

Guy Bernard

## CURRICULUM VITAE

August 26, 2025

Professional Address: Department of Mathematics  
Midwestern State University  
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Citizenship: Canada

Immigration Status: US Permanent Resident (green card)  
Resident since 09/12/2006

Languages Spoken: English and French

Area of Research: Partial Differential Equations

## Education

- 1) Ph.D. Mathematics, University of Minnesota Aug 93  
Thesis: An Inhomogeneous Semilinear Elliptic Equation on  $\mathbb{R}^n$ .  
Advisor: Professor Wei-Ming Ni.
- 2) M.Sc. in Mathematics, University of British Columbia Sep 87  
Project: Foundations of Thermodynamics.  
Advisor: Professor John Heywood.
- 3) M.A.Sc.-Applied Mathematics, Ecole Polytechnique (Montreal) Mar 84  
Thesis: Numerical Method to solve the compressible  
Navier-Stokes. Equations.  
Advisor: Professor Ricardo Camarero.
- 4) B. Eng.- Mechanical Engineering, Ecole Polytechnique (Montreal) May 77

## Employment

- 1) Midwestern State University Aug 05-present.  
 Position: Professor since Sep 18  
           Associate Professor since Sep 10  
           Assistant Professor Aug 05-Aug 10)  
 Duties: Research. Teaching.  
           Please refer to **Teaching Responsibilities**.
- 2) South Dakota State University Aug 03-May 05.  
 Position: Assistant Professor (fixed term)  
 Duties: Research. Teaching Calculus I and III,  
           Differential Equations, Survey of Calculus,  
           Partial Differential Equations (graduate course).
- 3) University of Central Arkansas Aug 00-May 03.  
 Position: Assistant Professor (fixed term)  
 Duties: Research. Teaching Calculus I, II, and III,  
           Linear Algebra, Business Calculus.
- 4) Acadia University (Nova Scotia) Aug 99- May 00  
 Position: Assistant Professor (fixed term)  
 Duties: Research. Teaching Integral Calculus,  
           Calculus of Several Variables,  
           General Calculus and Linear Algebra.
- 5) The Pennsylvania State University (University Park) Aug 97- Aug 99  
 Position: Assistant Professor (fixed term)  
 Duties: Research. Teaching Calculus I and II.
- 6) Bishop's University (Quebec) Aug 96-Jul 97  
 Position: Assistant Professor (fixed term)  
 Duties: Research. Teaching Calculus I and II,  
           Differential Equations I and II,  
           Numerical Analysis, Metric Spaces and Topology.
- 7) The Pennsylvania State University (University Park) Aug 95-Aug 96  
 Position: Assistant Professor (fixed term)  
 Duties: Research. Teaching Calculus I and II
- 8) University of Ottawa (Ontario) Jul 94- Jul 95  
 Position: Assistant Professor (fixed term)  
 Duties: Research. Teaching Differential Calculus,  
           Applied Linear Algebra, Linear Algebra (business)
- 9) Royal Roads Military College (British Columbia) Aug 93-Jun 94  
 Position: Assistant Professor (fixed term)  
 Duties: Research. Teaching Calculus I, Linear Algebra,  
           Series and Differential Equations.
- 10) University of Minnesota Sep 86-Aug 93  
 Position: Teaching Assistant (graduate student)  
 Duties: Teaching Calculus I, Trigonometry,  
           College algebra.

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|---|----------------|
| 11) <u>University of British Columbia</u>   | Sep 83- Aug 86 |
| Position: Teaching Assistant (graduate student)   |                |
| Duties: Teaching Calculus I and grading.  |                |
| 12) <u>Pratt and Whitney Aircraft of Canada Ltd.</u>  |                |
| Position: Aerodynamicist  | Jan 82-Sep 82  |
| Facilities Engineer   | Aug 78-Dec 80  |
| Test Engineer   | Jul 77-Aug 78  |
| Duties: Aerodynamicist: Calculations for the design of turbines and compressors and analysis of experimental data of components of gaz turbine engines. Facilities Engineer: Plan the design and building of test facilities. Test Engineer: Oversee the testing of turbofan engines. |                |

### Teaching Responsibilities (at Midwestern State University)

- 1) Math 0003 Beginning Algebra
- 2) Math 0233 Developmental Supplement for College Algebra
- 3) Math 1053 Contemporary Mathematics
- 4) Math 1203 Mathematical Analysis for Business
- 5) Math 1233 College Algebra
- 6) Math 1433 Plane Trigonometry
- 7) Math 1534 Precalculus
- 8) Math 1634 Calculus I
- 9) Math 1734 Calculus II
- 10) Math 2033 Structure of the Number System
- 11) Math 2133 Introduction to Modern Mathematics
- 12) Math 2534 Calculus III
- 13) Math 3433 Differential Equations
- 14) Math 4573 Complex Analysis

### Publications

- 1) S. Azzouz, G. Bernard, A Gear-Chain Based Transmission for the Machine Elements Design Laboratory, to appear in *Proc. of the ASME 2018 Inter. Mech. Congress & Exposition*, November 9-15, 2018, Pittsburgh, Pennsylvania.
- 2) G. Bernard, Local Existence to the Navier-Stokes Equations Through a Reversely-Diffusive Upper Solution. *Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal.*, 23 (2016), no.5-6, 309-340
- 3) G. Bernard, Global Existence to the Navier-Stokes Equations Through a Self-Similar-Like Upper Solution. *Com. in Contemp. Math.*, 14 (2012), no. 5, 1250031, 39 pp.

- 4) G. Bernard, Global Existence to a Reaction-Diffusion Equation Through a Self-Similar- Like Upper Solution.  
*Math. Meth. Appl. Sci.*, 33, Issue 8, (2010), 1035-1045.  
First published online September 4, 2009. DOI:10.1002/mma:1235.
- 5) G. Bernard, The Inhomogeneous Incompressible Navier-Stokes Equations,  
*Faculty Papers* (MSU journal), Series 3, Vol. XVII,  
(2006-2009), 25-31.
- 6) G. Bernard, Existence Theorems for Fast Diffusion Equations,  
*Nonlinear Analysis*, 43, (2001), 575-590.
- 7) G. Bernard, A Priori Estimates for Very Fast Diffusion Equations in  $\mathbb{R}^n$ ,  
*Math. Meth. Appl. Sci.*, 23, (2000), 965-984.
- 8) G. Bernard, Existence Theorems for Certain Elliptic and Parabolic Semilinear Equations, *J. Math. Anal. Appl.*, 210, No. 2, (1997), 755-776.
- 9) G. Bernard, An Inhomogeneous Elliptic Equation in Entire Space.  
*J. Differential Equations*, 125, No. 1, (1996), 184-214.

### Presentations

- 1) Ninth International Conference on Differential Equations and Dynamical Systems,  
Texas A&M University-Commerce (Dallas Campus), May 16-19, 2015.  
Title: *Local Existence to the Navier-Stokes Equations Through a Reversely Diffusive Upper Solution.*
- 2) 9<sup>th</sup> AIMS International Conference on Dynamical Systems, Differential Equations and Applications. (AIMS: American Institute of Mathematical Sciences)  
Orlando, Florida July 1-5, 2012  
Title: *Global Existence to the Navier-Stokes Equations Through a Diffusive Upper Solution.*
- 3) Seminar: Mathematics Texas A&M University-Kingsville, March 25, 2011  
Part 1) *Derivation of the Navier-Stokes Equations.*  
Part 2) *Design of Mathematical Power Point Presentations.*
- 4) Texas Partial Differential Equations Seminar, Austin, Texas April 10-11, 2010,  
Title: *Global Existence to the Navier-Stokes Equations Through a Self-Similar Like Upper Solution.*
- 5) Texas Partial Differential Equations Seminar, San Marcos, Texas March 28, 2009,  
Title: *A Reaction-Diffusion Equation in  $R^n$  with Spiked Initial Values.*
- 6) Faculty Forum, Midwestern State University, Wichita Falls, Texas, March 3 2009,  
Title: *The Navier-Stokes Equations.*
- 7) Joint Mathematics Meeting AMS/MAA, Washington, D.C., January 5-8, 2009  
Title: *A Global Existence Theorem to the Navier-Stokes Equations.*
- 8) College of Science and Mathematics Seminar, Midwestern State University,  
Wichita Falls, Texas, September 26 2008,  
Title: *Global Solutions in Time to Differential Equations.*
- 9) MAA Texas Meeting (88th meeting, Stephenville, Texas April 3-5, 2008,  
Title: *Global Existence to a Semilinear Heat Equation in  $R^3$ .*
- 10)  $e^{i\pi}$  Math Club (MSU mathematics student club), MSU, November 16, 2005  
Title: *Independent Studies for future Ph.D. students in Mathematics*
- 11) Joint Mathematics Meeting AMS/MAA, San Diego, January 6-9, 2002  
Title: *Existence Theorems for Slow Diffusion Equations.*

- 12) Fifth Mississippi State Conference on D.E. & Computational Simulations,  
Mississippi State University, MS, May 18-19, 2001.  
Title: *Global Existence Theorems to the Cauchy Problem for the Vector  
Valued Burgers Equation.*
- 13) Joint Mathematics Meeting AMS/MAA, New Orleans LA, January 10-13, 2001.  
Title: *Global Existence Theorems for the n-Dimensional Vector Burger's  
Equation.*

### **Service**

#### University

- 1) Signature Experience Committee, 2022-2023  
Chair: Dr. Kristen Garrison, Mr. Matthew Park (co-chair)
- 2) University Research Committee, 2021-2024  
Chair: Ms. Brittany Norman.
- 3) Academic Readmission Committee, Alternate 2016-2023  
Chair: Ms. Gayonne Beavers/Dr. Kristen Garrison.
- 4) Academic Advising Committee, 2016-2017  
Chair: Ms. Naoma Clark, Director, Academic Success Center
- 5) Faculty Grievance Committee 2012-2016  
Chair: Dr. David Carlston
- 6) Engagement Task Force Summer 2016  
Chair: Mr. Matthew Park, Associate VP for Student Affairs.
- 7) VP for Business Affairs and Finance Search Committee. Summer 2012.  
Chair: Dr. Terry Patton, Dean Dillard College of Business Administration
- 8) Faculty Senate (COSM representative) 2010-2012.  
Chair: Dr. James Owen, Dept. of Economics Finance General Business
- 9) Student Success Committee 2009-2012.  
Chair: Ms. Naoma Clark (co-chair) and Mr. Matthew Park (co-chair)
- 10) Artist Lecture Series Committee 2009-2011.  
Chair: Ms. Kerri Beck (former student)
- 11) Polar Express  
Chair: Mr. Dirk Welch, Career Management Center
- 12) MSU-Burns Fantasy of Lights, volunteer. October 5, 2008.
- 13) MSU-Burns Fantasy of Lights, volunteer. October 8, 2006.

#### College (of Science and Mathematics)

- 1) College Committee to apply for NSF-Scholarship, March 2018  
Track 1: S-STEM Institutional Capacity Building.  
PI: Dr. Salim Azzouz. Amount requested: \$875,166
- 2) College Committee to apply for NSF-Scholarship, March 2017  
Track 1: S-STEM Institutional Capacity Building.  
PI: Dr. Raj Desai. Amount requested: \$853,813
- 3) College Research Committee 2021-2022 and 2023-2024.  
Chair: Dr. Eduardo Colmenares-Diaz / George Liang (2023-2024).
- 4) College Research Committee 2009-2012.  
Chair: Dr. William Cook.
- 5) College Research Committee 2008-2009.  
Chair: Dr. Brent Elliott

### Department (of Mathematics)

- 1) New College Algebra Final Exam Committee, 2022  
Chair: Dr. Marcos Lopez
- 2) Curriculum Committee (Mathematics Dept.), 2021-2022  
Chair: Dr. Sarah Cobb
- 3) Program Assessment Committee (SACS), 2016-2024  
Chair: Dr. Guy Bernard (myself)
- 4) Mathematics Scholarship Initiative, 2017-2018  
PI: Dr. Guy Bernard (myself) Amount: \$2715
- 5) Mathematics Hiring Committee, 2014-2015  
Chair: Dr. Patrick Mitchell
- 6) In-House College Algebra Text Committee, 2013-2014  
Chair: Dr. Patrick Mitchell
- 7) Student Awards Committee, 2005-present  
Chair: Dr. David Tucker/Chair of the Mathematics Department.
- 8) Differential Equations Textbook Committee, 2011-12  
Chair: Dr. Guy Bernard (myself)
- 9) Department Accreditation Committee, 2007-09  
Chair: Dr. Patrick Mitchell
- 10) Calculus Textbook Committee, 2010-11  
Chair: Dr. Guy Bernard (myself)
- 11) Assessment Committees (various), 2009-16.  
Chair: Dr. Knox, Dr. Tucker, Dr. Slavens, Dr. Mitchell.
- 12) Core Curriculum Committee (department, 2012-2013  
Chair: Dr. Dawn Slavens
- 13) Mathematics Curriculum Committee, 2006-07 and 2014-15  
Chair: Dr. Dawn Slavens
- 14) College Algebra Textbook Committee, 2006-2007  
Chair: Ms. Marsha May
- 15) College Algebra Textbook Committee, 2017-2018  
Chair: Myself

### Profession

- 1) North Texas Area Student Conference (NTASC) 21th Annual  
moderator of session, April 21, 2018
- 2) TORUS (Texas Oklahoma Research Undergraduate Symposium), helped  
in preparing and hosting the conference, February 10, 2018, at MSU  
Main Organizer: Dr. Patrick Mitchell
- 3) Mathematical Congress of the Americas  
Volunteer at conference, July 24-28, 2017, Montreal, Canada
- 4) North Texas Area Student Conference (NTASC) 21th Annual  
moderator of session, April 29, 2017
- 5) Cisco College Core Curriculum Conference I gave a presentation,  
and acted as moderator of sessions, May 18-19, 2017 Abilene, TX
- 6) North Texas Community College Consortium (NTCCC)  
represented MSU, Dallas area TX

- 7) Texoma Regional Math/Science Conference, Region 9 (W.F)  
presentation/workshop/MSU information desk, June 2016, 2017, and 2018.
- 8) Celebration of Scholarship (at MSU), (judging undergraduate research)  
Nov. 2017, April 2016, 2017, 2018, and 2024.
- 9) AWM (Association of Woman in Mathematics)  
Reviewer of high school essays. February 2016
- 10) Nonlinear Analysis Series A: Theory, Methods, and Applications (journal).  
Reviewer for a paper, May 2014  
Title: On the Existence of Positive Solutions for and Inhomogeneous
- 11) TORUS (Texas Oklahoma Research Undergraduate Symposium), helped  
in preparing and hosting the conference, February 23, 2013, at MSU  
Organizers: Dr. Michelle Knox and Dr. Terry McDonald.
- 12) Texas Partial Differential Equations Seminar, moderator of Session,  
March 26-27, 2011, University of Texas at Pan American, Edinburg Texas.
- 13) William Lowell Putnam Mathematical Competition , proctor.  
December 2006, 2009, 2010, 2012, 2013.
- 14) Texas Partial Differential Equations Seminar, moderator of Session,  
April 10-11, 2010, University of Texas at Austin.
- 15) TORUS (Texas Oklahoma Research Undergraduate Symposium), helped  
to organize and host the conference, February 27, 2010, at MSU  
Organizer: Dr. Jeffrey Hood
- 16) 89th Meeting of the Texas Section of the MAA , moderator of Session,  
April 16-19, 2009, University of North Texas, Denton, Texas
- 17) Texas Partial Differential Equations Seminar, moderator of Session,  
March 28, 2009, Texas State University , San Marcos, Texas.
- 18) 86th Meeting of the Texas Section of the MAA , assistant in the event.  
April 6-8, 2006, at MSU.
- 19) Texas Journal of Science, reviewer (for four papers)  
July 29, 2008. April 23, 2008. December 14, 2006, August 29, 2006.

