



Infectious Disease Across Scales Training Program

FALL 2020 NEWSLETTER

The first year of the Infectious Disease Across Scale Training Program (IDASTP) has been one we will never forget. Between the excitement of the beginning of the training grant and the devastating effects of the COVID-19 pandemic, the last 12 months have changed all of our lives. We would like to take time to highlight some of the achievements and important events.



**NOTE FROM THE IDASTP
DIRECTOR**

Jacobus de Roode, PhD.

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We were so excited with the news that NIAID was planning to fund our new program in the summer of 2019, and even happier to start training our first cohort of students in Fall 2019. The overarching goal of our program is to provide students with training opportunities across a wide range of biological scales, ranging from the immune molecules that dictate interactions between human host cells and pathogens, to the ecosystems in which humans share their pathogens with vectors and other animals.

Much of the rationale for developing this training program was the importance of crossing scales, to understand and predict how pathogens circulating in one host may jump species barriers, and potentially rise from a local issue to a global problem. Little did we know that a test case would present itself within months of starting our training program. The Covid-19 pandemic is unprecedented, but it was not unpredictable. Given the continued encroachment of humans on natural habitats and the increasing mobility of the human population, the Covid-19 pandemic serves as a reminder of how emerging infectious diseases will continue to pose significant risks to human health and well-being – and of the need for training programs such as IDASTP.

Our program has come off to a great start. With Kelsey Shaw and Elizabeth Sajewski, we could not have asked for a better inaugural cohort of trainees. Thanks to Kelsey’s new F31 support, and institutional support, we have been able to increase our second cohort of trainees, and have also been able to add a new Award of Distinction, which supports research and travel costs for additional students. Please read to learn about what we have done so far, and what is to come in the second year of our program!

2021 IDAS Symposium
Infectious Disease Across Scales

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Seminar Series

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DEADLINES
&
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EMORY UNIVERSITY

IDASTP Trainees

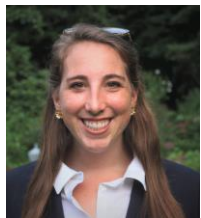
2019 Trainees

Kelsey Shaw and Elizabeth Sajewski were selected as the first trainees to be admitted to the IDASTP. Both Kelsey and Elizabeth were given opportunities to meet with leading infectious disease experts, gain unique training, aid in the design of IDASTP enrichment opportunities and receive funding support for their research and participation within IDASTP. Kelsey has completed her training and received an F31 award. Elizabeth will continue her final year of IDASTP support and serve as the student representative to the IDASTP Steering Committee.



Kelsey Shaw
Civitello Lab
Population Biology,
Ecology & Evolution

- Presented at the 2019 IDAS Symposium.
- Served on 2021 IDAS Symposium Committee and 2021 Seminar Series
- Received F31 award in August 2020

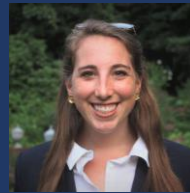


Elizabeth Sajewski
Lopman Lab
Environmental Health
Sciences

- Serves as student representative on the IDASTP Steering Committee
- Served on IDAS Symposium Committee and 2021 Seminar Series Committee
- Will present at 2021 IDAS Symposium

2020 Trainees

The IDASTP admitted three additional students to join Elizabeth for 2020-2021. Ashley Alexander, Frederica Lamar and Ian Hennessee joined the IDASTP in September 2021. Over the next year, they will gain IDASTP trainee access to opportunities, training and support. Each trainee will participate in the 2021 IDAS Symposium and the 2021 IDAS Seminar Series, both scheduled for spring 2021.



Elizabeth Sajewski
Lopman Lab
Environmental Health Sciences



Ashley Alexander
Goldberg & Read Labs
Population Biology, Ecology & Evolution



Frederica Lamar
Levy & Freeman Labs
Environmental Health Sciences



Ian Hennessee
Clasen Lab
Environmental Health Sciences

IDASTP Award of Distinction (AOD)

The IDASTP Award of Distinction was created to further support student research that fits with the infectious disease across-scales approach. Student support includes funds for research supplies, training and travel. Lynda Bradley, Michael Martin and Sandra Mendiola are the first recipients of this new award.



