

Curriculum Vitæ

for

Helmut Knaust

Associate Professor

Department of Mathematical Sciences

The University of Texas at El Paso

El Paso, TX 79968

helmut.knaust.info

hknaust@utep.edu

(915) 747-7002

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1 Education

1983–1989 The University of Texas at Austin. Studies in Mathematics.

Degree: Ph.D., Mathematics, Spring 1989. Advisor: Haskell P. Rosenthal (retired).

1977–1983 Rheinische Friedrich-Wilhelms Universität, Bonn, Germany. Studies in Mathematics, Economics and Educational Sciences.

Degree: Diplom-Mathematiker, Spring 1983. Advisor: Hermann König (retired)

1974–1977 Universität Bielefeld, Germany. Studies in Mathematics and Economics.

2 Academic Appointments

1997–present Associate Professor at The University of Texas at El Paso.

1991–1997 Assistant Professor at The University of Texas at El Paso.

1989–1991 Visiting Assistant Professor at Oklahoma State University, Stillwater, OK.

1983–1989 Teaching Assistant, Assistant Instructor and Research Assistant at The University of Texas at Austin.

3 Administrative Appointments

2003–2008 Department Chair, Department of Mathematical Sciences, The University of Texas at El Paso.

2001–2003 Associate Dean, Colleges of Science and Engineering, The University of Texas at El Paso.

2001–2003 Director of *CircLES*, the Entering Students Program for Science, Engineering and Mathematics, The University of Texas at El Paso.

4 Honors

2015 *Undergraduate Student Choice Award for Outstanding Teaching*, College of Science, The University of Texas at El Paso.

2015 *Star on the Mountain Award*, City of El Paso.

2015 *Regents' Outstanding Teaching Award*, The University of Texas System.

2012–2015 *CETaL Fellow*, The Center for Excellence in Teaching and Learning, The University of Texas at El Paso.

2012 *Millionaire Research Award*, Office of Research and Sponsored Projects, The University of Texas at El Paso.

2011 *Outstanding Performance in Securing Extramural Funding*, Office of Research and Sponsored Projects, The University of Texas at El Paso.

2004 *Jack R. Bristol Teaching Award*, College of Science, The University of Texas at El Paso.

2003 *Project Kaleidoscope Faculty 21*, Class of 2003.

1975–1980 *Studienstiftung des Deutschen Volkes*, Scholarship.

5 Teaching Experience

(* taught in the last three years)

Graduate Courses in Mathematics:

1–2 Applied Mathematics [Discrete Wavelets and Applications***; Theory of Ordinary Differential Equations]

3 Principles of Analysis

4 Real Variables

5 Technology in the Mathematics Classroom*

6–9 Seminar [Logic and Proof; Topics in Advanced Calculus*; Calculus and Analysis; Number Theory and Algebra]

10 Graduate Seminar [Numbers]

Undergraduate Courses in Mathematics:

11 Precalculus

12–13 Mathematics for Social Sciences I, II

14–16 Calculus I, II, III

17 Linear Algebra and Differential Equations

18 Differential Equations**

19 Matrix Algebra

20–21 Applied Analysis I***, II

22 Introduction to Higher Mathematics*

23 Principles of Mathematics**

24 Introduction to Analysis

25 Fundamental Mathematics from an Advanced Standpoint**

26 Real Analysis

Other Graduate Courses:

27 *LSAMP Bridge to the Doctorate Seminar**

Other Undergraduate Courses:

28 Seminar in Critical Inquiry [Scientific Revolutions; Boolean Algebras]

29 Introduction to Science and Engineering

30 Science Seminar (Coordinator)

6 Work with Students

Ph.D. Thesis Committee Membership:

2015 Grace Babarinsa (Teaching, Learning, and Culture)

2014 Cesar R. Garcia (Electrical & Computer Engineering)

2007 Hector Ochoa (Electrical & Computer Engineering)

Master Thesis Supervised:

2012 Adrian Delgado (M.S. Mathematics).

Currently Full-time Instructor at Doña Ana Community College, Las Cruces, NM.

Master Thesis Committee Membership:

1994–2016 *Master of Arts in Teaching Mathematics* Thesis Committee Member for five students.

1998–2016 *Master of Science* Thesis Committee Member for 11 students.

Graduate Research:

2016 Agamyrat Altıyev. “Homework In a High School Geometry Classroom: Paper-Based vs. Web-Based.” Graduate Research Project.

Undergraduate Research:

2013 Brenda Gonzalez, Ariel Gonzalez-Guevara, Melissa Martinez, Aaron Ortega, Jasmine Punte. “[Applications of Discrete Wavelet Transformations.](#)” Students funded by the National Research Experience for Undergraduates Program (NREUP) of the Mathematical Association of America. June 10–July 19, 2013.

7 Grants, Fellowships and Awards

Active Grants:

2012–2017 *National Science Foundation*, Co-PI. “*UT System Louis Stokes Alliance for Minority Participation: A Senior Model Alliance Focused on Student Success.*” ([HRD-1202008](#)). With B. Flores (PI), Ph. Cohen (until 2015), and C. Villalobos. Funded in the amount of \$4,000,000.

Recent Grant Applications:

2016 *Department of Education*, PI (UTEP). “*MSEIP: Cooperative Project (EPCC/UTEP): An integrated approach to facilitate the transition of STEM students from College to University.*” With A. Macedo (PI, EPCC), E. Schwab (Co-PI, UTEP), and G. Schwab (Co-PI, EPCC). Total funding requested in the amount of \$702,052. Not funded.

2015 *National Science Foundation*, Co-PI. “*Project TaSK-M²: Teacher and Student Knowledge of Middle School Mathematics.*” With M.A. Tchoshanov (PI). Funding requested in the amount of \$449,811. Not funded.

2015 *National Science Foundation*. PI, “*Bridge to the Doctorate: University of Texas System LSAMP Cohort 2016-2018.*” With B. Flores (Co-PI). Funding requested in the amount of \$1,074,040. Not funded.

