Brian Pigott, Ph.D.

Contact Information

Address:	Department of Mathematics, Wofford College, 429 North Church Street, Spartanburg, South Carolina 29303
Phone:	864-597-5127
email:	pigottbj@wofford.edu

Experience

Current	Associate Professor *Department of Mathematics, Wofford College*
September 2021 - Current	Advisory Board Member *Rosalyn.ai*
February 2022 - August 2022	QuForce Innovation Fellowship
September 2014 – June 2021	Assistant Professor *Department of Mathematics, Wofford College*
July 2011 – July 2014	Teacher-Scholar Postdoctoral Fellow *Department of Mathematics, Wake Forest University*

Education

2011 **University of Toronto**, Ph.D. in Mathematics
Dissertation: *Low Regularity Stability for Subcritical Generalized Korteweg-de Vries Equations*
Advisor: James Colliander

2002 **University of Toronto**, M.Sc. in Mathematics
Research Project: Nuts and Bolts of Cyclic Homology
Advisor: George Elliott

2001 **University of Calgary**, B.Sc. (Honours) in Mathematics

Research Interests

Partial Differential Equations, Analysis, Quantum Computing, Quantum Information

Publications

Published

2022 N. Kosovalic and B. Pigott,*Symmetric vibrations of higher dimensional nonlinear wave equations*, Selecta Mathematica (N.S.), **28**, no. 3.
2020 N. Kosovalic and B. Pigott, *Uniqueness for sums of nonvanishing squares*, Integers, **30**
2019 N. Kosovalic and B. Pigott, *Self-excited vibrations for damped and delayed 1-dimensional wave equations*, Journal of Dynamics and Differential Equations, **31**, no. 1 (129-152)

2018 N. Kosovalic and B. Pigott, *Self-excited vibrations for damped and delayed higher dimensional wave equations*, Discrete and Continuous Dynamical Systems A, **39**, no. 5 (2413-2435).

2017 L.G. Farah and B. Pigott, *Nonlinear profile decomposition and the concentration phenomenon for supercritical generalized KdV equations*, Indiana Univ. Math. Journal, **67**, no. 5 (1857–1892)

2017 B. Pigott and S. Raynor, *Long-term stability for KdV solitons in weighted H^s spaces*, Commun. Pure Appl. Anal., **16**, no.2 (393-416).

2016 B. Pigott, *On mass concentration for the critical generalized KdV equation*, Proc. Edinburgh Math. Soc., **59**, no. 2 (519-532).

2014 B. Pigott and S. Raynor, *Asymptotic stability for KdV solitons in weighted spaces via iteration*, Illinois J. Math., **58**, no. 2 (443-470).

2014 B. Pigott, *Polynomial-in-time upper bounds for the orbital instability of subcritical generalized Kortewev-de Vries equations*, Commun. Pure Appl. Anal., **13**, no. 1, (389-418).

2003 J. Bryden, T. Lawson, B. Pigott, and P. Zvengrowski, *The integral homology of orientable Seifert manifolds*, Topology Appl., **127**, no. 1-2 (259-275).

In Preparation

2022 N. Kosovalic and B. Pigott, *Hopf Like Bifurcation in a Wave Equation at a Removable Singularity*.

Undergraduate Research Projects Supervised

2018-2019	H. Wages, *Random Walks and the Relavitistic Heat Equation*.
2016-2017	D. Couch, *Quantum Graphs and a Model of the Nervous System*.
Interim 2016, Spring 2016	J. Cohen, *A Statistical Analysis of* Big Brother
Summer 2013	R. Dougherty, *The Multilinear Correction Algorithm and Conservation Laws for the Korteweg-de Vries Equation*, jointly supervised with F. Moore.
Summer 2013	J. Byrum, *The Inverse Scattering Transform and Scale Invariant Lax Pairs*.

Teaching Experience

Course Coordinator

2010-2011 MAT 137 Calculus!, University of Toronto, Faculty of Arts and Science.
Coordinated all aspects of a course with over 500 students in 6 lecture sections and 20 tutorials, including weekly problem sets, three term tests, four quizzes, and a final exam.

