IDASTP

INFECTIOUS DISEASES ACROSS SCALES TRAINING PROGRAM

Spring 2026

IDASTP NEWSLETTER

Welcome to the Spring 2026 edition of the IDASTP Newsletter. We are excited to announce the IDASTP has earned renewal funding from NIAID allowing the program to expand even more! This year's IDAS Seminars, application deadlines and other activities are detailed within this edition of the newsletter.

Note From the Director

Jaap de Roode, PhD
IDASTP DIRECTOR

CONTENTS

Program 3-4
People 5-12
Events 13-16
Sponsors 17

In troubling and uncertain times, community is everything, and I am so happy with the IDASTP community, which has not only remained strong but also grown. As we have completed the first year of the renewed and expanded training program, we have been lucky to welcome trainees and affiliates studying a wide range of infectious disease across scales topics. And despite funding turmoil, we have received our notice of award to keep on going!

This year, we said goodbye to a large group of trainees and affiliates, with what felt like a dissertation defense every week over the summer! I loved attending these, and have enjoyed pushing myself to equally learn about the many different immune cells and cytokines that are involved in driving infection dynamics of TB-HIV infected people, and the advanced modeling required to understand how to best introduce and optimize vaccination.

I hope you enjoy reading about our new community members, as well as about everyone who defended this year. We will have our next retreat at Panola State Park on April 18, 2026, and I hope to see you there and then!

With best wishes, Jaap

Important Dates Page 2
Program Pages 3-4
People Pages 5 - 12
Events Pages 13 - 16

EMORY UNIVERSITY

Important Dates

SPRING IDAS Seminars

Spring, Tuesdays, 3 PM – 4 PM ET

Begins 1/13/26

Claudia Nance Rollins Building, Room 1051
Zoom link sent via NEWS Across Scales Listserv

Recordings can be found on our YouTube Page

IDASTP Trainee & AOD Application Deadline

APRIL 1, 2026

Visit the IDASTP website for application requirements submission portal, and other details.

FALL IDAS Seminars

Spring, Tuesdays, 3 PM – 4 PM ET

Fall 2026

Claudia Nance Rollins Building, Room 1051
Zoom link sent via IDAS Listserv

Recordings can be found on our YouTube Page

Virulent Vortex Podcast

New Episodes released the first Thursday of each month

Hosted by Jaap de Roode

Featuring MP3 and IDASTP researchers

YouTube Apple Podcasts Spotify

NEWS *ACROSS SCALES*

MP3 INITIATIVE & IDASTP

Biweekly newsletter announcing all the MP3 and IDASTP events

Join the News Across Scales Listserv

SCAN ME

IDAS Community

IDASTP — INFECTIOUS DISEASES ACROSS SCALES TRAINING PROGRAM

MP3 — THE MP3 INITIATIVE
From Molecules and Pathogens to Populations and Pandemics

FALL IDAS CAREER DEVELOPMENT SEMINARS

SPRING IDAS SEMINARS

NEWS *ACROSS SCALES*
MP3 INITIATIVE & IDASTP

Virulent Vortex Podcast

MP3 & IDASTP RETREAT

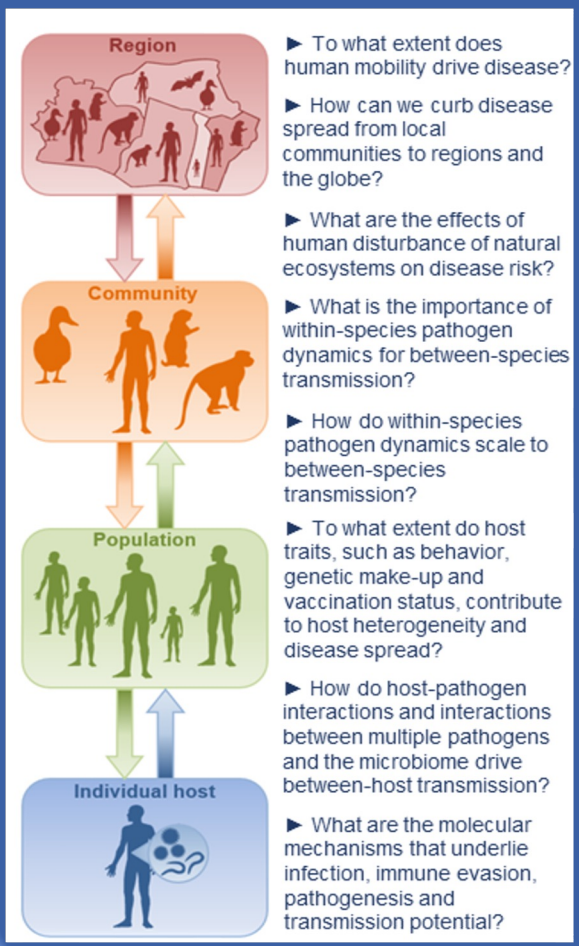
Program

IDASTP (Infectious Diseases Across Scales Training Program) is a NIH T32 grant funded by the NIAID (National Institute of Allergy and Infectious Diseases) in 2019.

