

Daniella F. Lato

HBSc, PhD Candidate

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GitHub

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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

Git/GitHub

Perl

R-shiny

Unix/Linux

tcsh

Python

Bio-Conductor

bash

BioPython

L^AT_EX

zcsch

RESEARCH/WORK EXPERIENCE

PhD in Bioinformatics and Bacterial Genomics

2015-Present

McMaster University, Hamilton, ON

- Development and innovative application of advanced R functions, simulations, data analysis, data visualization and other computational techniques to research phenomenon in molecular evolution and bacterial genomics.
- Familiarization with bioinformatics tools and pipelines related to data visualization, genomic data analysis, genetics, sequence annotation, molecular evolution, gene expression, and genome assembly.
- Considerable training in high performance computing and programming (**Unix/Linux**), data visualization, statistical analysis, big data storage, and software tool development (**Bio-Conductor** libraries) and version control (**Git**).
- Independently modified and developed tools for bio-statistical testing and analytical processes using R, **R-shiny** interactive graphics 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 and reliable manner.
- Independently managed undergraduate student research projects by providing vision and direction regarding working process, research, and 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

2012-2013

Surgical Oncology, University of Toronto, Toronto, ON

2013

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

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

SELECT HONORS AND AWARDS

Dr. Edna Guest Award for Graduating Athlete of the Year	2020
<i>Annual Athletic Awards, McMaster University</i>	
All Canadian Award for Outstanding Average	
While on a Competitive University Sports Team	2012-2020
<i>Canadian University Synchronized Swimming League (CUSSL)</i>	
Therese Quigley Award of Excellence for	
Graduate Student Leadership in Athletics	2018-2019
<i>Graduate Student Recognition Awards, McMaster University</i>	
Monica Scarabello Memorial Bursary	2016 and 2018
<i>McMaster University</i>	
RTO/ERO Scholarship	2017
<i>Retired Teachers of Ontario (RTO)</i>	
Robert John Morris Graduate Studies Bursary	2016
<i>McMaster University</i>	

SELECT VOLUNTEER EXPERIENCE

Let's Talk Science	2017 - Present
<i>McMaster University, Let's Talk Science, Hamilton</i>	
Educate students aged 4-18 in science, technology, engineering, and math (STEM) by delivering interactive experiments and activities accessibly to the Hamilton youth.	
McMaster Synchronized Swimming Varsity Team	2014-Present
<i>McMaster University, Hamilton</i>	
Novice Program Coach	2019 - 2020
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.	
Vice President	2014 - 2015, 2018 - 2019
Assist and advise President on organizing competition registration, travel and accommodations, practices, uniforms, and participation fees by researching and completing administrative tasks.	
President	2015 - 2018
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.	
Meet Manager	2016
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.	
SNAP (Special Needs Assistance Program)	2016 - 2019
<i>McMaster University, Hamilton</i>	
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.	
Judge for Biology Undergraduate Symposium (BUS)	2017 - 2018
<i>Department of Biology, McMaster University, Hamilton, ON</i>	

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.

OTHER WORK EXPERIENCE

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

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*.

CONFERENCES/PANEL DISCUSSIONS

Poster Presentation: Mutation Rate Evolution	Manchester, UK 2019
<i>Society for Molecular Biology and Evolution Conference</i>	
Oral Presentation: Evolutionary Biology Molecular Evolution	Hamilton, ON 2019
<i>McMaster University, Ontario Ecology, Ethology, and Evolution Colloquium</i>	
Oral Presentation: Evolution and Comparative Genomics COSI	Chicago, IL 2018
<i>Intelligent Systems for Molecular Biology Conference</i>	
Panellist: EngSci Girl	Hamilton, ON 2018
<i>McMaster University, Women In Science and Engineering (WISE)</i>	