

ADAM J. COOK

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Permanent address

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EDUCATION

- 2019–Present **PhD**, Organic Chemistry, University of Ottawa.
Tentative thesis title: Expanding the scope of nickel catalyzed C-O activation
Supervisor: Dr. Stephen Newman
- 2013–2017 **BSc (Hons)**, Pharmaceutical Chemistry, University of Ontario Institute of
Technology. *Cumulative GPA:* 3.80.
Thesis: Reduction of benzhydrols with diethyl ether under mild acidic
conditions
Supervisor: Dr. Yuri Bolshan
- 2009–2013 **OSSD**, Archbishop Denis O'Connor Catholic High School

HONOURS AND AWARDS

- 2021-2024 CGS-D NSERC scholarship; value of \$35000/year
- 2021 PGS-D NSERC scholarship; value of \$21000/year
- 2021 OGS NSERC scholarship; value of \$15000/year. *Declined in favour of PGS-D
scholarship*
- 2020 uOttawa PhD Excellence scholarship; value of \$3000 CAD/semester
- 2019 Tito Scaiano Scholarship; value of \$6000 CAD
- 2019 uOttawa MSc Excellence scholarship; value of \$2500 CAD/semester
- 2017 Purdue Pharma Award; value of \$2000 CAD
- 2016 Queen Elizabeth II Diamond Jubilee (QEIIDJ) Scholarship; value of \$6000 CAD
- 2016 UOIT STAR Award; value of \$6000 CAD. *Declined in favour of QEIIDJ scholarship*
- 2016 International Education Scholarship; value of \$1000 CAD
- 2013–2016 UOIT Excellence Scholarship; value of \$3250 CAD
- 2014 Rotoract Bursary; value of \$1000 CAD

- 2014 Italian Cultural Center of Durham Bursary; value of \$625 CAD
- 2009–2013 Achieved top mark in Accounting, Biology, English, World History and Exercise Science at Archbishop Denis O'Connor C.H.S.

RESEARCH AND WORK EXPERIENCE

- 2019 – Present **PhD Student**, Department of Biochemical and Chemical Sciences, uOttawa
- Under the supervision of Dr. Stephen Newman
 - Work in a catalysis- oriented chemistry laboratory on a project concerning the development of novel nickel catalyzed reduction reactions.
 - Active use of the Catalysis Centre for Research and Innovation, one of only a handful of multi-million dollar high-throughput experimentation academic labs in North America.
 - Group social and organizational leader, initiating and planning group events/meetings/etc.
- 2017– 2018 **Fluid Analysis Chemist**, Scheduled Oil Services Laboratory, Toromont CAT
- Under the supervision of Simon Jin
 - Worked in an ISO 9001 certified chemistry laboratory analyzing various types of fluids (oils, coolants, fuels) coming from customers in the mining, agriculture, automotive, power systems, transportation and general construction industries
 - Duties included active maintenance and use of FTIR, ICP-OES, GC, dilution and particle counting technologies, while also conducting other analyses (viscosity, refractive index, titrations).
 - Other activities included standard preparation, quality control, sample preparation and disposal according to environmental regulations.
- 2016–2017 **Undergraduate Thesis Student**, Faculty of Science, UOIT.
- Under the supervision of Dr. Yuri Bolshan
 - Worked in a synthetic organic chemistry laboratory on a project concerning a novel reaction that reduces alcohols. Optimized the reaction, elucidated its mechanism, synthesized and characterized twenty-four different compounds
 - Involved in active quality assurance and maintenance of lab instruments including rotary evaporators, vacuum pumps and purification systems
 - Trained five third-year students how to use lab equipment and conduct synthetic chemistry experiments
 - Kept track of inventory (scientific supplies and chemicals)
- 2016 **Research Assistant**, Faculty of Science, UOIT.
- Under the supervision of Dr. Kevin Coulter
 - Worked in an inorganic chemistry laboratory on a project concerned with the transition metal catalyzed oxidation of water and its potential use as a large-scale renewable energy resource.
 - Involved the use, maintenance and manipulation of solar cell technology