Previous Grants:

2015–2016 *Texas Education Agency*, Senior Personnel. “[Professional Development Partnership: Pathway to Calculus.](#)” With M.A. Tchoshanov, and K. Huereca (El Paso Independent School District). Funded at El Paso Independent School District in the amount of \$135,000.

2013–2016 *National Science Foundation*, Director and Co-PI. “*UT Alliance Bridge to the Doctorate Program (Cohort 2013–2015).*” ([HRD-1301858](#)). With B. Flores (PI). Funded in the amount of \$987,000.

2011–2014 *National Science Foundation*, Co-PI. “*UT Alliance Bridge to the Doctorate Program (Cohort 2011–2013).*” ([HRD-1139929](#)). With B. Flores (PI), and P. Nava. Funded in the amount of \$984,850.

2013 *Mathematical Association of America, National Research Experience for Undergraduates Program*, PI. “[Applications of Discrete Wavelet Transformations.](#)” Funded in the amount of \$27,394.

- 2010–2013** *National Science Foundation*, Co-PI. “*UT System Alliance: Bridge to the Doctorate Cohort VIII.*” (HRD-1026806). With B. Flores (PI), T. Aktosun, and Ph. Cohen. Funded in the amount of \$987,000.
- 2007–2013** *National Science Foundation*, Co-PI. “*An Integrative Science Success, Teaching and Retention Program.*” (DUE-0653270). With J. Becvar (PI), B. Flores (PI until 2010), J. Lopez, and J. Tinajero. Funded in the amount of \$1,964,912.
- 2007–2013** *National Science Foundation*, Co-PI. “*UT System LSAMP Phase IV.*” (HRD-0703584). With B. Flores (PI). Funded in the amount of \$4,991,436.
- 2009–2011** *National Science Foundation*, Director and Co-PI. “*UT Alliance Bridge to the Doctorate Proposal - Cohort VI.*” (HRD-0929727). With B. Flores (PI). Funded in the amount of \$987,000.
- 2008–2011** *US Department of Education*, APD, “*MSEIP: Cross-Institutional Implementation of Supplemental Instruction.*” (P120A080007). With G. Schwab (PD), P. Mitchell, J. Peeples, and E. Schwab. Funded in the amount of \$599,456.
- 2008–2010** *National Science Foundation*, Co-PI. “*UT Alliance Bridge to the Doctorate Proposal: Cohort V.*” (HRD-0832951). With B. Flores (PI). Funded in the amount of \$987,000.
- 2005–2009** *US Department of Education*, APD, “*MSEIP: Modular Delivery and Supplemental Instruction for the Calculus course taken by all STEM majors.*” (P120A050046). With E. Schwab (PD) and N. Marcus, funded in the amount of \$299,783.
- 2005–2008** *National Science Foundation*, Co-PI. “*The University of Texas System Louis Stokes Alliance for Minority Participation.*” (HRD-0217691). With B. Flores (PI), and P. Arenaz, funded in the amount of \$5,393,432.
- 2005–2007** *National Science Foundation*, Co-PI. “*Sustainability of best practices for minority STEM student retention and success.*” (EEC-0342041). With B. Flores (PI), Th. Brady, and R. Osegueda, funded in the amount of \$2,500,000.
- 2003–2007** *National Science Foundation*, Co-PI. “*Scholars for the Technical Workforce of the Future Program.*” (DUE-0324209). With R. Gutierrez (PI), and R. Osegueda, funded in the amount of \$400,000.
- 2004–2005** *Educational Advancement Foundation*, Mini-grant. “*Course development for the Introductory Analysis course.*” Funded in the amount of \$2,000.
- 2000** *Challenge 98*, The University of Texas at El Paso. “*Use of Technology in Calculus II.*” Funded in the amount of about \$5,300.
- 1997–1998** *A Model Institution for Excellence*, The University of Texas at El Paso. “*S.O.S. Mathematics.*” With M.A. Khamsi and N. Marcus, funded in the amount of about \$100,000.
- 1996–1997** *A Model Institution for Excellence*, The University of Texas at El Paso. “*Reforming the Differential Equations Course.*” With M.A. Khamsi, funded in the amount of about \$45,000.
- 1996–1997** *A Model Institution for Excellence*, The University of Texas at El Paso. “*S.O.S. Mathematics.*” With A. Duval, M.A. Khamsi and N. Marcus, funded in the amount of about \$140,000.
- 1994–1995** *Teaching Effectiveness Grant*, The University of Texas at El Paso. “*Computer-assisted Classroom Instruction in Upper-division Mathematics Courses.*” Funded in the amount of \$4,400.
- 1990** *National Science Foundation*, Young Investigator. “*Workshop in Linear Analysis and Probability.*”(MCS DMS-8921369). Funded in the amount of \$8,260.

8 Publications

Refereed Articles:

- 1 Ariana Arciero-Pino, Benjamin Flores, Lynda Gonzales, Helmut Knaust, and Maricel Quintana-Baker. *Work in Progress: Qualitative Assessment of the UT System LSAMP Summer Research Academy*

