Kevin McGregor — Curriculum Vitae

CONTACT INFORMATION	kevin.mcgregor@mail.mcgill.ca kevinmcg@yorku.ca
WEBSITE	http://www.kevmcgregor.com
RESEARCH INTERESTS	Statistical genetics, analysis of microbiome data, epigenomics, high-dimensional data
LANGUAGES SPOKEN	English, French

EMPLOYMENT

Assistant Professor   January 2021 -
Department of Mathematics and Statistics,
York University, Toronto, Ontario

Visiting Academic   May 2019 - August 2019
Division of Microbiology and Infection,
Warwick Medical School
Supervisors: Christopher Quince, Ph.D. and Todd Parsons, Ph.D.

Undergraduate Research Assistant   May 2011 - August 2013
Department of Mathematics and Statistics,
University of Saskatchewan
Supervisors: Christine Soteros, Ph.D. and Michael Szafron, Ph.D.

EDUCATION

McGill University, Montréal, QC

Ph.D., Biostatistics, *Expected:* December 2020

- Thesis Topic: *Bayesian community modelling in microbiome data*
- Supervisors: Celia M.T. Greenwood, Ph.D. and Aurélie Labbe, Ph.D.

M.Sc., Biostatistics, November 2015

- Topic: *Methods for estimating changes in DNA methylation in the presence of cell type heterogeneity*
- Supervisors: Aurélie Labbe, Ph.D. and Celia M.T. Greenwood, Ph.D.

University of Saskatchewan, Saskatoon, SK

B.Sc. (Hons), Statistics, June 2013

- *Graduated with high honours*

PUBLICATIONS

1. **Kevin McGregor**, Aurélie Labbe, Celia MT Greenwood. Microbiome co-occurrence network estimation using covariance regression. *Submitted to Biometrics in June 2020*

2. **McGregor, Kevin**, Aurélie Labbe, and Celia MT Greenwood. "MDiNE: a model to estimate differential co-occurrence networks in microbiome studies." Bioinformatics 36.6 (2020): 1840-1847.

3. Thaler, Lea, Sarah Brassard, Linda Booij, Esther Kahan, **Kevin McGregor**, Aurelie Labbe, Mimi Israel, and Howard Steiger. "Methylation of the OXTR gene in women with anorexia nervosa: Relationship to social behavior." European Eating Disorders Review 28, no. 1 (2020): 79-86.

4. Jeyakumar, Thiviya, Nassima Fodil, Lauren Van Der Kraak, Charles Meunier, Romain Cayrol, **Kevin McGregor**, David Langlais, Celia MT Greenwood, Nicole Beauchemin, and Philippe Gros. "Inactivation of interferon Regulatory Factor 1 Causes Susceptibility to Colitis-Associated colorectal cancer." Scientific Reports 9, no. 1 (2019): 1-13.

5. Jeyakumar, Thiviya, Nassima Fodil, Lauren Van Der Kraak, Charles Meunier, Romain Cayrol, **Kevin McGregor**, David Langlais, Celia Greenwood, Nicole Beauchemin, and Philippe Gros. "P145 INACTIVATION OF IRF1 CAUSES SUSCEPTIBILITY TO COLITIS-ASSOCIATED COLORECTAL CANCER." Gastroenterology 156, no. 3 (2019): S96.

6. LaRusso, Kathryn, Geraldine Schaack, Tiffany Fung, **Kevin McGregor**, Justin Long, Marie-Pier Dumas, Zahia Attari et al. "Should you Pick the PICC? Prolonged Use of Peripherally Inserted Central Venous Catheters in Children with Intestinal Failure." Journal of Pediatric Surgery (2019).

7. Steiger, Howard, Linda Booij, Esther Kahan, **Kevin McGregor**, Lea Thaler, Emilie Fletcher, Aurelie Labbe et al. "A longitudinal, epigenome-wide study of DNA methylation in anorexia nervosa: results in actively ill, partially weight-restored, long-term remitted and non-eating-disordered women." Journal of psychiatry & neuroscience: JPN 44, no. 3 (2019): 205.

