

Matthew P. Adams

CONTACT INFORMATION

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TEACHING EXPERIENCE

St. Mary's University, Calgary, Alberta

Lecturer

July 2017 - September 2017

- MATH 030 - University Pathways High School Equivalency Mathematics (Summer 2017).
- Course topics were polynomials, rational and radical functions, transformations of functions, exponential and logarithmic functions, trigonometry, and permutations and combinations, in accordance with the Alberta Math 30-1 curriculum.
- Taught 4-hour lectures (3 per week) for a duration of 16 weeks.
- Generated solutions for practice final exam.
- Graded student work and held weekly open office hour.

Lecturer

August 2017

- MATH 125 - Calculus Booster (Summer 2017).
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Curriculum Developer

August 2017

- MATH 125 - Calculus Booster.
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University of Calgary, Calgary, Alberta

Teaching Squares Program

September 2017 - December 2017

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Teaching Assistant

- MATH 491 - Numerical Analysis I (Fall 2017).
- Taught weekly tutorial focusing on programming numerical algorithms in Matlab.
- Proctored midterm examinations.
- Graded weekly assignments and held weekly open office hour.

Teaching Assistant

- MATH 367 - Calculus III (Fall 2017).
- Taught weekly tutorials on analytic geometry, quadric surfaces, and major theorems in multi-variate calculus.
- Held weekly open office hour.

Teaching Assistant

- MATH 211 - Linear Methods I (Fall 2017).
- Taught weekly tutorial.
- Proctored and graded midterm exams.
- Held weekly open office hour.

Teaching Assistant

- MATH 331 - Multivariate Calculus (Spring 2017).
- Taught weekly tutorial.
- Compiled assignments and managed online class information system.
- Generated solutions for practice final exam.
- Graded weekly assignments and held weekly open office hour.

Teaching Assistant

- MATH 267 - University Calculus II (Winter 2017 and Spring 2017).
- Taught weekly lab section.
- Proctored midterm and final examinations.
- Held weekly open office hour.

Teaching Assistant

- MATH 313 - Honors Linear Algebra II (Winter 2017).
- Taught weekly tutorial.
- Graded term assignments and midterm examination.
- Held weekly open office hour.

Teaching Assistant

- MATH 265 - University Calculus I (Fall 2016).
- Taught 3 weekly lab sections.
- Held weekly problem solving open sessions (continuous tutorials).
- Proctored midterm and final examinations.
- Graded short answer midterm questions and held weekly open office hour.

RESEARCH
EXPERIENCE

University of Calgary, Calgary, Alberta

Masters Research

September 2016 - present

- Investigating the application of the fractional calculus to feature detection algorithms.
- Motivating the use of fractional calculus by developing a physical intuition of the Grünwald-Letnikov and Riemann-Liouville differintegrals.

Trinity Western University, Langley, British Columbia

Undergraduate Student Researcher

April 2015 - August 2015

Worked under the direction of Dr. Sam Pimentel to investigate the use of data assimilation algorithms in predicting glacial flow. Implemented optimal interpolation and Kalman filters in Python and Matlab.

University of the Fraser Valley, Abbotsford, British Columbia

Research Assistant

September 2014 - December 2014

Worked under the direction of Dr. Alireza Fotouhi to fit stock market data to extreme value distributions using both SAS and R. Justified the use of importance sampling over Gaussian quadrature in the estimation of distribution parameters. Prepared final reports for Dr. Fotouhi, and summarized the results in oral presentations.

EDUCATION	University of Calgary , Calgary, Alberta
	M.Sc. Candidate, Mathematics, September 2016 (expected graduation date: August 2018)
	<ul style="list-style-type: none"> • Thesis Topic: “Applications of the Fractional Calculus to Feature Detection” • Advisors: Wenyan Liao, Jeffrey Boyd
	University of the Fraser Valley , Abbotsford, British Columbia
	B.Sc., Mathematics, June, 2016 <ul style="list-style-type: none"> • Graduated with distinction
	Simon Fraser University , Burnaby, British Columbia
	Visiting student, Sep. 2015 - Dec. 2015.
	Thompson Rivers University , Kamloops, British Columbia
	Online student, Oct. 2012 - Aug. 2015.
	<ul style="list-style-type: none"> • Completed online courses to accelerate graduation at the University of the Fraser Valley.
	Capilano University , North Vancouver, British Columbia
	BMT (Bachelor of Music Therapy), June, 2012
	<ul style="list-style-type: none"> • Graduated with distinction
	Mount Royal University , Calgary, Alberta
	Jazz performance (guitar), Sep. 2007 - Apr. 2008.
RESEARCH INTERESTS	<ul style="list-style-type: none"> • Applications of fractional calculus to digital image processing. • Variational methods for non-linear partial differential equations. • Numerical analysis.
CONFERENCE PRESENTATIONS	Adams, Matthew (2017). An Introduction to the Fractional Calculus with an Application to Computer Vision. PIMS Young Researchers Conference 2017, Saskatoon, Saskatchewan, June 2017.
	Adams, Matthew (2017). An Introduction to the Fractional Calculus and Its Applications in Computer Vision. Calgary Applied and Industrial Mathematical Sciences Conference, Calgary, Alberta, May, 2017.
POSTER PRESENTATIONS	Adams, Matthew and Pimentel, Sam (2015). Optimal Interpolation with a 3-Dimensional Ice Sheet Model. 2015 SFU Symposium on Mathematics and Computation, Burnaby, British Columbia.
OTHER PRESENTATIONS	Adams, Matthew (2017). Combining the Difference Quotient with the Riemann Sum: Fractional Consequences. UCalgary Undergraduate Mathematics Student Colloquium, Calgary, Alberta, October 2017.
HONORS AND AWARDS	Queen Elizabeth II Scholarship, 2017
	Graduate Teaching Award, 2016
	NSERC Undergraduate Student Research Award, 2015
	Dean’s Award of Excellence, 2012
	Gordon Hewitt Memorial Scholarship, 2010, 2011

ACADEMIC SERVICE	<i>Sophomore Leadership Program Mentor</i> <i>Graduate University Mathematics Society (GUMS)</i>	October 2017 - present July 2017 - present
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- Deputy VP Events, web administrator

<i>Music Therapy Student Association Co-President</i>	September 2010 - April 2011
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COMPUTER SKILLS	<ul style="list-style-type: none"> • Languages: Matlab, Python, C++, intermediate R and SAS. • Applications: Processing, Maple, GNU Octave, L^AT_EX, MS Office, Inkscape, GIMP, Arduino. • Operating Systems: Windows, Unix/Linux, Raspbian.
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MEMBERSHIPS	<p>Society for Industrial and Applied Mathematics (SIAM). Student member since September 2016.</p> <p>American Mathematical Society (AMS). Student member since September 2016.</p>
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