# TANYA PHILIPPSEN, MPH
## Department of Mathematics & Statistics | University of Victoria

## EDUCATION

**Master of Science, Applied Mathematics**                                    **Jan 2021 – ongoing**
University of Victoria, Victoria, British Columbia
- Supervisors: Dr. Junling Ma & Dr. Pauline van den Driessche
- Key Courses:
  - *Nonlinear Dynamical Systems & Chaos; Applied Stochastic Models; Differential & Integral Equations; Mathematical and Statistical Methods in Epidemiology; Mathematics for Public Health; Mathematical Biology (UBC)*

**Master of Public Health**                                    **Sept 2013 – Aug 2015**
University of Waterloo, Waterloo, Ontario
- Key Courses:
  - *Public Health Surveillance; Social, Cultural, Behavioural Aspects of Public Health; Principles of Epidemiology; Health and Risk Communication in Public Health; Health Economics; Health Policy*
- Key Projects:
  - *MPH CAPSTONE: Developed a strategic communication plan and associated policy recommendations for Health Canada to address the risks associated with e-cigarette use in the youth population*
  - *Completed a case study that examined the social, cultural, and behavioural aspects that impact the decline of vaccination rates and the resurgence of vaccine-preventable diseases in Canada*
  - *Completed a policy analysis along with associated implementation and evaluation plans to address the challenge of antibiotic resistance in Canada*

**Bachelor of Science, Microbiology**                                    **Sept 2005 – Apr 2008**
University of Victoria, Victoria, British Columbia

## AWARDS AND HONOURS
- JJEM Graduate Award in Mathematics & Statistics                 2022-2023
- Charles S. Humphrey Graduate Student Award                      2022-2023
- University of Victoria Graduate Award                           2022-2023
- University of Victoria Graduate Award                           2021-2022

## PROFESSIONAL EXPERIENCE

**Research Assistant**                                    **Jan 2021 – present**
University of Victoria, Victoria, British Columbia
- Contributing to the development, extension, and analysis of a mathematical model for contact tracing of COVID-19 in British Columbia (MSFHR funded) and contribute to manuscript preparation for publication
- Collaborating on publications related to early warning systems for emerging diseases

**Teaching Assistant**                                    **Sept 2021 – Apr 2022**
University of Victoria, Victoria, British Columbia
- Marked exams and homework assignments for Math 109, Math 120, and Math 101

**Independent Contractor – Data Analyst**                    **Apr 2020 – present**
Metabiota, San Francisco, California
- Reviewing and cleaning near real-time open-source surveillance data related to COVID-19 and other priority epidemic events for inclusion in Metabiota's epidemic risk analysis and modeling platform

**Epidemic Data Analyst**                              **Aug 2016 – Nov 2019**
Metabiota, San Francisco, California
- Collected, coded, reviewed and cleaned historic and near real-time open-source disease outbreak surveillance data in accordance with epidemiologic principles and data methodology for inclusion in Metabiota's epidemic risk analysis and modeling platform
- Led the ongoing development and initial evaluation of an automated near real-time outbreak event detection system
- Developed R software coding skills to effectively clean, extract and analyze relevant data from large quantitative and unstructured text-based data sets
- Supported the data science and modeling team with literature searches and data collection
- Created ad-hoc analyses, reports, and presentations and collected relevant data as required in response to external client requests and to support ongoing product development, risk modeling, and marketing strategies

**Summer Intern, PREDICT**                              **July 2016 – Sept 2016**
Metabiota, Nanaimo, British Columbia
- Completed a literature review on emerging respiratory pathogens

**Independent Research Contractor**                          **July 2015 – Aug 2015**
Rural and Remote Division of Family Practice, British Columbia
- Researched and wrote a comprehensive literature review to provide evidence and best practices based on identified program requirements related to implementing adult day services in rural and remote communities

**MPH Practicum Student, Integrated Primary and Community Care**     **Jan 2015 – Apr 2015**
Island Health, Courtenay, British Columbia
- Researched and wrote a comprehensive literature review to inform the implementation of a culturally safe and patient-centred health service delivery model in the Mount Waddington region on Northern Vancouver Island
  - Areas of focus included: social determinants of health in rural and remote contexts; determinants of Indigenous peoples' health; racism in the health system; trauma-informed practice; cultural safety; patient-centred care; and, transforming culture in health care
- Presented key findings and co-facilitated a discussion with working group members to reach a common understanding about key concepts in the review and to identify next steps

**Program Coordinator, Special Initiatives & Infrastructure**      Sep 2011 – Jul 2013
Michael Smith Foundation for Health Research, Vancouver, British Columbia
- Coordinated health research funding competitions and associated peer review processes
- Liaised with peer review committee members, award applicants and award recipients, host institutions and other funding agencies
- Monitored active awards for progress of research, financial integrity and adherence to the conditions of award
- Developed and edited correspondence, reports, funding competition guidelines and RFPs
- Carried out testing of a new grant management system to identify technical issues
- Wrote detailed training SOPs related to departmental processes as well as for the implementation and utilization of a new grant management system

**Volunteer Coordinator/Grant Writer**      May 2008 – May 2010
Watoto Canada, Victoria, British Columbia
- Acted as the communication liaison between Ugandan staff and Canadian volunteers
- Managed all administrative, travel and financial details for Canadian volunteers
- Collaborated with Ugandan project staff to develop and write a grant proposal to obtain  funding for the implementation of a maternal health and education project in Uganda
- Coordinated and led a team of Canadian volunteers to Uganda and successfully completed a  construction project

