

MICHELLE M. VALKANAS

EDUCATION

- 2020 Ph.D. Candidate in Biology, Duquesne University, Pittsburgh, PA
Expected Graduation: Summer
Advisor: Dr. Nancy Trun
Thesis: *Identifying the effects naturally forming bacterial communities have on the efficiency of passive remediation systems built to treat abandoned mine drainage*
- 2019 Advanced Certificate in University Teaching, Duquesne University, Pittsburgh, PA
- 2018 Certificate in University Teaching, Duquesne University, Pittsburgh, PA
- 2014 Bachelor of Science in Biology, Minor in Mathematics, Duquesne University, Pittsburgh, PA

PUBLICATIONS

1. **Valkanas, M.M.** and Trun, N.J. (2018). A seasonal study of a passive abandoned coalmine drainage remediation system reveals three distinct zones of contaminant levels and microbial communities. *MicrobiologyOpen*. 2018:e585. <https://doi.org/10.1002/mbo3.585>
2. Ly, T.T., Wright, J.R., Weit, N., Mclimans, C.J., Ulrich, N., Tokarev, V., **Valkanas, M.M.**, Trun, N., Rummel, S., Grant, C.J. and Lamendella, R., (2019). Microbial Communities Associated with Passive Acidic Abandoned Coal Mine Remediation. *Frontiers in Microbiology*, 10, p.1955.

In Preparation

M.M. Valkanas and N.J. Trun. Poor carbon sources prevent sulfate remediation in a circum-neutral abandoned mine drainage system. **(In Preparation)**.

M.M. Valkanas, T. Rosso, and N.J. Trun. Symbiotic nitrate-driven iron oxidation in acidic coalmine drainage by *Serratia marcescens* and *Sphingomonas* LK11. **(In Preparation)**.

M.M. Valkanas, A. Michalski, and N.J. Trun. The reproducibility of bacterial community composition in environmental samples collected over geographical distances. **(In Preparation)**.

SCHOLARLY PRESENTATIONS AT NATIONAL AND REGIONAL MEETINGS

Oral Presentations

1. **Valkanas, M. M.** and Trun, N.J.. 2019. Does cryptic sulfur cycling in an AMD passive remediation system prevent the removal of high sulfate concentrations? Presented at the 2019 National Geological Society of America Conference. Phoenix, AZ.

2. **Valkanas, M. M.** and Trun, N.J.. 2019. Spatiotemporal Changes in Contaminants Occurring in Three Passive Coal Mine Remediation Systems in Pennsylvania. Presented at the 2019 Joint Conference of the National Association of Abandoned Mine Land Programs/Pennsylvania Abandoned Mine Reclamation /National Association of State Land Reclamationists'. Pittsburgh, PA.
3. *****Valkanas, M. M.** and Trun, N.J.. 2019. The influence of Bacteria on Passive Remediation Systems. Presented at the 2019 National Meeting of the American Society of Mining and Reclamation. Big Sky, MT. **Awarded first place for oral presentation.**
4. **Valkanas, M. M.** and Trun, N.J.. 2019. Identifying the effects bacteria have on the efficiency of passive remediation systems designed to treat abandoned mine drainage. Presented at the 2019 Annual Meeting of the Pennsylvania Academy of Science. Cedar Crest College, Allentown, PA.
5. **Valkanas, M. M.** and Trun, N.J.. 2019. Do Bacteria Effect the Efficiency of Abandoned Mine Drainage Passive Remediation Systems? Presented at the 2019 Duquesne University Graduate Research Symposium. Duquesne University, Pittsburgh, PA.
6. **Valkanas, M. M.** and Trun, N.J.. 2019. Identifying the Impact Bacteria have on Passive Remediation Systems Designed to Treat Abandoned Mine Drainage. Presented at the 2019 Pittsburgh Bacterial Meeting. Duquesne University, Pittsburgh, PA.
7. **Valkanas, M. M.** and Trun, N.J.. 2018. The Impacts of Naturally Forming Microbial Communities Found in Passive Remediation Systems. Presented at the 2018 Student Symposium on the Environment. Westminster College, Pittsburgh, PA.
8. *****Valkanas, M. M.** and Trun, N.J.. 2018. Characterization of Microbial Communities in Passive Remediation Systems Designed to Treat Abandoned Mine Drainage. Presented at the 2018 Allegheny Branch of the American Society for Microbiology Meeting. Gettysburg College, Gettysburg, PA. **Awarded first place for oral presentation.**
9. **Valkanas, M. M.** and Trun, N.J.. 2017. An in vitro system to study the microbial impacts on a passive remediation system. Presented at the 2017 Allegheny Branch of the American Society for Microbiology Meeting. Juniata College, Huntingdon, PA.
10. **Valkanas, M. M.** and Trun, N.J.. 2016. A seasonal comparison of a passive abandoned coal mine remediation system. Presented at the 2016 Allegheny Branch of the American Society for Microbiology Meeting. Penn State Behrend, Erie, PA.