8. Arabzadeh, Azadeh, **Kevin McGregor**, Valérie Breton, Lauren Van Der Kraak, Uri David Akavia, Celia MT Greenwood, and Nicole Beauchemin. "EPHA2 signaling is impacted by carcinoembryonic antigen cell adhesion molecule 1-L expression in colorectal cancer liver metastasis in a cell context-dependent manner." *Oncotarget* 8, no. 61 (2017): 104330.

9. **Kevin McGregor**, Sasha Bernatsky, Ines Colmegna, Marie Hudson, Tomi Pastinen, Aurélie Labbe, Celia MT Greenwood (2016). An evaluation of methods correcting for cell type heterogeneity in DNA methylation studies. *Genome Biology,* 2016 17(84).

10. Azadeh Arabzadeh, Jeremy Dupaul-Chicoine, Valérie Breton, Sina Haftchenary, Sara Yumeen, Claire Turbide, Maya Saleh, **Kevin McGregor**, Celia M T Greenwood, Uri David Akavia, Richard S Blumberg, Patrick T Gunning, Nicole Beauchemin (2015). Carcinoembryonic Antigen Cell Adhesion Molecule 1 long isoform modulates malignancy of poorly differentiated colon cancer cells. *Gut*, gutjnl-2014.

11. Cheston, M. A., **McGregor, K.**, Soteros, C. E., Szafron, M. L. (2014). New evidence on the asymptotics of knotted lattice polygons via local strand-passage models. *Journal of Statistical Mechanics: Theory and Experiment,* 2014(2), P02014.

Publications in preparation

1. **Kevin McGregor**, Aurélie Labbe, Celia MT Greenwood, Todd Parsons, Christopher Quince (2020+). The hierarchical Pitman-Yor model in microbiome diversity estimation.

Correspondence

1. Anderson, Chloé, **Kevin McGregor**, and James A. Hanley. "Cranberry Capsules for Bacteriuria Plus Pyuria in Nursing Home Residents." Jama 317.10 (2017): 1077-1078.

2. **McGregor, Kevin**, Aurélie Labbe, and Celia MT Greenwood. "Response to: Correcting for cell-type effects in DNA methylation studies: reference-based method outperforms latent variable approaches in empirical studies." Genome biology 18.1 (2017): 25.

TEACHING EXPERIENCE	**Instructor**

Instructor
- *MATH 4931: Simulation and the Monte Carlo Method* — Jan-Apr 2021
  Department of Mathematics and Statistics
  York University
- *EPIB 521 Regression Analysis for Health Sciences* — Jan-Apr 2018
  Department of Epidemiology, Biostatistics, and Occupational Health
  McGill University
- *Seminar Series in Biostatistics (5 lectures)* — Sept-Oct 2017
  Lady Davis Institute for Medical Research
  Montréal, Québec

Teaching Assistant
- *EDPE 676 — Intermediate Statistics* — Fall 2015, 2016
  Department of Educational and Counselling Psychology,
  McGill University

Grader
- *STAT 100 — Elementary Statistics for Applications* — Winter 2013
  University of Regina (Saskatoon Campus)

Help Desk Advisor
- Computer Science Help Desk — May-June 2010
  Department of Computer Science,
  University of Saskatchewan

REVIEWER WORK
- Article co-reviewed for *Applied Computing and Geosciences* — 2019
- Article co-reviewed for *American Journal of Human Genetics* — 2019
- Article co-reviewed for *Genome Biology* — 2017
- Article reviewed for *International Journal of Epidemiology* — 2017

OTHER ACADEMIC ACTIVITIES
- Statistics Curriculum Committee - Member — 2021
  Department of Mathematics and Statistics
  York University
- Statistical Consulting Committee - Co-chair — 2021
  Department of Mathematics and Statistics
  York University
- Student council - Member at Large — 2018-19, 2019-20
  Department of Epidemiology, Biostatistics, and Occupational Health
  McGill University
- Local Arrangement Chair — Sept 2017 - June 2018
  Canadian Statistics Student Conference
  Statistical Society of Canada
- Biostatistics Academic Representative — 2016-17, 2017-18
  Department of Epidemiology, Biostatistics, and Occupational Health
  McGill University
- Co-organized successful CANSSI Distinguished Visitor application — March 2017
  Department of Epidemiology, Biostatistics, and Occupational Health
  McGill University
  Speaker: Hilary Parker Ph.D.

