

**Hortensia Soto, Ph.D.**  
**Professor of Mathematics**  
**Vitae**

**Work Contact**

School of Mathematical Sciences  
College of Natural and Health Sciences  
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Greeley, CO 80639

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970-351-2425

**Education**

1996	PhD: Research in undergraduate mathematics	University of Northern Colorado	Educational Mathematics
1994	Master of Science	University of Arizona	Mathematics
1989	Master of Science	Chadron State College	Mathematics Education
1988	Bachelors of Science	Chadron State College	Mathematics

**Work Experience**

2014-	Professor of Mathematics	University of Northern Colorado	Teaching and Research
2008-present	Associate Professor of Mathematics	University of Northern Colorado	Teaching and Research
2005-2008	Assistant Professor of Mathematics	University of Northern Colorado	Teaching and Research
2003-2005	Associate Professor of Mathematics	Colorado State University-Pueblo	Teaching and Research
2001-2003	Associate Professor of Mathematics	University of Southern Colorado	Teaching and Research
1995-2001	Assistant Professor of Mathematics	University of Southern Colorado	Teaching and Research
1989-1992	Director of Mathematics Learning Center	University of Southern Colorado	Coordination and Teaching

**Area of Specialization:** Teaching and learning of undergraduate mathematics

## **Publications**

### Refereed Book Chapters

- Soto-Johnson. (In Press). A Door to STEM Possibilities: Las Chicas de Matemáticas. In (Eds.) L. Weist, J. Sanchez and H. Crawford-Ferre, *Out-of-School-Time STEM Programs for Females: Implications for Research and Practice*.
- Soto-Johnson, H., Craviotto, C., & Parker, F. (2011). What motivates mathematically talented young women? In D. J. Brahier and W. R. Speer (Eds.), *Motivation and Disposition: Pathways to Learning Mathematics, 73<sup>rd</sup> NCTM Yearbook* (pp. 127-140). Reston, VA: NCTM.

### Refereed Research Journal Articles

- Soto-Johnson, H., Hancock, B., & Oehrtman, M. (In Press). The interplay of mathematicians' conceptual and ideational mathematics about continuity of complex-valued functions. *International Journal of Research in Undergraduate Mathematics Education*.
- Karakok, G., Soto-Johnson, H., & Anderson-Dyben, S. (2015). Secondary teachers' conception of various forms of complex numbers. *Journal of Mathematics Teacher Education, 18(4)*, 327-351.
- Soto-Johnson, H., & Troup, J. (2014). Reasoning on the complex plane via inscriptions and gestures. *Journal of Mathematical Behavior, 36*, 109-125.
- Soto-Johnson, H. (2014). Visualizing the Arithmetic of Complex Numbers. *International Journal of Technology In Mathematics Education, 21(3)*, 103-114.
- Soto-Johnson, H., & Fuller, E. (2012). Assessing proofs via oral interviews. *Investigations in Mathematics Learning, 4 (3)*, 1-14.
- Soto-Johnson, H., Cribari, R., & Wheeler, A. (2009). The impact of written reflections in a geometry course for preservice elementary teachers. *Quaderni di Ricerca in Didattica Matematica, 19(4)*, 64-73.
- Soto-Johnson, H., Yestness, N., & Dalton, C. (Spring 2009). Assessing multiple abstract algebra assessments. *Investigations in Mathematics Learning, V. 1(3)*, 1-26.
- Soto-Johnson, H., Iiams, M., Oberg, T., Boschmans, B., & Hoffmeister, A. (2008). Promoting preservice elementary teachers' awareness of learning and teaching mathematics conceptually through KTEM. *School Science and Mathematics 108(8)*, 345-354.
- Soto-Johnson, H., Dalton, C., & Yestness, N. (2008). Students' perceptions of sense of community in abstract algebra: Contributing factors and benefits. *Eurasia Journal of Mathematics, Science and Technology Education, 4(4)*, 373-380.
- Chacon, P. & Soto-Johnson, H. (2003). Encouraging Young Women to Stay in the Mathematics Pipeline: Math Camps for Young Women, *School Science and Mathematics, 103(6)*, 274-284.
- Chacon, P. & Soto-Johnson, H. (1998). The Effects of CAI in College Algebra Incorporating Both Drill and Exploration, *International Journal of Computer Algebra in Mathematics Education, 5(4)*, 201-216.
- Soto-Johnson, H. (1998). The Impact of Technology on Infinite Series, *International Journal of Computer Algebra in Mathematics Education, 5(2)*, 95-109.

