

## Course Syllabus - CHL 5228H Y

### **STATISTICAL METHODS FOR GENETICS & GENOMICS - RESEARCH SEMINAR AND JOURNAL CLUB 2018-2019**

#### **TIME and PLACE:**

**Fall term** 10am – 12noon Friday (Haultain Room 401)

**Winter term** 10am - 12noon Friday (TBA)

Seminar: 1 hour; Small Group Discussion: 1 hour.

<http://www.dlsph.utoronto.ca/students/current-students/timetables/>

#### **Co-INSTRUCTORS:**

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## **A. COURSE OVERVIEW**

### **Goals and Objectives:**

To obtain basic understanding of current developments in statistical genetic/genomic methods and current analytic issues in genetic epidemiology.

To become cognizant of sources of methodology literature for the design and analysis of investigations in statistical genetics, statistical genomics, and genetic epidemiology.

To develop critical evaluation skills for underlying theory and/or applications of current study designs and statistical analysis methods.

To develop skills in communication and presentation in an inter-disciplinary setting.

**Audience:** PhD Graduate students in Biostatistics, Epidemiology or Statistics

**Pre-requisites:** Biostatistics/Statistics coursework at the graduate level and instructor permission

**Co-requisites:** Fundamentals of Genetic Epidemiology, CHL5430H Fall Term  
<http://www.dlsph.utoronto.ca/course/fundamentals-of-genetic-epidemiology/>

and

Modern Statistical Genetics, CHL5224H Fall Term  
<http://www.dlsph.utoronto.ca/course/statistical-genetics/>

or

Fundamentals of Statistical Genetics, STA2080H Winter Term  
<http://www.utstat.toronto.edu/sun/funstatgene-index.html>

### **Special features about course delivery:**

One hour Research Seminar/Journal Club session, held 2-3 times per month, September through April with faculty participation.  
Seminar sessions will be followed by one hour small-group discussion for registered students and other participants, with faculty discussion leaders

Co-ordinated with the monthly International Speaker Seminar Series (ISSS) organized as part of the STAGE Training Program in Advanced Genetic Epidemiology.

<http://www.stage.utoronto.ca/home/iss>

ISSS held Friday at 12 noon followed by Informal post seminar Q&A with guest speaker. Light refreshments served.

**Group size for discussion:** 6-12 trainees (PhD students and post-doctoral fellows).

### **Faculty Discussion leaders:**

Shelley Bull, Dalla Lana School of Public Health & Lunenfeld-Tanenbaum Research Institute

Andrew Paterson, Dalla Lana School of Public Health & SickKids Research Institute

### **Academic deadlines:**

Deadline for scheduling student presentations: 30 November 2018.

Deadline to submit a one page paper outline: no later than 15 February, 2019.

Due date for the Final paper: 5 April 2019.

## **B. ASSIGNMENTS AND EVALUATION**

Students are expected to:

- (1) attend Friday journal club sessions and seminars, including ISSS
- (2) present in one journal club session, and
- (3) submit a short paper.

Pass/Fail according to

Participation in Seminars and Discussion Groups  
Presentation (Late Fall 2018 or Winter term 2019)  
Final paper (due April 5, 2019)

*A pass is required in all three components*

## Some guidelines for the paper

Final paper is due April 5, 2019.

Please set up a meeting with course faculty to formulate the research question that you want to consider in the paper, and discuss how to address it.

Submit a one page outline no later than February 15, 2019.

Formatting and Length:

Any standard journal style is acceptable, see for example guidelines for authors in *Genetic Epidemiology*, *Statistics in Medicine*, *Amer J of Human Genetics*.

Please submit with 12 pt font, and 1.5 line spacing.

Length of 10-15 (max) manuscript pages, excluding references, tables and figures.

## C. POLICY STATEMENTS

**1. Academic Integrity:** Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences: (<http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/PDF/ppjun011995.pdf>)

University of Toronto's policy regarding plagiarism:

<http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>

Potential offences include, but are not limited to:

*In papers and assignments:*

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment.

