

**Anthony Howcroft**  
Philadelphia, PA  
[awhowcroft@widener.edu](mailto:awhowcroft@widener.edu)

## EDUCATION

<b>Drexel University</b> Ph.D. in Chemistry – Emphasis: Chemical Education Research Chemistry Graduate Program Thesis Advisor: Dr. Daniel B King	2019-2023
<b>University of Kansas</b> B.S. in Chemistry – Research Emphasis: Bioinorganic Chemistry Undergraduate Research Advisor: Dr. Timothy A Jackson	2012-2016

## INSTRUCTIONAL EXPERIENCE

<b>Assistant Teaching Professor</b> Widener University, Department of Chemistry	2024-
<b>Adjunct Chemistry Professor</b> Drexel University, Department of Chemistry	2023- 2024
<b>MCAT General Chemistry Instructor</b> The Princeton Review	2021- 2024
<b>Graduate Teaching Fellow</b> Drexel University, Department of Chemistry	2019- 2023
<b>Summer Chemistry Instructor</b> University of Kansas, TRIO Services	2019
<b>Middle/High School Science Teacher</b> Bishop Seabury Academy, Science Department	2017- 2019

## RESEARCH EXPERIENCE

<b>Post-Doctoral Research and Teaching Fellow</b> Drexel University, Center for the Advancement in STEM Teaching and Learning Excellence <i>Advisors and Collaborators: Dr. Jen Stanford, Dr. Adam Fontecchio, Dr. Jason Silverman, Dr. Eric Brewster</i>	2023-2024
<b>Graduate Research Fellow</b> Drexel University, Department of Chemistry <i>Research Advisor: Dr. Daniel King</i>	2019- 2023
<b>Undergraduate Bioinorganic Chemistry Researcher</b> University of Kansas, Department of Chemistry <i>Research Advisor: Dr. Timothy Jackson</i>	2014- 2016
<b>Undergraduate Bioinorganic Summer Researcher (REU)</b> University of South Florida, Department of Chemistry <i>Research Advisor: Dr. Li-June Ming</i>	2015

## CERTIFICATES

<b>Certificate of Inclusive STEM Teaching</b> Inclusive STEM Teaching Project	2023
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**Certificate of College Teaching**  
Drexel University Teaching and Learning Center

2023

**Certificate of Essentials of Online Teaching**  
Drexel University Online Learning Council

2020

## **COURSES TAUGHT**

### **Foundations in Evidence-Based STEM Pedagogy**

A graduate level introduction to evidence-based approaches to teaching STEM undergraduates. This course discusses research and practice in STEM education specifically related to the implementation of evidence-based pedagogical approaches.

### **General Chemistry for Engineering Majors**

Topics covered include elements, atomic structure, chemical reactions, stoichiometry, gases, thermochemistry, periodic properties, chemical bonding, molecular shapes, valence bond theory, molecular orbital theory, and intermolecular forces. Engineering and sustainable chemistry applications are emphasized.

### **General Chemistry I and Lab**

Covers fundamental principles of chemistry, stoichiometry, atomic and molecular structure, chemical bonding, states of matter, thermochemistry, and periodicity.

### **General Chemistry II and Lab**

Covers chemical equilibrium, including acid-base equilibria in solution; electrochemistry; organic chemistry; polymers; and petroleum.

### **General Chemistry III and Lab (Introductory Organic Chemistry)**

Covers organic functional groups, biochemistry, inorganic and coordination compounds, chemical kinetics, thermodynamics, and nuclear chemistry.

### **Allied Health and Nursing Chemistry**

Covers physical and chemical properties of substances used in medical areas and related principles: atomic structure, bonding, gases, solutions, acids and bases, oxidation-reduction and the chemistry of hydrocarbon compounds and polymers.

### **Inorganic Chemistry Lab**

Covers synthesis of properties of inorganic compounds, magnetic measurements, spectroscopic properties, and interpretations of complex ion structure.

