

Madeleine Oman

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AWARDS

- 2021 **Ontario Graduate Scholarship (OGS) Program**
OSAP, Canada
- Merit based award based on research potential.
- 2020 **Canadian Graduate Scholarship Master's (CGS-M) Program**
NSERC, Canada
- Merit based award based on research potential.
- 2020 **Human of Biology Award**
Biology department, University of Toronto Mississauga
- Departmental recognition award for organizing, sewing and distributing over 300 homemade covid-19 masks to the department.
- 2019 **Brenda and Gary Mooney Award**
Robert Gillespie Academic Skills Centre, University of Toronto Mississauga
- Merit-based award for considerable contributions to the RGASC.

PUBLICATIONS

- 2022 **Genome Biology and Evolution (GBE)**
How sequence context-dependent mutability drives mutation rate variation in the genome
Oman, M.*, Aqsa, A., Ness, R.
<https://academic.oup.com/gbe/article/14/3/evac032/6537538?login=true>

CONFERENCE PRESENTATIONS

- 2022 **Evolution**
The predictors of mutation rate variation
Oman, M.*, Ness, R.
- 2022 **International Centre for Supplemental instruction**
Mapping: Providing High Quality Feedback to S.I. Leaders in In-Person and Online Sessions
Oman, M*, Salim, H.
- 2022 **International Centre for Supplemental instruction**

Going beyond lecture announcements: Social media advertising strategies for supplemental instruction leaders

Oman, M*, Salim, H.

2022

International Centre for Supplemental instruction

The Great Unscramble: A Panel Discussion on the Future of Hybrid Supplemental Instruction in Canada

Klubi, T., Martin, K., O'Neil, A., Stypka, A., Gibson, D., Sidhu, N., Jaworski, J.,

Oman, M*, Salim, H., Mawari, T., Alvarenga, B.

POSTER PRESENTATIONS

2021

Society for Molecular Biology and Evolution (SMBE)

How selection and sequence context drive the evolution of mutation rate variation.

Oman, M.*, Aqsa, A., Ness, R.

2019

International Association for Landscape Ecology (IALE) World Congress

Demo-genetic modeling of the effect of forest fragmentation on plant population viability: parameterizing a HexSim model with 10 years of field data.

Hadley, A.* , **Oman, M.**, Betts, M., Wagner, H.

2019

47th Southern Ontario Undergraduate Student Chemistry Conference

Design of an anaerobic chamber with multi-sensor chemical monitoring to investigate soft-tissue decay and mineralization

Oman, M.*, Azzopardi, A.* , Daka, M.* , Osminin, A.* , Tymczak, A.* , Steven Chatfield, Ulrich Krull, Mark Laflamme, Paul Piunno

2018

Canadian Society for Ecology and Evolution

Simulating the effects of deforestation on a keystone plant with HexSim

Oman, M.*, Wagner, H.

EDUCATION

2019-Present

PhD of Ecology and Evolutionary Biology, UfT

Dr. Rob Ness

- Using machine learning to predict human mutation rate

2014-2019

Honors Bachelor Science, UfT

- Graduated with High Distinction
- Biology Specialist, Math Minor

UNDERGRADUATE RESEARCH EXPERIENCE

- 2019 **Research technician**, UfT
Dr. Helene Wagner
- Working with *H. tortuosa* specialist Adam Hadley to improve ecological models and test deforestation regimes in the tropics
- 2018- 2019 **Research assistant**, Advanced Interdisciplinary Research (AIR) lab
Dr. Steven Chatfield, Dr. Paul Piunno, Dr. Mark LaFlamme, Dr. Ulrich Krull
- Student led research project exploring soft tissue mineralization
 - AGILE management strategy
 - \$6000 budget management
- 2018 **Research assistant**, Thesis course BIO481
Dr. Helene Wagner
- Developed an ecological model for a keystone tropical plant species *H. tortuosa*
- 2017 **Research assistant**, Research opportunity program
Dr. Katharina Braeutigam
- Assisted in research focusing on epigenetic changes during plant stress
 - Performed basic lab techniques including processing tissue samples

TEACHING EXPERIENCE

- 2020 **Guest lecturer**
Introductory Genetics (Bio207), UfT
- Created online video series (Covid-19 alternative) on applications in genetics
 - <https://www.youtube.com/watch?v=ddhM3ElfZ7Y&list=PLlh2sOkgbpigyQTiAALCUM7-dEHtiGCHs&index=1>.
- 2020 **Lesson design**
Plant development (Bio353), UfT
- Developed interactive tutorial lesson that employs active learning techniques
 - Students develop their own research questions and are trained on how to investigate them using scientific rigor.
 - Improves bioinformatic competency with contemporary tools
 - <http://blast.ncbi.nlm.nih.gov/Blast.cgi>
 - <http://bar.utoronto.ca>
 - www.arabidopsis.org
- 2019 - Present **Teaching Assistant**
Biology department, UfT
- Bio153 Diversity of Organisms
 - Bio202 Introductory Animal Physiology

- Bio203 Introductory Plant Physiology
- Bio207 Introductory Genetics (volunteer position)
- Bio209 Fundamentals of Human Anatomy and Physiology II
- Bio341 Advanced Genetics
- Bio353 Plant development
- Bio434 Social determinants of Human Health

2018 - Present

Program Assistant, Facilitated study group (FSG) program
Robert Gillespie Academic Skills Centre

- Responsible for managing 30+ FSG leaders and overseeing the implementation of active learning techniques in weekly FSG sessions
- Designed and administered training
- Work with senior staff to design Covid-19 mitigation strategies and optimize FSG program operations

2019

Program Assistant, Academic Culture and English (ACE) program
Robert Gillespie Academic Skills Centre

- Taught weekly 3h sessions to groups of 30 new international students about integrating into university life
- Responsible for lesson content creation

2018

Guest Lecturer
Bio311 Landscape Ecology, UfT

- Presented my work in ecological modelling to convey the importance of spatially-explicit models on spatially structured populations

2017-2019

Facilitated Study Group (FSG) leader, UTM

- The FSG program offers weekly sessions for select 1st and 2nd year courses led by past students (leaders)
- Volunteer leaders are trained in active learning techniques to optimize student learning
- Volunteer leaders manage students and employ active learning techniques to optimize learning in weekly course-specific study sessions
- Regularly developed academic content for introductory mathematics and genetics courses

INTERESTS AND SKILLS

Proficient with Microsoft office and multiple coding languages (R, python, bash, Arduino)

French speaking and writing proficiency, conversational Russian

Math Olympiad member

Soccer

Sewing, embroidery and crafting