

MICHELLE M. VALKANAS

EDUCATION

Ph.D. in Biological Sciences, Duquesne University, Pittsburgh, PA
Bachelor of Science in Biology, Minor in Mathematics, Duquesne University, Pittsburgh, PA

Summer 2020
2014

WRITTEN AND ORAL COMMUNICATION SKILLS

Staff and Columnist

D.U. Quark, Duquesne University

- Creator and author of the column “*Science in my Backyard*” for the journal D.U. Quark
- Write interview pieces for *The Spectrum*, a newsletter for alumni of the Bayer School at Duquesne University
- Peer Review articles for publication in the D.U. Quark

Associate Editor

Journal of the American Society of Mining and Reclamation (JASMR)

- Lead the ecology division of the professional journal, in charge of finding reviewers for submitted articles and approving final drafts

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.
3. **M.M. Valkanas** and N.J. Trun. Poor carbon sources prevent sulfate remediation in a circum-neutral abandoned mine drainage system. **(In Preparation)**.
4. **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)**.
5. **M.M. Valkanas**, A. Michalski, and N.J. Trun. The reproducibility of bacterial community composition in environmental samples collected over geographical distances. **(In Preparation)**.

Oral Presentations

Notable Presentations (full list upon request)

Valkanas, M. M. and Trun, N.J.. *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’.

Valkanas, M. M. and Trun, N.J.. *The influence of Bacteria on Passive Remediation Systems*. Presented at the 2019 National Meeting of the American Society of Mining and Reclamation. **Awarded first place for oral presentation.**

Valkanas, M. M. and Trun, N.J.. *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 Pennsylvania Academy of Science.

Valkanas, M. M. and Trun, N.J.. *An in vitro system to study the microbial impacts on a passive remediation system*. Presented at 2018 Allegheny Branch of American Society for Microbiology. **Awarded first place for oral presentation.**

ADVISORY EXPERIENCE

Teaching Assistant

January 2020

National Center of Science Education

- *Teaching Assistant*: Responsible for coaching and mentoring the current graduate fellows through their assigned research projects, activity designs, and grant writing
- Use Asana, Calendly, and Zoom to organize remote meetings and keep track of group projects and deadlines

Teaching Assistant

August 2016 – Present

Duquesne University

- Super Lab IV: Microbiology, Spring 2017-2019 (enrollment 16; biology elective for juniors and seniors)
- Super Lab I: Experimental Biology, Fall 2017-2019 (enrollment 16; required course for upperclass biology majors)
- Life Processes Lab, Fall 2016 (enrollment 32; required course for freshman non-biology health majors)

Mentor

August 2016 – Present

Duquesne University

- Trun Lab (4 undergraduate and 3 graduate students)
- Peer Mentor Program (1 student)
- Undergraduate Research Program Ethics Forum Mentor (5 students)

La Roche University

- Undergraduate honors student (2 student)

Citizens Science Lab

- SIGMA Mentor (2 students)

COMMUNITY ENGAGEMENT

Duquesne University

- **D.U. Quark Internship:** creator and author of the column “*Science in my Backyard*” for the journal D.U. Quark
- **Science Communication Workshop:** Led an hour workshop to 35 participants on effective communication skills when presenting science to the public
- **PRYSE Academy Summer Camp:** Leader of the Biology activity when Women in STEM led a STEM enrichment activity one day during the three-week summer camp held for refugee and immigrant children
- **SPEAK UP:** Women in STEM hosted a workshop designed for inner-city young girls (7-13) that promoted confidence and negotiation skills

Phipps Conservatory and Botanical Gardens

- **Science Communication Fellowship:** attended a workshop that is facilitated by the science education department at Phipps Conservatory and Botanical Gardens that teaches skills to communicate science in a way that breaks down barriers between the scientific community and the public
- **Meet a Scientist:** Held demonstrations and provided information on abandoned mine drainage for the patrons of Phipps Conservatory and Botanical Gardens
- **Pittsburgh BioBlitz:** Hosted a table about abandoned mine drainage for the all-day event that engages participants in scientific thought and discovery as they celebrate the natural beauty of Pittsburgh
- **Conservation Summer Camp:** Present my research for summer campers and provide an engaging activity

