

Dr. James Keffa Kariuki
Professor of Chemistry
University of Alberta, Augustana Campus

[Website](#)

<https://www.jameskariuki.ca/home>

[Google Scholar](#)

Professional Summary

A dynamic educator with over 20 years of experience across academic and leadership roles. Currently serving as Chair of the Department of Science, and formerly Associate Dean for Teaching, with a robust background in faculty development and curriculum design. A committed advocate and leader in advancing equity, diversity, and inclusion (EDI) initiatives. Recognized for exceptional interpersonal and communication skills in engaging faculty, staff, and students. Maintains a strong academic record in teaching, research, and service. Dedicated to fostering a collaborative and supportive leadership environment that drives the continued success of the Science Department and the Augustana Faculty.

EDUCATIONAL BACKGROUND

Ph.D., Analytical Chemistry

University of Alberta 2001

Dissertation Advisor: Dr. Mark T. McDermott

Dissertation Title: *Characterization of Chemically Bound Thin Films on Carbon Electrodes.*

M.Sc., Analytical Chemistry

Kenyatta University, Nairobi, Kenya 1991

Dissertation Advisor: Prof. Keith L. Ormand

Thesis Title: *Distribution of Fungicide-Derived Copper in a Coffee Farm in Kiambu District.*

B.Sc., Major in Chemistry, Minor in Mathematics

Kenyatta University, Nairobi, Kenya 1989

AWARDS AND HONOURS

- Awarded the Murray Lauber Distinguished Service Award
The award is generally given once a year to a continuing academic staff member in recognition of outstanding service to Augustana, the University of Alberta, and/or the broader community, over the course of their career. 2023-2024
- Awarded a Carnegie African Diaspora Fellowship 2023

The award was a fellowship granted by the Carnegie African Diaspora Fellowship Program (CADFP). The program provides funding for African-born academics in the United States and Canada to collaborate with colleagues at accredited higher education institutions in selected African countries. My fellowship was for a mentorship project at Kenyatta University in Kenya.

- Graduate Student Association Teaching Award in Chemistry, University of Alberta 2000
- Graduate Teaching Assistantship, Department of Chemistry, University of Alberta 1995 - 2001
- German Academic Exchange Service (DAAD) scholarship for Graduate Studies in Kenya 1989 -1991

EMPLOYMENT HISTORY

Chair, Department of Science

University of Alberta, Augustana Campus January 2025 – present

Professor of Chemistry

University of Alberta, Augustana Campus July 2020 – present

Associate Dean (Teaching)

University of Alberta, Augustana Campus 2019 - 2022

Associate Professor of Chemistry

University of Alberta, Augustana Campus 2011 - 2020

Assistant Professor of Chemistry

University of Alberta, Augustana Campus 2005 - 2011

Natural Sciences Instrument Coordinator (Part-time position)

The King's University College, Edmonton, AB, Canada 2004 - 2005

Assistant Professor

Department of Chemistry, University of Nebraska at Kearney
Kearney, Nebraska, USA 2003 - 2004

Postdoctoral Fellow

Dr. Jed Harrison's laboratory, Analytical Division
Department of Chemistry, University of Alberta, Edmonton, AB, Canada 2001 - 2003

Graduate Research Assistant

Dr. Mark McDermott's laboratory, Analytical Division
Department of Chemistry, University of Alberta, Edmonton, AB, Canada 1995 - 2001

Sessional Lecturer in Analytical Chemistry

The King's University College, Edmonton, AB, Canada 2000 - 2001

Graduate Teaching Assistant in Analytical and General Chemistry

Department of Chemistry, University of Alberta, Edmonton, AB, Canada 1995 - 2000

Lecturer in Analytical Chemistry

Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya 1992 - 1995

Secondary School Chemistry Teacher

- Muslim Girls' School, Nairobi, Kenya 1992
- City High School, Nairobi, Kenya 1989

TEACHING AND PEDAGOGY

Courses taught, 2005 – present

Since I have taught some of the courses *multiple times since 2005*, I have indicated the most current offering of each course taught in brackets.

- AUIDS 101, Topics in Liberal Studies, First Year Seminar, "Food for Thought" (Fall 2024)
- AUCHE 110, General Chemistry I, (Fall 2024)
- AUCHE 112, General Chemistry II, (Winter 2019)
- AUCHE 220, Analytical Chemistry I, (Fall 2020)
- AUCHE 222, Instrumental Analysis, (Winter 2021)
- AUCHE 279, Physical Chemistry, (Winter 2024)
- AUCHE 323, Analysis II, (Fall 2023)
- AUCHE 324, Research Techniques in Analytical Chemistry, (Winter 2024)
- AUCHE 325, Analysis III, (Winter 2024)
- AUCHE 392, Senior Project II, (Winter 2022)
- AUCHE 397, Directed Reading I, (Winter 2022)
- AUCHE 405, Selected Topics in Chemistry, (Winter 2021)
- AUSCI 405, Chemical and Physical Sciences Capstone, (Winter 2025)
- AUSCI 425, Senior Mentorship Experience, (Fall 2024 and Winter 2025)

Guest Lecturer, University of Alberta, Augustana Campus

- AUPED 344, Human Nutrition, Fall 2015.
- AUPHI 350, Philosophy of Science, Winter 2009.
- AUENG 380, African Literature, Fall 2008.

Research Supervision (Summer Student Research)

- Michaela Pacholok: Development of low-cost electroanalytical methods, Summer 2019.
- Benjamin Schmidt: Development of low-cost electroanalytical methods, Summer 2019.

- Shaylynn Nickel: Synthesis of metal-organic framework heterogeneous catalysts for use in electrocatalysis, Co-supervised with Dr. Elizabeth McGinitie, Summer 2019.
- Benjamin Schmidt: Development of low-cost electroanalytical methods, Summer 2018.
- Tetiana Davydiuk: Mathematics of Information Technology and Complex Systems (MITACS) funded international student, Optimization of analytical methods for the determination of antioxidants in foods, Summer 2018.
- Benjamin Schmidt: Development of analytical methods for measuring trace concentrations of metals in a variety of samples, Summer 2017.
- Jiahui Li: MITACS-funded international student, Development of analytical methods for the determination of antioxidants in foods, Summer 2017.
- Emily Ervin: The development of a novel, low-cost pencil graphite electrode (PGE) suitable for research and instruction, Summer 2015.
- Carly Olafson: Utilization of low-cost pencil PGEs for the determination of antioxidants in coffee and tea, Summer 2015.
- Jinyuan Duan: China Scholarship Program (CSC) funded international student, Application of PGEs for the determination of antioxidants in fruits and vegetables, Summer 2015.
- Uyen Hoang: MITACS-funded international student, Application of PGEs for the determination of antioxidants in fruits and vegetables, Summer 2015.
- Emily Ervin: Development of low-cost electroanalytical methods for the determination of antioxidants in food samples, Summer 2014.
- Carly Olafson: Development of low-cost electroanalytical methods for the determination of antioxidants in food samples, Summer 2014.
- Emily Ervin: Voltammetric determination of antioxidants in Food samples, Summer 2013.
- Jeffrey Friend: Voltammetric detection of vitamin C using modified carbon electrodes, Summer 2010.
- Julia Esch: Voltammetric detection of vitamin C using modified carbon electrodes, Summer 2010.

- Jeffrey Friend: Potentiometric determination of fluoride, nitrate, and calcium in drinking water, Summer 2008.

Awards Won by Students Under My Supervision

- Benjamin Schmidt, Chemical Institute of Canada (CIC) Analytical Chemistry Division Undergraduate Student Travel Award, Travel award to present at *102nd Canadian Chemistry Conference and Exhibition (CSC)*, Quebec City, QC, Canada, 2019.
- Benjamin Schmidt, *2nd Place* in the Undergraduate Student Poster Award Competition, in **both** the Chemistry Education and Analytical Chemistry Divisions, *101st CSC*, Edmonton, AB, Canada, 2018.
- Carly Olafson, Honourable mention, Analytical Undergraduate Poster Award, *98th CSC*, Ottawa, ON, Canada, June 2015.
- Emily Ervin, 1st Place Winner, Undergraduate Student Poster Award Competition, *28th Western Canadian Undergraduate Chemistry Conference*, Victoria, BC, Canada, 2014.
- Emily Ervin, Outstanding Undergraduate Research Award, Student Academic Conference, Augustana Campus, Fall 2013.

Research Supervision (Directed Studies and Senior Projects)

- Rhythm Singh: AUCHE 397, Directed Reading I, Peer tutoring in a class versus a lab setting: teaching assistants versus instructor perspectives, Winter 2022.
- Rhythm Singh: AUCHE 397, Directed Reading I, Investigation of the performance of low-cost potentiostats for use in electroanalytical experiments, Winter 2022.
- Sydney Oswald: A literature review of the development of the periodic table and the chemistry of cannabis, offered in place of AUCHE 405, Winter 2019.
- Benjamin Schmidt: AUCHE 390, Senior Project I, Student teaching assistant in a senior lab-based chemistry class, Winter 3-week block, 2018.
- Cole Smith: AUCHE 390, Senior Project I, Fabrication and testing of low-cost reference electrodes, Winter, 2017.
- Caela Marynowski: AUCHE 397, Directed Reading I, Utilization of chemistry demonstrations to enhance students' learning, Fall 2015.
- Carly Olafson: AUCHE 397, Directed Reading I, Literature review of common electroanalytical methods utilized for the determination of antioxidants, Winter 2014.
- Emily Ervin: AUCHE 490, Advanced Project 1, Development of methods for coating pencil graphite electrodes with polydimethylsiloxane (PDMS) polymer, Winter 2014.

- Emily Ervin: AUCHE 497, Directed Reading III, Electrochemical determination of extraction method and growing condition impact on antioxidants in produce, Fall 2013.
- Shawn Jacklin: AUCHE 497, Directed Reading III, Literature review of the contamination of drinking water and surrounding land by landfills. Fall 2013.
- Matthew Shelton: AUCHE 497, Directed Reading III, The history of chemistry, Offered in lieu of AUCHE 405, Winter, 2011.
- Michael Rothfus: AUCHE 397, Directed Reading I, Literature review of the manufacture and uses of carbon nanotubes, Winter 2010.
- Jeffrey Friend: AUCHE 390, Senior Project I, Determination of uric acid using an inexpensive pencil lead electrode, Winter 2010.
- Julia Esch: AUCHE 397, Directed Reading I, Analytical methods utilized for trace metal analysis, Fall 2010.
- Jeffrey Friend: AUCHE 397, Directed Reading I, Literature review of the determination of uric acid using electrochemical techniques, Fall 2009.

Membership in Teaching-Related Committees

- Member of the *Committee on the Learning Environment*. Responsible for the promotion of excellence in teaching and an optimal learning environment, as well as for the provision of appropriate information resources to the university community as a whole, 2012 - 2015; 2018 - 2022.
- Committee Member, *Faculty Evaluation Committee*. The committee is responsible for evaluating research, teaching, and service for all faculty members in a given academic year for the purpose of awarding merit, tenure, and promotion, 2015 - 2018.
- Member of the *International Students Engagement Committee*. The committee's duties are to champion, promote, and support initiatives aimed at fostering greater international students' participation and engagement on campus. It also aims to help develop strategies that will help the academic success of international students enrolled on campus, 2015 - 2018.
- Member of the *Curriculum Committee*. The mandate is to study the purpose, direction, and policies of, and to make recommendations for the continuing development of the academic curriculum. To achieve this purpose, the committee studies general curriculum developments to ensure that these reflect the mission and vision of the Augustana Faculty, 2006 - 2008.

