Matthew J. Michalska-Smith

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Education

University of Chicago, Chicago, IL
Ph.D., Ecology & Evolution — *2013–2018*
Adviser: Stefano Allesina
Dissertation: "Structural Inferences: three cases of linking pattern and process in ecological networks"

University of Notre Dame, Notre Dame, IN
B.S., Biological Sciences and Theology — *2008-12*

Work Experience

Research

Postdoctoral Research Associate
University of Minnesota, Dept. of Plant Pathology, Kinkel Lab — *2018–present*
- Network structure of multi-layer microbial interaction networks

Laboratory Technician
U. Chicago, Dept. Ecology & Evolution, Allesina Lab — *2012–13*
- Theoretical ecology with an emphasis on networks

Undergraduate Researcher
U. Notre Dame, Dept. Biological Sciences, Ridenhour Lab — *2011-12*
- Ecology and evolution of infectious disease
- Independent research topic: Influenza dynamics at Notre Dame

Practicum in Field Environmental Biology
U. Notre Dame, PI: Ashley Baldridge, PhD Candidate, Lodge Lab — *Summer 2010*
- Modules on Herpetology, Ornithology/Mammalogy, Entomology, Aquatic- and Forest Ecology
- Independent research topic: Intraspecific shelter competition among crayfish

Laboratory Assistant
U. Notre Dame, Dept. Biological Sciences — *Fall 2009, Summer 2011*
- Tank Lab: Stream Ecology and Biogeochemistry
- Pfrender Lab: Ecological Genomics, Adaptation in Natural Populations, Plasticity

Teaching

Instructor
U. Chicago, BSD-QBio — *2015-2017*
(Biological Sciences Division Quantitative Biology Boot-camp for incoming graduate students)
- Beginner/Advanced programming in the biological sciences
- Statistics for large datasets

Teaching Assistant
U. Chicago, Biological Sciences Division — *2014-2017*
- Theoretical Ecology (Winter 2017)
- Biodiversity (with laboratory component; Spring 2016)
- Introduction to Scientific Computing (Winter 2014, 2016)
- Ecology & Evolution (with laboratory component; Winter 2015)

Undergraduate Teaching Assistant
U. Notre Dame, Dept. Biological Sciences — *Spring 2012*
- Mammalogy (with laboratory component; Spring 2012)

Single/Group Tutor
U. Notre Dame, Academic Services for Student Athletes *2008-11*
- Science/Mathematics, especially Calculus through basic multivariate

Publications & Presentations

Publications

1. **Matthew J. Michalska-Smith**[*], Elizabeth L. Sander[*], Mercedes Pascual, and Stefano Allesina. Understanding the role of parasites in food webs using the group model. *Journal of Animal Ecology*, 87:790–800, 2018. https://doi.org/10.1111/1365-2656.12782.

2. György Barabás, **Matthew J. Michalska-Smith**, and Stefano Allesina. Self-regulation and the stability of large ecological networks. *Nature Ecology & Evolution*, 1(12):1870–1875, 2017. https://doi.org/10.1038/s41559-017-0357-6.

3. Jacopo Grilli, György Barabás, **Matthew J. Michalska-Smith**, and Stefano Allesina. Higher-order interactions stabilize dynamics in competitive network models. *Nature*, 548(7666):210–213, 2017. https://doi.org/10.1038/nature23273.

4. **Matthew J. Michalska-Smith** and Stefano Allesina. And, not or: Quality, quantity in scientific publishing. *PLOS ONE*, 12(6):1–12, 2017. https://doi.org/10.1371/journal.pone.0178074.

5. György Barabás[*], **Matthew J. Michalska-Smith**[*], and Stefano Allesina. The effect of intra- and interspecific competition on coexistence in multispecies communities. *The American Naturalist*, 188(1):E1–E12, 2016. https://doi.org/10.1086/686901.

6. **Matthew J. Smith**, Elizabeth Sander, György Barabás, and Stefano Allesina. Stability and feedback levels in food web models. *Ecology Letters*, 18(6):593–595, 2015. https://doi.org/10.1111/ele.12416.

