



THEMATIC SEMESTER

**RISK IN COMPLEX SYSTEMS**

MODELS, APPLICATIONS, PERCEPTIONS, AND POLICY IMPLICATIONS

AUGUST – DECEMBER 2017

Centre de recherches mathématiques  
Montréal, Canada

Hazards inherent to complex interconnected systems can lead to disasters of epic proportions with untold environmental, economic and social consequences. The identification, quantification, prediction, control, and mitigation of risk factors is thus essential to ensure individual protection and system integrity while promoting sustainable development.

This thematic program seeks to promote the study and use of stochastic models and statistical inference techniques that are relevant for an enhanced understanding of the interplay between risk factors and their potentially catastrophic effects on dynamic systems. Dependence models, extreme-value theory and time series analysis form the methodological backbone of quantitative risk management. Many important current issues will be considered, including the development of models for extreme events and large collections of variables, risk aggregation and model validation through expert use, the assessment and control of systemic risk, and risk propagation in epidemiology, finance, power networks, computer systems, etc.

The workshops are designed to foster interactions among probabilists, statisticians, econometricians, regulators, and risk modelers in finance, insurance, hydrology, as well as in the health, climate, and environmental sciences. They will bring together researchers and practitioners from these various areas and will present an excellent opportunity to take stock of recent developments, identify new challenges and initiate fruitful collaborations.

A week-long school based on the bestseller "Quantitative Risk Management: Concepts, Techniques and Tools" by McNeil, Frey and Embrechts (Princeton University Press, 2015) will precede the workshops and provide young investigators and professionals alike with a hands-on introduction to this rapidly growing field.

**LOCAL ORGANIZING COMMITTEE**

Christian Genest, Chair (McGill University)  
Debbie J. Dupuis (HEC Montréal)  
Erica Moodie (McGill University)  
Johanna G. Nešlehová (McGill University)  
Bruno Rémillard (HEC Montréal)  
David A. Stephens (McGill University)  
Ruodu Wang (University of Waterloo)

**INTERNATIONAL SCIENTIFIC COMMITTEE**

Carole Bernard (Grenoble School of Management)  
Rama Cont (Imperial College London)  
Michel Dacorogna (DEAR-Consulting, Switzerland)  
Anthony C. Davison (École polytechnique fédérale de Lausanne)  
Anne-Laure Fougères (Université Claude-Bernard, Lyon)  
Paul Glasserman (Columbia University)  
Daniel J. Graham (Imperial College London)  
Nicholas P. Jewell (University of California at Berkeley)  
Matthias Scherer (Technische Universität München)  
Steven Vanduffel (Vrije Universiteit Brussel)  
Francis W. Zwiers (Pacific Climate Impacts Consortium, Victoria, BC)

**AISENSTADT CHAIRS**

Claudia Klüppelberg (Technische Universität München)  
August – September 2017

Alexander J. McNeil (University of York)  
September – October 2017

**RELATED ACTIVITY****Summer School in Quantitative Risk Management**

August 21 – 24, 2017

<http://qrmutorial.org/>**Instructors:**

Rüdiger Frey (Wirtschaftsuniversität Wien)  
Marius Hofert (University of Waterloo)

**WORKSHOPS****Environmental Risk Modeling and Extreme Events**

August 28 – 31, 2017

**Organizers:**

Anthony C. Davison (École polytechnique fédérale de Lausanne)  
Debbie J. Dupuis (HEC Montréal)  
Francis W. Zwiers (Pacific Climate Impacts Consortium, Victoria, BC)

**Risk Measurement and Regulatory Issues in Business**

September 11 – 14, 2017

**Organizers:**

Carole Bernard (Grenoble School of Management)  
Michel Dacorogna (DEAR-Consulting, Switzerland)  
Steven Vanduffel (Vrije Universiteit Brussel)  
Ruodu Wang (University of Waterloo)

**Measurement and Control of Systemic Risk**

September 25 – 28, 2017

**Organizers:**

Rama Cont (Imperial College London)  
Paul Glasserman (Columbia University)  
Bruno Rémillard (HEC Montréal)

**Dependence Modeling Tools for Risk Management**

October 2 – 5, 2017

**Organizers:**

Anne-Laure Fougères (Université Claude-Bernard, Lyon)  
Johanna G. Nešlehová (McGill University)  
Matthias Scherer (Technische Universität München)

**Risk Modeling, Management and Mitigation in Health Sciences**

December 11 – 14, 2017

**Organizers:**

Daniel J. Graham (Imperial College London)  
Nicholas P. Jewell (University of California at Berkeley)  
Erica Moodie (McGill University)  
David A. Stephens (McGill University)

This thematic program is funded by the following institutions: