



IDASTP NEWSLETTER

Welcome to the Spring 2021 edition of the IDASTP Newsletter. Our program is hosting multiple events including the IDAS Symposium, IDASTP Career Panel and the IDAS Seminar Series, all detailed in this edition of the newsletter. All events are free but do require registration. Registration links appear throughout sections of the newsletter by following the links in the different sections or by going to the links on the last page of the newsletter.

UPCOMING EVENTS

2021 IDAS Symposium

3-30-21 12:00 PM – 4:00 PM ET

IDASTP Career Panel 2021

3-30-21, 4:30 PM – 5:30 PM ET

IDAS Seminar Series

Wednesdays, 12 PM – 1 PM ET

Join the IDAS Listserv for registration & updates: [JOIN](#)

Contents

Researcher Spotlight	2
IDAS Symposium	3
IDASTP Career Panel 2021	4
IDAS Seminar Series	5
IDASTP Application	6
Sponsors & Event Dates	7

2021 IDASTP
Application 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.

2021

IDAS Symposium
Infectious Disease Across Scales

PAGE 4

**IDASTP Career
Panel 2021**

PAGE 5

**2021 IDAS
SEMINAR SERIES**

PAGE 6



DEADLINES
&
REGISTRATION

PAGE 7



EMORY UNIVERSITY

Researcher spotlight

Q & A with IDASTP Training faculty and Trainees



Katia Koelle, PhD
IDASTP Training Faculty
Associate Professor, Biology,
Emory College of Arts & Sciences,
Emory University

What does across scales mean to you?

I interpret IDASTP's 'across scales' emphasis as 'across biological scales'. To me, the overall idea is that substantial insights can be gained into understanding disease dynamics (both ecological and evolutionary dynamics) by combining analyses and findings at small scales (e.g. within hosts) with those at larger scales (e.g., at the population levels).

How did you get into your research?

Once I took a theoretical ecology class as an undergrad, I was hooked on using mathematical modeling to understand ecological dynamics. This transitioned to epidemiological dynamics, and then evolutionary dynamics. What got me really excited about studying infectious diseases was the intertwined nature of their ecological and evolutionary dynamics- for many viral pathogens, in particular, one can't understand their ecological/epidemiological dynamics without considering their evolutionary dynamics and vice versa.

How has the program shaped your research?

I've been excited to be involved in IDASTP and also with the MP3 Initiative at Emory. These programs have funded graduate students and post-docs who have been instrumental in forging collaborations between PIs and have established a new intellectual community between the medical school, ECAS, RSPH, and the CDC.

Describe your most exciting research finding.

My most exciting research finding ever? I'd have to say, by the time I feel like I'm done with a paper, the results sound so obvious that I feel like no reputable journal should publish them.

What do you see as your research trajectory?

Going forward? I'd have to say that if you asked me two years ago what my group would be working on today, I would not have been able to say SARS-CoV-2 (nor would any other researcher in my field). My research will continue to use quantitative approaches to attempt to answer interesting questions related to infectious disease, and it will continue to develop statistical inference methods using pathogen sequence data (because I love this area of research). Beyond that – who knows! It's hard to project more than a couple of years down the line, since the data landscape is changing so rapidly.



Elizabeth Sajewski
IDASTP Trainee
Lopman Lab,
Environmental Health Sciences,
Emory University

What does across scales mean to you?

In my research, I study infectious disease transmission, focusing on enteric viruses, and the impact of vaccination, exposure risks, and environmental changes on disease dynamics. When modeling disease transmission, I think about how mechanisms acting at the individual scale, factors like immunity, disease progression, and exposure risk, can transfer across scales to impact observed disease burden and dynamics at the population scale.

How did you get into your research?

I originally got into my research the way many people come to public health and infectious disease epidemiology, through learning about John Snow, who recognized patterns in the London cholera outbreak of 1854 and tied this outbreak to contaminated drinking water and the Broad Street pump.

This was the spark that ignited my interest in waterborne pathogens and the influence of different scales of interventions, from household chlorination to municipal water systems, on disease dynamics. While my focus has since shifted to enteric viruses, primarily transmitted person-to-person, my interest in the influence of changes across scale, from individual exposure risk to regional environmental changes, remains central.

How has the program shaped your research?

The IDAS program has shaped the way I think about and contextualize my research. In developing research questions and analyzing results, I consider how dynamics working across scales could contribute to the patterns I see. Furthermore, the IDAS program has created a network of researchers thinking about infectious disease at and across different scales. Having the opportunity to connect with these researchers has been an exciting and instrumental part of my training.