The objective of the IDASTP is to train competitive scientists who use interdisciplinary cross-scale approaches to better study and control infectious disease. This training program supports pre-doctoral students in infectious disease across scale research approach.

ACROSS SCALES RESEARCH

Typical Topics and questions addressed in this cross-scales perspective include:



APPLICATION REQUIRMENTS

PROGRAMING & SUPPORT

RESEARCH TRACKS

Trainee Track

- 4 students per year (2 3rd years and 2 4th years)
- Trainees are supported for 2 years (3rd and 4th year)
- Trainees from IMP, MMG, PBEE, EPI, EHS and BIOS
- Two-year support includes:
  - Stipend support
  - $1,000 per year for travel to conferences, workshops or fieldwork
  - $1,000 per year for research-related costs
  - First access to 1-1 meetings with guest speakers from various IDASTP events

Affiliate Track

(Award of Distinction; AOD)

The IDASTP Award of Distinction was created to further support student research from students who have not been admitted to the IDASTP program and whose research clearly fits with in the infectious disease across scales approach. Students support includes funds for research supplies and travel

- 3-4 students per year
- One year support includes:
  - $2,000 for 1 year for travel conferences, workshop, fieldwork and research related expenses
  - First access to 1-1 meetings with guest speakers from various IDASTP events

2025 TRAINEE & AOD DEADLINE

APRIL 1, 2026

Visit the IDASTP Website for more details.

IDASTP Trainee Timeline

- Trainees are required to participate in training activities during both year 3 and 4
- Affiliates (Award of Distinction) are required to do so in year 3 or 4, with the other year being optional.

Year 1

- Students from IMP, MMG, PBEE, EPI, EHS and BIOS programs enroll in program-specific curriculum.

Year 2

- Students complete program-specific curriculum and take curriculum-specific qualifying exam.
- Students enroll in ***Infectious Diseases Across Scales Seminar*** (Spring) as prerequisite for application to IDASTP.
- Students apply to IDASTP.

Years 3 and Year 4

- Trainees are financially supported by IDASTP (**stipend, research and travel funds**)
- Trainees set up **dissertation committee with faculty from at least two participating programs**.
- Trainees participate in ***Career Development Seminar*** (Fall)
- Trainees attend ***Infectious Diseases Across Scales Seminar*** (Spring)
- Trainees attend ***Annual Retreat*** and participate in ***Science Communication Workshop***
- Trainees perform dissertation research

IDASTP trainee track

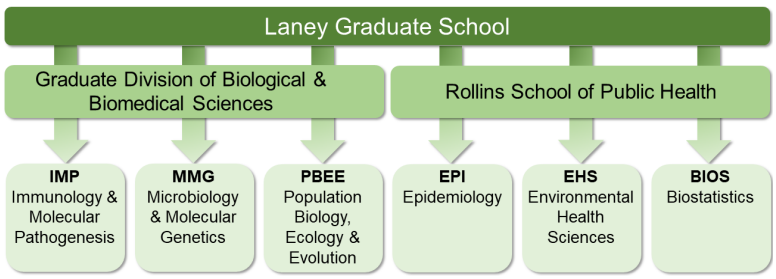
Year 3 and/or Year 4

- Affiliates receive **research and travel funds** from IDASTP
- Affiliates participate in ***Career Development Seminar*** (Fall) (year 3 and/or 4)
- Affiliates attend ***Infectious Diseases Across Scales Seminar*** (Spring) (year 3 and/or 4)
- Affiliates attend ***Annual Retreat*** and participate in ***Science Communication Workshop*** (year 3 and/or 4)
- Affiliates perform dissertation research (years 3 and 4)

IDASTP affiliate track

Year 5

- Optional: Trainees and affiliates participate in ***Career Development Seminar*** (Fall) and ***Infectious Diseases Across Scales Seminar*** (Spring)
- Trainees and affiliates finish dissertation research and graduate



Organizational structure of graduate programs

The Laney Graduate School administers all graduate programs at Emory University, including the IMP, MMG, PBEE, EPI, EHS and BIOS programs. The IMP, MMG and PBEE programs are further organized into the Graduate Division of Biological and Biomedical Sciences, together with another five graduate programs.

2025 TRAINEE & AOD DEADLINE

APRIL 1, 2026

Visit the IDASTP Website for more details.

