



JOB POSTING, POST-DOCTORAL FELLOW

Area of Research: Biostatistics, Environmental Health, Climate Health Data Science

Project summaries:

The Institute of Health Policy, Management and Evaluation (IHPME) is seeking a Post-Doctoral Fellow to join a multidisciplinary research program focused on developing and applying innovative statistical methods to understand the health impacts of climate-related environmental exposures.

The successful candidate will work on projects that integrate high resolution environmental exposure data with large Canadian population-based administrative health data. The research will focus on quantifying the health impacts of sustained, repeated, and joint environmental exposures, with particular attention to long-term exposure harm, compound exposure events, exposure uncertainty, and vulnerable populations. The position is intended for a candidate interested in both methodological innovation and applied environmental health research.

The project team includes researchers with expertise in biostatistics, environmental epidemiology, exposure modelling, machine learning, atmospheric and environmental sciences, and health services research. The fellow will be embedded in a large collaborative team and will have access to rich environmental exposure data, contextual data, and administrative health data resources.

The objectives are to:

- Develop and evaluate innovative statistical methods for quantifying the short- and long-term health impacts of repeated, joint, and compound environmental exposures, including approaches that account for exposure uncertainty, time-varying confounding, competing risks, and heterogeneous effects across populations and places;
- Apply these methods to linked environmental and administrative health data to estimate climate-related health risks and generate policy-relevant evidence to support equitable adaptation and preparedness.

Description of duties:

The Post-Doctoral Fellow will take a leadership role in a set of methodological and applied projects at the intersection of biostatistics, environmental health, and health services research. The successful candidate will be expected to contribute to the development of new statistical methods while also leading applied analyses using large, linked datasets. The fellow will work closely with the Principal Investigator and collaborators across disciplines to ensure that methodological development is motivated by

important environmental health and policy questions.

Responsibilities include:

- Developing, evaluating, and implementing innovative statistical methods for estimating long-term and cumulative health effects of environmental exposures;
- Developing, evaluating, and implementing innovative statistical methods for joint exposures, compound exposure events, and heterogeneous effects across populations and places;
- Applying Bayesian methods, causal inference approaches, and/or spatiotemporal statistical models to linked environmental exposure and administrative health data;
- Conducting applied analyses using large-scale health administrative data and high-resolution environmental exposure data;
- Designing simulation studies and sensitivity analyses to evaluate statistical methods and assess the robustness of findings;
- Working collaboratively with exposure scientists, environmental epidemiologists, health services researchers, clinicians, policy partners, trainees, and other members of the research team;
- Leading and contributing to manuscripts for peer-reviewed journals in biostatistics, epidemiology, environmental health, and health services research;
- Contributing to reproducible research workflows, analytic pipelines, documentation, and open or shareable code where appropriate;
- Presenting findings at internal meetings, research seminars, and national or international conferences;
- Contributing to knowledge translation activities, including reports, presentations, and policy-relevant summaries;
- Supervising or mentoring junior research staff and students, as appropriate.

Salary:

\$60,000-70,000 per annum depending on the candidate, skills and experience.

Please note that should the minimum rates stipulated in the collective agreement fall below the rates stated in this posting, the minimum rates stated in the collective agreement shall prevail.

Required qualifications:

Minimum Degree Required:

Ph.D. obtained within 5 years from the date of hiring. The successful candidate must possess a Ph.D. in biostatistics, statistics, environmental epidemiology, or a closely related discipline.

The successful candidate should have:

- Strong training in statistical modelling and inference;
- Demonstrated expertise or strong interest in causal inference, Bayesian statistics, spatiotemporal modelling, environmental health modelling, or related methods;

- Experience with statistical programming in R, Python, or similar languages;
- Experience working with large and complex datasets;
- Strong written and oral communication skills;
- A record of peer-reviewed publications or manuscripts commensurate with career stage;
- Ability to work independently while contributing effectively to a collaborative interdisciplinary team.

Preferred qualifications:

Preference will be given to candidates with experience in one or more of the following areas:

- Bayesian statistics, Bayesian causal inference, or uncertainty quantification;
- Causal inference for longitudinal, time-varying, or observational data;
- Environmental exposure modelling, climate-health modelling, air pollution, heat, wildfire smoke, or other environmental exposure data;
- Methods for joint exposures, mixtures, cumulative exposure, or distributed lag models;
- Analysis of large administrative health data, health claims data, electronic health records, or population-based linked data;
- Spatiotemporal modelling, geospatial analysis, machine learning, or high-dimensional data analysis;
- Reproducible workflows, version control, high-performance computing, or cloud-based data analysis;
- Interdisciplinary research involving statisticians, epidemiologists, environmental scientists, clinicians, policy partners, and/or public health decision-makers.

Application instructions:

All individuals interested in this position must submit the following materials to Isabel Arruda-Caycho at isabel.arruda@mail.utoronto.ca by July 30, 2026, with the subject line “**Postdoctoral Application – Dr. Kuan Liu – [Applicant Full Name]**”.

- Curriculum vitae;
- Cover letter describing research interests, relevant experience, and fit for the position;
- One representative writing sample, publication, or preprint;
- Names and contact information for 3 academic referees.

Optional application documents include a dissertation abstract, additional publications, or a research statement.

Closing date: July 30, 2026, or open until filled.

Supervisor: Dr. Kuan Liu

Expected start date: September 1st, 2026

Term: This is a one-year position with possible extensions, subject to availability of

funding and performance of the postdoctoral fellow.

FTE: Full time

The normal hours of work are 40 hours per week for a full-time postdoctoral fellow, recognizing that the needs of the employee's research and training and the needs of the supervisor's research program may require flexibility in the performance of duties and hours of work.

Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement.

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The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ2S+ persons, and others who may contribute to the further diversification of ideas.