Attendance at Teaching Related Conferences, Workshops, and Seminars

- Teaching methodology sessions, Chemical Education Division, Canadian Chemistry Conference and Exhibition (CSC), Ottawa, ON, Canada, June 15-19, 2025.
- Augustana Conference on Undergraduate Research and Innovative Teaching (ACURIT), Augustana Campus, May 9, 2025.
- 26th IUPAC International Conference on Chemistry Education (ICCE 2022), Cape Town, South Africa, July 18-22, 2022.
- Augustana Conference on Undergraduate Research and Innovative Teaching (ACURIT), Augustana Campus, May 5-6, 2022.
- Festival of Teaching and Learning, University of Alberta, July 5, 2021.
- Centre for Teaching and Learning Teaching Institute, University of Alberta, August 6, 2020.
- Teaching methodology sessions, Chemical Education Division, 102nd Canadian Chemistry Conference (CSC), Quebec City, QC, Canada, June 3-7, 2019.
- Teaching methodologies and assessment sessions, Augustana Conference on Undergraduate Research and Innovative Teaching (ACURIT), Augustana Campus, May 13-15, 2018.
- Teaching methodology sessions, Chemical Education Division, 101st Canadian Chemistry Conference (CSC), Edmonton, AB, Canada, May 27-31, 2018.

RESEARCH

1) Current Research Programs and Interests

- Development of low-cost and reliable electroanalytical methods
 - Developing disposable low-cost electrodes for electroanalytical research
 - Fabricating low-cost electrodes utilizing electrode components printed with a 3D printer
 - Interfacing low-cost electrochemical instrumentation with disposable electrodes
 - Utilizing low-cost electrodes in voltammetric experiments for both research and teaching purposes
 - Developing portable electroanalytical methods

2) Research and Pedagogical Grants. For all the funds listed below, I was the **principal investigator (PI)**.

a) Funding Received

- 2025: Carnegie African Diaspora Fellowship Program (CADFP) Conference Participation Grant: **\$6,800**, Conference attendance grant to attend the Canadian Chemistry Society (CSC) 2025 conference in Ottawa, ON, Canada
- 2022: Augustana Faculty, University of Alberta: **\$1,600**, Conference travel grant.
- 2022: Augustana Faculty, University of Alberta: **\$1,000**, Funds to Purchase a 3D Printer for Research Purposes.
- 2022: Augustana Faculty, University of Alberta: **\$2,000**, Sabbatical travel and research expenditure grant.
- 2022: Canadian Chemistry Conference and Exhibition (CCCE): **\$570**, CCCE 2022 conference registration grant.
- 2014, Vitamin Research Fund, Faculty of Agriculture, Life & Environmental Sciences, University of Alberta: **\$21,000**, Summer student research assistantship.
- 2014: University of Alberta, Office of the Provost and VP (Academic), TLEF: **\$2,463**, for PI to attend the 97th CSC, Vancouver, BC, Canada.
- 2012: Lund University Antidiabetic Food Centre, Lund, Sweden: **\$5,750**, Partial funding of sabbatical visit as a visiting professor in Dr. Charlotta Turner's lab at Lund University.
- 2010: Faculty of Agriculture, Life & Environmental Sciences, University of Alberta, Vitamin Fund: **\$27,986**, Research support that includes student stipends to conduct research involving vitamin C in foods.
- 2009: Augustana Faculty, University of Alberta: **\$995**, Purchase of a computer program to conduct specialized electrochemistry experiments.
- 2008: Augustana Faculty, University of Alberta: **\$6,500**, One-course teaching release.
- 2006: Augustana Faculty, University of Alberta: **\$2,500**, Funding to purchase ion-selective electrodes.
- 2006: Augustana Faculty, University of Alberta: **\$10,000**, Faculty Start-up Grant, Funding to purchase a potentiostat.
- 2005: University of Alberta, Office of the Provost and VP (Academic): **\$5,000**, Funding to purchase a variety of research electrodes.

- 2003: University of Nebraska at Kearney: Research Services Council (RSC), **\$2,000**, Funding to purchase electrochemistry electrodes.

b) Funded Student Assistantships

- 2019: Augustana Faculty, University of Alberta, Right Honourable Don Mazankowski Summer Research Assistantship: **\$7,500**, Summer student research assistantship.
- 2019: Augustana Faculty, University of Alberta: **\$7,500**, Summer student research assistantship.
- 2018: Augustana Faculty, University of Alberta, Right Honourable Don Mazankowski Summer Research Assistantship: **\$7,500**, Summer student research assistantship.
- 2018: Mathematics of Information Technology and Complex Systems (MITACS) Globalink Research Internship: **\$7,500**, Summer student research assistantship.
- 2017: Augustana Faculty, University of Alberta: **\$7,500**, Summer student research assistantship.
- 2008: Augustana Faculty, University of Alberta: **\$6,563**, Summer student research assistantship.

PUBLICATIONS

a) Peer-Reviewed Articles

Highly qualified personnel (HQP) that I have supervised are underlined. For each publication, my **role** is indicated.

- 1) Rempel, B.; Snyman, M; King, D.; Kariuki, J.; McGinitie, E. Design and Implementation of a Mentorship Course That Utilizes Senior Undergraduate Chemistry Students as Learning Assistants in the Introductory Chemistry Laboratory to Foster Transferable Skill Development, *J. Chem. Educ.* **2024**, 101(9), 3795-3804. **My role: Co-author** <https://doi-org.login.ezproxy.library.ualberta.ca/10.1021/acs.jchemed.4c00315>
- 2) Kariuki, J.; Nguyen, T; Singh, S. Reflections of a Professor and Undergraduate Student-Instructors: Our Experiences Teaching a First-Year Seminar Course and Chemistry Labs. *International Journal for Students as Partners*, **2023**, 7(1), 191-197. **My role: Primary author and PI.** <https://doi.org/10.15173/ijasp.v7i1.5163>
- 3) Schmidt, B.; Pacholok, M.; King, D.; Kariuki, J. Application of 3D Printers to Fabricate Low-Cost Electrode Components for Undergraduate Experiments and Research. *J. Chem. Educ.* **2022**, 99, 1160-1166. **My role: Primary author and PI.**

- <https://doi.org/10.1021/acs.jchemed.1c01215?urlappend=%3Fref%3DPDF&jav=VoR&rel=cite-as> [Cited **10 times**, *Web of Science*, November 2024].
- 4) Gares, S. L.; Kariuki, J. K.; Rempel, B. R. Community Matters: Student–Instructor Relationships Foster Student Motivation and Engagement in an Emergency Remote Teaching Environment. *J. Chem. Educ.* **2020**, 97(9), 3332-3335. **My role: Co-author.** <https://doi.org/10.1021/acs.jchemed.0c00635> [Cited **49 times**, *Web of Science*, November 2024].
 - 5) Schmidt, B.; King, D.; Kariuki, J. Designing and Using 3D-Printed Components That Allow Students to Fabricate Low-Cost, Adaptable, Disposable, and Reliable Ag/AgCl Reference Electrodes. *J. Chem. Educ.* **2018**, 95(11), 2076 - 2080. **My role: Primary author and PI.** <https://doi.org/10.1021/acs.jchemed.8b00512> [Cited **24 times**, *Web of Science*, November 2024].
 - 6) Ervin, E. M.; Kariuki, J. K. Demonstrating the Minimal Impact of Cultivation Conditions on Antioxidants in Fruits and Vegetables by Differential Pulse Voltammetry. *Int. J. Food Prop.* **2016**, 19, 826 - 836. **My role: Primary author and PI.** <https://doi.org/10.1080/10942912.2015.1048354826> [Cited **3 times**, *Web of Science*, November 2024].
 - 7) Kariuki, J.; Ervin, E.; Olafson, C. Development of a Novel, Low-Cost, Disposable Wooden Pencil Graphite Electrode for Use in The Determination of Antioxidants and Other Biological Compounds (*Invited*). *Sensors.* **2015**, 15, 18887-18900. **My role: Primary author and PI.** <https://doi.org/10.1080/10942912.2015.1048354> [Cited **43 times**, *Web of Science*, November 2024].
 - 8) Merichel, M.; Kariuki, J.; Turner, C. Quantification of Individual Phenolic Compounds' Contribution to Antioxidant Capacity in Apple: A Novel Analytical Tool Based on Liquid Chromatography with Diode Array, Electrochemical, and Charged Aerosol Detection. *J. Agric. Food Chem.* **2014**, 62 (2), 409–418. **Co-investigator and co-author.** <https://doi-org.login.ezproxy.library.ualberta.ca/10.1021/jf404263k> [Cited **43 times**, *Web of Science*, November 2024].
 - 9) Kariuki, J. K. An Electrochemical and Spectroscopic Characterization of Pencil Graphite Electrodes. *J. Electrochem. Soc.* **2012**, 159(9), H747-H751. **Primary author and PI.** <https://doi.org/10.1149/2.007209jes> [Cited **85 times**, *Web of Science*, November 2024].
 - 10) Esch, J. R.; Friend, J. R.; Kariuki, J. K. Determination of the Vitamin C Content of Conventionally and Organically Grown Fruits by Cyclic Voltammetry. *Int. J. Electrochem. Sci.* **2010**, 5, 1464-1474. **Primary author and PI.** [Cited **23 times**, *Web of Science*, November 2024]. [https://doi.org/10.1016/S1452-3981\(23\)15373-9](https://doi.org/10.1016/S1452-3981(23)15373-9)
 - 11) King, D.; Friend, J.; Kariuki, J. K. Measuring Vitamin C Content of Commercial Orange Juice Using a Pencil Lead Electrode. *J. Chem. Educ.* **2010**, 87(5), 507-509.

Primary author and PI. [Cited **44 times**, *Web of Science*, November 2024].
<https://doi.org/10.1021/ed800151x>

- 12) Kanda, V.; Kariuki, J. K.; Harrison, D. J.; McDermott, M. T. Label-Free Reading of Microarray-Based Immunoassays with Surface Plasmon Resonance Imaging. *Anal. Chem.* **2004**, *76*(24), 7257-7262. **Co-author.** [Cited **212 times**, *Web of Science*, November 2024]. <https://doi.org/10.1021/ac049318q>
- 13) Furdui, V. I.; Kariuki, J. K.; Harrison, D. J. Microfabricated Electrolysis Pump System for Isolating Rare Cells in Blood. *J. Micromech. Microeng.* **2003**, *13*, S164-S170. **Co-author.** <https://doi.org/10.1088/0960-1317/13/4/324>
- 14) Kariuki, J. K.; McDermott, M. T. Formation of Multilayers on Glassy Carbon. *Langmuir*, **2001**, *17*, 5947-5951. **Co-author.** [Cited **326 times**, *Web of Science*, November 2024]. <https://doi.org/10.1021/la010415d>
- 15) Goh, A. Y. L.; Kariuki, J. K.; Skelthorne, A. W.; Bhattacharyya, A.; McDermott, M. T.; Forest, T. W.; Steadman, G. Preliminary Results on the Effect of Methanol-Based Fuels on the Tensile Properties of FRP Micro-Specimens. *Advanced Composites Letters*, **2001**, *10*(4), 155-169. **Co-author.**
- 16) Kariuki, J. K.; McDermott, M. T. Nucleation and Growth of Functionalized Aryl Films on Graphite Electrodes. *Langmuir*, **1999**, *15*, 6534-6540. **Co-author.** [Cited **299 times**, *Web of Science*, November 2024]. <https://doi.org/10.1021/la990295y>
- 17) Kiema, G. K.; Kariuki, J. K.; McDermott, M. T. Compositional Mapping of Chemically Modified Glassy Carbon Electrodes with Tapping-mode Scanning Force Microscopy. In *Fundamental and Applied Aspects of Chemically Modified Surfaces*; Blitz, J. P.; Little, B. C. Ed.; Royal Society of Chemistry: Cambridge, England, **1999**, pp 280-289. **Co-author.**