- Helped develop this work into an outreach activity aimed towards high school students, now ran under the Let's Talk Science program
- 2016 **Research Assistant**, School of Chemistry, Cardiff University.
- Under the supervision of Dr. Rebecca Melen
 - Worked as an international exchange student in a group focused on main-group chemistry, funded by the QEIIDJ scholarship program
 - Worked on projects concerning Lewis Acid catalysis, specifically on variations of the Diels-Alder and Meerwein reactions
- 2015 **Research Assistant**, Faculty of Science, UOIT.
- Under the supervision of Dr. Yuri Bolshan
 - Worked in a synthetic organic chemistry laboratory on various projects concerned with organosulfur and organoboron chemistry
 - Also responsible for inventory and keeping stock of laboratory supplies

ACADEMIC, ADMINISTRATIVE AND VOLUNTEER EXPERIENCE

- 2019 – 2020 **Lead Volunteer**, Faculty of Science, uOttawa Let's Talk Science Program
- Visit local elementary schools, teaching fundamental scientific concepts to third-grade students using planned activities and demonstrations.
- 2019 – present **Building Warden**, Biosciences Building, uOttawa
- Floor safety leader in case of emergency situations on campus such as fire alarms, earthquakes or lockdowns.
- 2019 **Organizing Volunteer**, QOMSBQC committee, uOttawa
- Designed conference logo, assisted in the concept, design and execution of the conference booklet. Designed and ordered themed t-shirts. Facilitated conference events, designed introduction presentation.
- 2016–2017 **President**, Operation Smile UOIT-DC
- Facilitated and organized group meetings and events
 - Worked in a team-based, goal-oriented environment to raise funds and awareness for a non-profit charity organization
 - Recruited and trained new members, ensured continuity of club
 - Was in charge of all communication with outside parties
- 2016–2017 **Lead Volunteer**, Faculty of Science, UOIT Let's Talk Science Program
- Led an outreach program along with Dr. Kevin Coulter that taught several high school students to use SEAL solar cell technology kits in an attempt to develop an efficient water-splitting catalyst.
- 2015–2017 **Active Member**, UOIT-DC Chemistry Club
- Participated and helped organize group events
- 2017 **Lead Presenter**, Department of Chemistry, UOIT Winter Science Day
- Acted as Master of Ceremonies and presenter at this outreach activity

- Presented a lecture titled "Breaking Bad... Chemistry Habits" to over 150 high school students and their teachers
- 2015–2017 **Lead Lab Volunteer**, Department of Chemistry, UOIT Open Houses
 - Gave various short presentations based on concepts and techniques that are common inside chemistry laboratories in front of an audience of high school students and their parents
- 2016 **Presenter**, Department of Chemistry, "A Day in the Life of an Undergrad at UOIT"
 - Prepared and presented a short lecture at a high-school recruitment presentation on educational chemistry and the true student experience, presented for an audience of high school students and their teachers
- 2014–2016 **Director of Operations and co-founder**, Operation Smile UOIT-DC
 - Planned inaugural meeting and events
 - Recruited new members and developed connections within the community
 - Developed protocol regarding group meetings and events.
 - Arranged numerous fundraising events
 - Was in charge of all communication with external parties
- 2011–2013 **Peer Tutor**, Archbishop Denis O' Connor C.H.S.
 - Worked independently to assist peers with schoolwork in classes including chemistry, biology, history and English.

TEACHING EXPERIENCE

- 2020-2021 **Tutorial Instructor**, University of Ottawa
 - Course titles:* General Chemistry, Organic Chemistry I
 - Led a weekly discussion group, preparing and presenting short tutorial-style lectures on each week's material in front of 150+ students.
- 2019-2021 **Lab Demonstrator**, University of Ottawa
 - Course titles:* General Chemistry, Organic Chemistry I, Characterization of Advanced Materials,
 - Supervised 42 students in an introductory organic chemistry laboratory, as well as a further 10 students in an introductory materials chemistry course
 - Supervised 72 students in a general chemistry laboratory course
- 2016–2017 **Teaching Assistant**, University of Ontario Institute of Technology
 - Course titles:* General Chemistry I, General Chemistry II
 - Supervised four classes of 24 first year students in a laboratory setting
 - Taught fundamental chemistry lab techniques to introductory chemistry students
 - Marked laboratory reports, midterms and final exams