2025-2026 Trainees

IDASTP welcomes Charlotte Doran, Cora Hirst, Louis Hopkins and Collin Leese-Thompson as trainees for the 2025-2026 academic year. Together with returning trainees Courtney Babb and Madison Schwab they will have access to opportunities, training, and support to further their contributions in the field of infectious diseases.

COURTNEY BABB

Admitted 2024
Epidemiology
Mentor: Elizabeth Rogawski McQuade

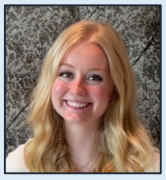
I am interested in the effects of diarrheal disease-causing pathogens on child health. My doctoral research aims to understand the sources and routes of transmission of *Shigella* and *Campylobacter* spp. in a young cohort in Bangladesh and Tanzania. *Shigella* and *Campylobacter* likely have different primary transmission routes, so this study will associate environmental and household detections of the pathogens with subclinical infections and diarrhea among enrolled children. Ultimately, this work can assist with understanding enteric pathogen transmission and inform the design of targeted interventions to improve child health in low-resource settings.

MADISON SCHWAB

Admitted 2024
Population Biology, Ecology, & Evolution
Mentor: Lance Waller

I am especially interested in the practical application of mathematical modeling methods to support disease surveillance efforts. I am currently exploring this question in two systems. In one case, I am applying spatiotemporal transmission models to aid surveillance of an emerging epizootic of rabies in a novel host, the cape fur seal. In the other, I am looking to understand how modeling predictions have affected and can continue to support long term conservation efforts of the Tasmanian devil decades after the emergence of Devil Facial Tumor Disease, a form of transmissible cancer. Both systems present unique challenges in understanding host-parasite systems across space and time, particularly in exploring system dynamics at the early stages of disease emergence vs projecting long term host and parasite coexistence.

CORA HIRST



Admitted 2025
Population Biology, Ecology & Evolution
Mentor: Rustom Antia & Daniel Weissman

My work centers around the dynamics of immune responses against viral infections, with a particular focus on understanding how immune memory elicited by infection shapes the susceptibility, pathology, and transmissibility of subsequent infections. I use mathematical models to capture the general behavior of disease and immunological dynamics from first principles in ecology and evolution. I have a special interest in the immunology and ecology of respiratory viruses, where frequent reinfection of hosts presents a rich eco-evolutionary landscape both at the level of transmission between hosts and at the level of the generation and effect of immune responses within hosts.

2025-2026 Trainees (continued)

CHARLOTTE DORAN

Admitted 2025
Epidemiology
Mentor: Krisitin Nelson

Mobility, migration, and social contact patterns influence how infectious diseases proliferate in populations, and therefore also modify the overall impacts of interventions against infection and transmission. Recent insights into the dynamics of tuberculosis, in particular, highlight that transmission via close contacts such as household members account for a minority of transmission events, so interventions focused on household members alone may be insufficient. My research uses mathematical and spatial models of tuberculosis dynamics that incorporate empirical data on social contact patterns in the home and in the community to evaluate the population-level overall effects of novel vaccines for tuberculosis targeted at adolescents and adults with particular emphasis on the magnitude of herd immunity protection for those unable to be vaccinated.

LOUIS HOPKINS

Admitted 2025
Immunology & Molecular Pathogenesis
Mentor: Jyothi Rengarajan

My research explores Mycobacterium tuberculosis (Mtb) mediated immune suppression, particularly understanding how infection alters host immunometabolism to dysregulate immune cell communication. We know from work in our lab that Mtb infected dendritic cells are impaired in coordinating protective T cell responses due to loss of CD40 protein signaling. My dissertation investigates the underlying mechanism and consequence of this loss of function in dendritic cells through evaluating changes in metabolism and nutrition use which influence the interactions between dendritic cells and T cells. Interestingly, my work demonstrates a novel connection between CD40 signaling in dendritic cells and the CD155-CD226-TIGIT receptor axis that regulates T cell responses. This has not been extensively explored in the tuberculosis (TB) field and could provide insight into developing better vaccines against the disease.

COLLIN LEESE-THOMPSON

Admitted 2025
Immunology & Molecular Pathogenesis
Mentor: Rabin Tirouvanziam

I use advanced ex vivo airway transmigration models to generate and study airway-recruited myeloid cells, providing a powerful system to investigate innate immune responses in infectious disease. By conditioning blood-derived monocytes and neutrophils with patient airway secretions, I produce monocytes, macrophages, and neutrophils that closely recapitulate the lung environment, particularly in diseased contexts. These models offer a physiologically relevant platform to examine how host cells interact with *Mycobacterium tuberculosis* and *Yersinia pestis*, yielding insights into bacterial clearance, granuloma dynamics, and the mechanisms underlying resistance versus susceptibility.

2025 TRAINEE & AOD DEADLINE
APRIL 1, 2026

Visit the IDASTP Website for more details.