OTHER PROJECTS
- Statistical analysis and consulting (various projects) — 2016-present
- Course translation (French to English) — Fall 2018
  HEC Montréal - Analyse et inférence statistique - 6-619-15

SOFTWARE

- `MDiNE`: Microbiome Differential Network Estimation - A Bayesian model to estimate precision matrix based network changes with respect to a binary covariate.
  https://github.com/kevinmcgregor/mdine
- `MiCoRe`: Microbiome Covariance Regression - A Bayesian model to estimate changes in a covariance matrix with respect to a covariate profile.
  https://github.com/kevinmcgregor/micore
- `gStirling`: Calculates a table of the log of the generalized Stirling numbers of type $(-1, -a, 0)$, as defined by Hsu and Shiue, 1998.
  https://github.com/kevinmcgregor/gStirling

RESEARCH FUNDING	• York University Start-up Grant ($25,000)	2021

AWARDS

Awards — McGill University
- FRQS Doctoral award ($21,000/year)   2018-2020
- Faculty of Medicine Internal Studentship ($12,000)   2017
- Faculty of Medicine Internal Studentship ($12,000)   2016
- Graduate excellence award Ph.D. ($10,000)   2015
- Graduate excellence award M.Sc. ($4,000)   2013

Awards — University of Saskatchewan
- Most Outstanding Graduate in Statistics   2013
- Dean's List   2013
- Honours Scholarship ($1500)   2013
- Saskatchewan Curling Association Athlete Assistance Award ($1100)   2009
- Edgar Alexander Garton Scholarship ($1000)   2009
- Entrance Scholarship ($3000)   2008

Travel Awards
- McGill University Graduate Mobility Award ($3,120)   2019
- Queen Elizabeth Scholar: "Quantitative Biology and Medical Genetics for the World" ($6,000)   2019
- 2017 Microbiome Summer School: Big Data Analytics for Omcis Science (All conference expenses covered)   2017
- Workshop on Statistical Issues in Biomarkers and Drug Co-Development ($500)   2014

Other Awards
- Statistical Society of Canada Student Conference Award for best undergraduate poster (co-authored with Marla Cheston)   2013

PRESENTATIONS

Invited talks
- McMaster University, Hamilton ON   Jan 2020
  Department of Mathematics and Statistics
- Queen's University, Kingston ON   Jan 2020
  Department of Public Health Sciences
- Bellairs Research Institute, Folkestone, St. James, Barbados   Jan 2020
  Workshop on Clinical Implementation of Genomics and Epigenomics
- York University, Toronto ON   Dec 2019
  Department of Mathematics and Statistics

Contributed talks
- Research Day 2019, Montréal QC   Mar 2019
  Department of Epidemiology, Biostatistics, and Occupational Health
  McGill University, Montréal QC

- Statistical Society of Canada Annual Meeting, Montréal QC   Jun 2018
- (Bio)Statistics Student Research and Career Day, McGill University Sept 2017
- Statistical Society of Canada Annual Meeting, Winnipeg MB   Jun 2017
- 4th Annual Human and Statistical Genetics Meeting, Vancouver, BC   Apr 2015

Posters

- International Genetic Epidemiology Society Annual Conference   Oct 2019
  Houston, TX
- American Society of Human Genetics Annual Meeting, San Diego, CA   Oct 2018
- Canadian Human and Statistical Genetics Meeting   Jun 2018
  Harrison Hot Springs, BC
- Causal Challenge, Workshop on Statistical Causal Inference   Jul 2016
  and Applicaitons to Genetics, Montréal, QC
- EBOH 50th anniversary conference, Montréal, QC   Apr 2015
- 4th Annual Human and Statistical Genetics Meeting, Vancouver, BC   Apr 2015
- Workshop on Statistical Issues in Biomarker and Drug Co-development Nov 2014
  Fields Institute, Toronto, ON
- Statistical Society of Canada Annual Meeting   May 2014
  Case Study Competition, Toronto, ON
- Statistical Society of Canada Student Conference   May 2013
  Student poster competition, Edmonton, AB