PUBLICATIONS

1. Cook, A.; Prakash, S.; Zheng, Y. -L.; Newman, S. G. Exhaustive Reduction of Esters Enabled by Nickel Catalysis. *J. Am. Chem. Soc.* **2020**, *142*, 8109-8115.
2. Cook, A.; Clement, R.; Newman, S. G. Reaction Screening in Multiwell Plates: High-Throughput Optimization of a Buchwald-Hartwig Amination. *Nature Protocols* **2021**, *16*, 1152-1169.
3. Cook, A.; MacLean, H.; St. Onge, P.; Newman, S. G. Nickel-Catalyzed Deoxygenation of Diverse C-O Bond Bearing Species. *ACS Catal.*, **2021**, *11*, 13337-13347.
4. Cook, A.; Bezaire, M.; Newman, S. G. Nickel-Catalyzed Olefination of Various C-O Bond Bearing Sulfones. (in progress)
5. Cook, A.; St. Onge, P.; Newman, S. G. Deoxygenative Cross-Coupling of Unprotected Tertiary Alcohols. (in progress).

MENTORSHIP

2020	Maxwell Bezaire, BSc, University of Ottawa
2019	Haydn MacLean, BSc, University of Newcastle Louis Brigandat, MSc, University of Lyon
2016	Robert Maillet, BSc, University of Ontario Institute of Technology

CONFERENCES ATTENDED

2021	Quebec-Ontario Physical Organic Chemistry Mini-Symposium, Wilfrid Laurier University, Waterloo, ON. - <u>Presentation Title</u> : Ni-Catalyzed Deoxygenation: The Hunt for Reactive Intermediates.
2021	51 st IUPAC General Assembly and 104 th Canadian Chemistry Conference and Exhibition, Montreal, QC. - <u>Presentation Title</u> : Ni-Catalyzed Deoxygenation: In Search of Reactive Intermediates. - First prize in ChemiSTEAM "Art in Chemistry" competition - First prize in Student Catalysis Presentation competition
2021	Ottawa-Carleton Chemistry Institute Day, Ottawa, ON. - <u>Presentation Title</u> : Ni-Catalyzed Deoxygenation: In Search of Reactive Intermediates. First prize for 15-minute presentations
2020	Quebec-Ontario Physical Organic Mini-Symposium, Royal Military College of Canada, Kingston, ON. - <u>Presentation Title</u> : Ni-Catalyzed Deoxygenation: In Search of Reactive Intermediates. First prize for 15-minute presentations
2020	1 st Virtual Symposium on C-H Activation, Georg-August-Universität Göttingen, Germany

- 2019 30th Quebec and Ontario Mini-Symposium in Bioorganic and Organic Chemistry, Ottawa, ON.
- Poster title: Exhaustive reduction of esters enabled by nickel catalysis
- 2019 102nd Canadian Chemistry Conference and Exhibition, Quebec City, QC.
- Fourth prize in the ChemiSTEAM “*Art in Chemistry*” competition
- 2015 Ryerson University Research at the Summit Symposium, Toronto, ON.

RELEVANT SKILLS

Working level experience with 2D and 3D NMR, FT-IR, and molecular fluorescence spectroscopy, GC-FID, ICP-OES, ICP-MS, HPLC, flash chromatography, atomic absorption spectroscopy, UVvis spectroscopy and high-throughput laboratory techniques. Strong knowledge of synthetic chemistry laboratory techniques, using both organic and organometallic reagents under ambient and inert conditions. Also proficient with computer programs such as Microsoft Office, SigmaPlot, Maple, ACD Labs, ChemDraw and MestreNova.

REFERENCES

- Dr. Kevin Coulter, Faculty of Science, UOIT (research supervisor, senior lab instructor). E-mail: kevin.coulter@uoit.ca
- Dr. Stephen Newman, Department of biochemical and chemical sciences, uOttawa (graduate research supervisor, associate professor). Email: stephen.newman@uottawa.ca
- Simon Jin, Toromont CAT (lab supervisor). E-mail: sjin@toromont.com