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	**LaTeX**	**tcsh**
R-shiny	**Perl**	**bash**
Python	**GitHub**	
BioPython	**Unix command line**	**zcsh**

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
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
Monica Scarabello Memorial Bursary 2016 and 2018
McMaster University
RTO/ERO Scholarship 2017
Retired Teachers of Ontario (RTO)
Robert John Morris Graduate Studies Bursary 2016
McMaster University

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.

McMaster Synchronized Swimming Team 2014-Present
McMaster University, Hamilton

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

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.

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.

OTHER WORK EXPERIENCE

Tour Guide 2017 - Present

McMaster University, Hamilton

Teaching Assistant 2014-Present

McMaster University, Hamilton

Department of Biology

Introduction to Bioinformatics 2015-Present

Genetics 2015-Present

Department of Mathematics and Statistics

Differential Equations 2014

Guest Lecture: Molecular Evolution 2018

Department of Biology, McMaster University, Hamilton

Workshop Leader 2017

McMaster University, Hamilton

High School Plant Molecular Biology Lab Workshop 2017

Department of Biology

Software Carpentry Leader 2017

Command line, `Git`, and `R`

CONFERENCES/PANEL DISCUSSIONS

Poster Presentation: Mutation Rate Evolution Manchester, UK 2019

Society for Molecular Biology and Evolution Conference

Oral Presentation: Evolutionary Biology Molecular Evolution Hamilton, ON 2019

McMaster University, Ontario Ecology, Ethology, and Evolution Colloquium

Oral Presentation: Evolution and Comparative Genomics COSI Chicago, IL 2018

Intelligent Systems for Molecular Biology Conference

Panellist: EngSci Girl Hamilton, ON 2018

McMaster University, Women In Science and Engineering (WISE)