

ILAN N. RUBIN

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EDUCATION

University of British Columbia, Vancouver, BC

PhD, Department of Zoology
Advisor: Dr. Michael Doebeli

2015 - 2022

Cornell University, College of Arts and Sciences, Ithaca, NY

B. A., Computational Biology (*Cum Laude*)
Minor, Mathematics

2009 - 2013

WORK AND RESEARCH EXPERIENCE

Harvard T.H. Chan School of Public Health, Boston, MA

Post Doctoral Research Fellow

2022 - Current

Georgia Institute of Technology, School of Biological Sciences, Atlanta, GA

Researcher with Dr. Joshua Weitz

2015

- During the 2014-2016 West African Ebola virus epidemic, developed models of disease dynamics and response logistics in order to help mitigate the further spread of the virus
- Presented results to the Center for Disease Control and Prevention, Infectious Disease Modeling Group

Gryphon Scientific, Washington, DC

Senior Research Assistant

2013 - 2015

- Helped develop and implement influenza and smallpox epidemic models, specifically modeling the efficacy of medical countermeasures (using Java, C++, and R)
- Built an inventory of data and modeling resources available to federal emergency managers used for planning and response to natural and man made disasters
- Used network analysis and other statistical methods to analyze the quantitative data available to emergency managers at each stage of disaster planning and response

NIMBioS, University of Tennessee, Knoxville, TN

Research Experience for Undergraduates (REU) Summer Intern

2012

Advisors: Dr. Suzanne Lenhart and Dr. Cristina Lanzas

- Developed and analyzed a spatially explicit model of *Salmonella* transmission in swine farms (using Matlab)
- Presented findings as a poster during the 2012 Annual Meeting of The Society for Mathematical Biology

Cornell Outdoor Education, Ithaca, NY

Rock Climbing Instructor, Climbing Wall Monitor

2011 - 2013

PUBLICATIONS

Rubin, I. N., Ispolatov, I., and Doebeli, M. (2022a). Adaptive diversification and niche packing on rugged fitness landscapes. *bioRxiv (Under Review)*

Rubin, I. N., Ispolatov, I., and Doebeli, M. (2022b). Ecological diversity exceeds evolutionary diversity in model ecosystems. *bioRxiv (Under Review)*

Bodnar, T. S., Lee, C., Wong, A., **Rubin, I.**, Parfrey, L. W., and Weinberg, J. (2022). Evidence for long-lasting alterations in the fecal microbiota following prenatal alcohol exposure. *Alcoholism: Clinical and Experimental Research*

Rubin, I. N., Ispolatov, I., and Doebeli, M. (2021). Evolution to alternative levels of stable

diversity leaves areas of niche space unexplored. *PLOS Computational Biology*, 17(7):e1008650

Louca, S., **Rubin, I. N.**, Madilao, L. L., Bohlmann, J., Doebeli, M., and Parfrey, L. W. (2020). Effects of forced taxonomic transitions on metabolic composition and function in microbial microcosms. *Environmental Microbiology Reports*, 12(5):514–524

Rubin, I. N. and Doebeli, M. (2017). Rethinking the evolution of specialization: A model for the evolution of phenotypic heterogeneity. *Journal of Theoretical Biology*, 435:248–264

Rubin, I. N., Ellner, S. P., Kessler, A., and Morrell, K. A. (2015). Informed herbivore movement and interplant communication determine the effects of induced resistance in an individual-based model. *Journal of Animal Ecology*, 84(5):1273–1285

Graeden, E., Fielding, R., Steinhouse, K. E., and **Rubin, I. N.** (2014). Modeling the effect of herd immunity and contagiousness in mitigating a smallpox outbreak. *Medical Decision Making*, 35(5):648–659

TEACHING EXPERIENCE

Head Teaching Assistant

Fundamentals of Biostatistics Laboratory (BIOL 300) 2017 - 2019

- Coordinated computer laboratory portion of the portion and lead team of five teaching assistants for over 300 students.

Teaching Assistant (Instructor)

Integrated Science Research and Development Retreat (ISCI 320) 2021 - 2022

Experimental Research (MICB 447) 2020

Microbial Ecology Laboratory (BIOL 403, 503) 2017, 2019

- Designed and taught the weekly computer laboratory portion of the course. Included an introduction to R programming, genomics data analysis, and data visualization.

Science Communication (SCIE 300) 2019

Fundamentals of Evolutionary Biology (BIOL 336) 2016

Laboratory Investigations in Life Science (BIOL 140) 2016

Fundamentals of Biostatistics Laboratory (BIOL 300) 2015

INVITED WORKSHOPS AND WORKING GROUPS

Evolution of microbial metabolic and genomic diversity at multiple scales

University of British Columbia 2017

Ebola modeling community call

2015

PROGRAMMING LANGUAGES

Working knowledge of Fortran, Julia, Matlab, R, Bash, and HTML. Proficient in Python, Gnuplot, and Javascript. Basic understanding of C++.