2025 – 2026 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.

RILEY DRAKE

Admitted 2024
Immunology & Molecular Pathogenesis
Mentor: Rustom Antia

Dengue virus causes 400 million infections annually, making the development of a safe and effective dengue vaccine a global health priority. A characteristic of dengue virus is antibody-dependent enhancement (ADE), where low antibody titers enhance rather than attenuate viral replication. The risk of enhanced disease from low antibody levels complicates the much-needed deployment of a dengue vaccine. The first dengue vaccine lost regulatory approval because Phase 3 trials showed it increased the risk of severe disease in some people. However, the subsequent vaccine does not increase the risk of severe disease. We use within-host mathematical models of dengue infection to predict the immunological factors that contribute to or mitigate ADE-enhanced severe disease and apply these models to understand the causes of the disparate outcomes of the two vaccines. Our model suggests that CD8+ T cells play a critical role in mitigating severe disease caused by ADE and may account for the different outcomes observed with the two vaccines. The model identifies potential avenues for further improving dengue vaccine safety and efficacy. I am also developing population-level models to estimate the burden of ADE-enhanced severe disease in endemic areas. These models will help inform both the allocation of health resources and the optimization of vaccine deployment strategy.

RINA DAS

Admitted 2024
Environmental Health Sciences
Mentor: Matthew Freeman

My research focuses on understanding how the microbiome influences child health and disease. Specifically, it examines how gut microbiome characteristics relate to childhood diarrhea and subsequent growth outcomes. It also explores how oropharyngeal and nasopharyngeal microbiome profiles are associated with infant pneumonia and respiratory symptoms through infancy. Ultimately, my work aims to uncover microbiome-mediated pathways linking infection, nutrition, and environmental exposures, informing strategies that combine microbiota-targeted and clean-air interventions to improve early childhood health.

DIANA GALLARDO ROJAS

Admitted 2024
Population Biology, Ecology & Evolution
Mentor: Anne Piantadosi

My research explores the undetected circulation of mosquito-borne viruses in Colombia through the integration of viral genome sequencing, antibody profiling, and metagenomics. My research proposal aim to uncover patterns of silent transmission in an arboviral endemic region by linking viral diversity in febrile patients with immune response changes in asymptomatic participants. Ultimately, these insights will help strengthen early detection efforts and inform more effective public health strategies for arboviral control.

2025 TRAINEE & AOD DEADLINE
APRIL 1, 2026

Visit the IDASTP Website for more details.

Alums

IDASTP takes pride in our students and their contributions to the program. Building a program over the span of five years is no small feat, and it's clear that the students have played a crucial role in its development.

Congratulations to our students on their achievements, and here's to continued success and progress in the field of infectious disease research and training!

TRAINEES

Ashley Alexander
Trainee 2021-2023
Mentors: Joanna Goldberg and Tim Read
Population Biology, Ecology & Evolution
Now postdoc at University of Zurich

Steph Bellman
Trainee 2022 - 2024
Mentors: Gonzalo Vazquez-Prokopec and Anne Piantadosi
Environmental Health Sciences
MD/PhD Candidate

Amber Coats
Trainee 2021-2023
Mentor: Katia Koelle
Microbiology & Molecular Genetics

Maria Garcia Quesada
Trainee 2023-2025
Mentor: Ben Lopman
Epidemiology
Now postdoc at Emory University

Ian Hennessee
Trainee 2020-2022
Mentor: Thomas Clasen and Uriel Kitron
Environmental Health Sciences
Now EIS fellow at the CDC

Nicole Hood
Trainee 2024-2025
Mentor: Elizabeth Rogawski McQuade
Epidemiology
Now Consultant at Analysis Group

David Jimenez-Vallejo
Trainee 2023-2025
Mentors: Gonzalo Vazquez-Prokopec
Population Biology, Ecology & Evolution

Frederica Lamar
Trainee 2020-2021
Mentors: Karen Levy and Matthew Freeman
Environmental Health Sciences
Now EIS fellow at the CDC

Stephen Mugel
Trainee 2022 - 2024
Mentors: Thomas Clasen and Tom Gillespie
Environmental Health Sciences
Now EIS Fellow at the CDC

Rachel Pearson
Trainee 2021-2023
Mentor: Cheryl Day
Immunology & Molecular Pathogenesis
Now postdoc at University of Basel

Elizabeth Sajewski
Trainee 2019-2021
Mentor: Ben Lopman Lab
Environmental Health Sciences
Now EIS fellow at the CDC

Kelsey Shaw
Trainee 2019-2020
Mentor: Dave Civitello
Population Biology, Ecology & Evolution
Now postdoc at the University of Notre Dame

2025 TRAINEE & AOD DEADLINE
APRIL 1, 2026

Visit the IDASTP Website for more details.