(continued on next page)

Researcher spotlight

(continued)

Describe your most exciting research finding.

In my recent work, I have been focusing on the influence of maternal antibody interference and dose schedule on pediatric norovirus vaccination impacts. An exciting finding has been that there seems to be a sweet spot for norovirus vaccination timing that is effective at averting pediatric norovirus cases, independent of assumptions regarding maternal antibody interference. Thus, even though overall

population impact is highly sensitive to maternal antibody interference assumptions, optimal vaccination schedule may not be.

What do you see as your research trajectory?

In my research, I hope to continue to explore the impacts of vaccination on population health, using dynamic models to incorporate heterogeneity in terms of individual exposures, immunity, risk factors, and environmental determinants across scales of infectious disease transmission.



Kelsey Shaw, DVM
IDASTP Trainee Alumna
Civitello Lab
Population Biology,
Ecology & Evolution,
Emory University

What does across scales mean to you?

To me, "across scales" means exciting work! Before beginning my PhD, I had done research at the molecular level and clinical work at the individual level, yet I knew I was interested in population-level questions in disease ecology. What I didn't initially realize is that I could do research that spanned these multiple scales, and that this is the type of work I find really invigorating. While I had already written my research proposal before joining IDASTP, it was really this program that helped me connect my work across multiple scales.

How did you get into your research?

For my doctoral work, I wanted to study disease transmission in a setting that allowed me to merge mathematical modelling and empirical experiments. To me, these two ways of exploring questions in disease ecology are ideal for studying phenomena across scales. Dr. Civitello's lab, and the snail-schistosome system we work in, was the perfect fit for these goals. I was additionally drawn to this work by the potential to have a positive impact on human health.

How has the program shaped your research?

The IDASTP program has been integral in shaping my

research. Before joining the program, I had some sense of how to connect my work across scales, but I had a complete underappreciation for the work so many others are doing across scales in many disease systems. Meeting with seminar speakers to discuss our work has helped me clarify my research questions and hone in on how to present my work to a broad audience.

Describe your most exciting research finding.

So far my most exciting research finding has been related to how individual-level mechanisms -- resource competition between species altering individual body size -- can play out at the population scale: in this case, altering the body size structure of the entire population. This idea was the building block for many of the other experiments I had planned in my dissertation, but there was no empirical evidence in the literature that it would actually occur, and some in our field even told me they didn't believe it would happen. When I got the data that confirmed that my idea could work, I was very excited and a little shocked!

What do you see as your research trajectory?

I absolutely want to continue to study infectious diseases across scales. For my dissertation, I have conducted experiments at the individual and population levels, but I hope to be able to travel to a schistosome-endemic area (Tanzania) next year to ask questions about schistosomes and the greater ecological community. I think that for my post-doc I will change host-pathogen systems in order to expand my skillset and eventually I hope to continue this type of work as an independent investigator.

Visit the [IDASTP Website](#) for more information on infectious disease across scales research.

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. The IDAS Symposium is a joint effort between IDASTP and the MP3 Initiative with funding support from multiple Emory sources.

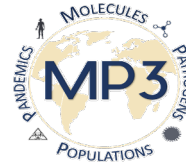
2021

IDAS Symposium

Infectious Disease Across Scales

March 30, 2021 12 PM – 4 PM

HOSTED BY



From Molecules and Pathogens
to Populations and Pandemics



Infectious Disease
Across Scales
Training Program

[MP3 & IDASTP Website](#)

Featuring interdisciplinary research that transcends traditional scales to better understand and control infectious disease

Keynote Speakers

Vincent Bond, PhD

Exosomes and immune/inflammatory micro-environments: HIV pathogenesis case study.

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



Erin Mordecai, PhD

Global change and the ecology of vector-borne disease.

Assistant Professor of Biology,
Center Fellow, by courtesy,
the Woods Institute For The Environment
Stanford University

Featured Speakers

Elizabeth Sajewski

Pediatric norovirus vaccination: modeling population-level effects of individual-level immunity.

Environmental Health Sciences,
Lopman Lab, Emory University



IDASTP Trainee



MP3 Faculty
Startup Package
Awardee

Matthew Gardner, PhD

Utilizing gene therapy for HIV prevention and cure.

Assistant Professor, Dept. of Medicine: Infectious
Diseases and Department of Pathology and Laboratory
Medicine,
Researcher, Yerkes National Primate Institute Research
Center and Emory Vaccine Center, Emory University

Matthew Collins, MD, PhD

Resolving type-specific flavivirus antibody responses to understand how viral variants move in people and populations.