- Abroad: An International Experience in Research and Culture*. Proceedings of the 45th ASEE/IEEE Frontiers in Education Conference, 2015.
- 2 Darnell, A., Becvar, J., Flores, B., Knaust, H., Lopez, J. & Tinajero, J. *Achieving student success using Peer-Led Team Learning (PLTL)*. Conference Proceedings of the Peer-Led Team Learning International Society, 2013.
 - 3 Ariana Arciero-Pino, Benjamin Flores, and Helmut Knaust. *Work in Progress - The University of Texas System Louis Stokes Alliance for Minority Participation: A State-wide Initiative to Promote STEM Undergraduate Research*. Proceedings of the 42nd ASEE/IEEE Frontiers in Education Conference, 2012.
 - 4 Tuncay Aktosun, Ariana Arciero, Benjamin Flores, Helmut Knaust, and Cristina Villalobos. *Work in Progress - The Bridge to the Doctorate Experience: A Reflection on Best Practices and Project Outcomes*. Proceedings of the 41st ASEE/IEEE Frontiers in Education Conference, 2011.
 - 5 Ariana Arciero, Benjamin Flores, and Helmut Knaust. *Work in Progress - International Conference Participation for Undergraduate Scholars through the University of Texas System Louis Stokes Alliance for Minority Participation*. Proceedings of the 40th ASEE/IEEE Frontiers in Education Conference, 2010.
 - 6 Benjamin Flores, James Becvar, Ann Darnell, Helmut Knaust, Jorge Lopez and Josefina Tinajero. *Implementing Peer Led Team Learning in Gateway Science and Mathematics Courses for Engineering Majors*. Proceedings of the 2010 American Society for Engineering Education Annual Conference and Exposition, 2010.
 - 7 Helmut Knaust. *Analysis on the Real Line*. Accepted for publication in the “Journal of Inquiry-Based Learning in Mathematics” (September 2009).
 - 8 Connie Kubo Della-Piana, Ann Darnell, Julia Bader, Lilly Romo, Nohemi Rubio, Benjamin Flores, Helmut Knaust, Thomas Brady, and Andrew Swift. *A Longitudinal Study of Student Persistence in Science, Technology, Engineering, and Mathematics (STEM) at a Regional Urban University*. Proceedings of the 2003 American Society for Engineering Education Annual Conference and Exposition, 2003.
 - 9 Benjamin C. Flores, Jana Renner Martínez, Helmut Knaust, Ann Darnell, Lilly Romo and Connie Kubo Della-Piana. *The Effectiveness of a Mathematics Review for Student Placement into College-Level Mathematics*. Proceedings of the 2003 American Society for Engineering Education Annual Conference and Exposition, 2003.
 - 10 Lourdes Sánchez-Contreras, Rosa M. Gómez, Joseph Ramos, Benjamin C. Flores and Helmut Knaust. *Developing a learner centered environment to meet the needs of a growing urban commuter student population*. Proceedings of the 2003 American Society for Engineering Education Annual Conference and Exposition, 2003.
 - 11 Benjamin C. Flores, Connie Kubo Della-Piana, Thomas Brady, Andrew Swift, Helmut Knaust and Jana Renner Martínez. *An Institutional Model for Student and Faculty Support*. Proceedings of the 2002 American Society for Engineering Education Annual Conference and Exposition, 2002.
 - 12 M.A. Khamsi, H. Knaust, N.T. Nguyen and M.D. O’Neill. *Lambda-Hyperconvexity in Metric Spaces*. *Nonlinear Analysis* 43 (2001), 21-31.
 - 13 H. Knaust, E. Odell and Th. Schlumprecht. *On Asymptotic Structure, the Szlenk Index and UKK Properties in Banach Spaces*. *Positivity* 3 (1999), 173-199.
 - 14 Helmut Knaust. *Some isomorphic preduals of ℓ_1 which are isomorphic to c_0* . *Rocky Mountains Journal of Mathematics* 27 (1997), 181-186.
 - 15 H. Knaust. *Angelic spaces with the Ramsey property*. pp. 267–273, in: “Interaction Between Functional Analysis, Harmonic Analysis and Probability, Proceedings,” N. Kalton, E. Saab, S. Montgomery-Smith (eds.), Marcel Dekker, New York, 1995.

- 16 Helmut Knaust. *p-Hilbertian subsequences in $\ell_1(X)$* . Contemporary Mathematics 144 (1993), 159–163.
- 17 Helmut Knaust. *Orlicz sequence spaces of Banach-Saks type*. Archiv der Mathematik 59 (1992), 562–565.
- 18 Helmut Knaust. *Array convergence of functions of the first Baire-class*. Proceedings of the American Mathematical Society 112 (1991), 529–532.
- 19 Helmut Knaust and Edward Odell. *Weakly null sequences with upper ℓ_p -estimates*. pp. 85–107, in: “Functional Analysis, Proceedings, The University of Texas at Austin, 1987–89,” E. Odell, H. Rosenthal (eds.), Lecture Notes in Mathematics 1470, Springer-Verlag, Berlin, 1991.
- 20 H. Knaust and E. Odell. *On c_0 Sequences in Banach Spaces*. Israel Journal of Mathematics 67 (1989), 153-169.

Reviewed Articles:

- 21 M.A. Khamsi, H. Knaust and N. Marcus. *S.O.S. Mathematics—Students Review Mathematical Concepts on the Internet*. In: “Proceedings of the Eleventh Annual International Conference on Technology in Collegiate Mathematics,” Addison-Wesley-Longman, 1999.

Wolfram Demonstration Projects:

- 22 Helmut Knaust. *Congruence Classes of Geoboard Triangles*. March 2016.
- 23 Helmut Knaust. *Dyadic Cascade Algorithm for Daubechies Wavelets*. March 2015.
- 24 Helmut Knaust. *The Discrete Cascade Algorithm*. January 2015.
- 25 Helmut Knaust. *Kiesswetter’s Function*. June 2014.
- 26 Helmut Knaust. *Parliamentary Seat Allocation by the Sainte-Laguë Method*. June 2014.
- 27 Helmut Knaust. *Nullcline Plot*. December 2013; updated February 2016.
- 28 Helmut Knaust. *Bungee Jumping*. October 2013.
- 29 Helmut Knaust. *Body-Mass Index*. April 2013.
- 30 Helmut Knaust. *Flight of a Glider*. January 2013.

Technical Reports:

- 31 Helmut Knaust. *Isometries of the Complex Plane*. March 2013.
- 32 Helmut Knaust. *Boolean Algebra Theorem Sequence*. January 2013.
- 33 Helmut Knaust. *Multi-Resolution Analysis for the Haar Wavelet*. March 2009.
- 34 David Carrejo, Hamide Dunlap-Dogan, Art Duval, Helmut Knaust, Olga Kosheleva, Lawrence Lesser, Lucy Michal, Ori Rosen, Emil Schwab, Daniela Szatmari-Voicu, Mourat Tchoshanov, Matthew Winsor, and Piotr Wojciechowski. *Practice Exam Questions for the Texas Examinations of Educator Standards [115 Mathematics 4–8]*. March 2006.