Alums (continued)

AWARD OF DISTINCTION (AOD)

KM Barnett
AOD 2021-2022
Mentor: Dave Civitello
Population Biology, Ecology & Evolution
Now ORISE Epidemiology Fellow CDC

LM Bradley
AOD 2020-2021
Mentor: Dave Civitello
Population Biology, Ecology & Evolution
Now Postdoc at NCEAS

Aniruddha Deshpande
AOD 2022-2023
Mentor: Ben Lopman
Epidemiology
Now Consultants at ERM

Vincent Giacalone
AOD 2021-2022
Mentor: Rabin Tirouvanziam
Immunology & Molecular Pathogenesis
Now Scientist at Larkspur Biosciences

Mackenzie Hoogshagen
AOD 2024-2025
Mentor: Jaap de Roode
Population Biology, Ecology & Evolution

Carol Liu
AOD 2021-2022
Mentor: Ben Lopman
Epidemiology
Now PE Fellow at CDC

Ben Lukubye
AOD 2024-2025
Mentor: Dave Civitello
Population Biology, Ecology & Evolution

Michael Martin
AOD 2020-2021
Mentor: Katia Koelle
Population Biology, Ecology & Evolution
Now Postdoc at John Hopkins University

Sandra Mendiola
AOD 2020-2021
Mentors: Nicole Gerardo & Dave Civitello
Population Biology, Ecology & Evolution
Now Postdoc at the University of Georgia

Vishnu Raghuram
AOD 2022-2023
Mentors: Tim Read and Joanna Goldberg
Microbiology & Molecular Genetics
Now Postdoc at Umea University

Natalie Olson
AOD 2023-2025
Mentors: Maya Nadimpalli and Lance Waller
Environmental Health Sciences
Now Postdoc at University of Montpellier

Megan Phillips
AOD 2024-2025
Mentors: Daniel Weissman and Tim Read
Population Biology, Ecology & Evolution

Meher Sethi
AOD 2023-2025
Mentor: Anice Lowen
Microbiology and Molecular Genetics

Tammy Spikes
Awarded 2023-2024
Mentor: Marlene Wolf
Environmental Health Sciences

Elizabeth Somsen
AOD 2024-2025
Mentor: Katia Koelle
Population Biology, Ecology & Evolution

Courtney Victor
AOD 2022-2023
Mentor: Matthew Freeman
Environmental Health Sciences
Now EIS Fellow at the CDC

2025 TRAINEE & AOD DEADLINE
APRIL 1, 2026

Visit the IDASTP Website for more details.

IDASTP STEERING COMMITTEE

Faculty Members

Jaap de Roode, PhD
Director, IDASTP
Samuel C. Dobbs Professor of Biology
Emory College of Arts and Sciences
Member, Board of Directors, Rosalynn Carter Butterfly Trail

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

Deanna Kulpa, PhD
Associate Professor,
Pathology & Laboratory Medicine
Emory School of Medicine

Maya Nadimpalli, PhD
Assistant Professor,
Environmental Health
Jointly Appointed, Global Health
Rollins School of Public Health

Anne Piantadosi, PhD
Assistant Professor,
Pathology and Laboratory Medicine
Emory University School of Medicine

Gonzalo Vazquez-Prokopec, PhD
Associate Professor, Environmental Sciences
Winship Distinguished Research Professor in Environmental Sciences
Global Health Institute Faculty Distinction Fund Awardee
Emory College of Arts and Sciences

Student Members

Madison Schwab
IDASTP Trainee (2nd Year)
Population Biology, Ecology & Evolution

Charlotte Doran
IDASTP Trainee (1st Year)
Epidemiology

Administrative Member

Todd Swink
Associate Director,
IDASTP
The MP3 Initiative

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
Antia, Rustom	Biology
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
Dean, Natalie	Biostatistics and Bioinformatics; Epidemiology
Freeman, Matthew	Environmental Health, Epidemiology and Global Health
Gerardo, Nicole M.	Biology
Gillespie, Thomas R.	Environmental Sciences
Goldberg, Joanna B.	Pediatrics
Hunter, Eric	Pathology and Laboratory Medicine
Koelle, Katia	Biology
Kulpa, Deanna	Pathology & Laboratory Medicine
Lau, Max	Biostatistics and Bioinformatics; Epidemiology
Leon, Juan S.	Global Health
Logan, Latania	Pediatrics
Lopman, Benjamin A.	Epidemiology
Lowen, Anice C.	Microbiology and Immunology
McQuade, Elizabeth Rogawski	Epidemiology
Moe, Christine L.	Global Health
Nadimpalli, Maya	Environmental Health
Nelson, Kristin	Epidemiology
Piantadosi, Anne	Pathology & Laboratory Medicine
Read, Timothy D.	Medicine (Infectious Diseases)
Rengarajan, Jyothi	Medicine (Infectious Diseases)
Silvestri, Guido	Pathology and Laboratory Medicine
Sullivan, Patrick S.	Epidemiology
Suthar, Mehul	Pediatric Infectious Disease
Tirouvanziam, Rabin	Pediatric Infectious Diseases
Vazquez-Prokopec, Gonzalo M.	Environmental Sciences
Vega, Nic M.	Biology
Waller, Lance A.	Biostatistics and Bioinformatics