Lynda Bradley
Civitello Lab
Population Biology,
Ecology & Evolution



Michael Martin
Koelle Lab
Population Biology,
Ecology & Evolution



Sandra Mendiola
Gerardo & Civitello Labs
Population Biology,
Ecology & Evolution

IDASTP Trainees *(continued)*

Trainee Research Projects

ELIZABETH SAJEWSKI

Through her research, Elizabeth seeks to examine the ways in which changes in pathogen transmission at individual and environmental scales influence regions. Elizabeth's current research is focused on enteric pathogen transmission and the impacts of interventions, like vaccination, and environmental changes, like urbanization, on population health.

FREDERICA LAMAR

Frederica studies childhood exposures to chicken-sourced enteropathogens along the chicken value chain in Maputo, Mozambique. Her work characterizes food hygiene hazards and estimates risks to inform potential intervention strategies to mitigate exposure to pathogens of poultry origin, and ultimately lessen the burden of diarrheal disease.

ASHLEY ALEXANDER

Ashley studies interactions between the opportunistic bacterial pathogens *Staphylococcus aureus* and *Pseudomonas aeruginosa*. She uses experimental evolution and bioinformatics techniques to study the genetic determinants and environmental factors that facilitate their coexistence in cystic fibrosis associated respiratory infections.

IAN HENNESSEE

Ian is interested in the impacts of multi-scale environmental change on vector ecology and vector-borne disease transmission. His current research focuses on how changes in household air pollution, land-use, and climate affect *Anopheles* mosquito ecology and malaria incidence in Eastern Province, Rwanda.

LYNDA BRADLEY

Pulses of nutrient pollution into freshwater bodies are common—from fertilizer runoff to sewage overflow. Lynda is building theory in the snail-schistosome system to understand how these pulses affect both the individual physiology and population dynamics of snail consumers and their schistosomes.

MICHAEL MARTIN

Michael is interested in using genomic data to better understand how viral human pathogens evolve as they spread within and between hosts. Particularly, he is interested in leveraging viral evolution to inform public health interventions.

SANDRA MENDIOLA

Sandra's research seeks to leverage insect-microbe symbioses for the control of vector-borne pathogens in agriculture. Using the squash bug as a model, she studies how symbionts and pathogens interact within their insect hosts and the consequences of these interactions for pathogen transmission at the population level.

KELSEY SHAW

Kelsey studies schistosomes, which are parasitic worms that cause the Neglected Tropical Disease schistosomiasis. Before infecting people, schistosomes must develop in a snail intermediate host, and for her dissertation she is interested in how differences between host snails impact schistosome transmission at the population level. Kelsey also examines how other species that co-exist with host snails can alter transmission through their interactions with the host. Kelsey was recently awarded an F31 fellowship through the NIAID which will support her work for the remainder of her dissertation.

2021 IDASTP Deadlines




IDASTP Application Deadline **April 16, 2021**

IDASTP Award of Distinction (AOD) Deadline **May 19, 2021**

Contact Todd Swink at tswink@emory.edu for more details.

IDAS Symposium

The IDAS Symposium highlights important research in infectious disease across scales occurring at Emory and around the world. The IDAS Symposium offers an event for Emory students and faculty as well as outside contributors and interested parties with the ultimate goal to build a larger Infectious Disease Across Scales community. Guest speakers, Emory faculty and IDASTP students meet to share their research in a formal symposium setting as well as an informal setting after the symposium during a reception. The IDAS Symposium is a joint effort between IDASTP and the MP3 Initiative with funding support from multiple Emory sources.