Poster Presentations

11. *****Valkanas, M. M.** and Trun, N.J.. 2018. Lab-Based System to Study the Microbial Impacts on Passive Remediation Systems Built to Treat AMD. Presented at the 2018 National Meeting of the American Society of Mining and Reclamation. St. Louis, MO. **Awarded first place for poster presentation.**
12. **Valkanas, M. M.** and Trun, N.J.. 2018. A Lab-Based System to Study the Microbial Impacts on Passive Remediation Systems Built to Treat AMD. Presented at the 2018 Duquesne University Graduate Research Symposium. Duquesne University, Pittsburgh, PA.
13. **Valkanas, M. M.** and Trun, N.J.. 2018. A Lab-Based System to Study the Microbial Impacts on Passive Remediation Systems Built to Treat AMD. Presented at the 2018 Pittsburgh Bacterial Meeting. Duquesne University, Pittsburgh, PA.

14. *****Valkanas, M. M.** and Trun, N.J.. 2017. A seasonal comparison of the passive abandoned coal mine remediation at Wingfield Pines. The 2017 Joint Conference of the West Virginia Mine Drainage Task Force, American Society of Mining and Reclamation, and Appalachian Regional, Reforestation Initiative. Morgantown, WV. **Awarded third place for poster presentation.**
15. **Valkanas, M. M.** and Trun, N.J.. 2017. A seasonal comparison of the passive abandoned coal mine remediation at Wingfield Pines. The 2017 Regional Conference of the Northeast/Northcentral Geological Society of America. Pittsburgh, PA.
16. **Valkanas, M. M.** and Trun, N.J.. 2017. A seasonal comparison of the passive abandoned coal mine remediation at Wingfield Pines. Presented at the 2017 Duquesne University Graduate Research Symposium. Duquesne University, Pittsburgh, PA.
17. **Valkanas, M. M.** and Trun, N.J.. 2016. A seasonal comparison of the passive abandoned coal mine remediation at Wingfield Pines. Presented at the 2016 Metals Symposium. Duquesne University, Pittsburgh, PA.
18. *****Valkanas, M. M.** and Trun, N.J.. 2015. A seasonal comparison of the passive abandoned coal mine remediation at Wingfield Pines. Presented at the 2015 Allegheny Branch of the American Society for Microbiology Meeting. University of Pittsburgh, Greensburg, PA. **Awarded first place for poster presentation.**

COMMUNITY PRESENTATIONS

Invited Talks

1. **Valkanas, M. M.** 2019. Water Contamination. Presented to the Conservatory Crew Summer Camp during Conservation Week at Phipps Conservatory. Pittsburgh, PA.
2. **Valkanas, M. M.** 2019. Using bacteria to remove abandoned mine drainage contamination. Presented to the International P.E.O. Sisterhood Local Chapter F. Pittsburgh, PA.
3. **Valkanas, M. M.** 2018. Bioremediation: Using Bacteria to Clean Our Streams. Presented to the Conservatory Crew Summer Camp during Conservation Week at Phipps Conservatory. Pittsburgh, PA.