b) Popular Articles

- 1) **Kariuki, J. K.** To fluoridate or not to fluoridate. Submission to Second Thought Column, *Camrose Booster*, December 2, 2008, p 14.
- 2) **Kariuki, J. K.** Consider Packing Your Fluoride Toothpaste on Your Next Trip to Edmonton. Letters to the Editor, *Camrose Booster*, July 1, 2008, p 8.

PRESENTATIONS

Conference or Workshop Presentation (indicates students supervised in my lab)*

- Kariuki, J.; King, D. Teaching a Senior Analytical Lab-Based Chemistry Course Through an Intensive Three-Week Term, Canadian Chemistry Conference and Exhibition (CSC 2025), Ottawa, ON, Canada, June 18, 2025. **Presenter.**
- Kariuki, J.; Nawiri, M. Enhancing Student Learning in a First-Year Chemistry Course Through Collaborative Active Learning Strategies at Kenyatta University, Kenya. Canadian Chemistry, Conference and Exhibition (CSC 2025), Ottawa, ON, Canada, June 16, 2025, **Co-presenter.**
- McGinitie, E.; Rempel, B.; Kariuki, J.; Zimmerman, H.; Spreen, M. Two-Stage Collaborative Exams in Introductory Chemistry: A Study of Student Perspectives. Canadian Chemistry Conference and Exhibition (CSC 2025), Ottawa, ON, Canada, June 16, 2025, **Co-investigator.**
- Kariuki, J. Teaching a Senior Analytical Chemistry Lab in Three Weeks: Experiences and Reflections, Middle Atlantic Regional American Chemical Society (ACS) Meeting, South Orange, New Jersey, May 28-31, 2025, **Presenter.**
- Kariuki, J. Chemistry Teaching and Learning in the Lab and the Classroom, (ICCE 2022), Cape Town, South Africa, July 18-22, 2022, **Presenter.**
- Kariuki, J. Teaching a Senior Analytical Lab-Based Chemistry Course in a Condensed Three-Week Semester, Canadian Chemistry Conference and Exhibition (CCCE 2022), June 13-17, Calgary, AB, Canada, **Presenter.**
- Kariuki, J.; Nguyen, T.; Singh, R*. Perspectives of a Professor and Senior Students from Teaching a First-Year Seminar Course versus a First-Year Chemistry Lab, Canadian Chemistry Conference and Exhibition (CCCE 2022), June 13-17, Calgary, AB, Canada, **Co-Presenter.**
- Kariuki, J.; Nguyen, T.; Singh, R*. Perspectives of a Professor and Senior Students from Teaching a First-Year Seminar Course versus a First-Year Chemistry Lab. Augustana Conference on Undergraduate Research and Innovative Teaching (ACURIT), Augustana Campus, Camrose, AB, Canada, May 5-6, 2022, **Co-presenter.**
- Kariuki, J. A Professor's Journey of Teaching, Research, and Connecting Chemistry to the World, Augustana Distinguished Professorial Talk, Augustana Campus, Camrose, AB, Canada, October 8, 2020, **Presenter.**
- Kariuki, J. Teaching a Senior Analytical Lab-Based Chemistry Course in a Condensed Three-Week Semester, 104th Canadian Chemistry Conference and

Exhibition (CCCE), *Virtual Presentation*, 51st IUPAC General Assembly, 48th World Chemistry Congress, August 13-20, 2021, **Presenter**.

- Kariuki, J. Experiences of Teaching a Senior Analytical Chemistry Course in a Three-Week Block. 103rd Canadian Chemistry Conference and Exhibition (CCCE), *Virtual Program*, Winnipeg, MB, Canada, May 24-28, 2020, **Presenter**.
- Kariuki, J.; McGinitie, E.; Nickel, S.*; Schmidt, B*. Triumphs and Challenges of Undergraduate Research, High Impact Practices in Higher Education. Augustana Conference on Undergraduate Research and Innovative Teaching (ACURIT), University of Alberta, Augustana Campus, Camrose, AB, Canada, May 14-15, 2019, **Co-presenter**.
- Kariuki, J.; Schmidt, B.*; King, D*. (2019). Development and Testing of Low-Cost Electrodes and Components for Use in Electroanalytical Sensors. 102nd Canadian Chemistry Conference and Exhibition (CSC), Quebec City, QC, Canada, June 3-7, 2019, **Presenter**.
- Kariuki, J.; Schmidt, B.*; King, D*. (2019). Fabrication of Low-Cost Electrodes for Electroanalytical Techniques and Undergraduate Labs Utilizing 3D Printers. 102nd Canadian Chemistry Conference and Exhibition (CSC), Quebec City, QC, Canada, June 3-7, 2019, **Principal investigator**.
- Kariuki, J.; Rempel, B. Chemistry Demonstrations to Showcase the Role of Chemistry in our Daily Lives. University of Alberta Alumni Weekend, Augustana Campus, Camrose, AB, Canada, September 22, 2018, **Co-presenter**.
- Kariuki, J.; McGinitie, E.; Rempel, B. Two-Stage Exams as a New Tool for Student Assessment. Augustana Conference on Undergraduate Research and Innovative Teaching (ACURIT), University of Alberta, Augustana Campus, Camrose, AB, Canada, May 13-15, 2018, **Co-investigator**.