HOSTED BY

From Molecules and Pathogens to Populations and Pandemics



Infectious Disease Across Scales Training Program

Keynote Speakers

Vincent Bond, PhD
Professor and Chair of Microbiology, Biochemistry and Immunology; Principal Investigator, Research Centers in Minority Institutions (RCMI); Morehouse School of Medicine



Erin Mordecai, PhD
Assistant Professor of Biology, Center Fellow, by courtesy, at The Woods Institute For The Environment Stanford University



Featured Speakers

Elizabeth Sajewski
IDASTP Trainee Environmental Health Sciences Lopman Lab Emory University





MP3 Awardees
Presentations from MP3 funded projects

2019 IDAS Symposium

Keynote Speakers

Vanessa Ezenwa, PhD
University of Georgia



Jessica Metcalf, PhD
Princeton University



Featured Speakers

David Civitello, PhD
(Biology, ECAS)

Cheryl Day, PhD
(Microbiology & Immunology, SOM Emory Vaccine Center, Yerkes)

Lance Waller, PhD
(Biostatistics, RSPH)

Kelsey Shaw, DVM
(IDASTP, Trainee)

More than 100 researcher attended the first IDAS Symposium



THE 2021 IDAS SYMPOSIUM WILL MOVE TO A **VIRTUAL** PLATFORM

[REGISTER HERE](http://whsc.emory.edu/mppp/index.html)
<http://whsc.emory.edu/mppp/index.html>

More details will be announced in the coming weeks. For more information, please contact Todd Swink at tswink@emory.edu.



Seminar Series

The Infectious Disease Across Scales Training Program (IDASTP) sponsored the first seminar series and class entitled *Integrating Study and Control of Infectious Disease Across Scales* in the Spring of 2020. Students, faculty and outside speakers met to discuss topics facing the infectious disease community. Conversations quickly turned toward the Covid-19 pandemic giving students a unique opportunity to discuss the importance of cross-scales research in the midst of a pandemic. Participation in the seminar series was not exclusive to enrollment in the class. Planning is underway for the next IDAS Seminar Series schedule for Spring 2021.

Spring 2021
Wednesdays at 12 PM
Virtual Meetings

2021 Seminar Series

1/27/21 – Lance Waller, RSPH, Emory University

2/3/21 – Jacobus de Roode, ECAS,
Emory University

2/10/21 – Erin Mordecai, Stanford University

2/17/21 – Daniel Barber, NIH-NIAID

2/24/21 – Sarah Cobey, University of Chicago

3/3/21 – Luisa Cervantes Barragan, SOM,
Emory University

3/10/21 – Katia Koelle, ECAS, Emory University

3/17/21 – Shabaana Abdul Khader, Washington
University in St. Louis

3/24/21 – Shane Crotty, La Jolla Institute
for Immunology

3/31/21 – Benjamin Lopman, RSPH, Emory
University

4/14/21 – Raina Plowright, Montana
State University

4/21/21 – Max Lau, RSPH, Emory University

For more information, please contact Todd Swink at
tswink@emory.edu.

Students seeking credit, enroll in:

**IBS 500r- Current Topics in
Biosciences Class Code: 4988**

Individuals do not need to be enrolled in
class to attend guest speaker talks.

IDAS Journal Club

The first IDAS Journal Club was created to continue discussions from the IDAS Seminar Series in June of 2020. For 8 weeks the IDAS Journal Club met via Zoom to discuss different topics of infectious disease and to present their own research.

2020 SPRING IDAS SEMINAR SPEAKERS

Guest Speakers

Rebecca Levine, PhD, MPH
Centers for Disease Control & Prevention
Emory PBEE alum

Scott Nash, PhD
The Carter Center

Pamela Martinez, PhD
Harvard University

Michael Mina, MD, PhD
Harvard University
Emory PBEE Alum

Micaela Martinez, PhD
Columbia University

Emory Speakers

Jacobus de Roode, PhD
Professor, Biology, ECAS, Emory University

David S. Stephens, MD
VP for Research, WHSC
Chair, Department of Medicine
SOM, Emory University

Karen Levy, PhD
Associate Professor
Environmental Health, RSPH, Emory University

IDASTP Leadership

IDASTP STEERING COMMITTEE



Jacobus de Roode, PhD
 Director, IDASTP
 Co-Director, MP3 Initiative
 Professor, Biology Department
 Emory College of Arts and Sciences



Thomas Clasen, PhD
 Professor and Chair, Environmental Health
 Jointly Appointed, Epidemiology
 Jointly Appointed, Global Health



