

Sunday February 7th 2021

NOTE: ALL TIMES ARE in Eastern Standard Time (New York Time)

10:00–12:00 noon — Workshop “How to write an academic paper”, Prof. Stacey Smith?

12:00–12:15 PM — Opening Remarks

12:15–2:30 pm — **6 contributed talks (20 mins each)**

Session Chair: Lauren Childs

- Woldegebriel Assefa Woldegerima University of Pretoria, South Africa
Postdoctoral Fellow
Mathematical Analysis of the Impact of Transmission-Blocking Drugs on the Population Dynamics of Malaria
- Afeez Abidemi Federal University of Technology, Akure
Junior Faculty/Researcher (<10yrs since first academic appointment)
Dengue Population Dynamics in Johor, Malaysia: Vaccination, Treatment and Insecticide Controls
- Danielle Burton University of Wisconsin, Madison
Postdoctoral Fellow
A Mathematical Model of Contact Tracing During the 2014-2016 West African Ebola Outbreak
- Iain Moyles York University
Junior Faculty/Researcher (<10yrs since first academic appointment)
Cost and Social Distancing Dynamics in a Mathematical Model of COVID-19
- Damon Toth University of Utah
Senior Faculty/Researcher (> 10yrs since first academic appointment)
High variability in transmission of SARS-CoV-2 within households and implications for control
- Lauren M. Childs Virginia Tech
Junior Faculty/Researcher (<10yrs since first academic appointment)
Individual quarantine versus active monitoring for the mitigation of COVID-19

2:30–2:35 pm — Health Break

2:35–3:35 pm — Tea Time Panel Discussion, Panel Session on ***Research Grants and Working Outside the University***

Panelists: Zhilan Feng (Purdue & NSF), John Glasser (US CDC), Susan Massey (Systems Oncology)
Moderated by Miranda Teboh-Ewungkem

3:35–3:45 pm — Health Break

3:45–6:00 pm — 9 contributed talks (12 mins each + 1 question. End: more questions for entire group)

Session Chair: Miranda Teboh-Ewungkem

- Emily Horton Virginia Commonwealth University
Graduate Student
Title: A stochastic multi-host model for West Nile virus
- Harry Saxton Heriot-Watt University
Graduate Student
Title: Considering the effect reinfected asymptomatic individuals have on malaria transmission
- Peter C Jentsch University of Waterloo
Graduate Student
Prioritising COVID-19 vaccination in changing social and epidemiological landscapes
- Caroline Franco Sao Paulo State University
Graduate Student
Modelling non-pharmaceutical interventions to mitigate COVID-19 in Sao Paulo
- Akhil Kumar Srivastav Vellore Institute of Technology, Chennai Campus, INDIA
Graduate Student
Modeling of COVID-19 with limited public health resources: a comparative study of three most affected countries
- Toheeb Babatunde Ibrahim Hochschule Mittweida University of Applied Sciences
Graduate Student
Is increased mortality by multiple exposures to COVID-19 an overseen factor when aiming for herd immunity?
- Nessma Adil Mahmoud Yousif University of Applied Sciences Mittweida.
Graduate Student
The impact of COVID-19 vaccination campaigns accounting for antibody-dependent enhancement.
- Vijay Pal Bajiya Central University of Rajasthan, India
Graduate Student
Mathematical modeling of COVID-19: Impact of non-pharmaceutical interventions in India
- Yigit Yargic Perimeter Institute
Graduate Student
Vaccine Prioritisation Using Bluetooth Exposure Notification Apps

Monday February 8th 2021

NOTE: ALL TIMES ARE IN Eastern Standard Time (NEW York Time)

9:00–11:15 AM — 6 contributed talks (**20 minutes each**)

Session Chair: Kristan Schneider

- Iulia Martina Bulai University of Basilicata, Italy
Junior Faculty/Researcher (<10yrs since first academic appointment)
A dynamical system and network approach to better understand Covid-19
- Jomar F. Rabajante University of the Philippines Los Banos
Senior Faculty/Researcher (> 10yrs since first academic appointment))
Situation and updates on COVID-19 epidemic in the Philippines: A mathematical perspective
- Henri Christian Junior Tsoungui Obama Hochschule Mittweida, University of Applied Sciences
Junior Faculty/Researcher (<10yrs since first academic appointment)
Preventing the spread of COVID-19 in long-term care facilities
- Gbolahan Bolarin Mathematics Department, Federal University of Technology, Minna
Senior Faculty/Researcher (> 10yrs since first academic appointment))
Analysis of a Mathematical Model for COVID-19 Dynamics in Epicenters of the Six Geopolitical Zones of Nigeria
- Matthew Betti Mount Allison University
Junior Faculty/Researcher (<10yrs since first academic appointment)
Balancing Vaccine Roll-out and Relaxation of NPIs using data
- Kristan Schneider University of Applied Sciences Mittweida
Senior Faculty/Researcher (> 10yrs since first academic appointment))
The COVID-19 vaccine arrived — now what?

