

Ryan Andrew Blaustein, PhD

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EDUCATION

- Ph.D.**, Field: **Microbial Ecology** (December 2017)
University of Florida, Gainesville, FL
Department of Soil and Water Sciences
UF Genetics Institute
Major Professor: Max Teplitski
- M.Sc.**, Field: **Environmental Microbiology** (December 2014)
University of Maryland, College Park, MD
Department of Environmental Science and Technology
- B.Sc., Biology** (May 2011, graduated with Honors)
University of Maryland, College Park, MD

PROFESSIONAL EXPERIENCE

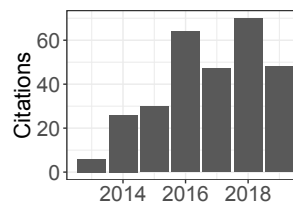
- 03/18 - present NIH-NRSA Postdoctoral Trainee (TL1), Northwestern University
Investigate effects of chemotherapeutics on structure and function of the intestinal microbiome in children; bridge collaboration between the McCormick School of Engineering and Lurie Children's Hospital
- 10/17 - present Postdoctoral Research Fellow, Northwestern University
Research microbiomes of the built environment to identify genomic adaptations, factors that drive microbial diversity (e.g., antimicrobial chemicals; architectural design), and implications for human health
- 07/15 - 12/17 Graduate School Fellow, University of Florida
Utilized bacterial genomics and bioinformatics to define transitions in structure and function of plant microbiomes (citrus) during disease progression and in response to treatment with novel antimicrobials
- 04/11 - 06/15 Research Associate, USDA-ARS Environ. Microbial Food Safety Lab
Improved models for fate and transport of indicator bacteria and pathogens to promote ecosystem health and food safety
- 01/13 - 12/14 Graduate Research Assistant, University of Maryland: College Park

PEER-REVIEWED PUBLICATIONS

Online links:

[Google Scholar](#) – Citations: 292; h-index: 8

[Research Gate](#) – RG Score: 21.71 (75th percentile)



18. **Blaustein RA**, McFarland A, Ben Maamar S, Lopez A, Castro-Wallace S, Hartmann EM. 2019. Pan-genomic approach to understanding microbial adaptations within a model built environment, the International Space Station, relative to human hosts and soil. *mSystems* 4(1):e00281-18. doi:10.1128/mSystems.00281-18.
*received *mSystems Journal* "Editor's Pick;"; featured in *Popular Science*, *inverse.com*, and *Northwestern Now* press release