Q & A with IDASTP Training Faculty Students

Louis Hopkins
IDASTP Trainee 2025
& IDASTP AOD 2024

PhD Candidate
Immunology & Molecular Pathogenesis
Mentor: Jyothi Rengarajan

What does across scales mean to you?

It is an acknowledgement that a single area of study is insufficient to address the global burden of infectious diseases. We as scientists must adopt an interdisciplinary paradigm and demonstrate a willingness to explore areas of knowledge outside of our formal training. This means reading literature from different fields, continuously engaging specialists outside of our research scope, and building cross-discipline teams to develop research trajectories. As someone who has worked not only in biomedical research but also grassroots efforts for prevention, I appreciate and value the different areas of science that shape the research community's understanding of disease at the micro and macro scale. I urge basic scientists to familiarize themselves with epidemiology, ecology, and behavioral-social sciences (among others) to be better informed overall about the diseases that we study.

How did you get into your research?

My first research project was studying *Chlamydia* pathogenesis while in undergrad at Cornell University. It was the catalyst for transitioning away from medical school to become an infectious disease physician to pursuing training as research immunologist. Since graduating in 2014, I have been fortunate enough to explore research areas in biomedical engineering, therapeutics, health disparities, cancer and infectious disease. From these experiences, I recognized that immunology as field is interdisciplinary and foundational to understanding human health and disease. The reason I have chosen TB for my doctoral training is because the complex nature of this disease and my current project is preparing me to be an adept, well-rounded scientist that has the capacity to study any disease post-graduation. Additionally, my work in health disparities demonstrated a disconnect between the research community and the communities of people we intend the serve. Through my training as an immunologist, I possess the tools to make information more accessible to the general public and improve science communication to the masses.

How has the program shaped your research?

The IDASTP program has shaped how I think about my science, especially because my research informs future vaccine design and development. I am more consistently thinking about vaccine community uptake, distribution limitations (such as cold-chain requirements), vaccine accessibility, etc. While the basic science components of my dissertation have not changed extensively, my future research and career goals/interests have been significantly influenced by IDASTP. Because of this program, I am excited to pursue more formal training in epidemiology in addition to postdoctoral vaccinology research opportunities.

Describe your most exciting research finding

My most exciting research finding is that when Mtb infects dendritic cells, the bacteria restrict important signaling events that change the immune cell's metabolism. More specifically, infection prevents dendritic cells from using fatty acids and amino acids as an energy source. Fatty acid and amino acid metabolism seems to be essential for dendritic cell activation and their ability to coordinate strong T cell responses against Mtb infection. The pathogen is actively preventing this to promote its survival. In the field of TB, dendritic cells are understudied compared to macrophages, another immune cell the bacteria infect. These findings can help us better understand nuances of immune suppression driven by Mtb infection, potentially informing us how to augment host immunity to improve protective responses in the form of vaccines or host-directed therapies (HDTs).

What do you see as your research trajectory?

I will continue pursuing research in immunology/vaccinology while also getting more rigorous training in epidemiology. My short-term goal is to complete a 1-to-2-year postdoc before a clinical fellowship in medical and public health microbiology. This program serves to train fellows to be directors of clinical laboratories. As a director, I will develop and inform diagnostic practices for various diseases, as well as be involved in research across different scales: basic/translational, clinical trials, and epidemiological studies.

Megan Phillips
IDASTP AOD Alumni 2024

PhD Candidate
Population Biology, Ecology and Evolution
Mentor: Daniel Weissman

What does across scales mean to you?

To me, "across scales," means thinking holistically about what factors can contribute to your study system or problem of interest. It involves going beyond a single perspective and looking at an issue through a wide array of lenses. Working across scales requires collaboration and communication between researchers from different backgrounds to better address infectious disease at all levels.

How did you get into your research?