### Refereed Research Proceedings Articles

- Nemirovsky, R. & Soto-Johnson, H. (2013). *On the emergence of mathematical objects: The case of  $e^{az}$* . In (Eds.) S. Brown, G. Karakok, K. H. Roh, and M. Oehrtman, Proceedings of the 16th Annual Conference on Research in Undergraduate Mathematics Education, 2013, Denver, Colorado. 2.219-2.226.  
<http://sigmaa.maa.org/rume/Site/Proceedings.html>
- Karakok, G., Soto-Johnson, H. & Anderson-Dyben, S. (2013). *In-service secondary teachers' conceptualization of complex numbers*. In (Eds.) S. Brown, G. Karakok, K. H. Roh, and M. Oehrtman, Proceedings of the 16th Annual Conference on Research in Undergraduate Mathematics Education, 2013, Denver, Colorado. 2.1-2.7.  
<http://sigmaa.maa.org/rume/Site/Proceedings.html>
- Soto-Johnson, H., Oehrtman, M., Noblet, K., Roberson, L., & Rozner, S. (2012). *Experts' reification of complex variables concepts: The role of metaphor*. In (Eds.) S. Brown, S. Larsen, K. Marrongelle, and M. Oehrtman, Proceedings of the 15th Annual Conference on Research in Undergraduate Mathematics Education, Portland, Oregon. 443-447.  
[http://sigmaa.maa.org/rume/crume2012/RUME\\_Home/RUME\\_Conference\\_Papers.html](http://sigmaa.maa.org/rume/crume2012/RUME_Home/RUME_Conference_Papers.html)
- Lai, Y., McCallum, W., & Soto-Johnson, H. (2011). The role of universities in preparing mathematics teachers: Insights from the international congress of mathematical education. *An international perspective on mathematics education: Reflections on ICME 11*, 61-73. <http://www.nctm.org/icme/>
- Soto-Johnson, H., Oehrtman, M., & Rozner, S. (2011). *Dynamic visualization of complex variables: The case of Ricardo*. Proceeding from the 14<sup>th</sup> annual conference on research in undergraduate mathematics education, p. 488-503.  
<http://sigmaa.maa.org/rume/Site/Proceedings.html>
- Soto-Johnson, H., Noblet, K., & Rozner, S. (2010). *The nature of engaging preservice teachers in proof validation: How do their techniques compare to mathematicians' methods?* Proceeding from the 13<sup>th</sup> annual conference on research in undergraduate mathematics education. <http://sigmaa.maa.org/rume/crume2010/Abstracts2010.htm>
- Soto-Johnson, H., King, K., & Haley, C. (2010). *Does mentoring a graduate student effect student achievement?* Proceeding from the 13<sup>th</sup> annual conference on research in undergraduate mathematics education.  
<http://sigmaa.maa.org/rume/crume2010/Abstracts2010.htm>
- Yestness, N. & Soto-Johnson, H. (2008). Abstract algebra: Proofs and diagrams, Proceeding from the 11<sup>th</sup> annual conference on research in undergraduate mathematics education. <http://cresmet.asu.edu/crume2008/Proceedings/Proceedings.html>
- Soto-Johnson, H., Yestness, N., & Dalton, C. (2007). Assessments that improve proof-writing skills, Proceeding from the 10<sup>th</sup> annual conference on research in undergraduate mathematics education. <http://www.rume.org/crume2007/eproc.html>
- Soto-Johnson, H., Dalton, C., & Yestness, N. (2007). Sense of community: Contributing factors and Benefits, Proceeding from the 10<sup>th</sup> annual conference on research in undergraduate mathematics education. <http://www.rume.org/crume2007/eproc.html>

### Refereed Expository Articles

- Dittman, M. & Soto-Johnson, H., Dickinson, S., & Harr, T. (In Press). Game Building with Complex-Valued Functions. *PRIMUS*.
- Wawro, M., Ellis, J., & Soto-Johnson, H. (2015). *Lessons learned from mentioning and partnerships for women in research in undergraduate mathematics education*. Poster presented at the American Educational Research Association (AERA) Annual Meeting, Chicago, IL.

- Soto-Johnson, H. & Flores, A. (2015). Las Chicas de Matemáticas 2014. *Eureka*. 13-23. <http://www.uaq.mx/ingenieria/publicaciones/eureka/n33/soto.pdf>
- Wawro, M., Ellis, J., & Soto-Johnson, H. (2014). MPWR: Mentoring and partnerships for women in RUME. *Association for Women in Mathematics Newsletter*, 44(5), 20-23.
- Soto-Johnson, H. (Fall 2014). Finding what we are not asked to find. *Colorado Mathematics Teacher*, 19-20.
- Craviotto, C., & Soto-Johnson, H. (2009). Las chicas' view of *Las Chicas de Matemáticas*. *MAA FOCUS* 29(3), 19-20.
- Soto-Johnson, H. (Winter 2008). Different cultures but similar issues: Different cultures thus different solutions. *Colorado Mathematics Teacher* 41(3), 10-14.
- Soto-Johnson, H. & Craviotto, C. (2008). Las chicas de matematicas: UNC math camp for young women. *Association for Women in Mathematics Newsletter*, 38(6), 15-17.
- Soto-Johnson, H., Iiams, M., Hoffmeister, A., Oberg, T., & Boschmans, B. (2007). Our Voyage with Knowing and Teaching Elementary Mathematics, *Teaching Children Mathematics*, 13(9), 493-497.
- Jones, M., & Soto-Johnson, H. (2006). Rotational Symmetries of the Regular Polyhedrons, *Mathematics Teacher*, 99(9), 606-609.
- Soto-Johnson, H. (April 2005). Alumni Profiles: Colorado State University-Pueblo, *Math Horizons*, 18-19.
- Soto-Johnson, H. & Brilleslyper, M. (Aug/Sept 2004). First Annual Pikes Peak Regional Undergraduate Mathematics Research Conference, *MAA FOCUS*, 24(6), p. 25.
- Soto-Johnson, H. & Bechthold, D. (2004). Tessellating the Sphere with Regular Polygons, *Mathematics Teacher*, 97(3), 165-167.
- Soto-Johnson, H. & Johnson, R. (2000). Who Lied about the Hot Tamales, *CHANCE*, 13(4), 31-34.
- Griesan, R. & Soto-Johnson, H. (Spring 2000). Selecting an Appropriate Viewing Window for Graphing Polynomials, *AMATYC Review*, 21-25.

#### Contributing Author

- *SRA Real Math*, 2007, SRA/McGraw-Hill, Columbus, Ohio

#### Dissertation

- Soto-Johnson, Hortensia, (1996), *Technological vs. Traditional Approach in Conceptual Understanding of Series*

### **Professional Presentations**

#### Invited Presentations:

- Moving and Learning: Embodying Mathematics Workshop (August, 2016, MAA MathFest, Columbus, OH)
- Reenergizing Your Career Panel (August, 2016, MAA MathFest, Columbus, OH)
- *Embodied Cognition: What is it? How do we use it?* (April, 2016, MAA Michigan Section, Hillsdale, MI)
- *Assessing Students' Mathematical Reasoning: Using Notions of Embodied Cognition* (February, 2016, CU – Denver)
- *The Role of Embodied Cognition in STEM* (November, 2015, Colloquia on Innovative Science, Valpraiso University)
- *Educational Research in Teaching Complex Analysis* (November, 2015, Mathematics Department Valpraiso University)