Cheryl Day, PhD
 Associate Professor,
 Department of Microbiology
 and Immunology
 Emory Vaccine Center
 Emory School of Medicine



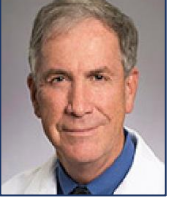
Nicole Gerardo, PhD
 Professor, Biology Department
 Emory College of Arts and
 Sciences



Thomas Gillespie, PhD
 Associate Professor, Department of
 Environmental Sciences
 Emory College of Arts and Sciences



Elizabeth Sajewski
 IDASTP Trainee
 Environmental Health Sciences
 Lopman Lab



David S. Stephens, MD
 Vice President for Research,
 Woodruff Health Sciences Center
 Chair, Department of Medicine
 Emory School of Medicine



Lance Waller, PhD
 Professor, Department of
 Biostatistics and Bioinformatics
 Rollins School of Public Health

IDASTP LEADERSHIP

IDASTP is led by the IDASTP Steering Committee representing ECAS, RSPH and SOM. Training Faculty are recruited from various departments on campus to ensure IDASTP includes a broad spectrum of infectious disease research training faculty.

IDASTP TRAINING FACULTY

Faculty	Department
Cervantes-Barragan, Luisa	Microbiology and Immunology
Civitello, Dave	Biology
Clasen, Thomas F.	Environmental Health
Day, Cheryl L.	Microbiology and Immunology
de Roode, Jacobus C.	Biology
del Rio, Carlos	Global Health
Derdeyn, Cynthia A.	Pathology and Laboratory Medicine
Freeman, Matthew	Environmental Health, Epidemiology and Global Health
Galinski, Mary R.	Medicine (Infectious Diseases)
Gerardo, Nicole M.	Biology
Gillespie, Thomas R.	Environmental Sciences
Goldberg, Joanna B.	Pediatrics (Pulmonology, Allergy/Immunology, Cystic Fibrosis and Sleep/Apnea)
Hunter, Eric	Pathology and Laboratory Medicine
Kitron, Uriel D.	Environmental Sciences
Koelle, Katia	Biology
Leon, Juan S.	Global Health
Lopman, Benjamin A.	Epidemiology
Lowen, Anice C.	Microbiology and Immunology
Moe, Christine L.	Global Health
Read, Timothy D.	Medicine (Infectious Diseases)
Rengarajan, Jyothi	Medicine (Infectious Diseases)
Silvestri, Guido	Pathology and Laboratory Medicine
Stephens, David S.	Medicine
Sullivan, Patrick S.	Epidemiology
Udhayakumar, Venkatachalam	CDC (Division of Parasitic Diseases)
Vazquez-Prokopec, Gonzalo M.	Environmental Sciences
Vega, Nic M.	Biology
Waller, Lance A.	Biostatistics and Bioinformatics



We would like to thank **Karen Levy** for serving on the IDASTP Steering Committee, and for helping to develop and implement the program. We wish Karen the best of luck at the University of Washington and look forward to continuing working with her as mentor of Frederica Lamar.



Todd Swink
 Assistant Director,
 IDASTP & MP3 Initiative
 Biology Department
 Emory College of Arts and Sciences

IDASTP
 Info



IDASTP Sponsors

The IDASTP is sponsored by the the NIAID and multiple Emory entities. We would like to take time to recognize our sponsors.



Provost Office

Vikas Sukhatme,
Dean of Emory School of Medicine

Michael Elliot,
Dean of Emory College of Arts and Sciences



EMORY
UNIVERSITY

Laney Graduate School

Deborah W. Bruner,
Senior Vice President for Research

Jonathan Lewin
Executive Vice President for Health Affairs

Emory Department of Biology

IDASTP Deadlines & Registration

2021 IDAS Symposium
Registration Deadline
March 1, 2021

Registration Link
<http://whsc.emory.edu/mppp/index.html>

IDASTP Application Deadline
April 16, 2021

IDASTP AOD Deadline
May 19, 2021

2021 IDAS Seminar Series
Spring 2021

IBS 500r- Current Topics in
Biosciences Class Code: 4988

IDAS Journal Club
May – June 2021



EMORY UNIVERSITY