PROGRAM DEVELOPMENT AND PROFESSIONAL LEADERSHIP SKILLS

Science Communication Graduate Fellow

National Center of Science Education (NCSE)

(January – December 2019)

- Had formal training in scientific literacy, IRB writing, grant applications, and informal science design and execution
- Designed two activities, one of which that will be launched nationwide later this year as the monthly NCSE activity

Super STEM presented by Duquesne University and NCSE

Carnegie Library of Pittsburgh, Hill District Branch

Director and Coordinator (May 2019 – Present)

- Developed and implemented an after-school STEM enrichment program at the inner-city library in the Hill District for 10-20 elementary school students
- Coordinate with diverse stakeholders on an ongoing basis to provide STEM outreach activities for the program, including the Carnegie Library and The National Center of Science Education
- Manage a team of 4-6 monthly volunteers

Women in STEM

Duquesne University

Graduate Assistant (2019-2020)

Biology Graduate Representative (2018-Present)

- Organized and designed STEM outreach to local K-12 schools (9 events total), recruited a team of volunteers (up to 12 volunteers per event), and implemented and executed effective activity design
- Designed handouts for participants to learn more and so that the activities could be repeated at home and can be found at: <https://dsc.duq.edu/wis-outreach-materials/>
- Organized undergraduate mentor groups and planned monthly meetings and send out emails to email server

- Maintained and Updated the Duquesne University website for the graduate student page and the GSoBS page
- Photographed and documented all graduate student events, developing an archive for the academic year
- Coordinated educational and networking events

COLLABORATIONS AND COMMUNITY PARTNERS

Carnegie Library of Pittsburgh – Hill District Branch
Phipps Conservatory and Botanical Gardens – Meet A Scientist Events
Carnegie Museums of Pittsburgh and UPMC Children’s Hospital of Pittsburgh – Museum on the Move Program
Citizens Science Lab – SIGMA Program
Allegheny County Parks
Watershed Associations: Allegheny Land Trust, Sewickley Creek Watershed Association, and Lowers Chartiers Watershed Association
K-12 Partnerships: Ringgold, West Greene, and Gateway School Districts

AWARDS AND HONORS

Grants

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, Gould Research Grant (\$2450)
2019 National Center for Science Education Science Outreach Fellowship (\$9000)
2017 Geological Society of America, Graduate Student Research Grant (\$1325)

Awards

2020 Biological Science Graduate Student of the Year, Duquesne University (\$300)
2020 American Society of Mining and Reclamation Memorial Scholarship (\$2000)
2019 Kenneth N. Weaver Student Travel Award, Northeastern Section of the Geological Society of America (\$150)
2019 Western Pennsylvania Coalition for Abandoned Mine Reclamation Travel Award (\$100)
2018 Allegheny Branch of American Society for Microbiology Travel Award (\$100)
2018 American Society of Mining and Reclamation Travel Award (\$250)
2020, 2018 Graduate Student Award for Excellence in Teaching Finalist

RESEARCH AND LABORATORY EXPERIENCE

Graduate Research Assistant

August 2016 – Present

Duquesne University, Dept. Biological Sciences, Dr. Nancy Trun, Principle Investigator

Thesis: *Identifying the effects naturally-forming bacterial communities have on the efficiency of passive remediation systems built to treat abandoned mine drainage*

- Study passive remediation systems engineered to treat abandoned mine drainage using classic microbiology, molecular biology, and biotechnology to better understand how the bacterial communities impact efficiency
- **Presented 30 oral and poster presentations reporting scientific findings**

Researcher

August 2014 – August 2016

Duquesne University, Dept. Biological Sciences, Dr. Nancy Trun

- Designed experimental protocols and performed 16S rRNA sequencing to identify microbial composition

Lab Technician

February 2015 – August 2016

RJ Lee Group, Monroeville, PA

- Performed sample digestion by way of acid, water leach, and microwave to be analyzed by IC, ICP-AES, ICP-MS, and FLAA

Chemical Analyst Intern

August 2013 – May 2014

CWM Environmental, Kittanning, PA

- Performed analytical testing of water samples testing Biochemical Oxygen Demand, Total Suspended Solids, Total Dissolved Solids, Percent Solids, pH, Alkalinity, Acidity, and Specific Conductance