- *Reasoning on the Complex Plane via Inscriptions & Gesture* (April, 2015, FRaMES - CSU)
- *Embodying Mathematics: Implications for Teaching & Learning Mathematics* (March, 2015, Brigham Young University)
- *Reasoning on the Complex Plane via Inscriptions & Gesture* (Feb., 2015, CSU-Fresno)
- *Reasoning about Complex Variables – The Role of Gesture* (April, 2014, CU-Boulder)
- MAA Project NExT: *Group Work and Classroom Discussion Panel* (January 2014, JMM, Baltimore, MD)
- *Mathematics + Mathematics Education Research = A Partnership for a Better Education Panel Member* (October 2013, SACNAS, San Antonio, TX) – with M. Cordero-Epperson, R. Cortez, A. Flores, & C. Oropesa-Anhalt
- MAA Project NExT: *How to Teach Panel* (August 2012, MathFest, Madison, WI)
- *Las Chicas de Matemáticas: UNC Math Camp for Young Women* (January 2011, After Work Rotary Club, Fort Collins, CO)
- *Assessing Students' Knowledge: How Might Non-Traditional Assessments Inform Us* (October 2010, United States Air Force Academy)
- *Cultivating Mathematical Interest and Talent of PreCollege Students: Outreach through Summer Math Camps and Academies* (January 2010, JMM, San Francisco)
- *I Wanted to Own a Beauty Salon – Now I Want to be an Engineer:* (Fall, 2008, Metro State College, Department of Mathematics and Computer Science)
- *Communicating Mathematically by Presenting and Validating Proofs:* (January 2008, JMM - Session on the Scholarship of Teaching and Learning, San Diego)
- MAA Project NExT: *Deciding how to Teach – The Use of Oral Interviews to Assess Student Knowledge in Abstract Algebra:* (August 2006, MathFest, Knoxville, TN)
- *The Impact of KTEM on Preservice Elementary Teachers' Beliefs on Learning and Teaching Whole Number Operations:* (October 2005, AMS Central Section Meeting, Lincoln, NE)
- *The Evolution of Mathematics Education Research,* (November 2004, Texas Tech University, Lubbock, TX)
- MAA Project NExT: *Planning and Teaching Mathematics Courses for Elementary and Secondary Pre-Service Teachers,* (August 2003, MathFest, Boulder, CO)
- MAA Project NExT: *The Faculty Member as Teacher and Scholar,* (August 2003, MathFest, Boulder, CO)
- *Assessment Panel* (October, 1998, CCTM Meeting, Denver, CO)

#### Invited Poster Sessions

- *Las Chicas de Matemáticas: UNC Math Camp for Young Women:* (January 2009, JMM, Washington DC; January 2010, JMM, San Francisco, CA; January 2011, JMM, New Orleans, LA) – with C. Craviotto

#### Juried Presentations

- *Developing Dynamic Geometric Reasoning of Complex Analysis* (April 2016, MAA Rocky Mountain Section, Grand Junction, CO) – with B. Schaubroeck
- *Mathematicians' Conceptual and Ideational Mathematics about Complex-Valued Functions* (January, 2016, JMM, Seattle, WA) – with B. Hancock & M. Oehrtman.

- *Do experts and novices gesture differently?* (February, 2014, RUME, Denver, CO) – with B. Hancock & M. Dittman
- *Geometric Reasoning on the complex plane* (February, 2014, RUME, Denver, CO) – with J. Troup
- *Embodied activities as alternative assessments* (January 2014, JMM, Baltimore, MD)
- *Inservice secondary teachers' representations of complex numbers* (April 2013, NCTM Research Poster Session, Denver, CO) – with G. Karakok & S. Anderson Dyben
- *Inservice secondary teachers' representations of complex numbers* (February 2013, RUME, Denver, CO) – with G. Karakok & S. Anderson Dyben
- *On the emergence of mathematical objects: The case of  $e^{az}$*  (February 2013, RUME, Denver, CO) – with R. Nemirovsky
- *Inservice secondary teachers' representations of complex numbers* (January 2013, AMTE, Orlando, FL) – with G. Karakok & S. Anderson Dyben
- *Secondary teachers conception of multiple representations and various forms of complex numbers* (January 2013, JMM, San Diego, CA) – with G. Karakok & S. Anderson Dyben
- *Teaching & learning the arithmetic of complex numbers through IBL with inservice secondary teachers* (August 2012, MathFest, Madison, WI) – with G. Karakok & S. Anderson
- *Experts' reification of complex variables concepts: The role of metaphor* (February 2012, RUME, Portland, OR) – with M. Oehrtman, K. Noblet, R. Lee & S. Rozner
- *Experts' reification of complex variables concepts: The role of metaphor* (January 2012, JMM, Boston) – with M. Oehrtman, K. Noblet, R. Lee & S. Rozner
- *Geometric interpretations of complex variables and complex-valued functions: The use of metaphor* (August 2011, MathFest, Lexington, KY) - with M. Oehrtman, K. Noblet, R. Lee & S. Rozner
- *Dynamic visualization of complex variables* (February 2011, RUME, Portland OR) – with M. Oehrtman and S. Rozner
- *Comparing geometry curriculums: The impact on pre-service elementary teachers' pedagogical content knowledge* (January 2011, JMM, New Orleans, LA) – with K. Noblet & S. Rozner
- *From hot dog sales simulator to chaos in a fish population: Modeling data in middle school* (October 2010, NCTM Regional Conference, Denver, CO) with J. Champion, A. Porter, & M. Spieker
- *The role of intuition in the development of students' understanding of span and linear independence in an elementary linear algebra class* (February 2010, RUME, Raleigh, North Carolina) – with F. Parker & C. Craviotto
- *Does mentoring a graduate student effect student achievement?* (February 2010, RUME, Raleigh, NC) – with K. King and C. Haley
- *The nature of engaging preservice teachers in proof validation: How do their techniques compare to mathematicians' methods?* (February 2010, RUME, Raleigh, NC) – with K. Noblet and S. Rozner
- *What's on your card? Information students perceive will help them on a calculus exam* (April 2009, MAA Rocky Mountain Section, Golden, CO) – with M. Brilleslyper
- *The impact of written reflections in a geometry course for preservice elementary teachers* (June 2008, Monterrey, ICME, Nuevo Leon, MX) – with C. Cribari & A. Wheeler