Instructor

2014- Wofford College
Calculus I, Calculus II, Multivariable Calculus, Vector Calculus, Discrete Mathematical Models, Differential Equations, Partial Differential Equations, Research: Inverse Scattering for the Korteweg-de Vries Equation, Introduction to Calculus Pedagogy, Functions of a Complex Variable, Topology

| Detailed List of Courses

2011-2014 Wake Forest University
Calculus with Analytic Geometry I, Multivariable Calculus, Advanced Calculus, Ordinary Differential Equations, Partial Differential Equations, Reading in Mathematics: Harmonic Analysis, Real Analysis: Measure Theory, Topics in Analysis: C^*-Algebras

| Detailed List of Courses

2007-2011 **University of Toronto**
Calculus A, Calculus B, Calculus I, Calculus II, Advanced Engineering Mathematics
| Detailed List of Courses

2009 **Georgian College**
Mathematics for Technology, Introduction to Technical Mathematics
| Detailed List of Courses

Awards

Grants

2016 Wofford College Faculty Development Grant
2015 Wofford College Faculty Development Grant

Teaching Awards

2007 Daniel B. DeLury Teaching Award
An award recognizing the best teaching assistant from the Department of Mathematics at the University of Toronto.

Academic Scholarships

2005-2006 Ontario Graduate Scholarship in Science and Technology, Lloyd George Elliott Award.
2004-2005 Ontario Graduate Scholarship in Science and Technology, Lloyd George Elliott Award.
2002-2004 NSERC Postgraduate Scholarship (PGS-A).
2001-2002 University of Toronto Fellowship.

Seminars and Talks

November 2019 Department of Mathematics and Statistics Colloquium, University of South Alabama, Mobile AL, USA
November 2019 American Mathematical Society Fall Southeastern Sectional Meeting, University of Florida, Gainesville FL, USA, *Special Sessionon Analysis of Geometric and Evolutionary PDEs*
April 2015 Student Physics Seminar, Wofford College, Spartanburg SC, USA
March 2015 American Mathematical Society Spring Southeastern Sectional Meeting, University of Alabama at Huntsville, Huntsville AL, USA. *Special Session on Recent Progress in Differential Equations*
November 2013 Applied Math Seminar, University of North Carolina at Greensboro, Greensboro NC, USA.
November 2013 Differential Equations Seminar, North Carolina State University, Raleigh NC, USA
November 2013 Applied Math Club Seminar, North Carolina State University, Raleigh NC, USA
October 2013 American Mathematical Society Fall Eastern Sectional Meeting, Temple University, Philadelphia PA, USA. *Special Session on Nonlinear Elliptic and Wave Equations and Applications*
October 2012 Southeastern-Atlantic Regional Conference on Differential Equations (SEARCDE), Wake Forest University, Winston-Salem NC, USA
October 2012 Wake Forest Math Club Talk, Wake Forest University, Winston-Salem NC, USA

September 2011	American Mathematical Society Fall Southeastern Sectional Meeting, Wake Forest University, Winston-Salem NC, USA. *Special Session on Nonlinear Dispersive Equations*
February 2011	Wake Forest University Colloquium, Wake Forest University, Winston-Salem NC, USA
October 2010	Fields Analysis Working Group, Fields Institute, Toronto ON, Canada
October 2010	Dispersive PDE Seminar, University of Toronto, Toronto ON, Canada
November 2008	Informal Dispersive Seminar, University of Toronto, Toronto ON, Canada
July 2006	Informal Dispersive Seminar, University of Toronto, Toronto ON, Canada
February 2006	Informal Dispersive Seminar, University of Toronto, Toronto ON, Canada
April 2005	Operator Theory Seminar, University of Toronto, Toronto ON, Canada
April 2005	Operator Algebras Seminar, Fields Institute, Toronto ON, Canada
July 2004	Operator Algebras Seminar, Fields Institute, Toronto ON, Canada
November 2003	Operator Algebras Seminar, Fields Institute, Toronto ON, Canada

