



Hands-on Undergraduate Workshop: Exploring the Interplay Between Malaria and Economic Growth



University of Florida, Gainesville | Spring 2025 (March 26-30, 2025)

Sponsors

- NSF (DMS Award # 2151870)
- Research Office, University of Florida
- College of Liberal Arts and Sciences, University of Florida
- Department of Mathematics, University of Florida

Organizers

- Calistus Ngonghala (University of Florida, Harvard Radcliffe Institute, Harvard Medical School)
- Olivia (Prosper) Feldman (University of Tennessee, Knoxville)
- Ruijun Zhao (Minnesota State University, Mankato)
- Margaret Somers (University of Florida)

Speakers and Panelists

- Charles Mbogo (Kenya Medical Research Institute)
- Libin Rong (University of Florida)
- Maia Martcheva (University of Florida)
- Michael Jury (University of Florida)
- Konstantina Christodouloupoulou (University of Florida)
- Calistus Ngonghala (University of Florida, Harvard Radcliffe Institute, Harvard Medical School)
- Olivia (Prosper) Feldman (University of Tennessee, Knoxville)
- Ruijun Zhao (Minnesota State University, Mankato)
- Hemaho B. Taboe (University of Florida)
- Madison Pratt (University of Tennessee, Knoxville)

Mentors

- Hemaho B. Taboe (University of Florida)
- Madison Pratt (University of Tennessee, Knoxville)
- Eric Van Amber (Minnesota State University, Mankato)
- Megan Sin (University of Florida)

Undergraduate and High School students

First Name	Last Name	Major	Institution
Lucy	Allan	Mathematics (entomology)	University of Florida
Lydia	Barriga	Computer Science	Rochester Institute of Technology
Yixuan (Zoey)	Cao	Mathematics & Statistics	University of Florida
Bo Ying	Chen	Economics	University of Florida
Michelle	Chen	NA	Carlmont High School
Yao Cyrille Helliott	Date	Microbiology, Bs	Minnesota State University, Mankato
Luke	Esper	Economics and Finance	University of Florida
Isabelle	Gatmaitan	Data Science	University of Florida
Sarah	Goodyear	Data Science	Jacksonville University
Megan	Jenkins	Biological Sciences	University of Tennessee
Yasmine	Juarez	Statistics and Economics	University of Florida
William	Kim	Chemistry	Oxford College of Emory
Sophia	Lerebours	Statistics and Integrative Biology	Harvard University
Tom	Li	Biology	University of Florida
Sarah	Milbrandt	Biology	University of Florida,
Helena	Panuthos	Economics	University of Florida
Mia	Picchietti	Statistics and Economics	University of Tennessee
Jada	Sitchler	Mathematics	University of Florida
Matthew Scott	Tan	Mathematics and Statistics	Harvard College
Daniela	Villagomez	Statistics	University of Florida
Omar	Sayeh	Computer & Information Science	University of Florida
Qianyi	Song	Major in Economics	University of Florida

Hotel

Hampton Inn & Suites Downtown
101 SE 1st Ave, Gainesville, FL 32601

Workshop Program

Wednesday March 26, 2025 (Room: LIT 225)

4:00 pm – 4:40 pm Registration

4:40 pm – 5:00 pm Welcome (Ngonghala), and introductions (All)

5:00 am – 5:10 pm Logistics (Somers)

5:10 pm – 6:10 pm Panel discussion: Life cycle of a mathematical biology research project
(Mbogo, Ngonghala, Feldman, Zhao)

6:10 pm – 6:40 pm Project discussion and assignment (Taboe, Pratt, Amber, Sin)

6:40 pm – 7:40 pm Dinner

Thursday March 27, 2025 (Room: LIT 225)

8:15 am – 8:30 am Opening Remarks by the Department Chair

8:30 am – 9:30 am Keynote Speaker (Mbogo)

9:30 am – 10:00 am Coffee break

10:00 am – 11:00 pm Lecture 1: Introduction to infectious disease modeling (Ngonghala)

11:00 pm – 12:00 pm Hands-on modeling experiment for Lecture 1 (Taboe, Pratt, Amber, Sin)

12:00 pm – 1:00 pm Lunch

1:00 pm – 2:00 pm Lecture 2: Developing and analyzing disease models (Zhao)

2:00 pm – 3:00 pm Hands-on modeling experiment for Lecture 2 (Taboe, Pratt, Amber, Sin)

3:00 pm – 3:30 pm Coffee break

3:30 pm – 4:30 pm Panel discussion: Overcoming undergraduate research challenges (Rong, Christodouloupoulou, Ngonghala, Feldman, Zhao)

4:30 pm – 5:30 pm Project (groupwork) and one-on-one mentoring (Taboe, Pratt, Amber, Sin)

5:30 pm – 6:30 pm Dinner

6:30 pm – 8:00 pm Group work (Taboe, Pratt, Amber, Sin)

Friday March 28, 2025 (Atrium)

8:30 am – 9:30 am Lecture 3: Model parametrization (Feldman)

9:30 am – 10:30 am Hands-on modeling experiment for Lecture 3 (Taboe, Pratt, Amber, Sin)

10:30 am – 11:00 am Coffee break

11:00 am – 12:00 pm Project update presentation and discussion (Ngonghala)
12:00 pm – 1:00 pm Lunch
1:00 pm – 2:00 pm Lecture 4: Infectious disease model evaluation and comparison (Taboe)
2:00 pm – 3:00 pm Hands-on modeling experiment for Lecture 4 (Taboe, Pratt, Amber, Sin)
3:00 pm – 3:30 pm Coffee break
3:30 pm – 4:30 pm Panel discussion: Opportunities in mathematical biology (Martcheva, Ngonghala, Feldman, Zhao)
4:30 pm – 5:30 pm Project Groups
5:30 pm – 8:00 pm Dinner

Saturday March 29, 2025 (Room: LIT 225)

8:30 am – 9:30 am Lecture 5: Modeling control measures (Pratt)
9:30 am – 10:30 am Hands-on modeling experiment for Lecture 5 (Taboe, Pratt, Amber, Sin)
10:30 am – 11:00 am Coffee break
11:00 am – 12:00 pm Project presentation and discussion (Zhao)
12:00 pm – 1:00 pm Lunch
1:00 pm – 2:00 pm Lecture 6: Integrating disease and economic models with human behavior (Ngonghala and Feldman)
2:00 pm – 3:30 pm Hands-on modeling experiment for Lecture 6 (Taboe, Pratt, Amber, Sin)
3:30 pm – 4:00 pm Coffee break
4:00 pm – 5:00 pm Panel discussion: Applying for Graduate School and funding for Graduate School (Jury, Christodouloupoulou, Ngonghala, Feldman, Zhao)
5:00 pm – 6:00 pm Dinner
6:00 pm – 8:00 pm Project groups and one-on-one mentoring session

Sunday March 30, 2025 (Room: LIT 225)

8:30 am – 10:00 am Finalize group projects
10:00 am – 10:30 am Coffee break
10:30 am – 11:50 am Student Presentations (Feldman)
11:50 am – 12:00 pm Closing remarks (Ngonghala)
12:00 pm – 1:00 pm Lunch
1:00 pm – Departure/Excursion (Optional)