- *The impact of written reflections in a geometry course for preservice elementary teachers* (February 2008, RUME, San Diego, CA) – with C. Cribari & A. Wheeler
- *Abstract algebra: Proofs and diagrams*: (February 2008, RUME, San Diego, CA) – with N. Yestness
- *The pedagogical preparation of prospective mathematics teachers* (April 2007, MAA Rocky Mountain Section, Pueblo, CO)
- *Interfering knowledge: How it hinders proof-writing* (February 2007, RUME, San Diego, CA)
- *Assessments that improve proof writing skills* (February 2007, RUME, San Diego, CA) – with C. Dalton & N. Yestness
- *Sense of community: Contributing factors and benefits* (February 2007, RUME, San Diego, CA) – with N. Yestness and C. Dalton
- *Diverse assessments implemented in abstract algebra that promote teaching, learning, and interaction* (October 2006, SSMA, Missoula, MT)
- *Evaluating students' abstract algebra knowledge* (August 2006, MathFest, Knoxville, TN)
- *The Impact of KTEM on preservice elementary teachers' beliefs on learning and teaching whole number operations* (February 2005, RUME, Phoenix, AZ) – with M. Iiams, T. Oberg, B. Boschmans, & A. Hoffmeister
- *Mathematical vs. artistic proofs/explanations* (October 2004, CCTM, Denver, CO)
- *Preservice elementary teachers' reaction to Knowing and Teaching Elementary Mathematics* (August 2004, MathFest, Providence, RI) - with M. Iiams, T. Oberg, B. Boschmans, & A. Hoffmeister
- *War stories, case studies and philosophies of teaching the introduction to statistics course*, (April 2003, MAA Rocky Mountain Section, United States Air Force Academy) – with R. Johnson
- *Cute, cheap, quick and fun experiments for a statistics class* (October 2002, CCTM, Denver, CO)
- *Preservice elementary teacher's reactions to Knowing and Teaching Elementary Mathematics*, (April 2002, MAA Rocky Mountain Section, Laramie, WY) - with M. Iiams, T. Oberg, B. Boschmans, & A. Hoffmeister
- *Statistics students as consultants* (October 2001, CCTM, Denver, CO)
- *USC Math Camp for Young Women 1999 & 2000* (January, 2001, JMM, New Orleans, LA) – with P. Chacon
- *What mathematics do professors expect incoming freshmen to know* (October 1999, CTM, Denver, CO)
- *USC Math Camp for Young Women* (October 1999, CTM, Denver, CO)
- *The effects of CAI in college algebra incorporating both drill and exploration* (September 1998, RUME, Mount Pleasant, MI) – with P. Chacon
- *Geometry on the sphere: Teaching students about their world* (October 1998, CCTM, Denver, CO) – with J. Novak
- *Portfolios with preservice elementary teachers* (February, 1998, NCTM Regional, Denver, CO)
- *Projects in calculus I* (October 1997, CCTM, Denver, CO)
- *Use of portfolios with preservice teachers enrolled in: History of mathematics and*

