# Rebecca C. McKay

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Citizenship: Canadian

## Education:

- **Dalhousie University**, Halifax, Nova Scotia — Doctor of Philosophy in Mathematics

  Thesis: *Pattern Formation in Reaction-Diffusion Systems*

  Supervisor: Dr. Theodore Kolokolnikov

  Expected completion date: April 2011

- **Dalhousie University**, Halifax, Nova Scotia — Master of Science in Mathematics

  Thesis: *The Generalized Minimal Residual Method applied to the Inverse Problem of Electrocardiography*

  Supervisors: Dr. John Clements and Dr. B. Milan Horáček

  Completion date: August 2006

- **Memorial University of Newfoundland**, St. John's, Newfoundland — Bachelor of Science (Honours) in applied mathematics with minor in physics

  Honours thesis: *Blow-up in Reaction-Diffusion Equations*

  Supervisor: Dr. Hermann Brunner

  Completion date: April 2005

## Research/Teaching Interests:

- Research Interests: ordinary and partial differential equations, asymptotic analysis, perturbation methods, pattern formation, numerical analysis, mathematical biology and mathematical modeling.

- Teaching Interests: Introductory mathematics courses, calculus, quantitative methods (mathematics/finance for business students), mathematical modeling, differential equations, and higher level applied mathematics.

**<u>Relevant Teaching Experience:</u>**

- Instructor

  I taught Math/Stat 2300: *Mathematical Modeling* in the Department of Mathematics and Statistics at Dalhousie University, Halifax, Nova Scotia. — January to April 2010

- Instructor

  I taught MGSC 1205 and 1206: *Quantitative Methods I* and *II* in the Department of Finance, Information Systems and Management Science at Saint Mary's University, Halifax, Nova Scotia. — January 2009 to April 2010

- Instructor

  I taught Math 1000: *Differential and Integral Calculus I* in the Department of Mathematics and Statistics at Dalhousie University, Halifax, Nova Scotia. — July to August 2008

- Teaching Assistant

  I am working as a teaching assistant in the Department of Mathematics and Statistics at Dalhousie University, Halifax, Nova Scotia, running calculus tutorials. Previously, I have worked in the Learning Centre (helping undergraduate students), marked assignments, quizzes and exams, and invigilated exams. — September 2005 to present

- Teaching Assistant

  I worked in the Department of Mathematics and Statistics at Memorial University of Newfoundland, St. John's, Newfoundland, marking assignments and quizzes. Additionally, I was a teaching assistant for a technical writing in mathematics course where I helped students with the use of LaTeX and various graphing utilities. — September 2002 to April 2005

**<u>Preprints:</u>**

"Instability thresholds and dynamics of mesa patterns in reaction-diffusion systems", Rebecca McKay and Theodore Kolokolnikov (2010)

**<u>Conferences and Talks:</u>**

- *Stability thresholds and dynamics of mesa patterns in reaction-diffusion systems*

  31st Annual Meeting of the Canadian Applied and Industrial Mathematics Society (CAIMS) held in St. John's, Newfoundland — July 2010

- *Mesa-type patterns in reaction-diffusion systems*

  Bluenose Numerical Analysis Day held at Acadia University in Wolfville, Nova Scotia — July 2009

- *Stability of a reaction-diffusion model with mesa-type patterns*

  Canada-France Congress held at Université du Québec à Montréal in Montreal, Quebec in the CAIMS minisymposium "Asymptotic analysis of localized patterns in PDEs" — June 2008

- *Gershgorin and his circles*

  Dalhousie Mathematics and Statistics Graduate Society graduate seminar — March 2007

- LaTeX *Basics*

  Dalhousie Mathematics and Statistics Graduate Society graduate seminar — October 2006

- *The Generalized Minimal Residual (GMRES) Method Applied to the Inverse Problem of Electrocardiography*

  Atlantic Provinces Council on the Sciences (APICS) 30th Annual Conference at Cape Breton University in Cape Breton, Nova Scotia in the AARMS symposium on Mathematical Modelling and Simulation — October 2006

- *Some* LaTeX *fun*

  Dalhousie Mathematics and Statistics Graduate Society graduate seminar — March 2006

- *Blow up in reaction-diffusion equations*

  Canadian Undergraduate Mathematics Conference (CUMC) at Queen's University in Kingston, Ontario — July 2005

- *Korteweg-de Vries equation and soliton solutions*

  Canadian Undergraduate Mathematics Conference (CUMC) at Dalhousie University in Halifax, Nova Scotia — June 2004

**Workshops and Summer Schools:**

- Joint CAMBAM-MBI Summer School under the theme of "Nonlinear Dynamics in Biological Networks" at McGill University in Montreal, Quebec — May 2010

- Atlantic Association for Research in the Mathematical Sciences (AARMS) graduate summer school at Memorial University in St. John's, Newfoundland — August 2004

**Committees and Volunteer Activities:**

- Atlantic Provinces Council on the Sciences (APICS) Math, Stats, and CS Conference

  I volunteered and helped with registration packages and fees. — October 2009

- Department Liaison — Graduate Student Society — September 2006 to September 2007

- Department of Mathematics and Statistics — Undergraduate Studies Committee (MUN)

  I was the student representative on the Department's Undergraduate Studies where issues relating to undergraduate mathematics are discussed. — October 2002 to September 2004

- Chief Returning Officer for the Math and Stats Society (MUN)

  For six elections, I was the C.R.O. where I organized the elections of officers. — September 2002 to April 2005

- Volunteer for Newfoundland and Labrador Math League — September 2001 to April 2004

**Other Information:**

- proficiency: Fortran, C, Matlab, Maple, LaTeX

- involved in maintaining Dalhousie LaTeX thesis.cls

- professional membership: Canadian Applied and Industrial Mathematics Society (CAIMS) member, Society for Industrial and Applied Mathematics (SIAM) member

- working towards completing the Dalhousie University's Certificate in University Teaching and Learning (CUTL), having already completed the course in course design and the professional development hours in seminars.