

**VITAE**

Jacob A. Russell

Professor

Primary Appointment: Department of Biology

Secondary Appointment: Department of Biodiversity, Earth, and Environmental Sciences

Drexel University

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**EDUCATION**

University of Arizona, Tucson, AZ

Degree: Ph.D. (2004)

Major: Ecology and Evolutionary Biology

University of Rochester, Rochester, NY

Degree: B.S., Magna Cum Laude (1999)

Major: Molecular Genetics

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**ACADEMIC APPOINTMENTS**

2005-2006 NSF Postdoctoral Fellow, Harvard University

2006-2007 Green Memorial Fund Postdoctoral Fellow, Harvard University

2007-2013 Assistant Professor, Drexel University

2013-2019 Associate Professor, Drexel University

2019-present Professor, Drexel University

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**PROFESSIONAL APPOINTMENTS & SOCIETY MEMBERSHIP**

2003-present Society for the Study of Evolution, Member

2001-present Entomological Society of America, Member

2012-2015 Society for the Study of Evolution, Hamilton Award Committee, Chair

2012-present Molecular Ecology, Subject Editor

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**HONORS AND AWARDS**

2014 Who's Who in America

2006-2007 Green Memorial Fund

2004 NSF Postdoctoral Fellowship in Microbial Biology

2003 University of Arizona, Ecology and Evolutionary Biology: Hoshaw Award

2003-2004 University of Arizona, IGERT Fellowship in Genomics

2002 University of Arizona, Center for Insect Science Small Grant

2000-2002 University of Arizona, Plant Insect Interaction Group Grant

2001 University of Arizona, RTG Small Grant

2000-2003 University of Arizona, Ecology & Evolutionary Biology: Small Grant

1999 University of Arizona Graduate College Fellowship

1999 Phi Beta Kappa

1998 Golden Key National Honor Society

1998 DeKiewiet Fellowship (University of Rochester)

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## **TEACHING EXPERIENCE – Drexel University**

### Genomics (BIO 413/613), 3 credits

2019, winter  
2016, fall  
2016, winter  
2014, fall  
2014, winter  
2010, fall  
2010, winter  
2009, winter

### Molecular Ecology (ENVS 326/526), 3 credits

2018, fall  
2015, fall  
2013, fall  
2011, fall  
2009, fall  
2008, winter

### Molecular Ecology Lab (ENVS 327/527), 2 credits

2016, fall  
2014, fall  
2013, fall  
2011, fall  
2009, fall

### Bioinformatics I (BIO 331/534), 3 credits

2019, winter  
2016, fall  
2016, winter  
2014, fall  
2014, winter  
2010, fall  
2010, winter  
2009, winter

### Bioinformatics Laboratory (BIO 333), 2 credits

2010, fall  
2010, winter  
2009, winter

### Physiological and Population Ecology (ENVS 284), 3 credits

2013, winter  
2012, winter  
2011, winter  
2010, winter  
2009, winter

### Physiological and Population Ecology (ENVS 285), 2 credits

2015, winter  
2014, winter  
2013, winter  
2012, winter  
2011, winter  
2010, winter  
2009, winter

The Drexel Experience (UNIV 101), 1 credit

2018, fall  
2016, fall  
2015, fall  
2012, fall  
2008, fall

The Biology Experience (BIO 480), 1 credit

2012, winter

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**PEER-REVIEWED PUBLICATIONS**

Bisch G, Neuvonen MM, Pierce NE, Russell JA, Koga R, Sanders JG, Łukasik P, Andersson SGE. (2018) Genome evolution of Bartonellaceae symbionts of ants at the opposite ends of the trophic scale. *Genome Biology & Evolution* 10: 1687-1704.

Parfrey LW, Moreau CS, Russell JA. (2018) Introduction – The host-associated microbiome: Pattern, process, and function. *Molecular Ecology* 27: 1749–1765.

Hu Y\*, Sanders J\*, Łukasik P, D'Amelio CL, Millar JS, Vann DR, Lan Y, Newton JA, Schotanus, Kronauer DJC, Pierce NE, Moreau CS, Wertz J, Engel P, Russell JA. (2018) Herbivorous turtle ants obtain essential nutrients from a conserved nitrogen-recycling gut microbiome. *Nature Communications* 9: 964. \*These authors contributed equally to this work.

Rock DI, Smith AH, Joffe J, Albertus A, Wong N, O'Connor M, Oliver K, Russell JA (2018) Context-dependent vertical transmission shapes strong symbiont community structure in the pea aphid, *Acyrtosiphon pisum*. *Molecular Ecology* 27: 2039-2056.

Doremus M, Smith AH, Kim KL, Holder AJ, Russell JA, Oliver KM (2018) Breakdown of a defensive symbiosis, but not endogenous defenses, at elevated temperatures. *Molecular Ecology* 27: 2138-2151.

Sanders J, Łukasik P, Frederickson ME, Russell JA, Koga R, Knight R, Pierce NE (2017) Dramatic differences in gut bacterial densities correlate with diet and habitat in rainforest ants. *Integrative & Comparative Biology* doi: 10.1093/icb/icx088.

- Łukasik P, Newton JA, Sanders JG, Hu Y, Moreau CS, Kronauer DJC, O'Donnell S, Koga R, Russell JA (2017) The structured diversity of specialized gut symbionts of the New World army ants. *Molecular Ecology* 26: 3808-3825.
- Russell JA, Oliver KM, Hansen AK (2017) Band-aids for Buchnera and B vitamins for all. *Molecular Ecology* 26: 2199-2203. (**invited perspective article**)
- Hu Y, Holway DA, Łukasik P, Chau L, Kay AD, LeBrun EG, Miller KA, Sanders JG, Suarez AV, Russell JA (2017) By their own devices: invasive Argentine ants have shifted diet without clear aid from symbiotic microbes. *Molecular Ecology* 26: 1608-1630.
- Russell JA, Sanders JG, Moreau CM (2017) Hotspots for symbiosis: Function, evolution, and specificity of ant-microbe associations from trunk to tips of the ant phylogeny (Hymenoptera: Formicidae). *Myrmecological News* 24: 43-69. (**invited review**)
- Lin JY, Russell JA, Sanders JG, Wertz JT (2016) *Cephaloticoccus* gen. nov., a new genus of 'Verrucomicrobia' containing two novel species isolated from *Cephalotes* ant guts. *International Journal of Systematic and Evolutionary Microbiology* 66: 3034-3040.
- Oliver KM, Russell JA (2016) Introduction to symbiosis. In: Encyclopedia of Evolutionary Biology, vol. 4: 282-290. Edited by Kliman RM, Oxford Academic Press.
- Smith AH, Łukasik P, O'Connor MP, Lee A, Mayo G, Drott MT, Doll S, Tuttle R, DiSciullo RA, Messina A, Oliver KM, Russell JA (2015) Patterns, causes, and consequences of defensive microbiome dynamics across multiple scales. *Molecular Ecology* 24: 1135-1149.
- Sullam KE, Rubin BER, Dalton CM, Kilham SS, Flecker AS, Russell JA (2015) Divergence across diet, time, and populations rules out parallel evolution in the gut microbiomes of Trinidadian guppies. *ISME Journal* 9: 1508-1522.
- Sullam KE, Dalton CM, Russell JA, Kilham SS, El-Sabaawi R, German DP, Flecker AS (2015) Changes in digestive traits and body nutritional composition accommodate a trophic niche shift in Trinidadian guppies. *Oecologia* 177: 245-257.
- Martinez AJ, Ritter SG, Doremus MR, Russell JA, Oliver KM (2014) Aphid-encoded variability in susceptibility to a parasitoid. *BMC Evolutionary Biology* 14: 127.
- Russell JA, Hu Y, Chau L, Pauliushchuk M, Anastopoulos I, Anandan S, Waring MS. (2014) Indoor biofilter growth and exposure to airborne chemicals drive similar changes in the bacterial communities of plant roots. *Applied and Environmental Microbiology* 80: 4805-4813.
- Russell JA, Dubilier N, Rudgers JA (2014) Nature's microbiome: introduction. *Molecular Ecology* 23: 1225-1237.

- Hu Y, Łukasik P, Moreau CS, Russell JA (2014) Correlates of gut community composition across an ant species (*Cephalotes varians*) elucidate causes and consequences of symbiotic variability. *Molecular Ecology* 23: 1284-1300.
- Oliver KM, Smith AH, Russell JA (2014) Defensive symbiosis in the real world—diversity and maintenance of protective bacteria across aphids and other insects. *Functional Ecology* 28: 341-355. **(invited review) (cover image)**
- Groen SC, Whiteman NK, Bahrami AK, Wilczek AM, Cui J, Russell JA, Cibrian-Jaramillo A, Butler IA, Rana JD, Huang GH, Bush J, Ausubel FM, Pierce NE. (2013) Pathogen-triggered ethylene signaling mediates systemic-induced susceptibility to herbivory in *Arabidopsis*. *Plant Cell* 25: 4755-4766.
- Russell JA, Weldon S, Smith AH, Kim KL, Hu Y, Łukasik P, Doll S, Anastopoulos I, Novin M, Oliver KM (2013) Uncovering symbiont-driven genetic diversity across North American pea aphids. *Molecular Ecology* 22: 2045-2059.
- Kautz S, Rubin BER, Russell JA, Moreau CS (2013) Surveying the microbiome of ants: Comparing 454 pyrosequencing with traditional methods to uncover bacterial diversity. *Applied and Environmental Microbiology* 79: 525-534.
- Reichenberger ER, Alexander GM, Russell JA, Schwartzman RJ, Hershberg U, Rosen G (2013) Establishing a relationship between bacteria in the human gut and complex regional pain syndrome. *Brain, Behavior, and Immunity* 29: 62-69.
- Russell JA, Funaro CF, Milton Y, Goldman-Huertas B, Suh D, Moreau CS, Kronauer D, Pierce NE (2012) A veritable menagerie of heritable bacteria across the ants, lepidopterans, and beyond. *PLoS One* 7(12): e51027. doi:10.1371/journal.pone.0051027
- Sullam KE, Essinger S, Lozupone CA, O'Connor M, Rosen G, Knight R, Kilham SS, Russell JA. (2012) Environmental and ecological factors that shape the gut bacterial communities of fish: a meta-analysis. *Molecular Ecology* 21: 3363-3378.
- Anderson KE\*, Russell JA\*, Moreau CS, Kautz S, Sullam KE, Hu Y, Basinger U, Mott BM, Buch N, Wheeler D (2012) Highly similar microbial communities are shared among related and trophically similar ant species. *Molecular Ecology* 21: 2282-2296. (\*co-first-authors) **(cover image)**
- Russell JA (2012) The ants are unique and enigmatic hosts of prevalent *Wolbachia* symbionts. *Myrmecological News* 16: 7-23. **(invited review)**
- Soslau G, Russell JA, Spotila JR, Mathew AJ, Bagsiyao P (2011) *Acinetobacter* sp. HM 746599 isolated from leatherback turtle blood. *FEMS Microbiology Letters* 332: 166-171.
- Funaro CF, Kronauer DJC, Moreau CS, Goldman-Huertas B, Pierce NE, Russell JA. (2011) Army ants harbor a host-specific clade of Entomoplasmatales bacteria. *Applied and Environmental Microbiology* 77: 346-350. **(cover image)**

- Baldo L, Desjardins CA, Russell JA, Stahlhut JK, Werren JH. (2010) Accelerated microevolution in an outer membrane protein (OMP) of the intracellular bacteria *Wolbachia*. *BMC Evolutionary Biology* 10: 48.
- Stahlhut JK, Desjardins CA, Clark ME, Baldo L, Russell JA, Werren JH, Jaenike J. (2010) The mushroom habitat as an ecological arena for global exchange of *Wolbachia*. *Molecular Ecology* 19: 1940-1952.
- Russell JA, Moreau C, Goldman-Huertas B, Fujiwara M, Lohman D, Pierce NE. (2009) Bacterial gut symbionts are tightly linked with the evolution of herbivory in ants. *Proceedings of the National Academy of Sciences, USA*: 106: 21236-21241.
- Rosen GL, Sokhansanj BA, Polikar R, Bruns MA, Russell J, Garbarine E, Essinger S, Yok N (2009) Signal processing for metagenomics: extracting information from the soup. *Current Genomics* 10: 493-510.
- Russell JA, Goldman-Huertas B, Moreau CS, Baldo L, Stahlhut JK, Werren JH, Pierce NE (2009) Specialization and geographic isolation among *Wolbachia* symbionts from ants and lycaenid butterflies. *Evolution* 63: 624-640.
- Baldo L, Ayoub NA, Hayashi CY, Russell JA, Stahlhut JK, Werren JH (2008) Insight into the routes of *Wolbachia* invasion: high levels of horizontal transfer in the spider genus *Agelenopsis* revealed by *Wolbachia* strain and mitochondrial DNA diversity. *Molecular Ecology* 17: 557-569.
- Russell JA, Moran NA (2006) Costs and benefits of symbiont infection in aphids: variation among symbionts and across temperatures. *Proceedings of the Royal Society B – Biology* 273: 603-610.
- Russell JA, Moran NA (2005) Horizontal transfer of bacterial symbionts: heritability and fitness effects in a novel aphid host. *Applied and Environmental Microbiology* 71: 7987-7994.
- Moran NA, Russell JA, Koga R, Fukatsu T (2005) Evolutionary relationships of three new species of *Enterobacteriaceae* living as symbionts of aphids and other insects. *Applied and Environmental Microbiology* 71: 3302-3310.
- Oliver KM, Russell JA, Moran NA, Hunter MS (2003) Facultative bacterial symbionts in aphids confer resistance to parasitic wasps. *Proceedings of the National Academy of Sciences of the United States of America* 100: 1803-1807.
- Russell JA, Latorre AL, Sabater-Muñoz B, Moya A, Moran NA (2003) Side-stepping secondary symbionts: Widespread horizontal transfer across and beyond the Aphidoidea. *Molecular Ecology* 12: 1061-1075.
- Sandström J, Russell JA, White JP, Moran NA (2001) Independent origins and horizontal transfer of bacterial symbionts of aphids. *Molecular Ecology* 10: 217-228.

Parsch J, Russell JA, Beerman I, Hartl DL, Stephan W (2000) Deletion of a conserved regulatory element in the *Drosophila adh* gene leads to increased alcohol dehydrogenase activity but also delays development. *Genetics* 156: 219-227.

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## **CURRENT GRANT SUPPORT**

NSF, Integrative and Organismal Biology, Award #1754597. "Collaborative Research: Competition and cooperation in the defensive symbiont communities of aphids." \$487,591. 2018-2022. (role: PI; with PI Kerry Oliver, Associate Professor, Department of Entomology, University of Georgia)

NSF, Dimensions of Biodiversity, Award #1442144 "Dimensions: Identifying how the ecological and evolutionary interactions between host and symbiont shape holobiont biodiversity." \$597,394. 2015-2020. (role: PI; with: PI Corrie Moreau, Assistant Curator of Entomology, Field Museum of Natural History; PI John Wertz, Assistant Professor, Department of Biology, Calvin College; PI Scott Powell, Assistant Professor, Department of Biology, George Washington University)

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## **PRIOR GRANT SUPPORT**

NSF, DUE, Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics, Award #1245632. "Hypothesis-driven Computational Genomics: Engaging Students in Lab Protocols and Bioinformatics via Inquiry." \$199,993. 2013-2016. (role: co-PI; with PI Gail Rosen, Associate Professor, Electrical and Computer Engineering, Drexel University; and co-PI Penny Hammrich, Professor, School of Education, Drexel University)

NSF, IOS, Symbiosis, Defense, and Self-Recognition, Award #1050098. "Collaborative Research: Factors shaping the maintenance of variation in a symbiont-mediated host-enemy interaction." \$394,119. 2011-2015. (role: PI; with PI Kerry Oliver, Assistant Professor, Department of Entomology, University of Georgia)

NSF, DEB, Population and Community Ecology, Award #1050360. "Collaborative Research: Inferring bacterial roles in the evolution of trophic level across the ants." \$450,000. 2011-2015. (role PI; with PI Corrie Moreau, Assistant Curator of Entomology, Field Museum of Natural History)

Commonwealth of Pennsylvania, Department of Health, CURE Grant SAP 4100050893 to Drexel University. "Using biowalls to sustainably reduce human exposure to indoor volatile organic compounds." 2011-2013. (role co-PI; with PI Michael Waring, Assistant Professor, Civil, Architectural, and Environmental Engineering, Drexel University; and co-PI Shivanthi Anandan, Associate Professor, Department of Biology, Drexel University)

NSF, DEB, Award #1210695. "DISSERTATION RESEARCH: Patterns, causes, and consequences of gut microbial community variation across fish" \$14,987. 2012-2014.

(role: PI on NSF Dissertation Improvement Grant for Ph.D Karen Sullam; with co-PI Sue Kilham, Professor, Biodiversity, Earth and Environmental Science, Drexel University)

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## RESEARCH PRESENTATIONS

### Invited Talks

- 2018 American Entomological Society, Quarterly Meeting: "Hotspots for symbiosis across the ants"
- 2017 University of Alabama, Department of Biology Seminar Series: "Hotspots for bacterial symbiosis across the ants."
- 2017 Canadian Society for Ecology and Evolution, 2017 Annual Meeting: "Friends & foes structure the communities of defensive bacterial symbionts in the pea aphid." (symposium talk)
- 2016 University of Rochester, Department of Biology Seminar Series: "Defensive symbiosis in the real world"
- 2016 Lehigh Valley Ecology and Evolution Symposium, **Keynote Speaker:**  
"Myrmecomicrobiomes: convergence, hotspots & functions of symbioses across the world's ants"
- 2015 Beijing Normal University, Institute of Ecology, Workshop on Microbial Ecology and Evolution: "The hologenome unleashed: Exploring symbiotic variation across multiple scales."
- 2015 Beijing Normal University, Institute of Ecology, Workshop on Microbial Ecology and Evolution: "The microbes of eukaryotes: from moving targets to co-conspirators."
- 2014 University of Vermont, Department of Biology: "Microbial profiling from *Aenictus* to *Zacryptocerus*: pattern and process across a range of ant-bacteria symbioses"
- 2013 Purdue University, Department of Entomology: "Microbial profiling from *Aenictus* to *Zacryptocerus*: pattern and process across a range of ant-bacteria symbioses"
- 2012 Syracuse University, Department of Biology: "Exploring nature's microbiome: what variable bacterial communities tell us about the causes and consequences of symbioses"
- 2012 Entomological Society of America, Annual Meeting: "Variation in the bacterial gut communities of ants across diets and geographic locations" (symposium talk)
- 2012 Institute for Molecular Medicine and Infectious Disease, First Annual International Symposium, Drexel University Medical School: "Exploring the gut microbiome from non-mammalian hosts" (symposium talk)



- 2012 University of Arizona, PERT Postdoc Invited Speaker: "Microbial menageries of ants"
- 2011 Entomological Society of America, Annual Meeting: "Shared and specialized bacterial communities among related and trophically similar ants"
- 2011 University of Pennsylvania, Department of Biology: "Microbial menageries of ants"
- 2011 Academy of the Natural Sciences, Philadelphia, PA: "Deciphering patterns of symbiosis between the ants and their resident bacteria"
- 2010 Entomological Society of America, Annual Meeting: "Bacterial gut symbionts are tightly linked with the evolution of herbivory in ants" (symposium talk)
- 2010 University of Georgia, Department of Entomology: "Bacterial gut symbionts are tightly linked with the evolution of herbivory in ants"
- 2010 Villanova University, Department of Biology: "Bacterial gut symbionts are tightly linked with the evolution of herbivory in ants"
- 2008 University of Pennsylvania, Department of Biology: "Little bugs have littler bugs: diversity and evolution of bacteria from the ants and butterflies"
- 2007 University of Massachusetts, Department of Plant, Soil, and Insect Sciences: "Diversity, histories, and significance of symbioses between insects and bacteria"
- 2007 Queens College, Biology Department: "Diversity, histories, and significance of symbioses between insects and bacteria"
- 2007 Drexel University, Department of Bioscience and Biotechnology: "Diversity, histories, and significance of symbioses between insects and bacteria"
- 2007 St. John's University, Department of Biology: "Diversity, histories, and significance of symbioses between insects and bacteria"
- 2006 University of Connecticut, Department of Molecular and Cellular Biology: "Diversity, histories, and significance of symbioses between insects and bacteria"
- 2005 Society for the Study of Evolution Annual Meeting: "Temperature shapes the costs and benefits of symbioses between aphids and maternally transmitted bacteria"
- 2005 Fordham University, Department of Biology: "Coevolution and consequences of symbioses between aphids and maternally transmitted bacteria"
- 2004 Oklahoma State, Department of Entomology and Plant Pathology: "Coevolution and consequences of symbioses between aphids and maternally transmitted bacteria"
- 2004 Entomological Society of America, Annual Meeting: "Conditional fitness effects of maternally transmitted bacteria in the pea aphid, *Acyrtosiphon pisum*"

2004 University of Arizona, Center for Insect Science, Hexapodium: "Secondary symbionts shape heat tolerance in the pea aphid, *Acyrtosiphon pisum*"

### **Additional Talks**

2019 Society for the Study of Evolution, Annual Meeting: "Phylogeny & ecology predict taxonomic & functional composition of ants' microbiomes"

2018 Entomological Society of America, Annual Meeting: "Phylogeny & ecology predict taxonomic & functional composition of ants' microbiomes"

2018 Wolbachia 2018, Bi-annual Meeting: "Does getting defensive get you anywhere? Dissecting the causes of rapid symbiont dynamics in the pea aphid"

2017 Entomological Society of America, Annual Meeting: "50 million years of nitrogen-recycling in the multi-partite gut symbiosis of cephalotine ants."

2017 Drexel University, Biodiversity Earth and Environmental Science Department, Weekly Seminar Series, 2017: "Hotspots for bacterial symbiosis across the ants."

2017 Drexel University, Department of Biology Senior Seminar: "Myrmecocombiomes: convergence, hotspots, & functions of symbioses across the world's ants"

2017 Germantown Academy High School, Fort Washington, Pennsylvania: "(Defensive) symbiosis in the real world"

2016 Social Insects in the North-East Regions (SINNERS) 2016 Meeting, Washington, DC: "A nitrogen-recycling symbiosis for the ages across neotropical turtle ants."

2016 International Congress of Entomology 2016 Meeting. "Friends & foes structure the communities of defensive bacterial symbionts in the pea aphid."

2016 International Union for the Study of Social Insects, Breakout Meeting, Orlando, FL. "Hotspots for symbiosis across the ants."

2016 Society for the Study of Evolution, Annual Meeting. "Friends & foes structure the communities of defensive bacterial symbionts in the pea aphid."

2016 Drexel University, Department of Biology Senior Seminar: "Are symbiotic bacteria key to the success of herbivorous ants?"

2015 Entomological Society of America, Annual Meeting: "Can't live together, can't live apart: Symbionts of pea aphids vary in their tendencies toward co-habitation"

2015 Society for the Study of Evolution, Annual Meeting: "Symbiotic bacteria are key to the success of herbivorous ants"

2014 Entomological Society of America, Annual Meeting: "Natural diversity and dynamics of defensive symbioses"

- 2014 Burlington County College: "Bacterial symbioses across the ants: convergence, hotspots, and functions"
- 2014 Drexel University, Department of Biology Senior Seminar: "Bacterial symbioses across the ants: convergence, hotspots, and functions"
- 2014 Burlington County College: "Uncharted territory in the pea aphid-defensive symbiosis system"
- 2014 Drexel University, Department of Biology Senior Seminar: "Uncharted territory in the pea aphid-defensive symbiosis system"
- 2014 Society for the Study of Evolution, Annual Meeting: "Bacterial symbioses across the ants: convergence, hotspots, and functions"
- 2014 Society for the Study of Evolution, Annual Meeting: "Patterns, causes, and consequences of defensive microbiome dynamics across multiple scales"
- 2013 Entomological Society of America, Annual Meeting: "Hotspots for bacterial symbiosis across the ants"
- 2013 Society for the Study of Evolution, Annual Meeting: "Symbiotic variation across the ants: patterns, causes, and implications"
- 2013 Society for the Study of Evolution, Annual Meeting: "Uncharted territory in the pea aphid-defensive symbiont system: superinfections and strain diversity"
- 2012 Burlington County College: "Exploring nature's microbiome: what variable bacterial communities tell us about the causes and consequences of symbioses"
- 2012 Drexel University, Department of Biology: "Exploring nature's microbiome: what variable bacterial communities tell us about the causes and consequences of symbioses"
- 2012 Society for the Study of Evolution, Annual Meeting: "Defensive symbionts in the real world"
- 2012 Drexel University, Dean's Seminar Series, College of Arts and Sciences: "Cheaper, cleaner air: uncovering the benefits and mechanisms of biowalls for improved indoor air quality"
- 2011 Society for the Study of Evolution, Annual Meeting: "Microbial menageries of ants"
- 2011 Drexel University, Department of Biology, Departmental Seminar. "Exploring the dynamics and functions of bacterial gut communities"
- 2011 Burlington County College: "Bacterial gut symbionts are tightly linked with the evolution of herbivory in ants"
- 2010 International Society of Microbial Ecology, Annual meeting: "Bacterial gut symbionts are tightly linked with the evolution of herbivory in ants" (*selected talk*)

- 2009 Entomological Society of America, Annual Meeting: "Distributions and evolution of heritable symbionts across the arthropods"
- 2009 Society for the Study of Evolution, Annual Meeting: "Heritable symbionts of ants and butterflies"
- 2009 Burlington County College: "Microbial menageries for myrmecophiles"
- 2008 Entomological Society of America, Annual Meeting: "Have symbiotic bacteria facilitated the evolution of herbivory in ants?"
- 2008 Society for the Study of Evolution, Annual Meeting: "Microbial diversity across the ants"
- 2008 Drexel University, Dean's Seminar Series, College of Arts and Sciences: "Little bugs have littler bugs: diversity and evolution of bacteria from the ants and butterflies"
- 2008 Drexel University, Department of Bioscience and Biotechnology, Departmental Seminar. "Little bugs have littler bugs"
- 2006 Society for the Study of Evolution Annual Meeting: "Do *Wolbachia* coevolve with their insect hosts?"
- 2006 Third international Congress on Phthiraptera: "Galápagos Hawks and their chewing lice: A model system for understanding host-parasite ecology and evolution." (N.K. Whiteman, J.L. Bollmer, K.D. Matson, R.T. Kimball, J.A. Russell, P.G. Parker)
- 2004 University of Arizona, Department of Ecology and Evolutionary Biology, dissertation defense: "Coevolution and consequences of symbioses between aphids and maternally transmitted bacteria"
- 2004 University of Arizona, Department of Ecology and Evolutionary Biology, Noon Seminar: "Bacterial symbionts protect pea aphids from the damaging effects of high temperatures"
- 2003 Society for the Study of Evolution Annual Meeting: "How do the microbial guests of aphids earn their keep? Explaining the distributions of secondary symbionts within and across their host species"
- 2003 University of Arizona, Department of Ecology and Evolutionary Biology, Noon Seminar: "How do the microbial guests of aphids earn their keep? Explaining the distributions of secondary symbionts within and across their host species"
- 2002 University of Arizona, Department of Ecology and Evolutionary Biology, Noon Seminar: "Horizontal Transfer: What are the rate-limiting steps for facultative bacterial symbionts of insects?"

2000 University of Arizona, Department of Ecology and Evolutionary Biology, Noon Seminar: "Diverse microbial communities of aphids"

**Posters (listed only those presented by J. Russell)**

2019 Society for the Study of Evolution, Annual Meeting: "Defensive bacteriophage - hypothesized drivers of antagonistic coevolution – are diverse and dynamic associates of endosymbionts in North American pea aphids"

2018 Entomological Society of America, Annual Meeting: "Bacteriophage as highly dynamic components of the pea aphid microbiome"

2018 Wolbachia 2018, Bi-annual Meeting: "Stage-specific gut bacteria of turtle ants recycle nitrogen and scavenge carbon"

2017 IMG, Microbial Genomics and Metagenomics, 25 workshop: "Little bugs have littler bugs: a tale of symbiosis in ants and aphids."

2016 International Union for the Study of Social Insects, Breakout Meeting: "Dimensions of holobiont biodiversity: the interplay between ecology, evolution, and geography in the 46 million year old symbiosis between turtle ants and their gut bacteria."

2016 Society for the Study of Evolution, Annual Meeting: "Dimensions of holobiont biodiversity: the interplay between ecology, evolution, and geography in the 46 million year old symbiosis between turtle ants and their gut bacteria."

2016: NSF Dimensions of Biodiversity PIs Meeting: "Dimensions of holobiont biodiversity: the interplay between ecology, evolution, and geography in the 46 million year old symbiosis between turtle ants and their gut bacteria."

2015 Entomological Society of America, Annual Meeting: "Convergence in ant-associated gut microbiota at extreme ends of the trophic scale"

2012 Drexel Microbiome Workshop: "Distinct gut bacterial communities across wild Trinidadian guppy populations"

2007 The Center for Biodiversity and Conservation's Twelfth Annual Symposium: "Patterns of bacterial diversity and distributions across the ants"

2004 IGERT Evolutionary Genomics Meeting: "Evidence for nutritional roles of secondary symbionts"

2003 University of Arizona, Center for Insect Science, Hexapodium: "How do the microbial guests of aphids earn their keep? Explaining the distributions of secondary symbionts within and across their host species"

2002 Society for the Study of Evolution Annual Meeting: "Barriers to horizontal transmission of insect-associated endosymbionts"

2002 Fourth International Symposium on Molecular Insect Science: "The distributions and transmission modes of aphid secondary endosymbionts"

2001 Entomological Society of America Annual Meeting: "The distributions and transmission modes of aphid secondary endosymbionts"

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## **ADDITIONAL PRODUCTS & SCHOLARLY ACTIVITIES**

2018 Joint Meeting, Entomological Society of America & Entomological Society of Canada, Organizer, Program Symposium, "Insect microbiomes—Traversing disciplines to both understand and manage helpful and harmful hexapods"

2018 Molecular Ecology, Editor, Special Issue, "The host-associated microbiome"

2014 Entomological Society of America, Organizer, Member Symposium, "Horizons in the field of symbiosis"

2014 Molecular Ecology, Editor, Special Issue, "Nature's Microbiome"

### **Manuscript reviewer**

Science, Nature Ecology and Evolution, PNAS, ISME Journal, Ecology Letters, PLoS Biology, Current Biology, mBio, Science Advances, Applied and Environmental Microbiology, Evolution, Molecular Biology & Evolution, Proceedings of the Royal Society of Biology Series B: Biology, Genome Biology & Evolution, Ecology, Journal of Evolutionary Biology, Oecologia, FEMS Microbial Ecology, Annals of the Entomological Society of America, Scientific Reports, PLoS One, BMC Ecology, BMC Genomics, European Journal of Entomology, Environmental Microbiology, The Science of Nature, Ecological Entomology, International Journal of Molecular Science, Environmental Entomology, Insectes Sociaux, Insect Science, Arthropod Plant Interactions