- *mathematics for the elementary teachers* (September 1997, RUME, Mount Pleasant, MI)
- *A comparison of the traditional calculus course and two reform methods* (January 1997, JMM, San Diego, CA)
- *Students' understanding of series: A quantitative/qualitative study* (September 1996, RUME, Mount Pleasant, MI)
- *Technological vs. traditional approach in conceptual understanding of series* (April 1996, MAA Rocky Mountain Section, Grand Junction, CO)
- *A visual representation of the classification theorem for two dimensional surfaces* (April 1995, MAA Rocky Mountain Section, Pueblo, CO) – with L. Schmidt

### **Funded Projects**

- NSF Eager Grant (#1544324) for Creating Instructional Practice Guide (\$300,000) 2015 – Co-PI with L. Braddy, L. Ludwid, & M. Abel
- UNC Summer Research Support (\$7,000) 2015
- NSF TUES Type 2 (\$44,148 for *Mentoring and Partnerships for Women in RUME* Programs)
- CH2MHill Foundation & Colorado Women's Fund (\$15,000 for 2014 *Las Chicas* Camp) – with S. Berkman
- State Farm, Otterbox, Noble Energy, & Colorado Women's Fund (\$39,500 for 2013 & 2014 *Las Chicas* Camp) – with S. Berkman
- State Farm, Otterbox, Noble Energy, Colorado Women's Fund, NOYCE, UNC Office of the Provost, Klick & Assoc., UNC School of Mathematical Sciences (\$28,951.55 for 2012 *Las Chicas* Camp) - with S. Berkman, C. Craviotto, & G. Karakok
- Academy of Inquiry Based Learning (\$5,000 for complex variables research project)
- Research, Dissemination & Faculty Development (\$10,000 for complex variables research project) – with M. Oehrtman
- Weld County Women's Foundation (\$2,240.00 for 2011 *Las Chicas* Camp)
- Summer UNC Research Support (\$4,500, 2010)
- Mathematical Association of America Tensor Grant, 2008, 2009, & 2010 (\$6000.00 for *Las Chicas* Camp) - with C. Craviotto
- Colorado Women's Foundation (\$5000.00 for *Las Chicas* Camp; 2009 & 2010) – with C. Craviotto
- University of Northern Colorado Office of the Provost (\$50,000 for 2008 & 2009 *Las Chicas* Camp) – with C. Craviotto
- Summer UNC Research Support (\$4,188, 2007)
- MAA - NSF Undergraduate Research Conference Grant, 2003 & 2004 (\$2,000.00 each year to support an undergraduate mathematics research conference)
- MAA-NSF: Preparing Mathematicians to Educate Teachers, 2003: (\$1500.00 used to develop a new mathematics course for preservice elementary teachers)
- NSF Calculus Consortium for Higher Education, 2004: (\$5000.00 used for travel to collaborate with colleagues on the *Knowing and Teaching Elementary Mathematics Project* as well as to present results)
- ExxonMobil Foundation Grant, 2001 (\$3000.00 used to fund a planning grant for the Math and Science Partnership NSF Funds)
- Mathematical Association of America Tensor Grant, 1999 & 2000 (\$5000.00/year used



- to fund a math camp for young women)
- Packard Foundation Grant, (2000) (\$7000.00 used to fund a math camp for young women)
- University of Southern Colorado Faculty Scholarly and Creative Activities Grant, 1998 (\$3000.00 used to fund MathWright and Algebra project)
- Awarded the University of Southern Colorado Faculty Scholarly and Creative Activities Grant, 1997 (\$3000.00 used for release time for research)