PROFESSIONAL AND COMMUNITY SERVICE

1) Service to the University of Alberta

- **Member of the University of Alberta (U of A) Network of Academic Faculty Equity, Diversity, and Inclusion (EDI) Leaders.** The goal of the network is to provide a forum to connect individuals leading or coordinating EDI initiatives within academic faculties and relevant support units. June 2020 to present.
- **Member of the University of Alberta Equity, Diversity, and Inclusion Scoping Group (UAlberta EDI Scoping Group).** The goal of the EDI Scoping Group was to support the work to draft and implement an Institutional Plan for Equity, Diversity, and Inclusion, which will lay out priorities and initiatives to address the equity,

diversity, and inclusion themes of the institutional strategic plan, For the Public Good. January 2022 to June 2023.

- **Member of the General Faculty Council (GFC), General Appeals Committee (GAC).** I was a member of the GAC as an appointee from the President's office. June 2022.
- **Host for a Motivational Talk given by Dr. Afua Cooper,** Killam Research Chair: Black History and African Diaspora Studies, Dalhousie University, Halifax, Canada. I hosted a motivational talk given to U of A Black students by Dr. Afua Cooper. March 24, 2022.
- **University of Alberta Equity, Diversity, and Inclusivity (EDI) Review of Teaching Awards Working Group.** I was a committee member of the University Teaching Awards Advisory Committee. The advisory committee was established after all new calls for nominations for teaching awards under the Awards for Faculty Excellence and Awards for Teaching Excellence were paused in December 2020, while the University undertook a review process to address a longstanding diversity gap across the suite of teaching awards. The terms of reference for the committee included reviewing the structure, nomination process, and criteria for the university-wide awards. January 2021 to March 2022.
- **Participant in a Black Faculty Collective Meeting with Dr. Steve Patten, Interim Dean, Faculty of Arts.** The purpose of the meeting was to discuss the proposed cluster hire of 10 black faculty members across the U of A. October 26, 2021.
- **Committee member for the Student Feedback on Teaching Project Appendix A Working Group.** The mandate of the working group was to develop and recommend a set of new questions for use in the student feedback on the experience of instruction survey. The Working Group was an advisory group under the authority of the Deputy Provost that reviews and endorses recommendations prior to being included in the development of any new or changes to an existing UAPPOL policy or procedure. July 2021.
- **Session Chair During the University of Alberta 2021 Festival of Teaching and Learning.** I chaired the generating effective feedback from online assessments session. I was also the moderator of two sessions (June 16 and June 23) during the conference. My duties were to introduce the speakers and moderate the Q&A discussion at the end of the presentations. July 5, 2021.
- **Member of the Advisory Selection Committee for the Executive Director of the Centre for Teaching and Learning (CTL).** I was a member of the Advisory Selection Committee for the Executive Director of CTL. This was an extensive search that lasted about 6 months before an offer was made to the top candidate. January to June 2021.

- **Member of the University of Alberta Standing Committee on Convocation.** July 2015 to June 2020.
- **Panelist at the University of Alberta Teaching Institute.** I was invited to participate as a panelist at the University of Alberta Teaching Institute during the Teaching and Tenure Panel discussion session. August 22, 2019.
- **Committee member for the Festival of Teaching organizing committee.** 2019
- **Committee member for the University of Alberta Standing Committee on Convocation.** I was the Convocation Marshal for the June 7, 2018, ceremony.
- **Chemistry faculty representative at the University of Alberta Open House,** Universiade Pavilion, Edmonton, October 19, 2013.

2) Service to the Augustana Faculty

- **Chair, Department of Science, Augustana Faculty.** I am the Chair of the Department of Science, Augustana Faculty. Beyond the standard duties of a Chair, I aim for a science department that not only leads in teaching, research, and service to the university and community but also fiercely advocates for an equitable learning and working environment. January 2025 to June 2028.
- **Hands-On Chemistry Workshop Host for Grade 11 Students from Across Canada:** I hosted 20 prospective grade 11 students in the chemistry lab to conduct an acid-base related experiment. Inviting prospective Grade 11 students into a university chemistry lab offers them a hands-on introduction to higher education science facilities. Hopefully, this experience will help demystify university life, making it more approachable and encouraging them to consider post-secondary studies in the sciences. May 10, 2025.
- **EDI Facilitating Group Co-Lead.** I am the co-lead of the EDI facilitating group at Augustana. The goal of the group is to seek input from students, faculty, and staff regarding all EDI-related issues that they are encountering at Augustana. In particular, issues that act as barriers to successful work and study. In addition, we collaborate with the Vice-Provost (Equity, Diversity, and Inclusion) with a common goal of aligning our EDI initiatives with the overall University of Alberta EDI strategic plan. June 2023 to present.
- **Established the Professor James Keffa Kariuki Award.** With an overall goal of increasing the number of Black students enrolled at Augustana, I established a new Award in Support of Black Students beginning in the Fall of 2021. The award is for any student with satisfactory academic standing who is enrolled in the first year of studies at Augustana, is of African descent, and who self-identifies as Black, African-Canadian, African-American, or of Afro-Caribbean or Afro-Latino heritage. Preference is given to a student entering a Bachelor of Science with a major or

minor in Chemistry. The value of the award is \$1,000 for one student per year. July 2021 to June 2026.