### **Book reviewer**

University of Chicago Press

### **Grant reviewer**

NSF, USDA, The German Research Foundation, The US-Israeli Binational Science Foundation, The Netherlands Organization for Scientific Research, The Israeli Science Foundation, The German-Israeli Foundation for Scientific Research and Development, The Binational Agricultural Research & Development Fund of Israel, The Czech Science Foundation, Fund for Scientific Research (F.R.S.-FNRS), Wisconsin Sea Grant, The French National Research Agency, National Geographic, Sigma Delta Epsilon Graduate Women in Science, The Austrian Science Fund

### **Grant panelist**

NSF Population & Community Ecology (2013, 2014)

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## **MENTORING**

### **Postdoctoral researchers**

Piotr Łukasik (2012-2014)

Yi Hu (2015-2017)

### **PhD students**

Karen Sullam (co-advised; 2007-2013)

Yi Hu (2009-2015)

Andrew Smith (2010-2015)

Linyao Peng (2016-present)

Benoit Bechade (2017-present)

### **MS students**

Narayan Wong (2013-2015)

Danielle Rock (part time; 2013-2017)

Catherine D'Amelio (2015-2017)

### **Research interns**

Nina Tang, Columbia University, Summer 2017

Sabina Maurer, Columbia University, Summer 2018

Jorge Gonzalez Rey, Columbia University, Summer 2018

### **Non-student research volunteers**

Andrew Nguyen (Winter 2010-Fall 2010)

Milton Drott (Summer 2011-Spring 2012)

Nicholas Tuttle (Summer 2012)

Jonah Joffe (Spring 2015-Summer 2016)

### **Undergraduate student volunteer-/for credit- researchers (5-10 hours per week)**

Nisha Shah (Winter 2008-Fall 2009)

Michael Giampapa (Winter 2008-Spring 2010)

Rachana Koya (Winter 2008-Spring 2009)

Uma Bandu (Summer 2008)

Mariya Osipchuk (Fall 2010-Spring 2011)

LeeAnn Haaf (Fall 2010-Spring 2011)

Drew McQuade (Fall 2010-Winter 2012)

Matthew Novin (Fall 2010, Winter 2011, Fall 2011)

Riddhi Amin (Fall 2011-Spring 2012)

Linh Chau (Summer 2010-Winter 2012)

Rachael DiSciullo (Summer 2011)

Nicholas Tuttle (Spring 2011-Fall 2011)

Steven Doll (Spring 2011, Spring-Summer 2012)

Andrea Messina (Fall 2012-Winter 2013)

Paige Collings (Spring 2012)

Michelle Carroll (Spring 2012)

Justin Newton (Spring 2013-Spring 2014)

Garrett Mayo (Spring 2013)

Catherine Bahari (Winter 2014)

Cassandra Chatwin (Fall 2014-Winter 2015)  
Alyssa Lipcsey (Fall 2014-Winter 2015)  
Akhila Gourishetty (Winter 2015)  
Amie Albertus (Spring-Summer 2015; Spring 2016-Winter 2017)  
Brooke Deal (Fall 2014-Winter 2015)  
Emily Fanwick (Winter 2017-present)  
Richard Lu (Winter 2018-present)  
Zeal Jinwala (Winter -Spring 2018)

**Undergraduate work-study students**

Michaela Feeney (Winter 2013)  
Amie Albertus (Fall 2016-Winter 2017)  
Peiwen Chen (Spring 2017-Summer 2017)  
Briyanna Pims (Fall 2017-Spring 2018)  
Nicole Buleza (Spring 2018-present)

**Freshman STAR Research Scholars (40 hrs/week)**

David Suh (Summer 2009)  
Riddhi Amin (Summer 2011)  
Steven Doll (Summer 2011)  
Wujun Xiao (Summer 2017)

**Undergraduate co-op students (20-40 hrs/week)**

Matthew Novin (Spring-Summer 2010)  
Julie Keppler (Fall 2011-Winter 2012)  
Tyler Maruca (Fall 2011-Winter 2012)  
Ioannis Anastopoulos (Fall 2011-Winter 2012)  
Nicholas Jensen (Spring-Summer 2012)  
Amanda Lee (Spring-Summer 2012)  
Garrett Mayo (Spring-Summer 2012)  
Coleman Kotzer (Spring-Summer 2013)  
Barrett Wagner (Fall 2013-Winter 2014)  
Brooke Deal (Spring-Summer 2014)

**High school students from the Haverford Boys' School (20-40 hrs/week)**

Kiran Jagtiani (Summer 2012)  
Mason Hall (Summer 2014)  
James Ives (Summer 2017)

**Rotating graduate students**

Suruchi Utreja (Fall 2008)  
Mitchell D'Rozario (Fall 2008-Winter 2009)  
Katrina Terry (Fall 2017)