Conferences and Workshops

Conferences Organized

March 2017	American Mathematical Society Spring Southeastern Sectional Meeting, College of Charleston, Charleston SC, USA. *Special Session on Advances in Long-Term Behavior of Nonlinear Dispersive Equations* (joint with S. Raynor)
October 2012	Southeastern-Atlantic Regional Conference on Differential Equations (SEARCDE), Wake Forest University, Winston-Salem NC, USA. (joint with S. Raynor and S. Robinson)

Conferences Attended

February 2022	QHack 2022, Online conference focusing on quantum computing
February 2019	International Association for Mathematics and Computers in Simulation, *Conference on Nonlinear Evolution equations and Wave Phenomena: Computation and Theory*, Athens GA, USA
June 2017	French-American Conference on Nonlinear Dispersive PDEs, Centre International de Recontres Mathématiques, Marseilles, FR.
May 2016	John H. Barrett Memorial Lectures, University of Tennessee, Knoxville, Knoxville TN, USA
January 2014	Joint Mathematics Meetings, Baltimore MD, USA
June 2013	NSF-CBMA Regional Research Conference in the Mathematical Sciences, *The Global Behavior of Solutions to Critical Nonlinear Wave Equations*, Kansas State University, Manhattan KS, USA
March 2013	International Association for Mathematics and Computers in Simulation, *Conference on Nonlinear Evolution equations and Wave Phenomena: Computation and Theory*, Athens GA, USA
January 2013	Joint Mathematics Meetings, San Diego CA, USA
March 2012	American Mathematical Society Spring Eastern Sectional Meeting, George Washington University, Washington DC, USA
April 2006	Schrödinger Evolution Equations, Banff International Research Station, Banff AB, Canada
June 2004	Canadian Operator Symposium, University of Waterloo, Waterloo ON, Canada
December 2002	Canadian Mathematical Society Winter Meeting, Ottawa ON, Canada

May 2001	Cascade Topology Seminar, Boise State University, Boise ID, USA
July 1999	Invariants of 3-Manifolds, Morley AB, Canada.

Service

Ongoing	Referee for various professional mathematics journals
Ongoing	Reviewer for Math Reviews
Fall 2019 - present	Benefits Committee, Wofford College
Fall 2019	Search Committee, Department of Mathematics, Wofford College.
Spring 2018 - present	Calculus Task Force, Department of Mathematics, Wofford College (Chair)
Fall 2017 - present	Department of Mathematics Colloquium Organizer, Wofford College
Fall 2015 - Spring 2018	Member of the Library Committee, Wofford College (Chair from Fall 2017-Spring 2018)
Fall 2014 - Spring 2017	Department of Mathematics Colloquium Organizer, Wofford College (joint with J. Spivey)
February 2017	Piedmont Region III Science Fair Judge, Spartanburg SC, USA
February 2016	Piedmont Region III Science Fair Judge, Spartanburg SC, USA
February 2015	Piedmont Region III Science Fair Judge, Spartanburg SC, USA
Spring 2015	Faculty Mentor for the Collaborative Research Program in Mathematics, Wofford College
Fall 2012 - Spring 2014	Member of the Analysis Committee, Department of Mathematics, Wake Forest University
Fall 2012 - Spring 2014	Member of the Graduate Committee, Department of Mathematics, Wake Forest University
Fall 2011 - Spring 2014	Member of the Math Club Committee, Department of Mathematics, Wake Forest University
Fall 2012 - Spring 2013	Member of the Wake Forest University Postdoctoral Association Board, Wake Forest University
Spring 2002 - Spring 2005	Mentor for the University of Toronto Mentorship Program, Department of Mathematics, University of Toronto
Fall 2001 - Spring 2002	Graduate Student Representation to the Department of Mathematics Graduate Planning Committee, Department of Mathematics, University of Toronto