- **Associate Dean for Teaching (ADT).** I was the ADT from July 2019 to June 2022. The duties of the ADT are:
 - i. Support Faculty development to promote teaching excellence.
 - ii. To promote innovation in learning and teaching.
 - iii. Develop plans to elevate teaching achievements to the same level as research achievements.
 - iv. Chair of the Committee on the Learning Environment.
 - v. Assist efforts to ensure faculty members are nominated and receive well-deserved teaching awards and recognitions.
 - vi. Act as a liaison between the Centre for Teaching and Learning (CTL) and Augustana to ensure teaching resources afforded to faculty members at the North Campus are available to Augustana Faculty.
 - vii. Participate in North Camps committees related to teaching.
 - viii. To initiate the development of multifaceted course evaluations.
- **Prospective Students Augustana Departmental Panel.** I was a panelist representing the Science Department during a panel held for prospective students intending to enroll at Augustana in 2022. March 16, 2022.
- **Host for a Webinar given by Dr. Afua Cooper.** I hosted a webinar given by Dr. Afua Cooper. My other duties included seeking a moderator for the Q&A session and liaising with several U of A student groups who were invited to attend the webinar. February 16, 2022.
- **Committee member for the Philosophy & Black Studies Tenure Track Hiring Committee.** This was part of the University of Alberta Black Academic Excellence Cohort Hire. February 2022.
- **Participated in One-on-One Meetings with Tenure Track Candidates.** I held one-on-one meetings with all candidates short-listed for the psychology, philosophy & Black studies, biology, and computing science tenure track positions. Each meeting was 30 minutes long. January and February 2022.
- **Co-presenter during the Augustana International Students Orientation.** I gave a presentation on how to be a successful student at Augustana. August 19, 2021.
- **Committee member for the Student Experience Coordinator on Campus Living Selection Committee.** July 2021.

- **Co-Chair of the Augustana Faculty Equity, Diversity, and Inclusion (EDI) Working Group.** I was a co-chair of the Augustana Faculty EDI Working Group. The mandates of the working group were to:
 - i. Advise on Governance changes that need to be made to incorporate the EDI Strategic Plan into the Augustana Governance Manual.
 - ii. Consult with the Augustana Students Association, Student Services, Academic Departments and Centres, and Standing and Advisory Committees about EDI activities. Advise the Dean on future directions regarding EDI that may include but are not limited to student supports and services, academic and co-curricular activities, special initiatives, and academic hiring and recruitment as well as retention, July 1, 2020 – June 30, 2022
- **Committee member for the Augustana Science Fair Organizing Committee.** 2019.
- **Augustana Faculty Science Fair Chemistry Demonstrations.** I performed chemistry demonstrations for Grade 7 students during the Science Fair. 250 students were in attendance. December 12, 2019.
- **Chemistry Demonstration During Alumni Weekend.** September 22, 2018
- **Faculty Evaluation Committee (FEC) elected faculty representative.** July 2015-June 2018.
- **Member of the Augustana International Students Engagement Committee.** July 2015-June 2018.
- **Member of the annual Augustana Theme Committee (Colour),** October 2015 to June 2017.
- **Chemistry demonstrations presentation to Grade 7 students during the annual Augustana Science Fair.** February 14, 2017.
- **Chemistry demonstrations presentation to Grade 8 students at Dan Knott Junior High School,** Edmonton. December 8, 2016.
- **Cohort Leader for the Student Academic Information Launch (SAIL) and opening convocation Faculty.** August 31 and September 1, 2015.
- **Chemistry demonstrations presentation to Grade 9 students from Our Lady of Mount Pleasant Catholic School,** Camrose. November 3, 2015.
- **Member of the Committee on the Learning Environment (CLE).** July 2012 to July 2015.
- **Participant of the Augustana Faculty Unit Review.** February 15, 2011.

- **Oral presentation to Augustana faculty members during Faculty Research Showcase Days.** The title of my talk was “Choosing the Right Project for an Undergraduate Student”. January 12-13, 2010.
- **Volunteered as a “living book” during the Augustana Living Library week.** September 29-October 2, 2009.
- **Chemistry faculty representative at the University of Alberta Open House, Universiade Pavilion,** Edmonton. October 3, 2009, and September 20, 2008.
- **Guest lecturer for the African literature class,** AUENG 308, during the fall term of 2008. I discussed several African cultural concepts, including the naming of children.
- **Guest lecturer for the Philosophy of Science class,** AUPHI 350, during the winter term of 2009. During the lecture, I talked about the limitations of science and reminded students that a scientific theory is not an absolute truth. A theory may be modified or discarded if it contradicts experimental results.
- **Participated in all the Faculty Follies events since I joined Augustana.** These were fun-filled events where professors performed various skits for the students.

3) Service to the Science Department

- **Augustana Preview Day Science Department representative.** October 2024.
- **Committee member for the Science Department Lab Director Search Committee.** June 2022.
- **Participant in a meeting with a Potential Donor for a Total Organic Carbon Analyzer.** June 9, 2021.
- **Interviewed for the Science Club Newsletter.** I was featured in the monthly Science Club Newsletter in November 2020. In the article, I discussed the use of low-cost 3D electrodes for electroanalytical research. November 2020.
- **Acting Chair of the Science Department.** June 5 to 8, 2019.
- **Member of the search committee for a chemistry tenure-track faculty position.** December 2015-January 2016.
- **Member of the search committee for a Chemistry Lab Coordinator position.** August 13, 2015.
- **Member of an ad hoc Science Department Website Review Committee.** November 2015.
- **Chemistry Division representative on the Department of Science Chair search panel.** February-April 2015.