9 Consulting

- 2014 Universidad Católica del Norte, Antofagasta, Chile. Consulting visit.
- 2009–2011 Universidad del Bío-Bío, Concepción, Chile. [Student success consulting](#). (With B. Flores and S. Rodriguez.)
- 2009 Department of Mathematics and Statistics, Texas A&M University - Corpus Christi. External Evaluator.
- 2008 Universidad Católica de Temuco, Temuco, Chile. Consulting visit. (With B. Flores.)

- 2006** *A Model Institution for Excellence* Dissemination Workshop: Pathways to Success in STEM Education, The University of Texas at El Paso. Facilitator.
- 2005** Faculty Development Workshop, School of Science and Technology, Norfolk State University, Norfolk VA. (With B. Flores and J. Ramos.)
- 1994–present** Book and software reviews for *Cengage Learning*, *Harcourt, Brace & Co.*, *McGraw-Hill* and *John Wiley & Sons, Inc.*

10 Professional Societies

- 2011–present** *Academy of Inquiry-Based Learning*, Member.
- 1997–present** *Mathematical Association of America*, Member.
- 1983–present** *American Mathematical Society*, Member.
- 2014–2015** *Society for Advancement of Hispanics/Chicanos and Native Americans in Science* (SACNAS), Member.
- 2012–2013** *American Society for Engineering Education*, Member.
- 2004–2013** *Greater El Paso Council of Teachers of Mathematics*, Member.

11 Research-related Activities

Talks:

- 1998** The University of Texas at El Paso, Research Seminar. “*Lambda-Hyperconvexity in Metric Spaces.*”
- 1994** New Mexico State University, Las Cruces, Colloquium. “*Infinite Ramsey theory and its applications in Banach space theory.*”
- 1994** The University of Missouri at Columbia, Conference: The Interaction Between Functional Analysis, Harmonic Analysis and Probability. “*The Ramsey property in angelic spaces.*”
- 1993** The University of Texas at El Paso, Research Seminar. “*Angelic spaces with the Ramsey property.*”
- 1992** The University of Texas at El Paso, Research Seminar. “*Array convergence in angelic spaces.*”
- 1991** The University of Texas at El Paso, Research Seminar. “*The unconditional basic sequence problem à la Gowers.*”
- 1991** The University of Texas at El Paso, Colloquium. “*Applications of Ramsey theory to Banach space geometry.*”
- 1989** The University of Missouri at Columbia, Colloquium. “*Uniform structures in infinite-dimensional Banach space theory.*”

Workshop Participation:

- 1996** *Special Concentration Week on “Infinite Dimensional Convex Geometry.”* Mathematical Sciences Research Institute, Berkeley, CA.
- 1992** *International Research Workshop on Banach Space Theory.* Universidad de los Andes, Mérida, Venezuela.
- 1988** *Microprogram on the Structure of Banach spaces.* Mathematical Sciences Research Institute, Berkeley, CA.

Conference Participation:

- 2017** *Joint Meeting of the American Mathematical Society-Mathematical Association of America.* Atlanta, GA.
- 2009** *Joint Meeting of the American Mathematical Society-Mathematical Association of America.* Washington, DC.
- 2006** *Joint Meeting of the American Mathematical Society-Mathematical Association of America.* San Antonio, TX.
- 1997** *Joint Meeting of the American Mathematical Society-Mathematical Association of America.* San Diego, CA.
- 1995** *Joint Meeting of the American Mathematical Society-Mathematical Association of America.* San Francisco, CA.
- 1994** *The Interaction between Functional Analysis, Harmonic Analysis and Probability.* University of Missouri, Columbia, MO.
- 1990** *Regional Conference of the American Mathematical Society.* University of North Texas, Denton, TX.
- 1988** *Banach Spaces and the Geometry of Convex Bodies.* University of Alberta, Banff, Canada.
- 1985** *Conference on Banach Spaces and Classical Analysis.* Kent State University, Kent, OH.

12 Teaching-related Activities

Talks:

- 2016** Joint Meeting of the American Mathematical Society-Mathematical Association of America, Seattle, WA. MAA Poster Session on “Me and My Gadgets—Teaching with Technology.” “*Wolfram Demonstrations for Differential Equations.*”
- 2015** Joint Meeting of the American Mathematical Society-Mathematical Association of America, San Antonio, TX. Contributed Talk, MAA Session on Wavelets in Undergraduate Education. “*Multi-Resolution Analysis for the Haar Wavelet: A Minimalist Approach.*”
- 2015** Joint Meeting of the American Mathematical Society-Mathematical Association of America, San Antonio, TX. Contributed Talk, MAA Session on Inquiry-Based Learning in First-Year and Second-Year Courses. “*Exploration and Inquiry in an Introductory Course for Mathematics Majors.*”
- 2014** Joint Meeting of the American Mathematical Society-Mathematical Association of America, Baltimore, MD. Contributed Talk, MAA Session on Wavelets in Undergraduate Education. “*Image Fusion of Satellite Images.*” (With B. Gonzalez* and J. Puente.*)
- 2013** MathFest of the Mathematical Association of America, Hartford, CT. Contributed Talk. “*Technology in the Mathematics Classroom.*”
- 2013** SUN Conference on Teaching and Learning, The University of Texas at El Paso, El Paso, TX. Contributed Talk. “*How to Make Teachers out of Mathematics Students.*”
- 2013** Joint Meeting of the American Mathematical Society-Mathematical Association of America, San Diego, CA. Contributed Talk, MAA Session on Bridging the Gap: Designing an Introduction to Proofs Course. “*A Plaidoyer for Boolean Algebra.*”
- 2012** Meeting of the Southwestern Section of the Mathematical Association of America, Pima Community College, Tucson, AZ. Contributed Talk. “*Compression algorithms for digital images.*” (With A. Delgado.*)

