

Daniella F. Lato

HBSc, PhD Candidate

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EDUCATION

Doctor of Philosophy Candidate in Bioinformatics

2015-Present

McMaster University, Hamilton, ON

Thesis Title: Spatial Patterns of Molecular Trends in Bacterial Genomes

Honours Bachelor of Science in Mathematics and Biology

2011-2015

McMaster University, Hamilton, ON

Honours Thesis Title: Substitution Rates in Relation to Position on the Replicons of *Sinorhizobium*

CODING AND HIGH PERFORMANCE COMPUTING

R

L^AT_EX

tcsh

R-shiny

Perl

bash

Python

GitHub

bash

BioPython

Unix command line

zcsch

RESEARCH/WORK EXPERIENCE

PhD in Bioinformatics and Bacterial Genomic

2015-Present

McMaster University, Hamilton, ON

- Development and innovative application of advanced simulation, data analysis, visual analytics and other computational techniques to research phenomenon in molecular evolution and bacterial genomics.
- Familiarization with bioinformatics tools and pipelines related to sequence annotation, phylogenetics, molecular evolution, gene expression, genome assembly, and data visualization.
- Considerable training in high performance computing and programming, data visualization, statistical analysis, big data storage, and software tool development.
- Independently odified and developed precise research methodology for bio-statistical analytic techniques using R and Python, resulting in a first author publication [1].
- Grant and paper writing knowledge and involvement.
- Collaborated with students, professors and other academics from the Anthropology, Health Sciences, Mathematics, and Statistics departments on completing projects related to infectious disease, ancient DNA, and molecular evolution in a timely manner.
- Independently managed undergraduate student research projects by providing vision and direction regarding project objectives, task distribution resulting in a successful project.
- Communicating scientific research to field specific and general audiences of up to 230 people at 4 international conferences, culminating in overwhelming positive presentation feedback.
- Awarded National and local funding for research by editing and writing grants outlining the proposed and completed research on molecular evolution.

Research Assistant

2014

Biology, McMaster University, Hamilton, ON

- Comprehensive training in bioinformatic software and high performance computing such as Python, R, and Unix command line.

- Conducted computational research on the molecular evolution of mutations in the bacteria *Sinorhizobium* using sequence analysis and phylogenetics.
- Presented research, methods, and results to 250 people at a Biology Symposium at McMaster University,

Research Assistant

2013

Surgical Oncology, University of Toronto, Toronto, ON

- Completed extensive clinical/health data and literature reviews in the surgical oncology field.

Research Assistant

2012

Motherisk, The Hospital for Sick Children, Toronto, ON

- Acquisition and analysis of clinical/health administrative data from patient medical charts, datasets, and surveys to determine the impacts of maternal genetic testing and adverse infant effects resulting in a publication [2].

PUBLICATIONS

- [1] Lato, D. F. and Golding, G. B. (2020). Spatial Patterns of Gene Expression in Bacterial Genomes. *J Mol Evol*.
- [2] Moretti, M. E., Lato, D. F., Berger, H., Koren, G., Ito, S., and Ungar, W. J. (2017). A cost-effectiveness analysis of maternal CYP2D6 genetic testing to guide treatment for postpartum pain and avert infant adverse events. *Pharmacogenomics J*.

SELECT HONORS AND AWARDS

Dr. Edna Guest Award for Graduating Athlete of the Year

2020

Annual Athletic Awards, McMaster University

\$1,000 CAD

All Canadian Award for Outstanding Average

While on a Competitive University Sports Team

2012-2020

Canadian University Synchronized Swimming League (CUSSL)

Therese Quigley Award of Excellence for

Graduate Student Leadership in Athletics

2018-2019

Graduate Student Recognition Awards, McMaster University

\$200 CAD

Monica Scarabello Memorial Bursary

2016 and 2018

McMaster University

\$1,000 CAD

RTO/ERO Scholarship

2017

Retired Teachers of Ontario (RTO)

\$1,500 CAD

Robert John Morris Graduate Studies Bursary

2016

McMaster University

\$1,500 CAD

CONFERENCES/PANEL DISCUSSIONS

Poster Presentation

Manchester, UK 2019

Mutation Rate Evolution

Society for Molecular Biology and Evolution Conference

Oral Presentation

McMaster University, Hamilton, ON 2019

SELECT VOLUNTEER EXPERIENCE

Let's Talk Science

2017 - Present

McMaster University, Let's Talk Science, Hamilton

Educate students aged 4-18 in science, technology, engineering, and math (STEM) by delivering interactive experiments and activities accessibly to the Hamilton youth.

Novice Program Coach

2019 - 2020

McMaster Synchronized Swimming Club, McMaster University, Hamilton

Assist swimmers in establishing individual goals, prepare them for competition and foster a positive environment by developing and facilitating practice plans, workouts and comprehensive competition packages for a range of swimming abilities, including those who are new to the sport. The team is ranked 2nd in Eastern Canada and 6th Nationally.

SNAP (Special Needs Assistance Program)

2016 - 2019

McMaster University, Hamilton

Assist community members who have cognitive and/or physical disabilities complete physical exercise by providing physical assistance, personalized workout plans, and emotional support which resulted in a 77% increase in gross motor capabilities.

Vice President

2014 - 2015, 2018 - 2019

McMaster Synchronized Swimming Club, McMaster University, Hamilton

Assist and advise President on organizing competition registration, travel and accommodations, practices, uniforms, and participation fees by researching and completing administrative tasks.

Judge for Biology Undergraduate Symposium (BUS)

2017 - 2018

Department of Biology, McMaster University, Hamilton, ON

Critically judge final year Theses and Projects of undergraduate STEM students by reviewing the literature and asking thought provoking questions of the participants, analyzing a total of 187 studies.

President

2015 - 2018

McMaster Synchronized Swimming Club, McMaster University, Hamilton

Unassisted responsibility for 84 competitive athletes and 8 coaches resulting in a successful and healthy 4 years as an varsity organization which can be seen by the steady registration rate and over 20 medals and podium finishes. This was implemented through the organization of competition registration, travel and accommodations, practices, uniforms, and club budget.

BGSS (Biology Graduate Student Society)

2016 - 2017

Department of Biology, McMaster University, Hamilton

Assisted with planning, organizing, and running 15 social and academic events for the Biology students at McMaster.

Meet Manager

2016

McMaster Synchronized Swimming Club, McMaster University, Hamilton

Organized and executed the Canadian University Synchronized Swimming League National Competition at McMaster University, with a total of 22 Universities and 450 athletes and coaches from all over Canada in attendance.

OTHER WORK EXPERIENCE

Tour Guide

2017 - Present

Teaching Assistant <i>Department of Biology, McMaster University</i> Introduction to Bioinformatics	2015-Present
Teaching Assistant <i>Department of Biology, McMaster University</i> Genetics	2015-Present
Guest Lecture <i>Department of Biology, McMaster University</i> Molecular Evolution	2018
Workshop Leader <i>Department of Biology, McMaster University</i> High School Plant Molecular Biology Lab Workshop	2017
Software Carpentry Leader <i>McMaster University, Hamilton</i> Command line, <code>Git</code> , and <code>R</code>	2017
Teaching Assistant <i>Department of Mathematics and Statistics, McMaster University</i> Differential Equations	2014