Curriculum Vitae

Cheri Shakiban
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Educational Data

Sc.B. 1973	National University of Iran Mathematics, With Honors
Ms. 1976	Harvard University Mathematics
Ph.D. 1979	Brown University Mathematics

Professional Experience

- Part-time Instructor in Mathematics, University of Oxford, England, 1979.
- Visiting Instructor, School of Mathematics, University of Minnesota, 1980-81.
- Assistant Professor, Dept. of Mathematics, College of St. Catherine, St. Paul, MN., 1981-1983.
- Assistant Professor, Dept. of Mathematics, College of St. Thomas, St. Paul, MN., 1983-1990.
- Associate Professor, Dept. of Mathematics, University of St. Thomas, St. Paul, MN., 1990-1996.
- Professor, Dept. of Mathematics, University of St. Thomas, St. Paul, MN., 1996-present.
- Chair of the Dept. of Mathematics, University of St. Thomas, St. Paul, MN., July 1996 – June 2004.

External Grants - Last five years:

January 2004: UMAIE course Arabesque: Mathematical Symmetry of Southern Spain.

May 2004: Chinese Academic of Sciences' Grant to attend *The International Conference on Geometric Invariance and Applications in Engineering (GIAE), Xi'an, China.(Expenses paid)*

September 2004: SAMSI, Statistics and Applied Mathematics Sciences' support grant (Expenses paid).

Spring 2005: UMAIE travel grant to Peru- travel to be completed by summer 2006 ($2000).

2001-2005: National Science Foundation grant CSEMS, Computer Science, Engineering and Mathematics Scholarships at the University of St. Thomas for the amount of **$400,000.00** for four years supporting over 120 students majoring in Computer Science, Engineering and Mathematics. The majority of the students supported are women and underrepresented minorities. The students are required to do research,

internship or service projects related to their majors to be considered for this scholarship. As the principal investigator for this grant, I oversee their progress.

2004-2009: Division of Science and Mathematics- National Science Foundation grant STEP, Science, Technology, Engineering, and Mathematics Talent Expansion Program, leading Mathematics teacher for the Summer Academy, The funding will amount to **$498,000** over five years.

Internal Research Grants - Last five years:

2000: [1] CAM research Grant, Univ. of St. Thomas, with Colleen Duffy on *Stability of Structures*..
[2] CAM research Grant, Univ. of St. Thomas, with Aaron Ames on *Three-Dimensional Object Recognition using Invariant Euclidean Signature Curves*.

2001: [3] CAM research Grant, Univ. of St. Thomas, with Colleen Duffy on *Symmetry and Music*..
[4] CAM research Grant, Univ. of St. Thomas, with Brian Hanson on *Fractal Music*.
[5]Young Scholar Research Grant, with student Colleen Duffy on *Nonlinear Stability of Structures*.

2002: [6] CAM research Grant, Univ. of St. Thomas, with Peter Lloyd on *Signature Curves*.

2003: [7] Bush Foundation Grant, *Enhance Inquiry Based Learning in Applied Linear Algebra through Mathematical Modeling*.
[8] CAM research Grant, Univ. of St. Thomas, with Ryan Loyd on *Latent Semantic Analysis*.

2004: [9] CAM research Grant, Univ. of St. Thomas, with Ryan Loyd on *Classification of Signature Curves Using Latent Semantic Analysis*.
[10] CAM research Grant, Univ. of St. Thomas, with Paul Drube on *The Euler-Lagrange Equations and Dissipative Decomposition in the Calculus of variations*
[11] CAM research Grant, Univ. of St. Thomas, with Tyler Vanadurongvan and Lucas Ovans on *The stability of molecular structure*.

2005: [12] CAM research Grant, Univ. of St. Thomas, with Brandon Rowekamp on *The Inverse problem of Fractal Dimension*.
[13] Faculty Development Maxi grant: To complete the book: Applied Linear Algebra.

May 2005 Award: sixth annual Faculty Award for Undergraduate Research and Collaborative Scholarship.

Journal Publications:

[1] Olver, P.J. and Shakiban, C., **A *resolution of the Euler operator I,*** paper, *Proc. Amer. Math. Soc.* **69** (1978), 223-229.

[2] Shakiban, C., ***A resolution of the Euler operator II,*** paper, *Mathematics. Proceeding.of Cambridge . Phil. Soc.* **89** (1981) 501-510.

[3] Shakiban, C., ***An invariant theoretic characterization of conservation laws,*** paper, *Amer. Jour. of Math.,* Vol. 104. No. 6, (1982) 1127-1152.