17. Smith JE, Kiefer LA, Stocker MD, **Blaustein RA**, Ingram S, Packepsky YA. 2019. Depth-dependent response of fecal indicator bacteria in sediments to changes in water column nutrient levels. *Journal of Environmental Quality*. doi:10.2134/jeq2018.12.0450.
16. Fahimipour AK, Ben Maamar S, McFarland A, **Blaustein RA**, Chen J, Glawe A, Kline J, Green JL, Halden R, Van Der Wymlenberg K, Huttenhower C, Hartmann EM. 2018. Widespread antimicrobial chemicals influence the structure and function of indoor microbial communities. *mSystems* 3(6):e00200-18. doi:10.1128/mSystems.00200-18.
*featured in *PBS NewsHour*, *CBC News*, *CBC Radio's Quirks and Quarks*, and *Northwestern Now* press release
15. **Blaustein RA**, Lorca GL, Teplitski M. 2018. Challenges for managing huanglongbing disease: current control measures and future directions. *Phytopathology* 108(4):424-435. doi:10.1094/PHYTO-07-17-0260-RVW.
14. Stocker M, Yakirevitch A, Guber A, Martinez G, **Blaustein R**, ... Pachepsky Y. 2018. Functional evaluation of three manure-borne indicator bacteria release models with multiyear field experiment data. *Water, Air, & Soil Pollution* 229(6):181. doi:10.1007/s11270-018-3807-0.
13. **Blaustein RA**, Lorca GL, Meyer JL, Gonzalez CF, Teplitski, M. 2017. Defining the core citrus leaf- and root-associated microbiota: factors associated with community structure and implications for managing huanglongbing (citrus greening) disease. *Applied Environmental Microbiology* 83(11):e00210-17. doi:10.1128/AEM.00210-17.
12. Yakirevitch A, Shelton DR, Hill RL, Kiefer LA, Stocker MD, **Blaustein RA**, Kusnetsov M, McCarty G, Pachepsky YA. 2017. Transport of conservative and "smart" tracers in a first-order creek: role of transient storage type. *Water* 9(7):485. doi:10.3390/w9070485.
11. **Blaustein RA**, Dao TD, Pachepsky YA, Shelton DR. 2017. Differential release of manure-borne bioactive phosphorus forms to runoff and leachate under simulated rain. *Journal of Environmental Management* 192:309-318. doi:10.1016/j.jenvman.2017.01.057.
10. **Blaustein RA**, Shelton DR, Van Kessel JS, Karns JS, Stocker MD, Pachepsky YA. 2016. Irrigation waters and pipe-based biofilms as sources for antibiotic-resistant bacteria. *Environmental Monitoring and Assessment* 188(56). doi:10.1007/s10661-015-5067-4.
9. **Blaustein RA**, Hill RL, Micallef SA, Shelton DR, Pachepsky YA. 2016. Rainfall intensity effects on removal of fecal indicator bacteria from solid dairy manure applied over grass-covered soil. *Science of the Total Environment* 539:583-591. doi:10.1016/j.scitotenv.2015.07.108.
8. Kim K, Whelan G, Molina M, Puruker ST, Pachepsky Y, Guber A, Cysterski MJ, Franklin DH, **Blaustein RA**. 2016. Rainfall-induced release of microbes from manure: model development, parameter estimation, and uncertainty evaluation on small plots. *Journal of Water and Health* 14(3):443-459. doi:10.2166/wh.2016.239.
7. **Blaustein RA**, Pachepsky YA, Shelton DR, Hill RL. 2015. Release and removal of microorganisms from land-deposited animal waste and animal manures: A review of data and models. *Journal of Environmental Quality* 44(5):1338-1354. doi:10.2134/jeq2015.02.0077.
6. **Blaustein RA**, Pachepsky YA, Hill RL, Shelton DR. 2015. Solid manure as a source of fecal indicator microorganisms: release under simulated rainfall. *Environmental Science & Technology* 49(13):7860-7869. doi:10.1021/acs.est.5b01095.
5. Shelton DR, Pachepsky YA, Kiefer LA, **Blaustein RA**, McCarty GW, Dao TH. 2014. Response of coliform populations in streambed sediment and water column to changes in nutrient concentrations in water. *Water Research* 59:316-324. doi:10.1016/j.watres.2014.04.019.

4. Pachepsky Y, **Blaustein R**, Whelan G, Shelton D. 2014. Comparing temperature effects on *Escherichia coli*, *Salmonella*, and *Enterococcus* survival in surface waters. *Letters in Applied Microbiology* 59(3):278-283. doi:10.1111/lam.12272.
3. **Blaustein RA**, Pachepsky Y, Hill R, Shelton D. 2013. *Escherichia coli* survival in waters: temperature dependence. *Water Research* 47(2):569-578. doi:10.1016/j.watres.2012.10.027.
2. Shelton DR, Kiefer L, Pachepsky YA, **Blaustein RA**, Martinez G. 2012. Coliform retention and release in biofilms formed on new and weathered irrigation pipes. *Irrigation Science* 30(4):971-981. doi:10.1007/s00271-012-0373-x.
1. Kiefer LA, Shelton DR, Pachepsky Y, **Blaustein R**, Santin-Duran M. 2012. Persistence of *Escherichia coli* introduced into streambed sediments with goose, deer, and bovine animal waste. *Letters in Applied Microbiology* 55(5):345-353. doi:10.1111/j.1472-765X.2012.03296.x.

CONFERENCES & PRESENTATIONS

27. **Blaustein R**, McFarland A, Ben Mamar S, Lopez A, Castro-Wallace S, Hartmann E. June 2019. Conserved mobile genetic elements in bacteria in the International Space Station carry potential adaptations. Amer Soc Microbiology Annual Meeting. San Francisco, CA. (poster)
26. **Blaustein R**. Looking to tiny life to manage problems caused by the strong stuff from doctors. “Up Goer Five” event (Sci Comm). June 2019. Amer Soc Microbiology Annual Meeting. San Francisco, CA. (oral)
25. **Blaustein, R**. May 2019. Microbial symbiosis and synergy: Innovating disease control one “biome” at a time. Environmental Engineering and Sciences Seminar Series. Evanston, IL (oral)
24. **Blaustein R**, Seed P, Hartmann E. April 2019. Microbiota-chemotherapeutic interactions: An in vitro model. 2019 Microbiome Research Symposium. The Microbiome Center – University of Chicago. Chicago, IL. (poster)
23. **Blaustein R**, Seed P, Hartmann E. March 2019. Bacterial biotransformation of chemotherapeutics promotes diversity in model intestinal microbial community. Northwestern Feinberg School of Medicine 15th Annual Lewis Landsberg Research Day. Chicago, IL. (poster)
22. **Blaustein R**, Seed P, Hartmann E. March 2019. Bacterial biotransformation of chemotherapeutics may promote intestinal microbiota health. Association for Clinical and Translational Science. Translational Science 2019. National Institutes of Health. Bethesda, MD. (oral/poster)
21. **Blaustein R**. February 2019. Microbial ecology of the International Space Station. Northwestern University Dept CEE Graduate Student Orientation Day. Evanston, IL. (oral)
20. **Blaustein R**, Ben Mamar S, McFarland A, Fahimipour A, Hartmann E. April 2018. Human-derived content of dust microbiota in athletic facilities reflects building design and operation. Northwestern University Computational Research Day. Evanston, IL. (poster)
19. **Blaustein R**, Silfa-Cifuentes J, Lorca G, Teplitski M. August 2017. Functional diversity of citrus microbiomes correlates with huanglongbing disease symptom severity. American Phytopathological Society Annual Meeting. San Antonio, TX. (oral)
18. **Blaustein R**, Meyer J, Lorca G, Teplitski M. June 2017. Defining the Core Citrus-associated Microbial Community and its Fundamental Drivers: Implications for Managing huanglongbing disease. Amer Soc Microbiology Annual Meeting. New Orleans, LA. (oral/poster)