I became interested in evolutionary genomics research while working in the Rokas lab at Vanderbilt University as an undergraduate. There, I studied the evolution of the mismatch repair (MMR) pathway in the fungal phylum Ascomycota and the mutational consequences of its loss. The Population Biology, Ecology, and Evolution Program and IDASTP at Emory University were appealing to me because of ongoing research in genomics, parasite adaptation, and host-symbiont interactions across scales. I am co-advised by Dr. Timothy Read and Dr. Daniel Weissman, who have an ongoing collaboration studying evolution, population structure, and horizontal gene transfer in *Staphylococcus aureus*. *S. aureus* is a bacterial symbiont of humans and human-associated animals which can behave as a commensal or pathogen. Much of my work so far at Emory has focused on the evolution of a plasmid: a small, circular piece of DNA which can replicate separately from chromosome and transfer between cells more easily than most genes. They can behave as symbionts within symbionts; bacteria live in or on their hosts, and plasmids reside within the bacteria. Sometimes plasmids can help their host by providing beneficial traits, but they can also be incredibly costly. I am particularly excited about this work because I am interested in the evolution of genome structure and symbiont genomes. I am currently exploring the rates of gene turnover in *S. aureus* and the influence of gene exchange on *S. aureus* genome size.

How has the program shaped your research?

IDASTP has encouraged me to think about how analyses can be enriched by looking across scales and to think more deeply about the methods used in my research. This program has helped me view my work through different perspectives and comprehensively consider the ecological, evolutionary, genetic, and social factors that could be acting on my study system at multiple levels. By talking to people from a variety of backgrounds, I have had exposure to a wide array of ideas and approaches. I have benefitted from these interactions at IDAS seminars, through conversations with other program members, retreat discussions, and conference attendance supported by the program.

Describe your most exciting research finding.

S. aureus is frequently antimicrobial resistant. Most people have heard of methicillin resistant *S. aureus* (MRSA), but *S. aureus* can evolve resistance to many drugs. One of my most exciting research findings concerns a small plasmid, a little piece of DNA separate from the chromosome, carrying a gene conferring resistance the antibiotic tetracycline. This plasmid was previously thought to primarily exist in the cytosol of the cell, with integration into the chromosome happening very rarely, and only into a single position. However, I found that the plasmid has actually integrated repeatedly into the chromosome in multiple sites. The idea that the plasmid is mostly free in the cell was based off of samples collected before the mid-1970s. However, the primary location of the plasmid has changed over time! In more modern samples, the plasmid is mostly chromosomally integrated. This suggests that the lifestyles of plasmids are not static. This work is exciting because it shines a light on the flexibility of the lifestyles of these genetic elements. The position of the genetic element within the genome has implications for the evolution, regulation, and spread of traits such as antimicrobial resistance.

What do see as your research trajectory?

After completing my PhD, I would like to continue my research on evolutionary microbial genomics. While I am curious about a wide variety of topics under this umbrella, I am especially interested in the evolution of genome structure, the evolution of copy number of genetic elements, and the effects of inter- and intra-specific gene exchange on populations of microbes. In the short-term, I am planning to pursue an academic postdoc in the United States or Europe. My long-term goal is to become a PI at a research-focused institution.

IDASTP 2026 SPRING IDAS SEMINAR SERIES

Speaker Schedule

1/13/26	Lance Waller, RSPH, Emory University
1/20/26	Abby Smith, SOM, Emory University
1/27/26	Pallavi Kache, The Carter Center
2/03/26	Kristin Nelson, RSPH, Emory University
2/10/26	Alison Swaims-Kohlmeier, SOM, Emory University
2/17/26	Daniel Weissman , ECAS, Emory University
2/24/26	Nicola Mueller, UCSF
3/03/26	Justin Lessler, University of North Carolina
3/17/26	Chadi Saad-Roy, University of British Columbia
3/24/26	Scott Carver, University of Georgia
3/31/26	Sharia Ahmed, RSPH, Emory University
4/07/26	Rachel Kinsella, SOM, Emory University
4/14/26	Erin Scherer, SOM, Emory University

Tuesdays at 3 PM

In-Person: Claudia Nance Rollins Building Room 1051

Virtual: Join the IDAS Listserv to receive Zoom Link

Join us for the annual spring seminars supported by the IDASTP (Infectious Disease Across Scales Training Program) and the MP3 Initiative (Molecules and Pathogens to Populations and Pandemics).

This weekly series of seminars and discussions on infectious disease research and control across scales is presented by visiting Emory speakers, Emory faculty/postdocs and IDASTP students.

Seminar and discussion topics are chosen to provide a broad overview of the current status of the field.

Attendance of seminars will allow attendees to keep up to speed with developments in the field, and provide a weekly opportunity to meet with peers and faculty in the IDASTP program. We encourage anyone interested in the infectious disease across scales research approach to attend.

All seminars are open to everyone.

More details can be found on the 2026 IDAS Seminar Series Homepage.