DEPARTMENTAL PRESENTATIONS

Oral Presentation

1. **Valkanas, M. M.** 2019. Iron oxidation in an acid mine drainage system. Presented at the Department of Biological Sciences Graduate Open Houses. Duquesne University, Pittsburgh, PA.
2. **Valkanas, M. M.** 2019. Nitrate-dependent iron oxidation in an acid mine drainage system. Presented at the Department of Biological Sciences Seminar Series. Duquesne University, Pittsburgh, PA.
3. **Valkanas, M. M.** 2019. Small but mighty: can bacteria be the answer to clean water? Data blitz presentation for the Department of Biological Sciences 2019 Retreat. Pymatuning, PA.
4. **Valkanas, M. M.** 2018. Identifying the Role Bacteria Play in Passive Remediation Systems. Presented as a Work in Progress (WIP). Duquesne University, Pittsburgh, PA.

5. **Valkanas, M. M.** 2018. The Impacts Microbial Communities have on Passive Remediation Systems. Data blitz presentation for the Department of Biological Sciences 2018 Retreat. Pymatuning, PA.
6. **Valkanas, M. M.** 2018. Microbial Communities in Passive Remediation Systems. Presented a data blitz at the Department of Biological Sciences Seminar Series. Duquesne University, Pittsburgh, PA.
7. **Valkanas, M. M.** 2017. Microbes at Wingfield Pines. Data blitz presentation for the Department of Biological Sciences 2017 Retreat. Pymatuning, PA.

Poster Presentation

8. **Valkanas, M. M.** 2019. A Lab-Based System to Study the Microbial Impacts on Passive Remediation Systems Built to Treat AMD. Poster presented at the Department of Biological Sciences 2019 Retreat. Pymatuning, PA.
9. **Valkanas, M. M.** 2018. A Lab-Based System to Study the Microbial Impacts on Passive Remediation Systems Built to Treat AMD. Poster presented at the Department of Biological Sciences 2018 Retreat. Pymatuning, PA.
10. **Valkanas, M. M.** 2017. A seasonal comparison of the passive abandoned coal mine remediation at Wingfield Pines. Poster presented at the Department of Biological Sciences 2017 Retreat. Pymatuning, PA.

PEER REVIEWED BLOG

Valkanas, M. M. 2017. *From Flicker to Fire: novel research program leads to increase retention in STEM and exciting discoveries in prophage-mediated defense strategies* on Dr. Graham Hatfull from the University of Pittsburgh. Duquesne University, Pittsburgh, PA. www.duq.edu/bioblog

AWARDS

2020 Nominated for Duquesne University Graduate Student Award for Excellence in Teaching
 2019 Kenneth N. Weaver Student Travel Award from the Northeastern Section of the GSA (\$150)
 2019 Nominated for P.E.O. Scholar Award
 2018 Allegheny Branch of American Society for Microbiology Travel Award (\$100)
 2018 American Society of Mine and Reclamation Travel Award (\$250)
 2018 Duquesne University Graduate Student Award for Excellence in Teaching Finalist

GRANTS AWARDED

2019 Western Pennsylvania Coalition for Abandoned Mine Reclamation (\$100)
 2019 Geological Society of America *On to the Future Program* (\$745)
 2019 Sigma Xi Grants in Aid of Research (GIAR) (\$150)
 2019 Duquesne University Bayer Fellowship (\$13,375)
 2019 Geological Society of America, Graduate Student Research Grant (\$2450)
 • **Specialized Gould Research Grant Awarded**
 2019 National Center for Science Education Science Outreach Fellowship (\$9000)
 2017 Geological Society of America, Graduate Student Research Grant (\$1325)

GRANTS APPLIED FOR (Not Received)

2019 American Society of Mine and Reclamation Scholarship

- 2018 DOE Joint Genome Institute, CSP New Investigator
- 2018 American Society of Mine and Reclamation Scholarship
- 2018 Geological Society of America, Graduate Student Research Grant
- 2018 The Garden Club of America Fellowship in Ecological Restoration
- 2018 DoD National Defense Science and Engineering Graduate Fellowship (NDSEG)
- 2018 Ford Foundation Predoctoral Fellowship
- 2018 NSF Graduate Research Fellowships Program (GRFP)
- 2017 Ford Foundation Predoctoral Fellowship
- 2017 American Society of Mine and Reclamation Scholarship
- 2017 DOE Joint Genome Institute, CSP Small-scale Microbial/Metagenome

