NIKITA LAUREN BURROWS

CHEMISTRY EDUCATION RESEARCHER

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**EDUCATION**

Ph.D. in Organic Chemistry Education 2017

Georgia State University | Atlanta, GA

*Dissertation: “Assessing organic chemistry students’ understanding of chemical bonding concepts and their perceptions of a project-based lab.”*

*Advisor: Dr. Suazette Reid Mooring*

M.Sc. in Chemistry

Georgia State University | Atlanta, GA

*Advisor: Dr. Suazette Reid Mooring*

B.Sc in Biology minor in Chemistry

University of the Bahamas | Nassau, Bahamas

*Thesis: “An Investigation on the anti-bacterial effects of Momordica charantia, Phyllanthus niruri, Aloe vera, and Cymbopogon citratus.”*

*Advisor: Dr. Kenya Ward*

**ACADEMIC APPOINTMENTS**

ASSOCIATE PROFESSOR 2023 – Pres.

Monmouth University | West Long Branch, NJ

Department of Chemistry and Physics

Area of Expertise: Chemistry Education Research

DIRECTOR OF PEER MENTORS 2022 – Pres.

Monmouth University | West Long Branch, NJ

School of Science

ASSISTANT PROFESSOR 2017 – 2023

Monmouth University | West Long Branch, NJ

Department of Chemistry and Physics

Area of Expertise: Chemistry Education Research

SUMMER POST-DOCTORAL APPOINTMENT

Georgia Institute of Technology | Atlanta, GA

Department of Biomedical Engineering

Research Assistant

INSTRUCTOR OF RECORD

Georgia State University | Atlanta, GA

Department of Chemistry

Taught General, Organic, & Nursing Chemistry Labs

GRADUATE FELLOWSHIP

Georgia State University | Atlanta, GA

College of Arts & Sciences

Molecular Basis of Disease Fellowship

RESEARCH INTEREST

CHEMISTRY EDUCATION

* The role of the laboratory in undergraduate chemistry education
* Active learning in the classroom
* Underrepresented minorities in chemistry

ORGANIC CHEMISTRY

* Design and formulation of cosmetics

**FUNDING**

**EXTERNAL**

The POGIL Project Grant 2022

*Student perceptions of POGIL environment and process skills*

$23,972 - (6/15/2022 - 10/1/2023)

**PI: Nikita Burrows**

**INTERNAL**

Creativity and Research Grant (Mini-grant) 2021

*Exploration of high-achievement vs low-achievement students on pre-lecture video material*

$2,000 - (12/15/2021 – 11/1/2022)

**PI: Nikita Burrows**

Center of Excellence in Teaching and Learning SoTL (Mini-Grant) 2020

*Impact of Guided Inquiry Project-based labs on biochemistry students’ experiences, skill recall, and skill retention*

$1,000 - (2/11/2020 – 2/11/2021)

**PI: Nikita Burrows**

**PUBLICATIONS (#- undergraduate student; underline – graduate student)**

1. Nyansa, M.M.S; **Burrows, N. L.;** Galerneaul, A. J.; #Bekkala, A.; and Hungwe, K. N. Investigating the Impact of RAMP-based Safety Instruction on Student Learning in an Organic Chemistry Lab Course. *Journal of Chemical Education*, **2023**, – Journal Article (In Review)
2. Nyansa, M.M.S; **Burrows, N. L.;** Galerneaul, A. J.; #Bekkala, A.; and Hungwe, K. N. Beyond Intentions: Understanding the Gap between Safety Education and Student Behaviors. *Journal of Chemical Education*, **2023**, – Journal Article (In Review)
3. **Burrows, N. L.;** Ouellet, J.; #Joji, J.; and #Man, J. Alternative Assessment to Lab Reports: A Phenomenology Study of Undergraduate Biochemistry Students’ Perceptions of Interview Assessment. *Journal of Chemical Education*, **2021**, 98, 1518−1528. – Journal Article
4. **Burrows, N.L.;** Mooring, S. R.; Nehring, A.; #Siemens, M; and #Peschel, L. “Students’ Perceptions of Chemistry Laboratory Environments: Moving from a Phenomenographic to a Quantitative Approach.” American Educational Research Association Annual Meeting Conference Proceedings, **2020**, <https://doi.org/10.3102/1582305> - Conference Proceedings
5. **Burrows, N. L.;** #Nowak, M.N.; and Mooring, S.R. “Students’ experiences in a project-based organic chemistry laboratory environment: A phenomenographic approach.” *Chemistry Education Research and Practice,* **2017***,* 18(4), 811-824. – Journal Article
6. Mooring, S. R.;#Mitchell, C.; and **Burrows, N. L**. “Evaluation of a flipped, large-enrollment organic chemistry course on student attitude and achievement.” *Journal of Chemical Education*, 2016,93(12), 1972-1983. – Journal Article
7. **Burrows, N. L**. and Mooring, S. R. “Using concept mapping to uncover students’ knowledge structures of chemical bonding concepts.” *Chemistry Education Research and Pract*ice, 2015, 16(1), 53-66. – Journal Article