*Student presenters

- 2012** Joint Meeting of the American Mathematical Society-Mathematical Association of America, Boston, MA. Contributed Talk, MAA Session on Wavelets in Undergraduate Education. *“Smoke Detection in Stationary Video Using Wavelets.”*
- 2012** Joint Meeting of the American Mathematical Society-Mathematical Association of America, Boston, MA. Contributed Talk, MAA Session on Wavelets in Undergraduate Education. *“Undergraduate Research Projects on Wavelet-Based Time Series Forecasting.”* (With B. Atwood, C. Haddad, and J. Merkel.)
- 2011** MathFest of the Mathematical Association of America, Lexington, KY. Contributed Talk, Session on First Year Seminar/First Year Experience Mathematics Courses. *“Two First Year Seminar Course Designs for Science and Mathematics Majors.”*
- 2011** Meeting of the Southwestern Section of the Mathematical Association of America, Eastern New Mexico University, Roswell, NM. Contributed Talk. *“A Capstone Course for Future High School Mathematics Teachers.”*
- 2011** Joint Meeting of the American Mathematical Society-Mathematical Association of America, New Orleans, LA. Contributed Talk, MAA Session on Wavelets in Undergraduate Education. *“Lloyd-Max Quantization Schemes.”*
- 2010** Meeting of the Southwestern Section of the Mathematical Association of America, Scottsdale Community College, Scottsdale, AZ. Contributed Talk. *“Teaching a Discrete Wavelet Transformations Course.”*
- 2010** Joint Meeting of the American Mathematical Society-Mathematical Association of America, San Francisco, CA. Contributed Talk, MAA Session on Wavelets in Undergraduate Education. *“A Module for the Construction of Scaling Functions using the Cascade Algorithm.”* (With J. Rock, D. Ruch, K. Hoover, and R. Zarnowski.)
- 2009** MathFest of the Mathematical Association of America, Portland, OR. Contributed Talk, Session on the Effective Use of Dynamic Mathematical Software in the Classroom. *“Exploring Machin’s Approximation of π .”*
- 2009** “Wavelets and Applications: A Multi-Disciplinary Undergraduate Course with an Emphasis on Scientific ,” University of South Florida, Tampa, FL. Invited Presenter. *“Student Projects in a Discrete Wavelets Transform Course.”*
- 2009** Joint Meeting of the American Mathematical Society-Mathematical Association of America, Washington, DC. Contributed Talk, MAA Session on Wavelets for Undergraduates. *“Zooming in on a Transformed Image: a Project for Students.”* (With C. Haddad and D. Haile.)
- 2008** Fall Conference of the Greater El Paso Council of Teachers of Mathematics, El Paso, TX. Contributed Talk. *“Math in the News: Perfect Numbers and Mersenne Primes.”*
- 2007** Fall Conference of the Greater El Paso Council of Teachers of Mathematics, El Paso, TX. Contributed Talk. *“S.O.S. Mathematics and Some Other Math Help Sites on the Internet.”*
- 2005** Teaching and Learning Seminar, The University of Texas at El Paso. *“The Moore Method.”*
- 2004** SUN Conference on Teaching and Learning, The University of Texas at El Paso, Contributed Talk. *“Mathematics as an Experimental Laboratory Science.”* (With A. Duval.)
- 2003** Meeting of the Southwestern Section of the Mathematical Association of America, New Mexico Institute of Mining and Technology, Socorro, NM. Contributed Talk. *“That Student Is Taught the Best Who Is Told the Least.”*
- 2003** International Network of Education Technology Conference 2003, The University of Texas at El Paso. Contributed Talk. *“Teaching Algebra with Spreadsheets.”*
- 2002** Conference for the Advancement of Science Teaching 2002, The University of Texas at El Paso. Contributed Talk. *“S.O.S Mathematics: Helping Math Students On the Internet.”* (With M.A. Khamsi and N. Marcus.)

- 2002** Fifteenth International Conference on Technology in Collegiate Mathematics, Orlando, FL, Contributed Talk. “*S.O.S Mathematics—Helping Math Students Through the Internet.*” (With M.A. Khamsi and N. Marcus.)
- 2002** SUN Conference on Teaching and Learning, The University of Texas at El Paso. Contributed Talk. “*The Moore Method—A Tradition of Active Student Learning in Mathematics.*” (With A. Duval.)
- 2002** International Network of Education Technology Conference 2002, The University of Texas at El Paso. Contributed Talk. “*S.O.S Mathematics—A Mathematics Help Site on the Internet.*” (With N. Marcus.)
- 1999** The University of Texas at El Paso. Talk for Club Zero. “*The Hunt for Mersenne Primes.*”
- 1998** Eleventh International Conference on Technology in Collegiate Mathematics, New Orleans, LA. Contributed Talk. “*S.O.S. Mathematics—Students Review Mathematical Concepts on the Internet.*”
- 1998** Neat Networks Conference, The University of Texas at El Paso. Contributed Talk. “*S.O.S. Mathematics.*” (With M.A. Khamsi.)
- 1997** The University of Texas at El Paso, Talk for Club Zero. “*The CORDIC Algorithm.*”
- 1997** The University of Texas at El Paso, Colloquium. “*Differential Equations Reform.*” (With M.A. Khamsi.)
- 1997** Meeting of the Southwestern Section of the Mathematical Association of America, New Mexico State University, Grants, NM. Contributed Talk. “*How Do Calculators Calculate?*”
- 1996** Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Mexico. Student Colloquium for *Proyecto Abel*. “*Combinatorics in Geometry and Analysis.*”
- 1995** The University of Texas at El Paso. Talk for *Club Zero*. “*An Introduction to Ramsey Theory.*”
- 1995** Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Mexico. Student Colloquium for *Proyecto Abel*. “*Measure Theory: From Archimedes to Lebesgue.*”

Workshop Participation:

- 2015** *Building Community in SIMIODE (Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations)*, directed by B. Winkel, J. Libertini and K. Bliss. Helena, MT.
- 2008–2011** *Discrete Wavelets Transform Workshop*, directed by C. Bénéteau, C. Haddad, D. Ruch and P. Van Fleet. Madison, WI, Portland, OR, Pittsburgh, PA, and Minneapolis, MN.
- 2008** “*Inquiry-Based Learning with a Focus on Number Theory: a Transitions-to-Proof Course,*” directed by M. Starbird, E. Odell, D. Marshall and S. Nichols. University of Texas at Austin, Austin, TX.
- 2007** “*Wavelets and Applications: A Multi-Disciplinary Undergraduate Course with an Emphasis on Scientific Computing,*” directed by P. Van Fleet. University of St. Thomas, St. Paul, MN.
- 2006** Inquiry-Based Learning Workshop, directed by S. Yoshinobu. Costa Mesa, CA.
- 1997** Advanced Cooperative Learning Workshop, directed by K. Smith. Cloudcroft, NM.
- 1997** Cooperative Learning Workshop, directed by E.J. Holubec. Cloudcroft, NM.
- 1996** NSF Faculty Enhancement Workshop “*Teaching Differential Equations Using a Dynamical Systems Perspective,*” directed by P. Blanchard and R. Delaney. Oberlin College, OH.