### **Professional Consultation**

- Workshop Facilitator for Educational Service Unit #13 in Scottsbluff, NE (2012 & 2015)
- AMTE EMS State Meeting Colorado Team (Summer 2011)
- California State University Channel Islands REU (2010-2011; Cindy Wyles)
- Adams 14: Commerce City Public Schools Professional Development (2010 & 2011-2012)
- Women in Mathematics Symposium: NSA (2009)
- Reviewer for John Wiley & Sons Publications (2009)
- Advisory Board for *SRA/McGraw Hill* Open Court Elementary Mathematics Texts (2003-present)
- *AMATYC* Reviewer (2000-2005)
- ACT Consultant, (1998-present)
- Evaluator for National Science Foundation Calculus Grant for Gadsden State, (1998-2002)
- Review Panelist for the National Science Foundation's Computer Science, Engineering, and Mathematics Scholarship Program, (1999, 2000, 2001)

### **Professional Association Participation**

#### Mathematical Association of America (MAA)

- MAA The American Mathematical Monthly Editor Search Committee (2014-2015)
- MAA Project NExT Review Team (2014-2015)
- MAA RUME SIGMAA Nominating Committee (2014)
- MAA Associate Treasurer (2013- 2018)
- MAA Executive Committee (2013 – 2018)
- MAA Budget Committee (Chair: 2013-2018)
- MAA Compensation Committee (2013-present)
- MAA Investment Committee (2014-2017)
- MAA Committee on Program Leadership (2012-2013)
- SIGMAA on RUME secretary (2012-present)
- MAA Committee on Professional Development (2012-2015)
- MAA Board of Governor Minority Representative (2011-2014)
- Jim Leitzel MAA Lecture Series Committee Member (2011-2014)
- Chair of RUME Committee on Mentoring (2009-2010)
- Secretary/Treasurer of the MAA Rocky Mountain Section (2005-2011)
- MAA Strategic Planning Committee Finance Working Group (2005-2006)
- MAA Minicourse Committee (2005-2011)

- Organized Section NExT Meeting at MAA Rocky Mountain Section Spring Meeting (2004)
- MAA Web Policy and Procedures Committee (2004-2010; chair 2007-2010)
- Organized the 1st Annual Pikes Peak Regional Undergraduate Mathematics Research Conference (2003-2004)
- Governor for the MAA Rocky Mountain Section, (2002-2005)
- MAA Electronics Committee, (2002 – 2005)
- Editorial Board of *The Focus* and *MAA Online*, published by the MAA, (2002-2008)
- Member of the Mathematical Association of America Conference Center Advisory Board, (2002- 2005)

#### National Council of Teachers of Mathematics (NCTM)

- Member of Editorial Board for *Mathematics Teacher*, published by NCTM, (2009-2012) - Chair, 2010-2011
- Reviewer for *Teaching Children Mathematics*, published by NCTM (2007- present)
- Reviewer for *Journal for Research in Mathematics Education*, published by NCTM (2005-present)
- Teacher Advisory Panel for *Mathematics Teacher*, published by NCTM (2003-2004)
- Reviewer for the *Mathematics Teacher* (2000- present)

#### Colorado Council of Teachers of Mathematics (CCTM)

- Higher Education Representative for CCTM Board of Directors, (2003-2005)

#### Other

- Editorial Board Member for *International Journal of Research in Undergraduate Mathematics Education*
- Reviewer for *Journal of Mathematical Behavior*

#### Professional Memberships

- SACNAS
- Association for Women In Mathematics (AWM)
- SIGMAA Research in Undergraduates Mathematics Education
- SIGMAA Statistics Education

#### **Service**

##### Community Service

- Guest speaker for the Colorado Alliance for Minority Participation at Metro State College (CO-AMP) (2010)
- Professional Development for St. Joe's Catholic School in Fort Collins (2009)
- Deliver curriculum for the challenge math class at St. Joe's Catholic School in Fort Collins (2008-2009)
- Guest Speaker at Northridge High School (2008)
- Co-Project Director & Co-Instructor for *Las Chicas de Matematicas: UNC Math Camp for Young Women* (2008-2010 & 2012-present)
- Guest speaker at the UNC Latina Conference (2008)