**PEER-REVIEWED BOOK CHAPTERS**

1. Mooring, S. R., **Burrows, N. L.,** & Gamage, S. Flipped Classrooms in Organic Chemistry—A Closer Look at Student Reasoning Through Discourse Analysis of a Group Activity. *In Student Reasoning in Organic Chemistry: Research Advances and Evidence-based Instructional Practices* (Ser. Advances in Chemistry Education Series, pp. 159–178). Royal Society of Chemistry. **2022**, <https://doi.org/10.1039/9781839167782-00159>. – Book Chapter

**PUBLICATIONS IN PREPARATION**

1. Gaines, T and **Burrows, N. L.** “Enhancing Assessment in Chemistry Education: Exploring the Instructor Experience of using Oral Examinations.” Frontiers in Education, **2024** – Special Issue Journal Article (In Review)
2. #Soto, R.; #Ludwick, R.; #Connelley, A.; #Stankan, B.; and **Burrows, N. L.** “Student perceptions regarding cognitive load of Pre-class video used in the flipped classroom.” Education Sciences, **2024** (In preparation)
3. #Pelletteri, J.; #Kavanaugh, R.; and **Burrows, N. L**.; “Exploring student interactions with pre-class videos used in the flipped classroom environment.” (In preparation)

**OTHER SCHOLARLY ACTIVITY**

1. **Burrows, N.L.;** and Chaytor, J. “ACS Essentials of Lab Safety for Organic Chemistry.” *ACS institutes Course – Subject Matter Expert*, **2022.** – E-learning Course

**INVITED TALKS**

1. **Burrows, N. L.** “Beyond the Bench: A Qualitative Journey into Upper-Level Undergraduates' Perspectives on Oral Summative Assessments in Laboratory Education” Presented at Townsfest by the Royal Chemistry Society, Cardiff, Jan **2024**
2. **Burrows, N. L.** “Unveiling the Tapestry of Oral Assessment in Labs: A Phenomenological Exploration into Upper-Level Undergraduate Experiences” Presented at University of Minnesota Duluth, Dulth, MN, Dec **2023**
3. **Burrows, N. L.** “Visualizing Knowledge: Enhancing STEM Education with Concept Mapping” Presented at Clemson University, Clemson, SC, Oct **2023**
4. **Burrows, N. L.** “Alternative teaching methods and assessments in undergraduate chemistry courses.” Presented at University of North Texas, Denton, TX, Dec **2022**
5. **Burrows, N.L.** “A Non-traditional Assessment in a Biochemistry Laboratory.” Presented at University of Michigan, St. Arbor, Michigan, April **2022**
6. **Burrows, N. L.** “Investigating the Phenomenon of Oral Assessments in a Biochemistry Laboratory.” Presented at University of Texas at El Paso, El Paso, TX, Dec **2021**
7. **Burrows, N. L.** “The introduction of gamification in the chemistry classroom.” Presented at The Best of ChemEd 2021 Conference, Guelph, Ontario, Canada, July **2021**
8. **Burrows, N. L.** “Investigating the phenomenon of Oral Assessments in a Biochemistry Laboratory.” Presented at Portland State University, Portland, OR, Feb **2021**
9. **Burrows, N. L.** “A Phenomenology study of an interview-style undergraduate laboratory assessment.” Presented at Queen's University, Kingston, Ontario, Canada, Nov **2020**
10. **Burrows, N. L.** “Student experiences and alternative assessments in the lab.” Presented at Kennesaw State University, Kennesaw, GA, Sept **2020**