## **AWARDS**

**University Teaching Assistant Excellence Award**  
Drexel University, College of Arts and Sciences

2022

- Awarded to Graduate Teaching Assistants who exhibit exemplary commitment to student learning through reflective teaching practices, creative and innovative teaching methods, academic support, leadership and a commitment to their own professional growth and development as an educator.

- Ruth and Eugene Rosenbaum Graduate Teaching Assistant Award** 2021  
Drexel University, Department of Chemistry
- Awarded to two chemistry graduate teaching assistants who exemplify exceptional teaching at the collegiate level.
- Leonard V. Sorg Scholarship** 2016  
University of Kansas, Department of Chemistry
- Awarded to a student who is planning a career in the field of chemistry. The awardee is selected based on academic record, ambition, and demonstrated need.
- ACS Chemistry for Life: 2016 Undergraduate Award in Inorganic Chemistry** 2016  
American Chemical Society, University of Kansas

## PUBLICATIONS

Colmer, H.E., **Howcroft, A.W.**, Jackson, T.A., "Formation, Characterization, and O—O Bond Activation of a Peroxomanganese(III) Complex Supported by a Cross-Clamped Cyclam Ligand," *Inorganic Chemistry*. (2016).

**Howcroft, A.W.**, King, D.B., "Impact of the Timing of Content Introduction on Student Exam Performance in General Chemistry". (2023). *Journal of College Science Teaching. Accepted.*

Rockcliffe, F., Stanford, J., **Howcroft, A.W.**, Martin, A., Silverman, J., Switalski, R., Mathieu, R., Fontecchio, A. Promoting future faculty pedagogical and change leadership development through the CIRTl Forum, a professional conference for higher education stakeholders. (2024). *Journal on Centers of Teaching and Learning. Under Review.*

**Howcroft, A.W.**; Stanford, J; Interlante, L; DeVita, J; DiNardo, J; Jiang, X; Winters, R; Ashe, D; Boersma, J; Fontecchio, A; McGee, B; Mongan, W; Townend, P; Bolton, K; Brewe, E., "The Development and Initial Validation of the Experiential Learning Instrument (ELI)". (2024). *College Teaching. Under Review.*

**Howcroft, A.W.**, King, D.B., "Changes in chemistry self-efficacy and the association with course performance". (2024). *Journal of Chemical Education. In preparation.*

## PRESENTATIONS

**Howcroft, A.W.**, King, D.B. Investigating the correlation of chemistry self-efficacy on student success in general chemistry. American Chemical Society National Meeting. August 2024. (*Oral Presentation*)

Bracci, N., Camacho, C., Cherlin, T., **Howcroft, A.W.** Building Community in Interdisciplinary STEM Education Environments. Off the Tenure Track: Building an Education-Forward Academic Career Regional Philadelphia Retreat at Rutgers University - Camden. June 2024. (*Oral Presentation*)

**Howcroft, A.W. et. al.** Development and Initial Validation of the Experiential Learning Instrument (ELI). Drexel University Research Day. May 2024. (*Poster*)

**Howcroft, A.W.** Characterizing chemistry self-efficacy, mindset and belonging across a chemistry curriculum and enhancing laboratory experiments through research-driven experimental design. Widener University Chemistry Department Seminar. March 2024. (*Invited Talk*)

**Howcroft, A.W.** Acid/base chemistry in the context of nursing chemistry. Rutgers University – Camden Chemistry Department Seminar. February 2024. (*Invited Talk*)

**Howcroft, A.W.,** King, D.B. Observing Chemistry Self-Efficacy Changes after Education and Reflection. Gordon Research Conference in Chemical Education Research and Practice. July 2023. (*Poster*)

**Howcroft, A.W.,** King, D.B. Observing Chemistry Self-Efficacy Changes after an Intervention. Drexel College of Arts and Sciences Research Day. June 2023. (*Oral Presentation*)