Assistant Professor,
Infectious Disease, Department of Medicine
School of Medicine, Emory University



MP3 Awardee



MP3 COVID-19
Awardee

Masa Hirano, PhD

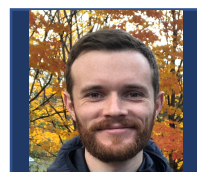
Development of 2019-nCoV-specific antibodies from lampreys.

Assistant Professor,
Department of Pathology and Laboratory Medicine,
School of Medicine, Emory University

Dave VanInsberghe, PhD

Identification of recombinant SARS-CoV-2 genomes.

Postdoctoral Scholar,
Department of Pathology & Laboratory Medicine
School of Medicine, Emory University



MP3 COVID-19
Awardee



MP3 COVID-19
Awardee

Mirko Paiardini, PhD

SARS-CoV-2 pathogenesis, immune responses, and treatment: from macaques to humans.

Associate Professor, Dept. of Medicine: Infectious
Diseases and Department of Pathology
and Laboratory Medicine,
Researcher, Yerkes National Primate Institute Research
Center and Emory Vaccine Center, Emory University

REGISTER ONLINE [HERE](#)

IDASTP Career Panel 2021

This new event will follow the IDAS Symposium scheduled on the same day (see link below for IDAS Symposium details). Both IDAS Symposium keynote speakers, Vincent Bond from Morehouse School of Medicine and Erin Mordecai from Stanford University, will join IDASTP Trainee Elizabeth Sajewski and IDASTP Award of Distinction awardee Sandra Mendiola for a one-hour question and answer session designed for undergraduate and graduate students. Jacobus de Roode, IDASTP Director, will moderate the panel as we explore the career pathway in the field of infectious disease across scales approach.

Exploring the career pathways in the field of infectious disease across scales research

March 30, 2021 4:30 PM – 5:30 PM via Zoom

Vincent Bond, PhD

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

Research: HIV pathogenesis leading to
AIDS: from supercomputer modeling to
monkey studies and translational
immunology in humans.



Erin Mordecai, PhD

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

Research: Infectious disease dynamics
in humans and natural ecosystems:
from lab experiments to mathematics
and climate modeling.



Research: Modeling pathogens and public
health interventions: from the environment
and exposure risk to mathematical models
of disease transmission.

Elizabeth Sajewski

Emory University
PhD Candidate
Environmental Health Sciences
Lopman Lab



Research: Methods for vector-borne disease
control: from laboratory investigation to
modeling effectiveness in the field.

Sandra Mendiola

Emory University
PhD Candidate
Population Biology, Ecology & Evolution
Gerardo & Civitello Labs



Register Online and submit panel questions [HERE](#)

[Event Website](#)



EMORY UNIVERSITY



2021 IDAS SEMINAR SERIES

Speaker Schedule

- | | |
|---------|--|
| 1/27/21 | Lance Waller, RSPH,
Emory University |
| 2/03/21 | 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 |
| 3/03/21 | 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 |
| 4/07/21 | Johanna Salzer,
Centers for Disease Control
and Prevention |
| 4/14/21 | Raina Plowright,
Montana State University |
| 4/21/21 | Max Lau,
RSPH, Emory University |

Wednesdays at 12 PM Via Zoom

All seminars are open to everyone.

Email tswink@emory.edu to receive Zoom links.

The second annual seminar series 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 also 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.

Speaker schedule and Talk Titles can be found on the [IDASTP Website](#).

To schedule a 1-1 Zoom meeting with a guest speaker, email tswink@emory.edu.
(limited availability)

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 the different topics of infectious disease and to present research.

MP3 & IDASTP Info



Todd Swink

Assistant Director,
IDASTP & MP3 Initiative
Biology Department
Emory College of Arts and Sciences
tswink@emory.edu

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
March 30, 2021
12 PM – 4 PM ET
[Register Here](#)

IDASTP Career Panel 2021
March 30, 2021
4:30 PM – 5:30 PM ET
[Register Here](#)

IDAS Journal Club
May – June 2021

2021 IDAS Seminar Series
Spring 2021 Semester
Wednesdays, 12 PM – 1 PM
[Register Here](#)

IDASTP Application Deadline
April 16, 2021

[Application Details](#)

IDASTP AOD Deadline
May 19, 2021



EMORY UNIVERSITY