### Students

UGROW (Undergraduate Research Opportunities and Summer Workshops)

- 1) Summer 2018. Student: George Nhamo and Don Wijesinghe
- 2) Summer 2016. Student: Rojitha Goonesekere
- 3) Summer 2015. Student: Indeesha Wickramarachchi
- 4) Summer 2014. Student: Lance Henry
- 5) Summer 2013. Student: Jessica Amber LeCroy, and Cheddi Charles
- 6) Summer 2012. Student: Jessica Amber LeCroy
- 7) Summer 2011. Student: Gary Phillip
- 8) Summer 2010. Student: Christopher Caruvana

### Community

- 1) Wichita Falls Area Food Bank (WFAFB)  
Member of the Board of Directors (since March 2017-July 2021).  
Volunteer work and donor.  
Organizer: Mr. Devah Scholl (chair of the Board)

- 2) Polar Express (MSU)  
Organizer: Mr. Dirk Welch, Career Management Center (MSU)
- 3) TAME Family STEM Day Trailblazer  
(Texas Alliance for Minorities in Engineering)  
Contact (at MSU): Dr. Denise Simmons, Curriculum and Learning
- 4) Environmental Student Society (ESO) (at MSU)  
Organizer: Ms. Alex Nelson (student)
- 5) Great Day of Service, Saturday April 14, 2012 and September 28, 2013.  
Organizer: Ms. Candice Fulton
- 6) Habitat for Humanity of Wichita Falls, March 15, 2010
- 7) Relay for Life-American Cancer Society, fundraiser, June 2008, 2009.  
Organizer: Dr. Michelle Knox
- 8) MSU Great Day of Service, April 4, 2009.  
Organizer: Ms. Candice Fulton
- 9) Red River Regional Science and Engineering Fair, judge,  
March 2007, February 2008, 2009.
- 10) MSU Great Day of Service, April 19, 2008.  
Team Leader: Ms. Rebekka Jones (dept. affiliation: Math Club)
- 11) State Conference of the Science Teachers Association of Texas, volunteer.  
November 11, 2006.

### **Grants**

- 1) Intramural Research and Creative Endeavors Award (MSU).  
Amount \$5,569.71 awarded May 9, 2017  
PI: Dr. Salim Azzouz CoI: Dr. Guy Bernard (myself)  
Description: This grant was mainly to purchase a high performance computer for Dr. Azzouz and to hire an undergraduate student to perform calculations and documentation in regards to a collaborative project between Dr. Azzouz and myself.  
Title: New Mathematical Model for Supersonic Panel Flutter.
- 2) College of Science and Mathematics Research Grant (MSU).  
Description: Funding to attend NSF-CBMS conference (July 21-25, 2014) \$485 held at Oklahoma State University, Stillwater, OK  
Title: Problems in Partial Differential Equations Related to Fluids.
- 3) MAA Regional Undergraduate Mathematics Conferences June 2009  
Description: Funding of TORUS undergraduate research conference \$1,800  
Principal Investigator: Dr. Jeff Hood.
- 4) College of Science and Mathematics Research Grant (MSU).  
Description: Funding to attend Texas PDE Seminar (March 28, 2009) \$667
- 5) Grant from the Office of the Dean of Science and Mathematics (MSU)  
Amount: \$500 (requested \$800) Academic year: 2006-07.  
PI: Dr. Randal Hallford, Department of Chemistry  
CoI: Dr. Jeff Hood, and Dr. Guy Bernard (Department of Mathematics)  
Description: This grant was to purchase advanced mathematics for scientists textbooks which was used by the team to develop a new advanced mathematics course titled: "Mathematics for Chemistry Students".



- 6) Summer Research Stipend: University of Central Arkansas, Summer 01.  
Title: *The Navier-Stokes Equations*
- 7) Undergraduate Research Grant: University of Central Arkansas  
Directing students in undergraduate research, May 01-May 02.  
Project: *Numerical Solutions of Helmholtz Equations.*
- 8) Scholarship: Pratt and Whitney of Canada Ltd.  
Sabbatical to complete Master's thesis at Ecole Polytechnique, Jan 81-Dec 81  
Title: *Numerical Method to solve the Compressible Navier-Stokes Equations.*