Other Conference Participation:

- 2013** Meeting of the Southwestern Section of the Mathematical Association of America. New Mexico Institute of Mining and Technology, Socorro, NM.
- 2008** MathFest of the Mathematical Association of America, Madison, WI.
- 2005** Meeting of the Southwestern Section of the Mathematical Association of America. The University of Texas at El Paso.

- 2003–2008, 2010–2015** Annual “Legacy of R.L. Moore” Conferences. Austin, TX, Washington, DC, and Denver, CO. Invited Participant.
- 2001** Meeting of the Southwestern Section of the Mathematical Association of America. New Mexico State University, Las Cruces, NM.
- 1996–1997** International Conference on Technology in Collegiate Mathematics. Reno, NV, and Chicago, IL.
- 1995** Meeting of the Southwestern Section of the Mathematical Association of America. The University of Texas at El Paso.

Outreach Activities:

- 1998–present** Co-owner of *Math Medics, LLC*, publisher of “*S.O.S. Mathematics*”. (With M.A. Khamsi and N. Marcus.)
- 1996–present** Co-developer of the Internet site “*S.O.S. Mathematics*”. (With M.A. Khamsi and N. Marcus.)

13 Service-related Activities

Conference Session Organized:

- 2015** Louis Stokes Midwest Center of Excellence, Indianapolis, IA. “*Bridge to the Doctorate Alumni: How Can They Take LSAMP to the Next Level?*” Workshop. (With B. Flores and A. Arciero-Pino.)
- 2010** MathFest of the Mathematical Association of America, Pittsburgh, PA. “*Active Learning Intervention Strategies Accompanying Introductory Mathematics Courses.*” Contributed Paper Session. (With C. Bénéteau, E. Schwab and G. Schwab.)

Talks:

- 2016** Louis Stokes Midwest Center for Excellence Conference, Chicago, IL. Panelist. “*NSF LSAMP Bridge to the Doctorate: Facilitating Graduate Academic Success.*” (With D. Yates and M. Tchounwou.)
- 2015** ASEE/IEEE Frontiers in Education Conference, El Paso, TX. Contributed Talk. “*Qualitative Assessment of the University of Texas System Louis Stokes Alliance for Minority Participation Summer Research Academy Abroad: An International Experience in Research and Culture.*” (With A. Arciero-Pino, B. Flores, L. Gonzales, and M. Quintana-Baker.)
- 2014** Sixth Annual Conference of the Alliance of Hispanic Serving Institution Educators, La Verne, CA. Contributed Talk. “*Management of a Successful Summer Research Academy.*” (With A. Arciero-Pino and B. Flores.)
- 2013** Annual Meeting of the American Association for the Advancement of Science, Boston, MA. Poster presentation. “*Supplemental Instruction for Pre-Calculus.*” (With G. Schwab and E. Schwab.)
- 2012** ASEE/IEEE Frontiers in Education Conference, Seattle, WA. Contributed Talk. “*Work in Progress: The University of Texas System Louis Stokes Alliance for Minority Participation: A State-wide Initiative to Promote STEM Undergraduate Research.*” (With A. Arciero-Pino and B. Flores.)
- 2012** MathFest of the Mathematical Association of America, Madison, WI. Contributed Talk, Session on Instructional Support Roles for Undergraduates in Mathematics and Statistics. “*Peer-Led Team Learning in Precalculus.*”
- 2012** Hawaii University International Conferences: Math, Engineering and Education Conference, Honolulu, HI. Poster presentation. “*Supplemental Instruction for Pre-Calculus. Cross Institutional Implementation.*” (With G. Schwab, E. Schwab, and B. Salazar*.)