- **Member of the search committee for the Chemistry Lab Coordinator position.** April 2015.
- **Member of the Science Department Chair Review Committee.** March 2011.
- **Department of Science Curriculum Committee representative.** January 2006 to June 2008.
- **Member of the combined BSc/BEd degree ad hoc committee,** 2008.
- **Member of the Hiring Committee for a tenure-track position in Chemistry,** 2009.
- **Departmental representative during Preview Days,** Augustana Campus, March 5, 2010; November 21, 2008; October 20, 2006; November 17, 2006.

4) Service to the Scientific and Broader Community

- **Member of the Board of Directors of the Chemical Institute of Canada (CIC) Chemical Education Fund (CEF).** I serve on the Board of Directors for the CIC CEF fund. The CEF funds educational activities, awards, and research and directly benefits the chemical science professionals of the future, and the general public. 2023-2026.
- **Steering Council Member of the Experiential Learning in Innovation, Technology, and Entrepreneurship (ELITE) Program for Black Youth.** The Black Youth Mentorship and Leadership Program is a unique program hosted by several University of Alberta Faculty members to socially and economically empower Black youth in grades 10 and 11 to contribute meaningfully to Canadian society. The goal of the Program is to improve economic outcomes, community belonging, and leadership skills, as well as foster a positive cultural identity for Black youth. September 2021 to present.
- **Ph.D. and MSc Thesis Committee Membership**
 - MSc Defense Committee External Examiner for Elizabeth Andrucson, Thompson Rivers University, Kamloops, Canada, 2021.
 - MSc Defense Committee External Examiner for Aramide Taiwo, Thompson Rivers University, Kamloops, Canada, 2020.
 - Ph.D. Committee Defense Committee for Brandon Weber, University of Alberta, 2016.
- **Journal reviewer** for the *Journal of Chemical Education*, *Journal of Electrochemical Society*, *Food Chemistry*, *Electrochimica Acta*, *Analyst*, *Analytical Chemistry*, *Food Science and Technology International*, and *Journal of Electroanalytical Chemistry*

- **Motivational Speaker.** During my recent sabbatical in Kenya, I was invited to give a motivational talk to students at Ting'ang'a Secondary School in Kenya. During the talk, I reminded the students of the importance of pursuing higher education. Also, I introduced the students to effective ways of studying chemistry and other topics. I also took the opportunity to perform a chemistry demonstration utilizing substances that can be found at home, as a way of connecting chemistry to our daily lives, as well as inspiring the students to pursue chemistry and science subjects in general, Yatta, Kenya. June 13, 2023.
- **Session Chair during the 26th IUPAC International Conference on Chemistry Education**, Cape Town, South Africa, at the Chemistry Teaching and Learning, Pedagogy and Cognition Symposium. I chaired the 12:30 to 1:30 PM session on July 19, 2022.
- **Organized and chaired a symposium titled "Teaching in Analytical Chemistry"** at the 105th Canadian Chemistry Conference and Exhibition (CCCE 2022), Calgary, AB, Canada, June 13-17, 2022.
- **Committee member and Conference Presentation Moderator**, University of Alberta 2021 Festival of Teaching and Learning, Edmonton, AB, Canada, June 7- July 8, 2021.
- **Volunteer judge for analytical chemistry graduate students' poster competition.** I judged graduate students' posters at the 102nd Canadian Chemistry Conference and Exhibition (CSC), Quebec City, QB, Canada, 2019.
- **Co-organized and chaired a symposium titled "Electrochemistry: Fundamentals, Current and Future Applications"** at the 101st Canadian Chemistry Conference and Exhibition (CSC), Edmonton. May 27-31, 2018.
- **Co-organized and chaired a symposium titled "Analytical and Physical Electrochemistry of Materials"** at the 100th Canadian Chemistry Conference and Exhibition (CSC), Toronto. May 31, 2017.
- **Volunteer Judge for Analytical Chemistry Posters at the 99th Canadian Chemistry Conference and Exhibition (CSC)**, Halifax, Nova Scotia. Judged analytical chemistry posters for both graduate and undergraduate students. June 8, 2016.
- **Volunteer Judge for both the analytical chemistry oral talks and poster sessions at the Western Canadian Undergraduate Chemistry Conference**, Thompson Rivers University, Kamloops, BC, May 7-9, 2009, and at the University of Lethbridge, Lethbridge, AB. May 6-8, 2010.
- **Volunteered during the National Chemistry Week with the local Canadian Society of Chemistry (CSC) Edmonton Section.** Carried out chemistry

demonstrations for the public and school children, TELUS World of Science, Edmonton. October 24, 2009.

- **Volunteer director of the board of the Lansdowne Child Care and Family Center in Edmonton.** 1997-2000.

- **Volunteer Chemistry Demonstrator with Edmonton Science and Technology Hotline.** 1999.
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PROFESSIONAL AFFILIATIONS

- Chemical Institute of Canada (CIC) / Canadian Society for Chemistry (2000 - present)
- Electrochemical Society (2008 - 2020)
- American Chemical Society (2002 - 2007)

CERTIFICATIONS

- Standard First Aid & CPR/AED Level C, May 2024 - May 2027.
- Supervising Safely, University of Alberta Environment, Health & Safety (EHS) Certificate, 2024.
- Workplace Hazardous Materials Information System (WHMIS), University of Alberta Environment, Health & Safety (EHS) Certificate, 2024.
- Fire Extinguisher Training, University of Alberta Environment, Health & Safety (EHS) Certificate, 2024.
- Laboratory & Chemical Safety, University of Alberta Environment, Health & Safety (EHS) Certificate, 2024.