Andrew Philip Freiburger

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Evanston, IL, United States 60202

EDUCATION Northerwestern University Evanston, IL, USA September 2023 – Present

**Degree:** Ph.D.; Chemical and Biological Engineering

University of Victoria Victoria, BC, CAN January 2020 – April 2022

**GPA**: 8.0 / 9.0 (4.0 / 4.0 eqv.) **Degree:** M.A.Sc.; Civil Engineering Major

Grand Valley State University Allendale, MI, USA August 2016 – April 2019

**GPA**: 3.6 / 4.0 **Degree:** B.S. (honors); Chem. major, Bio. minor, Green Chem. certificate

Grand Rapids Community College Grand Rapids, MI, USA August 2015 – August 2016

**GPA**: 3.8 / 4.0 **Degree:** A.S. (honors)

East Grand Rapids High School East Grand Rapids, MI, USA September 2011 – May 2015

**GPA**: 3.7 /4.0; 4.22 weighted **Degree:** Diploma (honors)

RESEARCH Northwestern University, Keith Tyo’s Lab October 2023 – Present

* **Graduate researcher** of microbial ecology.

Argonne National Lab, Christopher Henry’s Group June 2021 – Present

* **Assistant Computational Biologist** (metabolic modeling, bioinformatics, and ML)
* Contributed to the [KBase](http://www.kbase.us/) and [PMI](https://pmiweb.ornl.gov/pmi-project-aims/) SFAs & various collaborator projects.

University of Victoria, Heather Buckley’s Group January 2020 – April 2022

* **Software engineer** for models of bacterial biochemistry and desalination geochemistry

Mount Sinai School of Medicine, Jonathan Karr’s Lab December 2020 – April 2022

* **Data scientist** and bioinformatician for [Biosimulators.org](https://biosimulators.org/) and [Biosimulations.org](https://www.biosimulations.org/)

Lawrence Berkeley National Lab, Reactive Transport Group June 2020 – October 2020

* **Software engineer** of geochemical reactive transport during desalination

North Carolina State University, Lucian Lucia’s Group May 2019 – December 2019

* **Metabolomics** s**pectroscopist** of *Cannabis* – w/ Shaw Univ. and a startup GenoVerde Biosciences

Washington State University, Michael Wolcott’s Group May 2018 – August 2018

* **NSF-funded REU** researcher of photocatalyzed oxygen-scavenging cellulosic materials

Grand Valley State University, Dalila Kovacs’ Group October 2016 – June 2019

* **Analytical chemist** of willow metabolomics to identify applications as an alternative feedstock.

EXPERIENCE Webmaster

Assistant Webmaster, ACS Division of Organic Chemistry June 2020 – Present

* Maintainer of [www.organicdivision.org](http://www.organicdivision.org/) and [www.organicchemistrydata.org](http://www.organicchemistrydata.org/)
* 2022 ACS ChemLuminary Recipient

Webmaster, ACS Division of Geochemistry July 2022 – Present

* Maintainer of <https://www.acsgeoc.org/>

Webmaster, Jewish Studies programs June 2023 – May 2024

* Maintainer of [www.studyjudaism.net](http://www.studyjudaism.net/) ; [www.convertingtojudaism.net](http://www.convertingtojudaism.net/) ; [www.moodtek.com](http://www.moodtek.com/)

Teaching

Instructor

* University of Victoria May 2021 – August 2021
  + CIVE 210 Sustainable Design

Teacher’s Assistant

* Northwestern University March 2024 – Present
  + CHEM ENG 210 Analysis of Chemical Process Systems
* University of Victoria January 2020 – April 2021
  + ECE 340 Applied Photonics and Electromagnetism
  + CIVE 345 Fluid Mechanics
  + CIVE 210 Sustainable Design
  + CHEM 150 and 102 laboratories
* Grand Valley State University August 2018 – December 2018
  + CHM 109 discussion section

Tutor

* Shaw University September 2019 – November 2019
  + Organic Chemistry
* Grand Valley State University August 2017 – April 2019
  + College Reading & Learning Association **certified tutor** of general and Organic Chemistries
* High School Tutor February 2017 – November 2020
  + Chemistry, Physics, Biology, Mathematics, and Writing

Science Writer

Freelance Science Writer December 2019 – March 2021

* *Canadian Vegan* magazine (sampled here [www.andrewfreiburger.com/reviews](http://www.andrewfreiburger.com/reviews))

Other

Fresh Thyme Farmer’s Market Dairy Associate May – August 2016

* Independently operated the dairy department

Sports and Recreation

* East Grand Rapids Recreation Department
  + Elementary school “Safety Town” Program June 2014 – August 2014
  + Soccer and Basketball scorekeeper and referee August 2011 – August 2016
* Southern Little League Baseball Umpire June 2010 – August 2010

SKILLS Computer

Python (data science, optimization, ML); HTML & CSS; Git & GitHub; linux; command promp; Java; C++; PHREEQ(C/Py); Juliat; Microsoft office; WordPress

Instruments

1H NMR, 13C NMR, 2D-NMR, GC-MS, GC-FID, HPLC, UV-Vis, FTIR, ICPMS, Bomb Calorimeter, Lyophilizer, Muffle Furnace, Biological Safety Cabinet

Experiments

Matrix casting, Soxhlet Extraction, Steam Distillation, Ball milling, Dual Asymmetric Centrifugation, Plant Cloning, Risk Group II Bacterial Culturing