Courses Taught at Wofford College

Fall 2021	MATH 210 Multivariable Calculus*
	MATH 182 Calculus II
Interim 2021	JAN 345 Scrabble!
Spring 2021	MATH 415 Topology
	MATH 182 Calculus II*
Fall 2020	MATH 446 Partial Differential Equations
	MATH 181 Calculus I*
Spring 2020	MATH 240 Differential Equations*
	MATH 182 Calculus II
Interim 2020	JAN 321 Storytelling Through Board Games
Fall 2019	MATH 210 Multivariable Calcululs*
	MATH 181 Calculus I
Spring 2019	MATH 240 Differential Equations*
	MATH 255 Colloquia!
	MATH 448 Functions of a Complex Variable
	MATH 500 Honors Course: Random Walks and the Relativistic Heat Equation
Interim 2019	JAN 348 Scrabble!
Fall 2018	MATH 500 Honors Course: Random Walks and the Relativistic Heat Equation
	MATH 446 Partial Differential Equations
	MATH 210 Multivariable Calculus*
Spring 2018	MATH 240 Differential Equations*
	MATH 235 Discrete Mathematical Models
Interim 2018	JAN 380 Learning Work
Fall 2017	MATH 210 Multivariable Calculus*
	MATH 181 Calculus I
Spring 2017	MATH 500 Honors Course: Quantum Graphs and a Model of the Nervous System
	MATH 470 Independent Study in Mathematics: Partial Differential Equations
	MATH 270 Independent Study in Mathematics: Introduction to Calculus Pedagogy
	MATH 240 Differential Equations*
	MATH 181 Calculus I
Interim 2017	JAN 315 Scrabble!
Fall 2016	MATH 500 Honors Course: Quantum Graphs and a Model of the Nervous System
	MATH 446 Partial Differential Equations
	MATH 181 Calculus I*
Spring 2016	MATH 480 Advanced Topics in Mathematics: Partial Differential Equations
	MATH 480 Advanced Topics in Mathematics: A Statistical Analysis of *Big Brother*
	MATH 240 Differential Equations*
	MATH 181 Calculus I
Interim 2016	JAN 349 Scrabble!
	JAN 200 *Big Brother*: A Statistical Analysis

* indicates that two sections of the course were taught in the given semester

Courses Taught at Wofford College (continued)

Fall 2015	MATH 480 Advanced Topics in Mathematics: Inverse Scattering for the Korteweg-de Vries Equation
	MATH 212 Vector Calculus
	MATH 182 Calculus II*
Spring 2015	MATH 446 Partial Differential Equations
	MATH 182 Calculus II*
Fall 2014	MATH 210 Multivariable Calculus
	MATH 181 Calculus I*

* indicates that two sections of the course were taught in the given semester

Courses Taught at Wake Forest University

Spring 2014	MTH 718 Topics in Analysis: C*-Algebras
	MTH 352/652 Partial Differential Equations
	MTH 111 Calculus with Analytic Geometry I
Fall 2013	MTH 712 Real Analysis: Measure Theory
	MTH 113 Multivariable Calculus
Spring 2013	MTH 682 Reading in Mathematics: Harmonic Analysis
	MTH 211 Advanced Calculus
	MTH 111 Calculus with Analytic Geometry I
Fall 2012	MTH 251 Ordinary Differential Equations
	MTH 113 Multivariable Calculus
Spring 2012	MTH 352/652 Partial Differential Equations
	MTH 111 Calculus with Analytic Geometry I
Fall 2011	MTH 111 Calculus with Analytic Geometry I*

* indicates that two sections of the course were taught in the given semester

Courses Taught at the University of Toronto

Summer 2011	MAT 135 Calculus I Faculty of Arts and Science
Winter 2009	MAT 197S Calculus B Faculty of Applied Science and Engineering
Fall 2008	MAT 290F Advanced Engineering Mathematics Faculty of Applied Science and Engineering
Summer 2008	MAT 235 Calculus II Faculty of Arts and Science
Fall 2007	MAT 196F Calculus A Faculty of Applied Science and Engineering
Summer 2007	MAT 135 Calculus I Faculty of Arts and Science

Courses Taught at Georgian College

Fall 2009	MATH 1006 Mathematics for Technology* School of Engineering Technology & Apprenticeship and the School of Environmental Studies
	MATH 1018 Introduction to Technical Mathematics School of Engineering Technology & Apprenticeship and the School of Environmental Studies

* indicates that two sections of the course were taught in the given semester