17. **Blaustein R**, Lorca G, Teplitski M. December 2016. Defining the core citrus microbiome and its fundamental drivers: Implications for managing huanglongbing disease. Florida Genetics Symposium. University of Florida, Genetics Institute. Gainesville, FL. (poster)
16. **Blaustein R**, Morgan K, Lorca G, Teplitski M. October 2016. Impacts of the abundance of *Candidatus Liberibacter* on the citrus phyto-microbiome and insights to bacterial interactions that could control the pathogen. Am Soc Microbiology: FL Branch. Miami, FL. (poster)
15. **Blaustein R**, Lorca G, Teplitski M. October 2016. Novel approaches to mitigate *Candidatus Liberibacter*: Bacterial interactions and the impact of antimicrobial treatments. Materials Innovation for Sustainable Agriculture Inaugural Symposium. Orlando, FL. (poster)
14. **Blaustein R**, Morgan K, Lorca G, Teplitski M. September 2016. Impacts of the abundance of *Candidatus Liberibacter* on the citrus phyto-microbiome and insights to bacterial interactions that could control the pathogen. 17th Annual Soil and Water Science Department Research Forum. University of Florida. Gainesville, FL. (poster)
13. **Blaustein R**, Meyer J, Conesa A, Lorca G, Teplitski M. July 2016. Impacts of abundance of *Candidatus Liberibacter* on the citrus phyto-microbiome. American Phytopathological Society Annual Meeting. Tampa, FL. (poster)
12. **Blaustein R**, Pachepsky Y, Hill R, Shelton D. April 2015. Scale effect on the transport of fecal indicator bacteria out of manure-fertilized fields. American Water Works Association: 2015 International Symposium on Waterborne Pathogens. Savannah, GA. (oral)
11. **Blaustein R**, Hill R, Micallef S, Pachepsky Y. November 2015. Effects of rainfall intensity on removal of fecal indicator bacteria from solid dairy manure applied over grass-covered soil. Amer Soc Microbiol: 101st Annual Southeastern Branch Meeting. Kennesaw, GA. (poster)
10. **Blaustein R**, Pachepsky YA, Stocker MD, Van Kessel JS, Karns JS, Shelton DR. April 2015. Biofilm-induced changes in microbial quality of irrigation water: Indicator bacteria and antibiotic-resistance. USDA-ARS Beltsville Agricultural Research Center (BARC) Poster Day. Proceedings, p 20. Beltsville, MD. (poster)
9. **Blaustein R**, Pachepsky Y, Hill R, Micallef S, Shelton D, Whelan G. November 2014. Rainfall intensity-dependent release of indicator bacteria from dairy cattle manure applied on vegetated soil. ASA, CCSA, SSSA International Annual Meetings. Long Beach, CA. (poster)
8. **Blaustein R**, Pachepsky Y, Hill R, Shelton D. May 2014. Release and runoff partitioning of indicator bacteria during simulated rainfall. Water Microbiology Conf: Microbial Contaminants from Watersheds to Human Exposure. Chapel Hill, NC. (poster)
7. **Blaustein R**, Pachepsky Y, Hill R, Shelton D. April 2014. Release and runoff/infiltration partitioning of indicator bacteria during simulated rainfall. USDA-ARS BARC Poster Day. Beltsville, MD. Proceedings, p 17. (poster)
6. Stocker M, **Blaustein R**, Coppock C, Pachepsky Y, Shelton D, Hill R. April 2014. Inactivation of *Escherichia coli* and *Enterococcus faecalis* in manure amended soils following simulated storm events. USDA-ARS BARC Poster Day. Beltsville, MD. Proceeding, p 55. (poster)
5. **Blaustein R**, Hill R, Pachepsky R, Shelton R, Whelan R, Dao T. November 2013. Manure component release and partitioning between surface runoff and infiltration: A simulation study. ASA, CCSA, SSSA International Annual Meetings. Tampa, FL. (poster)
4. **Blaustein R**, Pachepsky Y, Hill R, Whelan G, Shelton D. April 2013. Comparing dependencies of *E. coli*, *Salmonella*, and *Enterococcus* survival on temperature in surface waters. USDA-ARS BARC Poster Day. Beltsville, MD. Proceedings, p 14 (poster)

3. **Blaustein R**, Pachepsky Y, Hill R, Whelan G, Molina M, Zepp R, Sadeghi A. October 2012. The Arrhenius equation as means to simulate *E. coli* survival in waters. ASA, CCSA, SSSA International Annual Meetings. Cincinnati, OH. (poster)
2. **Blaustein R**, Pachepsky Y, Whelan G, Hill R, Shelton D, Sadeghi A. April 2012. *E. coli* survival in waters: applicability of the Arrhenius equation. USDA-ARS BARC Poster Day. Beltsville, MD. Proceedings, p 14 (poster)
1. **Blaustein R**, Pachepsky Y, Shelton D, Kiefer L. February 2012. Biofilms in irrigation pipes affect the quality of irrigation water. American Phytopathological Society: Workshop on Human Pathogens in Plants. Hyattsville, MD (poster)

MENTORING & TEACHING EXPERIENCE

MENTORING (10 students)

- 2017 - present Northwestern University: 1 Ph.D. rotation student (*Alberto Lopez: co-authored 1 publication*); 1 M.S. visiting scholar (*Chungui Yu*); 4 undergraduate students (*Jessie Bailey; David Lee: I guided his undergraduate fellowship application – awarded in summer 2018*; *David Park: advanced to M.D. program*; *Brandon Radonski*)
- 2015 - 2017 University of Florida: 2 undergraduate students (*Javier Silfa-Cifuentes: I served as director of his Bioinformatics Minor Degree internship*; *Sarah Stavros: I wrote LoR for her medical school AMCAS application*). Both students have advanced to M.D. programs.
- 2013 - 2014 USDA-EMFSL: 2 undergraduate students (*Britney Hardy; Matthew Stocker: co-authored 4 publications*). Both students have advanced to Ph.D. programs.

