

QBioS Hands-on Modeling Workshop 2019 on Microbial Games

Georgia Institute of Technology, EBB 1005, May 13-14, 2019

Instructors

QBioS 2018 cohort - Andreea Magalie, Katalina Kimball-Linares, Daniel Lauer, Alexandra Carruthers-Ferrero, Rogelio A. Rodriguez-Gonzalez, Rozenn Pineau, Fiona Wood, Sarah Sundius, Baxi Zhong

Faculty instructors – Joshua Weitz, William Ratcliff, and Peter Yunker

Sponsors

Burroughs Wellcome Fund & Georgia Institute of Technology – Center for Microbial Dynamics and Infection

May 13 program

8.30am Registration

9.00am Welcome by QBioS Cohort

Introduction to game theory - Joshua Weitz

10.15 am Coffee break

10.40am Interactive paper discussion on ‘killing and cooperation amongst bacteria’
Will Ratcliff and Peter Yunker

12.00pm Lunch - *provided for all participants*

1.00pm Laboratory Part 1: Basics of computing for biology in MATLAB/Python
Getting started
Variables, data types, loops

2.20pm Coffee break

2.45pm Laboratory Part 2: Basics of computing for biology in MATLAB/Python
Conditional statements, functions, data visualization
Dynamic simulation methods

4.00pm End of day 1

May 14 program

9.00am Laboratory Part 3: Simulations of microbial games in MATLAB/Python

10.15am Coffee break

10.40am Laboratory Part 3: Simulations of microbial games (continued)

12.00pm Lunch - *provided for all participants*

1.00pm Laboratory Part 4: Modeling Bacterial Interactions and Emergent Pattern
Formation in MATLAB/Python

2:45pm Wrap-up

3:00pm End of workshop