- 2011** ASEE/IEEE Frontiers in Education Conference, Rapid City, SD. Contributed Talk. “*Work in Progress: The Bridge to the Doctorate Experience: A Reflection on Best Practices and Project Outcomes.*” (With T. Aktosun, A. Arciero, B. Flores, and C. Villalobos.)
- 2011** Institutional Service Project Directors Meeting, Department of Education, Washington, DC. Poster presentation. “*Cross Institutional Implementation of Supplemental Instruction.*” (With E. Schwab and G. Schwab.)
- 2011** SUN Conference on Teaching and Learning, El Paso, TX. Contributed Talk. “*Program Assessment? Of course!*” (With Joe A. Guthrie.)
- 2011** Joint Meeting of the American Mathematical Society-Mathematical Association of America, New Orleans, LA. Contributed Talk, MAA Session on Using Program Assessment to Improve Student Learning. “*Course-based Program Assessment.*” (With Joe A. Guthrie.)
- 2010** National Conference on Students in Transition, Houston, TX. Poster presentation. “*How to increase the student success in Precalculus courses.*” (With E. Schwab and G. Schwab.)
- 2010** ASEE/IEEE Frontiers in Education Conference, Washington, DC. Contributed Talk. “*Work in Progress: International Experiences for Undergraduate Scholars through the University of Texas System Louis Stokes Alliance for Minority Participation.*” (With A. Arciero and B. Flores.)
- 2010** MathFest of the Mathematical Association of America, Pittsburgh, PA. Contributed Talk. “*A Supplemental Instruction Model for Precalculus.*” (With E. Schwab and G. Schwab.)
- 2010** ASEE Annual Conference & Exposition, Louisville, KY. Contributed Talk. “*Implementing Peer Led Team Learning in Gateway Science and Mathematics Courses for Engineering Majors.*” (With B. Flores, J. Becvar, A. Darnell, J. Lopez and J. Tinajero.)
- 2010** Meeting of the Southwestern Section of the Mathematical Association of America, Scottsdale Community College, Scottsdale, AZ. Contributed Talk. “*Supplemental Instruction for the Precalculus Course.*” (With G. Schwab and E. Schwab.)
- 2010** Professional Development Session, El Paso Community College, El Paso, TX. “*Implementing Supplemental Instruction in Precalculus Courses at EPCC.*” (With G. Schwab, E. Schwab, A. Bogdan* and O. Macedo*.)
- 2009** The University of Texas at San Antonio, San Antonio, TX. Presentation at Luncheon for the Hon. Louis Stokes. “*UT System LSAMP Major Accomplishments.*”
- 2009** MathFest of the Mathematical Association of America, Portland, OR. Contributed Talk. “*Cross-Institutional Implementation of Supplemental Instruction.*” (With G. Schwab and E. Schwab.)
- 2009–2010** External Advisory Board meeting (NSF-STEP grant). The University of Texas at El Paso, El Paso, TX. “*Peer-Led Team Learning for Precalculus.*”
- 2009** SUN Conference on Teaching and Learning, El Paso, TX. Contributed Talk. “*Peer-Led Supplemental Instruction for Calculus.*” (With E. Schwab, O. Macedo* and M. Pugh*.)
- 2009** Annual Conference on The First-Year Experience, Orlando, FL. Poster Presentation. “*Modular Delivery and Supplemental Instruction (SI) for the Calculus Course.*” (With E. Schwab, M. Fuentes* and O. Macedo*.)
- 2009** Joint Meeting of the American Mathematical Society-Mathematical Association of America, Washington, DC. Contributed Talk, MAA Session on Building Diversity in Advanced Mathematics: Models that Work. “*Modular Delivery and Peer-Led Team-Learning for Precalculus.*” (With E. Schwab.)
- 2007** Parkland High School, Ysleta Independent School District, El Paso, TX. Presentation. “*Getting Ready To Study Mathematics, Science and Engineering at UTEP.*”
- 2006** SUN Conference on Teaching and Learning, El Paso, TX. Contributed Talk. “*How to Increase the Pass Rate in Calculus.*” (With N. Marcus and E. Schwab.)

- 2006** Fall Conference of the Greater El Paso Council of Teachers of Mathematics, El Paso, TX. Contributed Talk. “*Studying Engineering, Mathematics and Science at UTEP.*” (With B. Flores.)
- 2006** The University of Texas at El Paso. “*Math 1319 - Mathematics in the Modern World.*” Workshop Presentation.
- 2005** The University of Texas at El Paso. “Student Outcomes in Mathematics.” (With A. Duval.)
- 2004** Annual Conference on The First-Year Experience, Addison, TX. Contributed Talk. “*Getting Ahead in First-Year Mathematics College Courses.*” (With B. Flores, N. Marcus and D. Ward.)
- 2003** Summer Institute of the National Learning Communities Project, Olympia, WA. Contributed Talk. “*CircLES: The Entering Students Program in Science and Engineering.*” (With B. Flores, D. Ward and C. Willermet.)
- 2003** Meeting of the Southwestern Section of the Mathematical Association of America, New Mexico Institute of Mining and Technology, Socorro, NM. Contributed Talk. “*Placing More Freshmen Into College-level Mathematics Courses.*”
- 2002** Conference for the Advancement of Science Teaching 2002, El Paso, TX. Contributed Talk. “*CircLES at UTEP.*” (With S. Chopra, E.L. Dahl, O. Luckett*, A. Pineda and N. Villa*.)
- 2002** Southwest Regional Learning Communities Conference, Tempe, AZ. Contributed Talk. “*Learning Communities—It’s a Team Effort: Lessons Learned From Five Perspectives.*” (With T. Brady, C.K. Della-Piana, B. Flores, C. Flores*, C. Rodriguez* and A. Swift.)
- 2002** Twenty-First Annual Conference on The First-Year Experience, Orlando, FL. Contributed Talk. “*An Academic Model for SEM Student Success in Urban Commuter Institutions.*” (With C.K. Della-Piana, B. Flores and R. Gómez.)

Workshop Participation:

- 2016** SCK Institute. University of Michigan, Ann Arbor, MI.
- 2010** *Annual Peer-Led Team Learning Leadership Conference and Workshop on Leader Training.* Morehouse College, Atlanta, GA.
- 2010** *Texas STEP Workshop*, directed by J. Kimball. Dallas, TX.
- 2006** PMET Workshop “*Mathematical Preparation of Elementary Teachers,*” directed by J. Evans and B. Madison. El Paso Community College, El Paso, TX.
- 2005** “*Algebra II Scoring Workshop,*” Math and Science Partnership. El Paso, TX.
- 2004** “*Workshop on Mentoring and Nurturing Students,*” American Mathematical Society. Tucson, AZ.
- 2004** “*Leading the Academic Department: A Workshop for Chairs of Mathematical Sciences Departments,*” Mathematical Association of America. Washington, DC.
- 2004** “*Faculty 21 Leadership Institute,*” Project Kaleidoscope. The Baca Campus of the Colorado College, Crestone, CO.
- 2003** “*Ensuring the Success of Under-represented Groups in STEM Learning Environments,*” Project Kaleidoscope Assembly. Rowan University, Glassboro, NJ.
- 2003** Summer Institute, National Learning Communities Project. Evergreen State College, Olympia, WA.

Other Conference Participation:

- 2016** “Louis Stokes Alliances for Minority Participation Research Symposium.” National Harbor, MD.
- 2015** “Convention for Attaining Excellence in Compliance for Research, Ethics, Education and Policy.” El Paso, TX.
- 2014** “Annual Conference of the Society for Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS).” Los Angeles, CA.