*On tests and exams:*

- Using or possessing unauthorized aids.
- Looking at someone else's answers during an exam or test.
- Misrepresenting your identity.

**2. Turnitin.com:** [Turnitin.com](http://www.turnitin.com) is a tool that will assist in detecting textual similarities between compared works. Students must be informed at the start of the course that the

instructor will be using Turnitin.com. **The course syllabus must include the following statement (as is):**

“Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University’s use of the Turnitin.com service are described on the Turnitin.com web site”.

**3. Accessibility and Accommodation:** The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University’s courses and programs. For more information, or to register with Accessibility Services, please visit: <http://studentlife.utoronto.ca/as>

**4. Acknowledgement of Territory:** We would like to acknowledge the traditional territories of the Mississauga of the New Credit First Nation, Anishnawbe, Wendat, Huron, and Haudenosaunee Indigenous Peoples on which the Dalla Lana School of Public Health now stands. The territory was the subject of the Dish With One Spoon Wampum Belt Covenant, an agreement between the Iroquois Confederacy and Confederacy of the Ojibwe and allied nations to peaceably share and care for the resources around the Great Lakes. We would also like to pay our respects to all our ancestors and to our present Elders.

#### **D. PRELIMINARY SEMINAR SCHEDULE (subject to revision)**

\* start of Fall session courses: week of Sept 10 \*

September 14      10 am – First Class for CHL Course Participants (trainees)

September 21      10 am – **Journal Club** – **Shelley Bull**, LTRI

**Reading:** Genome-wide polygenic scores for common diseases identify individuals with risk equivalent to monogenic mutations, Khera et al (2018) *Nature Genetics* 50:1219-1224

\* Final date to add course September 24 \*

September 28      *No Seminar*

Experience Industry Day & a Workshop on Statistical Models and Big Data  
[http://utstat.toronto.edu/?page\\_id=13298](http://utstat.toronto.edu/?page_id=13298)

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October 5 12 noon – STAGE International Speaker Seminar  
Speaker: Augustine Kong, Big Data Institute, University of Oxford

October 12 No Seminar  
\* IGES/ASHG October 13-20, San Diego \*

October 19 No Seminar

October 26 10 am – Reports from IGES/ASHG Meetings

November 2 12 noon – STAGE International Speaker Seminar - TBD

November 9 10 am – Research Seminar - Dave Soave, OICR  
Topic: Population Health Cohorts and Two-Phase Studies

November 16 10 am – Seminar – Andrew Paterson, SickKids  
Topic: Canadian Longitudinal Study of Ageing: Cohort overview, data availability & access procedures, some descriptives

November 23 10 am – Seminar - David Meyre, McMaster (to be confirmed)

November 30 10 am – Seminar/Journal Club - TBD

\* last week of classes November 26 - 30 \*

\* November 30 - Deadline to schedule course presentation \*

December 7 12 noon – STAGE International Speaker Seminar - TBA

\*\*\*\*\* 2019 \*\*\*\*\*

\* First week of classes Jan 7-11

January 11 10 am – Seminar/Journal Club

January 18 10 am – Statistical & Computational Methods

January 25 10 am – Seminar/Journal Club

February 1 12 noon – STAGE International Speaker Seminar

February 8 No seminar

February 15 10 am – Seminar/Journal Club

\* February 15 - Deadline to submit paper outline \*

February 22 No seminar – Reading Week

\* February 25 final date to drop course \*

March 1	12 noon – STAGE International Speaker Seminar
March 8	10 am – Seminar/Journal Club
March 15	10 am – Statistical & Computational Methods
March 22	10 am – Seminar/Journal Club
March 29	10 am – Seminar/Journal Club
April 5	12 noon – STAGE International Speaker Seminar

April 1-5 \*\* Last week of classes

April 5 \*\* Due date for final student papers