TEACHING AND MENTORING EXPERIENCE

Teaching

Duquesne University

- 2017 – 2019 Teaching Assistant, Super Lab I: Experimental Biology
- 2017 – 2019 Teaching Assistant, Super Lab IV: Microbiology
- 2016 Teaching Assistant, Life Processes lab

Other Teaching Experience

- 2020 Teaching Assistant, National Center for Science Education Graduate Fellowship Program
- 2016 Teaching Assistant, GCAT-SEEK: Metagenomics Workshop

Mentoring

Duquesne University

2016 – Present Undergraduate Members of the Trun Lab

- Bethany Parsons (2018 – 2019)
- Brandon Olszewski (2018 – 2019)
- Collen Yanerella (2016-2018)
 - Presented two posters while an undergraduate at the Undergraduate Research Symposium (2017 and 2018):
 - “Seasonal Alpha and Beta Diversity Comparisons of Bacterial Communities in the AMD Effluent at Wingfield Pines” (2017)
 - “Comparison of Gene Neighborhoods for Sulfate Metabolism Genes in an Abandoned Coalmine Passive Remediation System” (2018)
 - Is in the Bioinformatics Ph.D. program at Iowa State
- Alanna Michalski (2016-2017)
 - Presented a poster at the Undergraduate Research Symposium (2017):
 - “Identification of Sulfur Oxidizing Bacteria in Wingfield Pines”
 - Co-author on manuscript in preparation:
 - **M.M. Valkanas**, A. Michalski, and N. J. Trun. The reproducibility of bacterial community composition in environmental samples collected over geographical distances. **(In Preparation)**
 - Went on to complete the nursing program at Duquesne after receiving her B.S. Biology

2017 – Present Graduate Member of the Trun Lab

- Anna Vietmeier, Ph.D. Student (2020)
- Garrett Struble, Master Student (2019-Present)
- Jessica Packard, Ph.D. Student (2019)
 - Presented oral presentation at Student Symposium on the Environment
 - Packard, J., **Valkanas, M.M.**, and Trun, N.J. Driving Sulfate Reduction in Abandoned Coalmine Drainage (2019)

- Elizabeth Cochran, Master Student (2017-2019)
 - Elizabeth defended her dissertation through The Center for Environmental Research and Education (2019)
 - “The effects of constructed wetlands on abandoned mine drainage remediation”

2018 – 2019 Peer Mentor Program

- Marisa Guido

La Roche University

2018 – 2019 Undergraduate Honors Thesis Dissertation under Dr. Dafna Ben-Yosef

- Jaynil Patel
- Taylor Rosso
 - As a Post-baccalaureate in Dr. Nancy Truns Lab (2019-Present)
 - Presented two oral presentations
 - Rosso, T., **Valkanas, M.M.**, and Trun, N.J. Sulfate Reduction using an Encapsulated Growth Environment. Student Symposium on the Environment 2019. **(First Place Oral Presentation)**
 - Rosso, T., **Valkanas, M.M.**, and Trun, N.J. Sulfur Cycling in AMD Remediation Systems: Driving Sulfate Reduction using Bacteria Encapsulated in Agar Beads. ABASM 2019. **(First Place Oral Presentation)**
 - Co-author on a manuscript in preparation:
 - **M.M. Valkanas**, T. Rosso, and N.J. Trun. Symbiotic nitrate-driven iron oxidation in acidic coalmine drainage by *Serratia marcescens* and *Sphingomonas* LK11. **(In Preparation)**.

GUEST TEACHING LECTURES

1. **Valkanas, M.M.** Giving a Scientific Presentation. Honors Thesis Prep Course. Fall 2019. Duquesne University.
2. **Valkanas, M.M.** Next Generation Sequencing. Experimental Biology Recitation. Fall 2018. Duquesne University.