**MS thesis committees**

Briank Dirks (Biology)  
Steven Doll (Biology) (**chair**)  
Sondra Schreibman (Biology)  
Dorsey Weber (Biology)  
Emily Ostrow (BEES)  
Nicole Ferraro (Biomedical Engineering)



### **PhD dissertation committees**

Claire Coleman (ENVS)  
Brian Dirks (Biology)  
Ginnene DiStefano (Biology)  
Victoria Egerton (Biology) (**chair**)  
Steve Essinger (Electrical and Computer Engineering)  
Basavaraj Hooli (Biology) (**chair**)  
Michael Ryan (Civil, Architectural, and Environmental Engineering)  
Jack Suss (ENVS)  
Meridith Toth (Biology)  
Non Yok (Electrical and Computer Engineering)  
Eugenia Zandona (ENVS)  
Mitchell D'Rozario (Biology)  
Patrick McLaughlin (Biology)  
Alina Freire-Fierro (BEES)  
Erin Reichenberger (Electrical and Computer Engineering)  
Jasmine Alexander Floyd (Biology) (**chair**)  
Yemin Lan (Electrical and Computer Engineering)  
Stephanie Weldon (University of Georgia, Dept. of Entomology)  
Sarah Tolley (UCLA, Dept. of Ecology & Evolutionary Biology)  
Ekwoke Abwe (Biology) (**chair**)  
Paul Sesink-Clee (Biology) (**chair**)  
Kaitlin Baudier (BEES)  
Gizelle Batomalaque (BEES)  
Matthew Halley (BEES)  
Kevin Purce (BEES)  
Rohini Singh (UPenn, Department of Biology)  
Bryan Featherstone (Biology) (**chair**)  
Steven Miller (Biology) (**chair**)  
Haolin Zhang (Biology) (**chair**)  
Meghan Barrett (Biology) (**chair**)  
Katherine Fiocca (Biology)

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### **SERVICE**

#### **Service to the Biology department**

- 1) Senior Research Seminar (BIO 473) Instructor, Spring 2008
- 2) Biology Graduate Student Association Advisor, 2008-2016
- 3) Facilities liaison, 2009-2010
- 4) Bioinformatics Minor Advisor, 2011-present
- 5) Biowall liaison, 2011-present
- 6) Departmental events (Accepted Students Day, Alumni Weekend, Open House, Experience Drexel Day), multiple events in 2008-2010
- 7) UNIV 101 Instructor, Fall 2009; Fall 2015; Fall 2016
- 8) Biology Graduate Committee Member, 2008-2013; ad hoc 2016
- 9) Biology Senior Seminar Mentor, 2008-present

- 10) Biology Undergraduate Curriculum Committee ad hoc member for MCAT curriculum revision, 2012-2013
- 11) Merit Review Committee Member, 2012-2013
- 12) Faculty Search Committee Member, 2012-2013
- 13) Biology Graduate Curriculum Committee Member, 2013-2014
- 14) Biology Graduate Curriculum Committee **Chair**, 2014-present
- 15) Biology Tenure & Promotions Committee Member, 2013-2016
- 16) Biology Tenure & Promotions Committee **Chair**, 2016-present
- 17) Biology Seminar Coordinator, 2014-2015
- 18) Biology Senior Advisory Committee, 2014-2017
- 19) Biology Tri-Beta Honor Society Panel Speaker, 2015, 2016
- 20) Biology Programmatic Alignment and Review (PAR) Committee Member, 2015-2016
- 21) Biology Web Presence Initiatives Ad Hoc Committee Member, 2014-2015
- 22) Community & Communications Committee **Chair**, 2016-2017
- 23) Andrea Messina Memorial Award Committee **Chair**, 2016-present

#### **Service to the BEES department**

- 1) Biology Graduate Committee Member, 2012, 2016
- 2) Academy of Natural Sciences Donor Event, 2016

#### **Service to the College of Arts and Sciences**

- 1) CoAS Research Day Committee Member, 2009-2011; 2013
- 2) CoAS Research Day Committee **Chair**, 2011-2012
- 3) UNIV 101, Fall 2009
- 4) Organizer of special event: "Evolution on trial: science, religion, and the future of American Education", June 2009
- 5) CoAS Research Day Judge, 2008-2009, 2014
- 6) CoAS Graduate Curriculum Committee Member, 2014-present

#### **Service to the University**

- 1) Drexel Health Professions Committee Member, 2009-2010
- 2) University Research Day Judge, 2008-2011, 2015
- 3) DCAE "Controversy in the Classroom" Presenter, 2012
- 4) Drexel Fellowships Office Proposal Reviewer, NSF Graduate Research Fellowships, 2012-present
- 5) Assistant Research Integrity Officer, 2013-2019
- 6) Goldwater Scholarship Committee, 2014
- 7) Drexel Early Admissions to Medical School (DREAMS) Interviewer, 2014-2015
- 8) Gates-Cambridge Scholarship, Mock Interviewer, 2018

#### **Service beyond Drexel**

- 1) Hamilton Award Committee Member (Society for the Study of Evolution), 2012, 2016
- 2) Hamilton Award Committee Chair (Society for the Study of Evolution), 2012-2015
- 3) Student Talk Competition Judge (Entomological Society of America), 2014
- 4) Swarthmore College Honors Examiner, 2015