- 2013, 2015–2017** “Annual Conference of the Louis Stokes Midwest Center of Excellence.” Indianapolis, IA, and Chicago, IL.
- 2013** “Seventh Annual UTeach Conference,” The University of Texas. Austin, TX.
- 2010** “Second International Conference on Science in Society,” Universidad Carlos III de Madrid, Leganés, Spain.
- 2009, 2011** “World Science Forum.” Budapest, Hungary.
- 2008** “MSEIP Preapplication Workshop,” Department of Education, Dallas, TX.
- 2008–2010** “STEP PI Grantee Meeting,” National Science Foundation. Arlington, VA.
- 2007–present** University of Texas System Louis Stokes Alliance for Minority Participation Student Research Conference. El Paso, TX, San Antonio, TX, Austin, TX, Arlington, TX, and Odessa, TX.
- 2007–2010, 2012** “Joint Annual Meeting,” National Science Foundation. Washington, DC.
- 2007** “Preparing Mathematics Teachers To Make a Difference: Why Teacher Education Matters,” Policy Forum, The Education Policy Center at Michigan State University. Washington, DC.
- 2005** “A Catalyst for Change” Conference, UT System Louis Stokes Alliance for Minority Participation. Dallas, TX.
- 2005** “Western Regional CSEMS meeting,” National Science Foundation, Oakland, CA.
- 2005** “Math and Science Partnership Learning Network Conference,” National Science Foundation. Washington, DC.
- 2004** “Teachers for a New Era Institute: Engagement of the Arts and Sciences,” Carnegie Corporation of New York. Washington, DC.
- 2002** Engineering and Computing Education Grantees Conference, National Science Foundation. Washington, DC.

Other:

- 2007** Tornillo High School, Tornillo Independent School District, Tornillo, TX. Mathematics Competition Judge.
- 2007** “Math Emporium,” Virginia Polytechnic Institute and State University, Blacksburg VA. Visit. (With S. Aley and C.D. Lujan.)

14 Service

University Service:

- 2012** Graduate School Faculty Marshal of Students, Fall Commencement.
- 2012** Hiring Committee, Professional Development Director for the Graduate School, Member.
- 2006–2007** “UTEP Math Summit,” Member.
- 2006** Hiring Committee, Research Associate for the College Readiness Program, Member.
- 2005** Hiring Committee, Director of Assessment and Testing, Member.
- 2005–2008** University College Curriculum Committee, Member.
- 2002–2003, 2005–2008** Developmental Education Committee, Member.
- 2004–2005** *Teachers for a New Era* Core Curriculum/Learning Communities Group, Member.
- 2004–2005** UTEP Centennial Task Force for Student Success, Member;
“Leavers” sub-committee, Member.
- 2004–2008** Entering Students Program Advisory Committee, Member.
- 2004–2008** *Border Biomedical Research Center*, Institutional Advisory Board, Internal Member.

2004 Core Curriculum Committee, Member.
2004 *Texas Success Initiative* Task Force, Member.
2002–2004 Learning Communities Advisory Committee, Member.
2001–2003 University Calendar Committee, Member.
2001–2003 University 1301 Steering Committee, Member; Evaluation sub-committee, Member; Proposal Review sub-committee, Member.
1996–1998, 2012–2014 Faculty Senate, Member.
1996–1998 *A Model Institution for Excellence* Curriculum Steering Committee, Member; Mathematics Curriculum sub-committee, Member.
1995 *A Model Institution for Excellence* Freshmen Seminar Planning Committee, Member.

College Service:

2003–2007 CircLES Liaison.
2002–2003 CircLES Advisory Committee, Chair.
2000 Tenure and Promotion Committee, Member.

Departmental Service:

2015–present Graduate Studies Committee, Member.
2012–present *Master of Arts in Teaching Mathematics* Committee, Member.
2008–present Program Assessment Committee, Co-chair.
2008–2012 *Peer-Led Team Learning (PLTL)* Coordinator for the Precalculus course.
2004–2005 Strategic Planning Committee, Chair.
2003–2008 Department Chair.
2000–2001 Hiring Committee, Chair.
1998–2000 Graduate Advisor.
1997–2003 Chair’s Advisory Committee, Member.
1996–1997 *NASA MU-SPIN* Web Project, Department Faculty Liaison.
1995–1998 Graduate Recruiting Committee, Chair.
1995–1998, 2000–2002 Teaching Effectiveness Committee, Member.
1994 Departmental Self-Assessment Committee, Member.
1993–1995 Undergraduate Advisor.
1992–1996 Mathematics Colloquium Coordinator.
1992–1996 Mathematics Research Seminar Coordinator.
1992–1995 Graduate Recruiting Committee, Member.
1991–1995, 2000–2003 Undergraduate Curriculum Committee, Member.

Student Service:

2008–present Graduate Advisor for non-cohort MAT students.
2004–2011 Undergraduate Advisor, 2004/05 cohort.
2001–2003 Director of *CircLES*, the Entering Students Program for Science, Engineering and Mathematics.
1998–2000 Graduate Advisor.
1995–2011 Supervised numerous individual studies courses in Advanced and Functional Analysis.
1993–1995 Undergraduate Advisor.
1993–2011 Administered 14 Master’s Examinations to 21 students.

Professional Service:

2014, 2016, 2017 *Richard Tapia Celebration of Diversity in Computing Conference*, Reviewer for scholarship applications.

2012 *ASEE/IEEE Frontiers in Education (FIE) 2012*, Session chair.

2012 *ASEE/IEEE Frontiers in Education (FIE) 2012*, Technical Program Committee (Reviewer).

2011 Referee for *Control and Cybernetics*.

2005–present *Rocky Mountains Mathematics Consortium* Board of Directors, Member.

2004–2007 Referee for the *Journal of Applied Analysis*.

2003–2006 Referee for the *International Journal of Mathematics and Mathematical Sciences*.

1991–1997 Referee for the *Proceedings of the American Mathematical Society*.

Other:

2006–2008 *El Paso T-STEM Center Partners' Leadership Group*, Member.

2006 *El Paso Mathematics Summit*. Planning Committee, Member.

2005 *Teachers for a New Era*. Author of 52 practice exam questions for *TExES* Exam 115.

2004–2005 *El Paso Collaborative for Academic Excellence*, K–16 Mathematics Alignment Working Group, Member.