7. Phillip P. A. Staniczenko, **Matthew J. Smith**, and Stefano Allesina. Selecting food web models using normalized maximum likelihood. *Methods in Ecology and Evolution*, 5(6):551–562, 2014. https://doi.org/10.1111/2041-210X.12192.

8. **Matthew J. Smith**, Cody Weinberger, Emilio M. Bruna, and Stefano Allesina. The scientific impact of nations: Journal placement and citation performance. *PLOS ONE*, 9(10):e109195, 2014. https://doi.org/10.1371%2Fjournal.pone.0109195.

9. Kimbra G. Turner, **Matthew J. Smith**, and Benjamin J. Ridenhour. Whirling disease dynamics: An analysis of intervention strategies. *Preventive Veterinary Medicine*, 113(4):457–468, 2014. https://doi.org/10.1016/j.prevetmed.2013.12.008.

10. Stefano Allesina, Elizabeth Sander, **Matthew J. Smith**, and Si Tang. Superelliptical laws for complex networks. *arXiv preprint*, 2013. https://arxiv.org/abs/1309.7275.

Posters & Presentations

Ecological Society of America Annual Meeting
New Orleans, LA USA *6 August 2018*
Session: Communities: Spatial Patterns And Environmental Gradients I
- Presentation: A naïve approach to a longstanding question: Using ordination to identify gradients in ecological data

Public Dissertation Defense
Chicago, IL USA *2 May 2018*
- Presentation: Structural Inferences: three cases of linking pattern and process in ecological networks

[*] These authors have contributed equally to this publication.

NetSci International School and Conference on Network Science
Indianapolis, IN USA *20 June 2017*
- Presentation: Higher-order interactions stabilize dynamics in competitive network models

Ecological Society of America Annual Meeting
Ft. Lauderdale, FL USA *9 August 2016*
Session: Species Interactions
- Presentation: Identifying unique species roles by characterizing differences in ecological network structure

Dissertation Proposal Hearing
Chicago, IL USA *27 August 2015*
- Presentation: Structure and Stability

Ecological Society of America Annual Meeting
Baltimore, MD USA *12 August 2015*
Session: Theoretical Ecology
- Presentation: Looking locally to see globally

ACS International Center Webinar Series
https://global.acs.org/international-center-events/... *25 February 2015*
- Webinar: Global Scientific Collaboration: Key to Scientific Success

ICTP-SAIFR School on Pathogen Dynamics, Climate and Global Change
IFT-UNESP, São Paulo, Brazil *21 January 2015*
- Presentation: The Scientific Impact of Nations: Journal Placement and Citation Performance

Undergraduate Scholars Conference, College of Science Joint Annual Meeting
Notre Dame, IN USA *4 May 2012*
- Poster: Modeling Seasonal Influenza in Indiana with an Age-Stratified SEIR Model

Funding Awarded

2015-2017: Department of Education Graduate Assistance in Areas of National Need (GAANN) Fellow

Honors & Awards

2015: NSF Graduate Research Fellowship Program Honorable Mention

2018: Schmidt Science Fellowship Finalist

Schools & Meetings

Ecological Society of America Annual Meeting
New Orleans, LA USA *5-10 August 2018*

NetSci International School and Conference on Network Science
Indianapolis, IN USA *20-24 June 2017*

Ecological Society of America Annual Meeting
Fort Lauderdale, FL USA *7-12 August 2016*

Ecological Society of America Annual Meeting
Baltimore, MD USA *9-14 August 2015*

ICTP-SAIFR School on Pathogen Dynamics, Climate and Global Change
IFT-UNESP, São Paulo, Brazil *12-23 January 2015*

Non-adaptive selection: explaining macroscopic laws in ecology and evolution
EPFL CIB, Lausanne, Switzerland *7-11 July 2014*

Peer-Reviewing

- Oikos
- Ecology
- Journal of Theoretical Biology
- PLOS Computational Biology
- BioScience
- PLOS ONE
- Scientific Reports
- Journal of Forestry Research
- Frontiers in Genetics
- Scientometrics
- Environmental Modelling & Software
- Proceedings of the Royal Society of London B