**PRESENTATIONS AND PANELS**

1. **Burrows, N.L.**; Pazicni, S; and Hansen, S. “Mentorship Component: Mentorship and Career Panel.” Presented at Gordan Research Seminar, Bates College, Lewiston, ME, July **2023** (Panelist)
2. **Burrows, N. L.** “Exploring student perspectives of the flipped classroom pre-class video.” Presented at the Biennial Conference on Chemistry Education, West Lafayette, IN, Aug **2022**
3. **Burrows, N. L.;** Ouelette, J.; #Joji, J.; and #Man, J.; “Alternative assessment to lab reports: A phenomenology study of undergraduate biochemistry students’ experiences of interview assessment.” 2020 Biennial Conference on Chemical Education. (COVID) **2020**
4. **Burrows, N. L.**; Mooring, S. R.; Nehring, A.; #Siemens, M; and #Peschel, L. “Students’ Perceptions of Chemistry Laboratory Environments: Moving from a Phenomenographic to a Quantitative Approach.” American Education Research Association (COVID) **2020**
5. **Burrows, N. L.** and Mooring, S.R**.** “Students’ perceptions of a project-based Organic Chemistry laboratory environment: a phenomenographic approach.” Presented at the American Chemical Society 255th National Meeting, New Orleans, LA, April **2018**
6. **Burrows, N. L.** and Le Doux, J. M. “Features and challenges of the social nature in student-centered interactive environments.” Presented at the 47th annual Frontiers in Education Conference, Indianapolis, IN, October **2017**

**From Postdoctoral and Graduate Work**

1. **Burrows, N. L.** and Mooring, S.R**.** “Describing student experiences in a project-based organic chemistry laboratory.” Presented at the American Chemical Society 253rd National Meeting, San Diego, CA, April **2017**
2. **Burrows, N. L.** and Mooring, S.R**.** “How do students experience a project-based lab?” Presented at the National Organization of Black Chemist and Chemical Engineers Annual Conference, Raleigh, NC, November 2016
3. **Burrows, N. L.** and Mooring, S. R. **“**Organic Chemistry student’s perspectives on a project-based lab.” Presented at the Biennial Conference on Chemistry Education, Greeley, CO, July 2016
4. **Burrows, N. L.** and Mooring, S.R**.** “Student learning outcomes for an O-Chem project-based lab.” Presented at National Organization of Black Chemist and Chemical Engineers Annual Conference, Orlando, FL, September 2015
5. **Burrows, N. L.** and Mooring, S. R. “The Concept Map Connection: An investigation of the information obtained from concept maps.” Presented at the Biennial Conference on Chemistry Education, Allendale, MI, August 2014

**POSTER PRESENTATIONS**

1. #Joji, J. and **Burrows, N.L.** “Alternative Assessments to lab reports: Undergraduate Biochemistry Student Perceptions of interview assessment. Presented at The Chemistry Laboratory: Evaluation, Assessment and Research (CLEAR) Symposium, University of West Australia, April **2022**
2. #Liguori, M. and **Burrows, N. L.** Characterizing the Learning Outcomes of the undergraduate chemistry laboratory.” Presented at Monmouth University summer scholars, West Long Branch, NJ, **2020**

**From Postdoctoral and Graduate work**

1. **Burrows, N. L.** and Mooring, S. R. “Students’ Perspectives of a Project-Based Organic Chemistry Laboratory Environment: A Phenomenographic Approach.” Presented at the Chemistry Education Research Graduate Student & Post-Doc Professional Development Conference, Oxford, OH, July **2017**
2. **Burrows, N.L.** and Mooring, S.R. “Situated Cognition in a project-based lab.” Presented at the Graduate Student Symposium, Atlanta, GA, March **2017**
3. **Burrows, N. L.** and Mooring, S. R. “Project-based laboratory curriculum designed through a cognitive apprenticeship framework.” Presented at the Biennial Conference on Chemistry Education, Greenly, CO, July 2016
4. **Burrows, N.L.** and Mooring, S.R. “Student perspective of an organic chemistry project-based lab.” Presented at the Molecular Basis of Disease Research Day, Atlanta, GA, May 2016
5. **Burrows, N.L.** and Mooring, S.R. “A project-based lab by cognitive apprenticeship design.” Presented at the Conference on Scholarly Teaching, Atlanta, GA, April 2016
6. **Burrows, N.L.** and Mooring, S.R. “Independence: The latent learning outcome of a project-based lab.” Presented at the Graduate Student Symposium, Atlanta, GA, March 2016
7. **Burrows, N.L.** and Mooring, S.R. “A project-based lab designed through a cognitive apprenticeship framework.” Presented at the Fifth Annual UGA STEM Institute on Teaching and Learning, Athens, GA, February 2016
8. Mooring, S. R. and **Burrows N. L.** “Perceptions of students regarding a project-based undergraduate laboratory.” Presented at the Gordon Research Conference: Chemistry Education Research and Practice, Lewiston, Maine, June 2015
9. **Burrows, N.L.** and Mooring, S.R. “Student learning outcomes for an organic chemistry project-based lab.” Presented at the Molecular Basis Disease Research Day, Atlanta, GA, June 2015
10. **Burrows, N.L.** and Mooring, S.R. “Investigating the impact of project-based chemistry lab activities on student motivation and persistence.” Presented at the Graduate Student Symposium, Atlanta, GA, March 2015
11. **Burrows, N. L.** and Mooring, S. R. “Concept Connection: An investigation on the information obtained from concept maps.” Presented at National Organization of Black Chemist and Chemical Engineers Annual Conference, New Orleans, LA, September 2014
12. **Burrows, N. L.** and Mooring, S. R. “Investigating the impact of project-based chemistry lab activities on student motivation and persistence.” Presented at the Biennial Conference on Chemistry Education, Grand Rapids, MI, July 2014
13. **Burrows, N. L.** and Mooring, S. R. “Organic chemistry students’ knowledge structures of fundamental general chemistry topics: Lewis structure and bonding.” Presented at Southeast Regional Meeting of the American Chemical Society, Atlanta, GA, November 2013
14. **Burrows, N. L.** and Mooring, S. R. “Student understanding of general chemistry and their success in organic chemistry.” Presented at the Chemistry Education Research Graduate Student & Post-Doc Professional Development Conference, Oxford, OH, July 2013
15. **Burrows, N. L.** and Mooring, S. R. “Student understanding of general chemistry and their success in organic chemistry.” Presented at the Georgia State University Pedagogy Conference, Atlanta, GA, April 2013
16. **Burrows, N. L.** and Ward, K. “An investigation on the anti-bacterial effects of Aloe vera, Cerasee, Gale of Wind and Fever Grass.” Presented at the Council of Undergraduate Research (CUR) Conference 2012, Ewing, NJ, June 2012

**AWARDS AND CERTIFICATES**

Monmouth University

* Equity and Inclusion Teaching Award (**2023**)
* Distinguish Faculty Peer Observer (**2023**)

Graduate and Undergraduate Awards

* Graduate Teaching Award Doctoral Level (2017)
* Outstanding Research Award Doctoral Level (2017)
* NOBCChE Advancing Science Travel Grant Recipient (2016)
* Graduate Teaching Award Doctoral Level (2016)
* NOBCChE Advancing Science Travel Grant Recipient (2015)
* Outstanding Professional Service (2015)
* NOBCChE Advancing Science Travel Grant Recipient (2014)
* Who’s Who Award Recipient (2014)
* Chemistry Education Research Award Recipient (2013)
* Certificate of Achievement for Pedagogy Conference, Georgia State University (2013)
* Certified Registered Phlebotomy Technician, American Medical Technologist (2013)
* Outstanding academic achievement and service to the college (2012)

**PROFESSIONAL DEVELOPMENT**

POGIL 3-Day Workshop 2022

Washington University in St. Louis | St. Louis, MO

The POGIL Project

Online Teaching Academy 2020

Monmouth University | West Long Branch, NJ

Center of Excellence in Teaching and Learning

**SERVICE**

***Profession***

* NSF Reviewer IUSE: EDU (2023)
* ACS Div ChemEd Chemistry Education Research Committee Member (2020 – Pres)
* The Chemistry Laboratory: Evaluation, Assessment & Research committee Co-Chair (2021-2023)
* BCCE symposium organizer and chair “Current Research on the Undergraduate Chemistry Laboratory” (2018, 2020, 2024)

***University***

* Monmouth University Honors Society faculty member (2021 – Pres)
* Monmouth University Enrollment Committee (2020 – 2022)

***School***

* School of Science Peer Mentor Director (2022 – Pres)
* Invited Distinguished Faculty Speaker at the New Faculty Orientation Monmouth University (2023)
* Doctors without Borders Advisor (2018 – Pres)