Course Information

Class Name: IBS 500R Current Topics in Bioscience

Class Nbr: 5250

Email tswink@emory.edu for permission code

YouTube

Select recorded talks can be found on the MP3 & IDASTP YouTube Channel

NEWS *ACROSS SCALES*

Join the community of infectious disease across scales approach

+ Add me to the News Across Scales Listserv

FALL IDAS CAREER DEVELOPMENT SERIES

Tuesdays at 3 PM

The success of our annual Spring IDAS Seminar Series lead to the development of the new Fall IDAS Career Development Seminar Series. In the inaugural year, IDASTP students, alums, faculty and a guest speaker kicked of the discussions on career development in the infectious disease across scales field. Discussion included the evolution of writing a paper, student research projects, Lance Waller Zombie Talk and special guest Marc Lipsitch presentation.

2025

Jacobus de Roode
Lance Waller
Anita Corbett
Courtney Babb

Megan Phillips
Elizabeth Somsen
Louis Hopkins
Ananya Saha
Ben Lukubye

Collen Kraft
Jill Morgan
Christina Rostad
Andrew Sieben

2024

Jacobus de Roode
Lance Waller
Maria Garcia Quesada

Natalie Olson
David Jimenez-Vallejo
Nicole Hood
Meher Sethi

Marlene Wolfe
Deanna Kulpa
Lauren McCullough

Special Guest: Ying Kai Chan – Cirrus Therapeutics

Special Guest: Garry Myers – University of Technology Sydney Australia

2023

Jacobus de Roode
Steph Bellman
Amber Coats
Ashley Alexander

LM Bradley
Dave Civitello
Maya Nadimpalli
Stephen Mugel

Kelsey Shaw
Ian Hennessee
Frederica Lamar
Elizabeth Sajewski

Lance Waller
Rachel Pearson
Aniruddha Deshpande
Sandra Mendiola

Special Guest: Marc Lipsitch – Harvard University

YouTube Select recorded talks can be found on the MP3 & IDASTP YouTube Channel

The Virulent Vortex is a podcast hosted by Jaap de Roode in which IDAS Community members discuss infectious diseases across scales from molecules and pathogens to populations and pandemics, and everything in between.

Featuring MP3 Awardees, IDASTP students and faculty.

The recorded sessions will be released through the News Across Scales Listserv.

The recordings will also be featured on our website , YouTube Channel Spotify and Apple Podcasts

New Episodes
First Thursday
of each Month

NEW SEASON THREE

Episode 01 – Dave Civitello

Episode 02 – Gonzalo Vazquez-Prokopec

Episode 03 – Matthew Collins

SEASON ONE

Episode 01 – Lance Waller

Episode 02 – Mirko Paiardini

Episode 03 – Sandra Mendiola

Episode 04 – Anice Lowen

Episode 05 – Ben Lopman

Episode 06 – Katia Koelle

Episode 07 – Steph Bellman

Episode 08 – Rachel Pearson

Episode 09 – Stephen Mugel

Episode 10 – Ashley Alexander

SEASON TWO

Episode 01 – Jaap de Roode

Episode 02 – Ani Deshpande

Episode 03 – Natalie Dean

Episode 04 - Elizabeth Rogawski McQuade

Episode 05 - Anne Piantadosi

Episode 06 - LM Bradley

Episode 07 - Amber Coats

Episode 08 - Maya Nadimpalli

Episode 09 - Jaap de Roode

Virulent Vortex' video podcast reveals the personalities behind infectious disease science

Emory Communications

By Carol Clark

The Virulent Vortex is sponsored by The MP3 Initiative.

Episodes are recorded and edited by The Recording Service, Jaap de Roode and Todd Swink

MP3 & IDASTP RETREAT 2026

April 18, 2026

IDASTP faculty and students along with MP3 Initiative Awardees will meet for the annual MP3 & IDASTP Retreat April 18, 2026, on Panola Moutain State Park.

The retreat will feature presentations from IDASTP and MP3 faculty and student awardees and include our annual hike.

Registration and more details to come in the coming months.

SCENES FROM PREVIOUS RETREATS

N E W S *ACROSS SCALES*
MP3 INITIATIVE & IDASTP
Join the News Across Scales Listserv

SCAN ME

IDASTP gratefully acknowledges the generous support from the following contributors:

NIH National Institute of Allergy and Infectious Diseases

MP3 THE MP3 INITIATIVE
From Molecules and Pathogens to Populations and Pandemics

EMORY UNIVERSITY

Department of Biology

Department of Biostatistics & Informatics

Division of Infectious Disease

Emory College of Arts and Sciences

Gangarosa Department of Environmental Health

Department of Epidemiology

Laney Graduate School

Department of Microbiology & Immunology

Department of Pathology & Laboratory Medicine

Department of Pediatrics

Rollins School of Public Health

School of Medicine

N E W S *ACROSS SCALES*
MP3 INITIATIVE & IDASTP

Biweekly newsletter announcing all the MP3 and IDASTP events

Join the News Across Scales Listserv

SCAN ME