PROFESSIONAL DEVELOPMENT: TEACHING

- 2019 Creating Inclusive Classrooms in STEM Lecture
- 2019 Teaching Philosophy Workshop
- 2019 Hitting Pause: 65 Lecture Breaks to Refresh and Reinforce Learning Workshop
- 2019 Article Study: Motivation and Learning-Centered
- 2019 How Humans Learn Workshop
- 2019 Letters to a Pre-Scientist Training Workshop
- 2019 Documenting Rigor in Teaching Workshop
- 2019 Reframing the 3 R's of Learning - Reflection Workshop
- 2019 Reframing the 3 R's of Learning – Risk and Resilience Workshop
- 2018 Approaches to Peer Writing Workshop
- 2018 Fueling the Fire Workshop
- 2018 Book Study: Contemplative Practices in Higher Education
- 2018 Science Communication Fellowship at Phipps Conservatory
- 2018 Career Connectedness Workshop
- 2018 Holistic Teaching Workshop
- 2018 First Generation Students Workshop
- 2018 Using Active Learning Techniques to Enhance the Pre-Lab Lecture Workshop

RESEARCH AND WORK EXPERIENCE

- 2016 – Present Graduate Research Assistant, Duquesne University
Thesis: *Identifying the effects naturally forming bacterial communities have on the efficiency of passive remediation systems built to treat abandoned mine drainage*
Committee: Drs. Nancy Trun (PI), John Stolz, Brady Porter, and Chris Marshall
- 2019 – Present Women in STEM Graduate Assistant
2019 D.U. Quark Internship, Duquesne University
- Creator and author of the column “Science in my Backyard”
 - Staff writer for the Bayer School Newsletter, *The Spectrum*
- 2019 National Center for Science Education Graduate Fellowship
- 2014 – 2016 Researcher, Duquesne University
Biological Science, Dr. Nancy Trun
- 2015 – 2016 Lab Technician, RJ Lee Group
- 2013 – 2014 Chemical Analyst Intern

PROFESSIONAL DEVELOPMENT: RESEARCH

- 2019 Introduction to Communication Science
- 2019 PATRIC Bioinformatics Resource Center Workshop
- 2018 Illumina MiSeq Training
- 2018 Introduction to ‘tidy’ data and statistics in R
- 2018 Getting Started in SPSS
- 2018 Thriving amidst chaos: Time management strategies for work and life
- 2018 Tools for Creating Strong Conference Posters
- 2017 R for Biologists
- 2017 An Introduction to QGS and Geoscience Application
- 2015 Introduction to Genomic Technologies
- 2015 The Data Scientist’s Toolbox

COMMUNITY SERVICE AND OUTREACH

- 2017 – Present Women in STEM at Duquesne University K-12 Outreach
- 2018 – Present Museum on the Move program provided by Carnegie Museum of Natural History and Children’s Hospital of Pittsburgh
- 2019 – Present Super STEM presented by Duquesne University and NCSE. Carnegie Library of Pittsburgh-Hill District Branch
- 2019 – Present *Science in my Backyard* column in the D.U. Quark
- 2019 – Present Letters to a Pre-Scientist
- 2019 I’m A Scientist UK
- 2017 – 2018 SIGMA Mentor, Citizen Science Lab
- 2018 Meet a Scientist, Phipps Conservatory and Botanical Gardens
- 2017 SPEAK UP, Women in STEM in Collaboration with Carnegie Mellon University

PROFESSIONAL SERVICE

- 2020 Associate Editor, Journal of The American Society of Mining and Reclamation
- 2019 Judge, Duquesne University Undergraduate Research Symposium
- 2019 Moderator, Graduate Student Research Symposium
- 2018 Teaching Assistant Trainer, Duquesne University TA Orientation
- 2018 Guest Speaker, Duquesne University Center for Teaching Excellence Information Session
- 2018 Panelist, Women in STEM Graduate Discussions during Undergraduate Research Program
- 2018 Mentor, Undergraduate Research Program-Ethics Forum

