West Lafayette, IN. Apr 4, 2018. *The Mathematics of Polynesian Wayfinding.*

**AMS Spring Central Sectional Meeting**, Special Session on Parameter Analysis and Estimation in Applied Dynamical Systems. Ohio State University, Columbus, OH. Mar 17, 2018. *An Epizootiological Model of Avian Malaria*. (Invited presentation)

**Hands of the Future, Inc.** West Lafayette, IN. Feb 18, 2018. *Natural Connections: From West Lafayette to Hawai'i*. with Samira Fatemi.

Math Department Student Colloquium, Purdue University. West Lafayette, IN. Nov 15, 2017. *The (Unofficial) Fundamental Theorem of Mathematical Epidemiology*.

Graduate Student Research Day, Purdue University. West Lafayette, IN. Nov 19, 2016. *An Epizootiological Model of Avian Malaria*.

Math Department Student Colloquium, Purdue University. West Lafayette, IN. Mar 2, 2016. *Reproduction Numbers for Compartmental Models of Disease Transmission: Analysis and Application to a Model for Avian Malaria*.

Math Department Student Colloquium, Purdue University. West Lafayette, IN. *Sharkovsky's Theorem: A Proof and Applications*.

**SACNAS National Conference**. Seattle, WA. Oct 11, 2012. *Competition Model between the Invasive Sahara Mustard and Native Plants in the Sonoran Desert*. with Erika Koenig, Amanda Laubmeier, Austin Wehn, and Karen Rios-Soto.

## WORKSHOPS

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VectorBiTE 2021 Training, VectorBiTE Research Coordination Network. *Virtual*. July 28 - 30, 2021.

Dynamics of Infectious Diseases: Ecological Models Across Multiple Scales, AMS Mathematics Research Community. *Virtual*. May 31 - June 4, 2021.

Workshop for New Investigators. NSF Directorate for Mathematical and Physical Sciences. *Virtual*. November 9 - 10, 2020.

Adaptive Management Tutorial. National Institute for Mathematical and Biological Synthesis, University of Tennessee, Knoxville. Knoxville, TN. October 26 - 29, 2020.

Applied Management Principles. Krannert Executive Education Programs, Purdue University, West Lafayette, IN. May 14 - 19, 2018.

Disease Ecology and Eco-epidemiology, Emphasis Workshop. Mathematical Biosciences Institute, Ohio State University, Columbus, OH. Mar 26 - 30, 2018.

Industrial Mathematical and Statistical Modeling Workshop. Statistical and Applied Mathematical Sciences Institute, North Carolina State University, Raleigh, NC. July 16 - 27, 2017.

Dynamics of Biological Systems. Seminaire de Mathematiques Superieure, University of Alberta, Alberta, Canada. May 30 - June 11, 2016.

Uncertainty, Sensitivity, and Predictability in Ecology: Mathematical Challenges and Ecological Applications, Current Topic Workshop. Mathematical Biosciences Institute, Ohio State University, Columbus, OH. Oct 26 - 30, 2015.

## JOURNALS REFEREED

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Bulletin of Mathematical Biology

Ecology Letters

Journal of Theoretical Biology

Mathematical Biosciences

Proceedings of the Royal Society B