**Howcroft, A.W.,** King, D.B. Self-Efficacy and Student performance in General Chemistry. American Chemical Society National Meeting. March 2023. (*Poster*)

**Howcroft, A.W.** Promoting chemistry self-efficacy and student success in chemistry. Saint Peter's University Chemistry Department Seminar. March 2023. (*Invited Talk*)

**Howcroft, A.W.,** King, D.B. Does Student Belief in their Chemistry Ability Change and Does it Impact Course Performance? Start Talking Science Conference. November 2022. (*Poster*)

**Howcroft, A.W.,** King, D.B. Varying the timing of content introduction to enhance student performance in undergraduate general chemistry. Biennial Conference on Chemical Education. August 2022. (*Oral Presentation*)

**Howcroft, A.W.,** King, D.B. Modifying when Content is Introduced to Optimize Exam Performance in Undergraduate General Chemistry. American Chemical Society Middle Atlantic Regional Meeting. June 2022. (*Oral Presentation*)

**Howcroft, A.W.,** King, D.B. Impact of the Timing of Content Introduction on Student Exam, and In-Class Performance in General Chemistry. American Chemical Society National Meeting. March 2022. (*Poster*)

**Howcroft, A.W.,** King, D.B. Impact of Recitation Timing on Student Exam Performance in General Chemistry. American Chemical Society National Meeting. August 2021. (*Poster*)

**Howcroft, A.W.,** King, D.B. Impact of Recitation Timing on Student Performance in General Chemistry. American Chemical Society Middle Atlantic Regional Meeting. June 2021. (*Poster*)

## **INTRA/EXTRAMURAL FUNDING AND GRANTS**

### Widener University

Title: Teaching and Professional Development Funding

Amount: \$4,500

Funding Period: Fall 2024- Spring 2025

### 2023 POD Network Career Development Grant

Title: POD Network 2023 Conference

Amount: \$865

Funding Period: Fall 2023

### Gordon Research Seminar Student Travel Grant

Title: Summer Gordon Research Seminar and Conference Post Presentation

Amount: \$300

Funding Period: Summer 2023

### Teck-Kah Lim Graduate Student Domestic Travel Grant

Title: Spring 2023 ACS Poster Presentation

Amount: \$600

Funding Period: Spring 2023

### Teck-Kah Lim Graduate Student Domestic Travel Grant

Title: Summer BCCE Oral Presentation

Amount: \$800

Funding Period: Summer 2022

Universal Display Corporation and Graduate School at CUNY Travel Grant

Title: Summer ACS Mid-Atlantic Regional Meeting Oral Presentation

Amount: \$275

Funding Period: Summer 2022

Dean's Doctoral Award at Drexel University

Amount: \$10,000 (\$5000 per year for two years)

Funding Period: August 2019 – August 2021

## SERVICE

### Drexel Publishing Group

Essay Contest Reviewer 2024

### Drexel Emerging Graduate Scholars Conference

Conference Abstract Reviewer 2024

Conference Judge 2024

### Center for the Integration of Research, Teaching and Learning

Chair, Forum Assessment 2023-2024

Forum Planning Committee Member 2023-2024

### Chemistry Graduate Student Association

President 2021-2023

- Mentored younger graduate students and provided support and guidance for graduate students struggling to acclimate into graduate school
- Facilitated events and informational sessions to educate the graduate students on potential grants, scholarships and awards that they could apply for to promote their teaching and research
- Hosted events to bolster comradery and scholarship between graduate students and promote community between graduate students and faculty in the department

1<sup>st</sup>/2<sup>nd</sup> Year Outreach Coordinator 2020-2021

- Developed rapport with 1<sup>st</sup> year graduate students and provided them with resources they needed to be successful in their first year of graduate school
- Fostered events to promote the integration of 1<sup>st</sup> year graduate students into the greater graduate student community
- Mentored 1<sup>st</sup> year graduate students regarding their coursework, teaching and development of research ideas