***Department of Chemistry & Physics***

* General Chemistry Coordinator (2023 – Pres)
* Chemistry and Physics Web Committee (2022 – 2023)
* Monmouth University Open House SoS Faculty Representative (2017, 2023)
* “Where can chemistry take me?” Career Series Organizer and Host (2020)
* Monmouth University Accepted Students “Monmouth Mondays” Faculty Representative (2020)

***Other Service***

* JSJSS Reviewer (2018, 2019, 2020)
* Professional Development Committee, NOBCChE’s 44th Annual Meeting (2017)

***From Post-doctoral and Graduate Work***

* Judge, Coretta Scott King Young Women’s Leadership Academy (2016)
* Newsletter Chair, Molecular Basis of Disease (2016)
* Volunteer, STEM Link 9th Annual STEM Career Fair, and Exhibition (2016)
* Mentor, STEM2STEM Consulate General of Canada in Atlanta (2015)
* Chair of CGSA’s, Graduate Research Symposium (2014)
* Experiment Demo Instructor, NOBCChE chapter at GSU (2014 – 2017)
* Judge, Annual McNair Research Conference (2013)
* Volunteer, Biobus (2013 – 2017)
* International Student Association Council (2012 – 2017)

**OTHER SERVICE-RELATED ACTIVITIES**

inforgraphics workshop 2022

From DBER article to shareable infographic

University of Iowa | Iowa City, IA

Zotero Workshop 2021

Louis Stokes Alliance for Minority Participation (LSAMP)

Delta State University | Cleveland, MS

Winter Bridge Program 2017, 2019

Co-organized chemistry program sequence for at-risk freshman students

Monmouth University | West Long branch, NJ

**CURRENT PROFESSIONAL SOCIETIES**

* American Chemical Society, Chemical Education (National Member)
* American Educational Research Association (National Member)
* National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (National Member)
* Society of Cosmetic Chemist (National Member)

**AD HOC REVIEWER FOR:**

* Chemistry Education Research and Practice (2017 – Pres)
* Journal of Chemical Education (2017 – Pres)
* NOBCChE conference abstracts (2020, 2022, 2023)

**MENTORING AND ADVISING**

Graduate Student Mentorship

Monica Nyansa

Ph.D. Student

Michigan Technological University (2023)

Project: “Building capacity for chemical safety education: An investigation of formal and informal approaches with undergraduate and graduate students”

Elisabeth Cook

Post-Doc

Rutgers University (2018)

Capstone Project: “Exploring Chemistry in a Primarily Undergraduate Institution (PUI) Setting”

Graduate Student Committees

2023 Monica Nyansa (Ph.D), Chemical Biology, Advisor: Marina Tanasova (Michigan Technological University)

2019 – 2021 Kyle Seiverd (Ed.D), Secondary Education, Advisor: Dr. Bazler (School of Education)

Undergraduate Honor Thesis Students

2022 – 2024 Alexia Cole “The effects on academic performance in chemistry classes in students with depressive symptoms”, First Reader

2022 – 2023 Ariana Connelly “The Pipeline Issue of Underrepresented Students in Institutes of Higher Education”, First Reader

2023 Angelo Prado “Project Good Choices”, First Reader

Undergraduate Researcher Students

Alexia Cole (Spring 2023 – Spring 2024), Rachel Ludwick (Fall 2022 – Spring 2024), Ariana Connelly (Fall 2022 – Spring 2024), Rachel Soto (Spring 2022 – Spring 2024), Fernando Iragorri (Fall 2023), Rebecca Kavanaugh (Fall 2022 – Spring 2023), Jaime Pelletteri (Fall 2020 – Spring 2023), Brielle Stankan (Fall 2021 & Spring 2022), Emily Heuchan (Fall 2021 & Spring 2022), Jaimy Joji (Spring 2019 – Spring 2022), Emanuel Kuye (Fall 2020), Michael Ligurio (Spring 2020 - 2021), Victoria McAteer (Spring & Fall 2019), Hannah Duffy (Spring 2019), Alexa Smith (Spring 2018), Andrew Petrou (Spring 2018), Jillian Man (Spring 2018 –2019), Katelyn Quino (Fall 2018), Adham Hasan (Fall 2018), Konrad Sliwiak (Fall 2018), Priya Jassal (Fall 2017), Pavneet Kaur (Fall 2017)

**From Post-doctoral and Graduate work**

Montana Nowak (2016 – 2017)*,* Chloe Mitchell (2014 – 2016), Jae He Choi (2015)