[4] Olver, P.J. and Shakiban, C., ***Dissipative decomposition of ordinary differential equations***, paper, *Proc. Roy. Soc. Edinburgh* **109A** (1988), 297-317.

[5] Olver, P.J. and Shakiban, C., ***Graph theory and classical invariant theory***, paper, *Adv. in Math.* **75** (1989), 212-245.

[6] Olver, P.J., and Shakiban, C., ***Dissipative decomposition of partial differential equations,*** paper, *Rocky Mountain J. Math.* **22** (1992), 1483-1510.

[7] Calabi, E., Olver, P.J., Shakiban, C., Tannenbaum, A., and Haker, S., paper, ***Differential and numerically invariant signature curves applied to object recognition,*** *Int. J. Computer Vision* **26** (1998) 107-135.

[8] Hennessey, M. and Shakiban, C. and Shvartsman, M, ***Characterizing Slop in Mechanical Assemblies Using Differential Geometry***, the Journal of Computing and InformationScience in Engineering, vol 2, 150-159. (2002).

Proceedings and Related Publications - Last five years:

[1] Shakiban, C. and Bergstedt, J.(student*),* ***Generalized Snowflakes,*** Proceedings of the Bridges Conference, July, 2000.

[2] Shakiban, C., and Duffy, Colleen (student), ***Linear Stability of Geometrical Structures –*** (refereed abstract-1*) was published, Argonne National Lab Reports, Fall ,2001.

[3] Hansen, B., and Shakiban, C. ***Fractal Music,*** Proceedings of Bridges of Mathematics, July 2002.

[4] Ames, A. (student), Shakiban, C. and Jelkio, J. on ***Three-Dimensional Object Recognition using Invariant Euclidean Signature Curves***, Proceedings of International Symposium on Analysis, and Computing, China, Fall 2002.

[5] Shakiban, C. and Lloyd, P (student) on ***Computer Vision Applications Associated with the Euclidian Signature Curve Statistics*****,** (refereed abstract) was published, Argonne National Lab Reports, Fall 2002.

[6] Lloyd, R. and Shakiban C. **Improvements in Latent Semantic Analysis**, the American Journal of Undergrad Research, AJUR, Vol 3, N0. 2(2004) 29-34.

[7] Shakiban, C. and Lloyd, P. paper, ***Signature Curves Statistics of DNA Supercoils*** *Geometry, Integrability and Quantization*. **V** (2004), 203-210

[8] Lloyd, Ryan. (student) and Shakiban, C, on ***Classification of Signature Curves Using Latent Semantic Analysis,*** Lecture Notes in Computer Science (LNCS) series, Springer-Verlag, Spring 2005.

[9] Olver P. and Shakiban C. ***Applied Linear Algebra***, Prentice--Hall, Inc., Englewood Cliffs, N.J., January 2005.

[10] Olver P. and Shakiban C. ***Applied Linear Algebra, Solution Manual***, Prentice--Hall, Inc., Englewood Cliffs, N.J., August 2005.

Recent work – Under preparation:

[1] Shakiban, C.*, Invariant Signature Curves in 3D*.

[2] Shakiban, C, with Paul Drube(Graduate student) on ***The Euler-Lagrange Equations and Dissipative Decomposition in the Calculus of variations***.

Books under preparation: Table of Content Available on line:

Olver P. and Shakiban C. ***Fundamentals of Applied Mathematics***, Prentice--Hall, Inc., Englewood Cliffs, N.J., in preparation.

University Service:

Committee Service:

Search Committee for the Endowed Chair in The Sciences and Mathematics
Faculty Development Committee
International Education Advisory Committee
The Earth Trek Committee
University life committee
Academic Council
Student Advising
Senate member
Human Diversity Review committee
University Assessment Committee
Board of Review: Aquinas Scholar Program
Board or Review: Service Learning

Chair's Duties:

Scheduling courses for the full-time and adjunct faculty
Writing the Departmental Annual report
Evaluating Faculty and Staff
Making Recommendations for Tenure and Promotion
Making Recommendations for Equity Adjustments
Hiring/interviewing new full-time and adjunct faculty
Mentoring the new faculty
Responsible for the departmental Budget
Liaison between the mathematics department and the administration
Facilitating curriculum review
Developing an Assessment program for the Dept
Coordinating the content of the common courses
Developing and participating in recruiting students
Representing the department at appropriate functions
Participating in the National Chair-meetings

Developing faculty development programs
Organizing MAA meetings and conferences
Organizing colloquiums and CAM talks
Overseeing the activities of the Math Club
Advising Math Majors