2018 Moderator, Graduate Student Research Symposium

COMMITTEES AND ORGANIZATIONS

2020 Chair of the Ecology Technical Division for the American Society of Mining and Reclamation
2017 – Present Women in STEM Biological Sciences Graduate Student Representative
2017 – 2019 Graduate Students of Biological Sciences (GSoBS) Committee Executive Board
2018 Graduate Student Research Symposium Peer Selection Committee
2017 GSoBS Mentor Award Committee

ADDITIONAL PUBLICATIONS AND MEDIA COVERAGE

1. **Valkanas, M.M.** 2020. *Conservation geneticist uses scat to gain insight on the elusive snow leopard. Science in my Backyard*, D.U. Quark. <https://duquark.com/2020/01/09/conservation-geneticist-uses-scat-to-gain-insight-on-the-elusive-snow-leopard/>
2. **Valkanas, M.M.** 2019. *Message Received: Looking for the cells in the brain that receive pain signals from the bladder. Science in my Backyard*, D.U. Quark. <https://duquark.com/2019/10/25/message-received-looking-for-the-cells-in-the-brain-that-receive-pain-signals-from-the-bladder/>
3. Jackson, Tracy (2019). *Sparking an Interest in STEM*. Duquesne University Magazine. https://www.duq.edu/assets/Documents/public-affairs/magazine/pdf/Fall_2019_DU_Magazine.pdf
4. Reports of the National Center for Science Education. Science Outreach that Isn't Just Kids' Stuff (Featured as a Fellow on Back Cover). Summer 2019, Volume 39: 3. <https://ncse.ngo/files/REPORTS39.3LINKS.pdf>
5. Reports of the National Center for Science Education. What Does the Evidence Say? *Meet NCSE's New Graduate Student Fellows*. Spring 2019, Volume 39: 2. <https://ncse.ngo/files/REPORTS39.2Links.pdf>
6. #bioPGH Blog: *BioBlitz 2019 Results!* Phipps Conservatory. June 2019. <https://www.phipps.conservatory.org/blog/detail/biopgh-blog-bioblitz-2019-results>
7. National Center for Science Education Video blog. *Day in the life of a graduate student*. April 2019. <https://www.youtube.com/watch?v=b2zivB8SUxI&feature=youtu.be>
8. *Women in STEM Featured on WPXI*. Pittsburgh, PA. December 2018. <https://www.wpxi.com/video?videoid=897075089&videoVersion=2.0>
9. *****Valkanas, M. M..** (2018) *Beauty and the Beast*. D.U. Quark Journal. Duquesne University, Pittsburgh, PA. <https://duquark.com/2018/12/05/3rd-place-beauty-and-the-beast/> **Won 3rd place in the D.U. Quark Writing and Art Contest**
10. *Meet a Scientist Interview and Blog* (2018). Phipps Conservatory, Pittsburgh, PA. <https://www.phipps.conservatory.org/blog/detail/meet-a-scientist-michelle-valkanas-and-sara-mcclelland>
11. **Valkanas, M. M..** (2018) *The Study of Microbial Communities in Passive Remediation Systems*. Wild Women of Reclamation Newsletter (WWR Spring 2018, vol. 3). American Society of Mining and Reclamation. (PDF available upon request)

CERTIFICATIONS

IRB (Institutional Review Board) Training, Duquesne University, Citi Program (April 2019)

CLEARANCES

Act 31: Recognizing and Reporting Child Abuse (September 2018)

Act 33: Pennsylvania Child Abuse History Clearances (July 2018)

Act 34: Pennsylvania State Police Criminal Record Check (June 2018)

ORGANIZATION MEMBERSHIPS

American Society for Microbiology (2016-Present)

American Society for Mining Reclamation (2016-Present)

The Geological Society of America (2016-Present)

Graduate Students of Biological Sciences (GSoBS) (2016-Present)

Graduate and Professional Student Council (GPSC) (2016-Present)

Wild Women of Reclamation (2017-Present)

Women in Science Duquesne University (2017-Present)

Sigma Xi, The Scientific Research Honor Society (2018-Present)

Pennsylvania Academy of Science (2019-Present)

American Association for the Advancement of Science (2019-Present)