PRESENTATIONS **Oral** (20-minute) Presentations

* Genome-Resolved Open Watersheds workshop (CO) March 2024
* ACS Spring National Conference (IN) March 2023
* ACS Spring National Conference (virtual) March 2022
* PacifiChem (virtual) December 2021
* (2 talks) ACS Spring National Conference (virtual) April 2021
* Central Canadian Association on Water Quality (56th) (virtual) March 2021
* ACS Green Chemistry and Engineering (23rd) (VA) June 2019
* GVSU Student Scholar’s Day (MI) April 2019

**Lightning Talks** (3-minute)

* LBNL Molecular Foundry User Meeting (virtual) August 2020
* ACS Fall National Conference (260th) (virtual) August 2020
* ACS Green Chemistry and Engineering (24th) (virtual) June 2020

**Poster** Presentations

* GoldSchmidt (IL) August 2024
* ACS Fall National Conference (CO) August 2024
* DOE GSP PI’s Meeting (MD) April 2024
* ACS Spring National Conference (virtual) March 2024
* ACS Fall National Conference (CA) August 2023
* ASM National Conference (TX) June 2023
* ACS Spring National Conference (IN) March 2023
* AIChE National Conference (AZ) November 2022
* ACS Fall National Conference (IL) August 2022
* ACS Spring National Conference (virtual) March 2022
* Central Canadian Association on Water Quality (55th) (virtual) July 2020
* Michigan Forest Bioeconomy conference (2nd) (MI) February 2019
* Center for Undergraduate Research REU symposium (VA) October 2018
* Washington State University Summer research symposium (WA) August 2018
* ACS Green Chemistry and Engineering (22nd) (OR) June 2018
* GVSU Student Scholar’s Day (22nd) (MI) April 2018

\* A complete list, with full citations, of my presentations are provided on my website ([www.andrewfreiburger.com/CV/conferences.html](https://www.andrewfreiburger.com/CV/conferences.html))

ACCOLADES NSF Innovation Corps (i-corps) Bay Area graduate June 2020

ACS Division of Organic Chemistry Undergraduate Award April 2019

Grand Valley State University Honor’s college Fall 2016 – April 2019 Grand Rapids Community College Honor’s college Fall 2015 – April 2019

Grand Valley State University Sustainability Award April 2019

(7x) Dean’s List Fall 2015 – Present

President’s List 1 Semester

6th in National “We the People”, Center for Civic Ed., competition Winter 2014

Michigan Youth Leadership school representative June 2013

1st Chair Trumpet in Concert Band 2012 – 2013

Summa Cum Laude Fall 2011 – Spring 2015

SCHOLARSHIPS ACS GEOC Student Travel Award April 2021

(3x) University of Victoria Graduate Award W., Spr., Sum. 2020

Purdue University Graduate School Expo travel scholarship September 2019

Academic and Professional Enrichment Fund award June 2018, 2019

Great Finish Grand Scholarship Fall 2018

OUTREACH SLAC Science Accelerating Girls’ Engagement in STEM (SAGE-S) camp August 2020

GVSU Networks of Support K-12 Tutoring June 2020 – August 2020

LBNL “Homework Help Volunteers” K-12 Education April 2020 – May 2020

British Columbia Virtual Science Fair judge and Mentor June 2020

Oakland Science and Engineering Fair judge and Mentor May 2020

Article reviewer for the journal of Wood and Fiber Science September 2019

Organic chemistry laboratory teaching assistant at Shaw University September 2019

Science Olympiad competition volunteer March 2019 “Fall in love with STEM” Valentine’s day elementary student volunteer February 2019

ACS “Chemistry at the Mall” demonstrations October 2017, 2018

Guest lecturer for a 100-level chemistry class October 2017

PERSONAL Chabad community volunteer October 2023 – Present

Volunteer chemist for the OpenAir Collective DACC initiative July 2020 – August 2021

Chinese Martial Artist August 2015 – January 2020

Photography model August 2017 – August 2020

Band leader and gig musician January 2018 – July 2020

3rd degree Knight of Columbus October 2018

Groundswell and Green Wagon Organic Farm volunteer Summers 2015, 2016

“Hearts of Gold” charity student representative and public communicator October 2012 – April 2015

Michigan Youth Leadership (MYLead) camp counselor June 2014

100 hours as a “Safety Town” camp counselor Summer 2013

Monthly Church volunteer 2009 – 2013

REFERENCES Chris Henry, Computational Science Leader, Data Science and Learning, ANL

– Research mentor (May 2021 – Present) [chenry@anl.gov](mailto:chenry@anl.gov)

Heather Buckley, Associate Professor, Department of Civil Engineering, UVic

– Research mentor (December 2019 – April 2022) [hbuckley@uvic.ca](mailto:hbuckley@uvic.ca)

Lucian Lucia, Professor, Department of Forest Biomaterials, NCSU

– Research mentor (May 2019 – December 2019) [lalucia@ncsu.edu](mailto:lalucia@ncsu.edu)

James Krikke, Professor, Department of Chemistry, GVSU

– Research mentor (December 2016 – June 2019) [krikkeji@gvsu.edu](mailto:krikkeji@gvsu.edu)

PUBLICATIONS “BioSimulators: a central registry of simulation engines and services for recommending specific

tools”. *Nucleic Acids Research*. **2022**. <https://doi.org/10.1093/nar/gkac331>.

“Hemp is the 21st century Tobacco: A Review”. *ACS Journal of Agricultural Science and Technology*. **2021**. [https://doi.org/10.1021/acsagscitech.1c00114](https://pubs.acs.org/doi/full/10.1021/acsagscitech.1c00114)

\*A complete list and full citations of my publications is provided on my website [www.andrewfreiburger.com/publications](http://www.andrewfreiburger.com/publications)\*