PUBLICATIONS
- Bednarski S, Cowen LLE, Ma J, **Philippsen T**, van den Driessche, P & Wang M. (2022). A Network SIR Contact Tracing Model for Randomly Mixed Populations. *Journal of Biological Dynamics, 16*(1), 859-879. https://doi.org/10.1080/17513758.2022.2153938

- Badker R, Miller K, Pardee C, Oppenheim B, Stephenson N, Ash B, **Philippsen T,** Ngoon C, Savage P, Lam C & Madhav N. (2021). Challenges in reported COVID-19 data: best practices and recommendations for future epidemics. *BMJ Global Health, 6*(5), e005542. https://doi.org/10.1136/bmjgh-2021-005542

- *(Conference abstract):* Badker R, Miller K, Pardee C, Ash B, **Philippsen T**, Ngoon C, Savage P & Madhav N. (2020). A new digital surveillance methodology to overcome challenges in reported epidemic data. *International Journal of Infectious Diseases, 101*(Suppl 1), 380. https://doi.org/10.1016/j.ijid.2020.09.999

PRESENTATIONS & POSTERS
**Computational and Mathematical Population Dynamics 6 (CMPD6)**      **May 24, 2023**
University of Manitoba, Winnipeg, MB
- Talk Title: *"A retrospective modelling analysis of the effect of control measures on the transmission of SARS-CoV-2 in Canada"*
**Applied Math Seminar**      **November 8, 2022**
University of Victoria, Victoria, BC
- Talk Title: *"A Contact Tracing SIR Model for Randomly Mixed Populations"*
  - Co-presenter: Manting Wang

**MfPHest (Mathematics for Public Health Fest) – Poster Session**  October 26, 2022
Fields Institute, Toronto, ON
- Poster Title: *"A multi-group multi-patch SEIR model with control measures and health behaviours"*

**Workshop on Mathematical Ecology – Poster Session**  Aug 10, 2022
Queen's University, Kingston, ON
- Poster Title: *"A Network SIR Model for Contact Tracing in a Randomly Mixed Population"*

**CIHR COVID-19 Task Force Showcase**  Apr 7, 2022
The Fields Institute for Research in Mathematical Sciences (Online)
- Talk Title: *"A Network SIR Model for Contact Tracing in a Randomly Mixed Population"*
    - Co-presenter: Manting Wang


CONTINUING EDUCATION & PROFESSIONAL DEVELOPMENT

**Workshop on Early Warning Systems for Emerging and Re-emerging Diseases**  January 2023
Fields Institute, Toronto, ON

**MfPHest (Mathematics for Public Health Fest)**  October 2022
Fields Institute, Toronto, ON

**Workshop on Mathematical Ecology**  Aug 2022
Queen's University, Kingston, ON

**Summer School in Nonlinear Dynamics for the Life Sciences**  May-June 2022
The Centre for Applied Mathematics in Bioscience and Medicine (CAMBAM)

**PIMS Western Canada Math Biology Spring Workshop**  May 2022
Pacific Institute for the Mathematical Sciences/UBC-Okanagan

**Summer Institutes in Statistics and Modeling in Infectious Diseases**  July 2019/July 2021
University of Washington, Seattle, Washington
- *Short Courses:*
    - *Simulation Based Inference for Epidemiological Dynamics*
    - *Contact Network Epidemiology*
    - *Statistics and Modeling with Novel Data Streams*
    - *Mathematical Models of Infectious Diseases*
    - *Stochastic Epidemic Models with Inference*
    - *Spatial Statistics in Epidemiology and Public Health*

**Mathematical and Statistical Foundation Courses**  2019-2020
Athabasca University, Athabasca, Alberta
- *Linear Algebra 2*
University of Victoria, Victoria, British Columbia
- *Calculus II-IV*
- *Applied Regression Analysis*
- *Matrix Algebra*
Thompson Rivers University – Open Learning, Kamloops, British Columbia
- *Calculus I*

**Workshop: Relational Practice for Cultural Safety**                                              **Mar 2015**
Vancouver Island Health Authority, Port Hardy/Gwa'sala-Nakwaxda'xw, British Columbia

**Indigenous Cultural Competency Training (online)**                    **Jan 2015 – Feb 2015**
Provincial Health Services Authority, British Columbia

## TECHNICAL SKILLS

- RStudio
- LaTeX Syntax, Overleaf
- MS Office

## VOLUNTEER EXPERIENCE

**Women in Science Peer Mentorship Program (Mentor)**              **Sep 2022 – ongoing**
University of Victoria, Victoria, BC

**Strathcona Food Security Project**                             **Feb 2016 – July 2016**
Greenways Land Trust, Campbell River, British Columbia

- Provided research support for the initial planning and development phases of a community kitchen program in the region of Strathcona on Vancouver Island

## MEMBERSHIPS

**Canadian Society for Epidemiology and Biostatistics**             **As of:  Jun 2022**

- Student Member

**The Fields Institute for Research in Mathematical Sciences**        **As of: Mar 2022**

- Mathematics for Public Health (MfPH) Next Generation Member