11:15–11:25 AM — Health Break

11:25–12:25 PM — Keynote Address 1

Alun L. Lloyd, Department of Mathematics and Biomathematics Graduate Program, North Carolina State University

Title: Stochasticity and Heterogeneity in the Aedes aegypti/Dengue Transmission System: Implications for Spread and Control of Infection

Abstract: The *Aedes aegypti* mosquito is the vector for several infections of public health concern, including dengue, chikungunya, Zika and yellow fever. The mosquito lives in close proximity to humans, typically only disperses over short distances and its population density is often highly heterogeneous across space. As a result, the transmission dynamics of the infections it vectors are subject to significant heterogeneity which must be accounted for when modelling the spread and control of these

infections. Through a series of vignettes, we will discuss some of this modelling, utilizing a number of different mathematical and simulation frameworks---from deterministic and stochastic multi-patch models through to cohort or individual-based simulation models. Pros and cons of the various approaches will be discussed.

12:25 -12:55 PM — Lunch

12:55–1:55 PM — Keynote Address 2

Rachel B. Slayton, PhD, MPH (1), Centers for Disease Control and Prevention, COVID-19 Emergency Response

Title: Mathematical Modeling of Coronavirus Disease 2019 (COVID-19) to Support the Response Efforts

Abstract: Epidemiological modeling of infectious disease transmission informs public health decision-making by providing a way to synthesize data from multiple data sources, adjust for potential biases, forecast the trajectory, evaluate the impact of interventions, and conduct sensitivity analyses. We often adapt methods from mathematics and the physical sciences, with compartmental models comprised of ordinary differential equations serving a central role in modeling of emerging infectious diseases. Network models also provide important insights about optimizing public health prevention strategies (e.g., including evaluation of targeted prevention strategies focused on influential nodes) for infectious diseases, including Coronavirus Disease 2019 (COVID-19). Using a variety of analytic approaches, we have modeled SARS-CoV-2 transmissions among individuals within healthcare facilities, (e.g., nursing homes) to assess the relative value of different testing and mitigation strategies, including comparing the impact of testing strategies focused on either nursing home residents or healthcare providers. Careers in public health can allow mathematicians and physical scientists to apply their strong analytic skills distilling the essence of a complex system into a model that informs translation of data into action.

1:55–2:00 PM — Health Break

2:00–4:50 PM — 8 Contributed talks (**20 minutes each**)

Session Chair: Stacey Smith?

- Kathryn R Fair School of Environmental Sciences, University of Guelph & Department of Applied Mathematics, University of Waterloo
Postdoctoral Fellow
Policy uptake in a pandemic: Individual distancing behaviours, closures, and the spread of COVID-19
- Wasiur KhudaBukhsh The Ohio State University
Postdoctoral Fellow
Dynamic survival analysis of epidemics and how COVID-19 shaped it
- Jasmina Panovska-Griffiths UCL/Oxford University
Junior Faculty/Researcher (<10yrs since first academic appointment)

Modelling the impact of reopening schools in early 2021 in the presence of the new SARS-CoV-2 variant in the UK

- Alejandra Donaji Herrera Reyes University of Nottingham
Postdoctoral Fellow
Uncertainty and error in SARS-CoV-2 epidemiological parameters inferred from population-level epidemic models
- Lihong Zhao University of California, Merced
Postdoctoral Fellow
Mathematical modeling of COVID-19 dynamics on a college campus
- David Moreno Martos University of Dundee
Junior Faculty/Researcher (<10yrs since first academic appointment)
Modelling the transmission of infectious diseases inside hospital bays: implications for Covid-19
- Zytho Paul T. Lachica Center for Applied Modeling, Data Analytics, and Bioinformatics
for Decision Support Systems in Health, University of the Philippines Mindanao, Davao City,
Philippines
Junior Faculty/Researcher (<10yrs since first academic appointment)
Investigating the role of food ration system in controlling COVID-19 at barangay-level in Davao City, Philippines using agent-based model simulation approach
- Glenn Ledder University of Nebraska-Lincoln
Senior Faculty/Researcher (> 10yrs since first academic appointment)
A Model for the COVID-19 Pandemic with Limited Vaccination

4:50–5:50 PM — Tea Time Panel Discussion, Panel on ***Mathematical Biology Education***

Panelists: Jacques Bélair (UMontreal), Katherine Gurski (HowardU), Peter Rashkov (Institute of Mathematics and Informatics, Bulgaria), Jude Kong (York U)

Moderated by Stacey Smith?

5:50–6:00 PM — Closing Remarks