TEACHING (~100 students)

- Spring 2017 Graduate Teaching Assistant: *Waterborne Pathogens*, University of Florida, Course: SWS4307, Professor: Julie Meyer, 23 students
- Fall 2014 Graduate Teaching Assistant: *Fundamentals of Soil Science*, Univ. Maryland, Course: ENST200, Professor: Ray Weil, 44 students (98.3% avg in student-TA eval)
- Fall 2009 Undergraduate Teaching Assistant: *Microbiology Lab*, Univ. Maryland, Course: BSCI223, Professors: Ann Smith & Dan Stein, 25 students

GUEST LECTURE

- April 2019 Course: *Molecular Microbiology*; Topic: *Gut Microbiome Antibiotic Resistance*; Northwestern University, Professor: Erica Hartmann, 5 students
- May 2019 Course: *Environmental Organic Chemistry*; Topic: *Photolysis & Biotransformation*; Northwestern University, Professor: Erica Hartmann, ~30 students

ACADEMIC & PROFESSIONAL HONORS

- 2019 - TL1 Gold Ribbon Abstract Presentation, ACTS Translational Science Meeting
- 2018 - NIH TL1 Training Program Fellowship, NU Clinical and Translational Sciences Institute
- 2017 - ASM Graduate Student Travel Award, American Society for Microbiology
- 2017 - Doris, Earl and Verna Lowe Scholarship: awarded for research merit and potential to contribution to agricultural and wildlife environments, UF Col. Ag. and Life Sciences

2017 - IFAS Travel Grant, UF College of Agricultural and Life Sciences
2016 - Dr. James Davidson Graduate Student Travel Scholarship, UF Col. Ag. and Life Sciences
2016 - Sam Polston Fellowship: awarded for outstanding research and academic performance in graduate studies, UF/IFAS Department of Soil and Water Sciences
2016 - Doris, Earl, and Verna Lowe Scholarship: awarded for research merit and potential contribution to agricultural and wildlife environments, UF Col. Ag. and Life Sciences
2015 - 2nd Place, Graduate Poster Competition, Amer. Soc. Microbiology: SE Branch Meeting
2009 - Scholar's Citation in Life Sciences (Graduation Honors), University of Maryland

RESEARCH GRANTS

NIH TL1 Postdoctoral Fellowship: Multidisciplinary Training Program in Child and Adolescent Health (role: PI; award period: March 2018-March 2020) *Combined effects of chemotherapy and antibiotics on the intestinal microbiome in children*

PATENTS

Bacterial Biotransformation of Chemotherapeutic May Promote Diversity Among the Intestinal Microbiota. Northwestern University. Inventors: **Ryan Blaustein**, Patrick Seed, Erica Hartmann. *Provisional application* file date: 03/04/2019. Serial No: 62/813,363.

ACADEMIC SERVICE

- **Program Development for Departmental Undergraduate Science Communication Event:** “Northwestern CEE Up-Goer-Five Poster Competition” (Summer 2019)
- **Graduate Student Board Representative:** Amer Soc for Microbiology, Florida Branch (2016-2017)
- **Invited Conference Session Moderator:** 2019 ACTS Translational Science Meeting: “Health Equity and Community Engagement”; 2017 Amer Phytopathological Soc Meeting: “Root Phytobiomes”
- **Contributed Peer Review:** *Applied and Environmental Microbiology; eLife; Environmental Health Perspectives; Environment International; Environmental Science and Pollution Research; Environmental Science and Technology; FASEB Journal; Frontiers in Microbiology; Gut Microbes; Journal of Water and Health; Microbial Ecology; Microbiome; mSphere; Nature Communications, Pedosphere; Plant Pathology; Water, Air, and Soil Pollution; Water Research*
- **Memberships (current*):** *American Society for Microbiology, *Association for Clinical and Translational Science, American Phytopathological Society, Soil Science Society of America