- Guest speaker at Greeley West High School (2008)
- University of Nebraska Middle School Project – Consultant (2005-2006)
- Presented to a number of schools and Boys & Girls Club (1989-2004)
- Project NExT Faculty Mentor (2002-present)
- Project Director for *USC Math Camp for Young Women*, (1999, 2000)
- Leader for Colorado Council of Teachers of Mathematics MiniGrant: *Mathematics Assessment*, (2000)
- Leader for the *Pueblo Regional Initiative in Mathematics Education* Eisenhower grant, (2000)
- Professor for the Pre-Collegiate Program funded by the Pueblo Hispanic Education Foundation, (1997)
- Member of the Colorado Commission of Higher Education K-12 Mini Grant, (1997)

#### University Service

- College of Natural and Health Sciences Awards Committee (2012-present)
- Associate Dean Search Committee Member (Spring 2011)
- SACNAS UNC Student Chapter co-advisor (2010-2012)
- Member of the School of Biological Sciences Diversity Forum (2008)
- UNC Latina Conference (2008)
- Teacher Education Board, (2001-2005)
- CTLR Reforming Teacher Education Committee, (2000)
- Teacher Quality Committee, (1999)
- *Math Anxiety Workshops* for USC students, (1991-92)
- Horizons Scholarships for Minorities Committee, (1991)
- Expanding Your Horizons Conference Committee, (1991)

#### School Service

- Ph.D. Recruitment Coordinator (2015- present )
- School of Mathematical Sciences Awards Committee (Chair, 2013)
- Search Committee (2012-2013)
- Indirect Funds Committee (2009-2010)
- Search Committee (2008-2010)
- Ph.D. Committee for School of Mathematical Sciences (2008-2011)
- Comprehensive Exam Committee (2009-2011): Chair: 2010 & 2011
- Graduate Advisor (2005-present)
- Coordinator for Math 283 (2007-present)
- Undergraduate Advisor, (1999-present)
- Math Club Sponsor, (2002-2005)
- Member of the Curriculum Committee, (2000-2005)
- Recruitment and Retention Committee, chair of the committee (2002-2005)
- Provide PLACE Study Sessions for Math Ed Majors, (1996-2005)
- Facilitate Math Ed Colloquium, (1996-2002)

#### **Teaching**

- Dissertation Advisor
  - Marnie Phipps (2008): *A Phenomenological Investigation on Eighth Graders' Number Sense of Fractions* – co-advisor
  - Ann Wheeler (2009): *Traditional and Nontraditional Preservice Elementary Teachers' Perceptions about Mathematics and Mathematics Teaching* - advisor
  - Emily Wakefield (2010 – committee member): *¿Oyes y Entiendes?: Communication Strategies between Occupational Hearing Conservationists and Spanish-Speaking Workers* – outside committee member
  - Lane Andrew (2010): *The Relationship between Mathematical Induction, Proposition Functions, and Implication Functions*
  - Catherine Parker (2010): *How Intuition and Language Use Relate to Students' Understanding of Span and Linear Independence in an Elementary Linear Algebra Class* (awarded outstanding dissertation)
  - Jonathan Troup (2015): *Developing Students' Geometric Reasoning about the Derivative of Complex-Valued Function* (awarded outstanding dissertation)
  - Micah McGee (2016): *Revenue Management in the Sport Industry: An Examination of Forecasting Models and Advance Seat Section Inventory in Major League Baseball* – outside committee member
  - Kristin Noblet (2016): *Preservice Elementary Teachers' Understandings of Topics in Number Theory*
- Masters Action Research Project:
  - Shirley Reynolds (2011-committee member): *Self-Assessment Activities to Improve Student Mathematics Performance*
  - Stephanie Tehan (2011-committee member): *Increasing students' cognitive demand through mathematical tasks*
  - Meghan Speiker (2011 – committee member): *Student Engagement: Cooperative Learning with Kagan Structures*
  - Corrine Moore (2011 – committee member): *Planned Questions and Student Presentations*
- Mentoring of Student Research
  - D. Glassmeyer, T. Jensen, & R. Dibbs: *Message posted: Perspectives of formative assessment within online graduate courses* published in *Quarterly Review of Distance Education* (2010)
  - J. Champion, F. Parker, A. Wheeler, & B. Spenser-Mendoza: *College Algebra Students' Attitudes towards Mathematics in their Careers* published in *International Journal of Science and Mathematics Education* (2009)
  - Eric Hashberger: *Sociomathematical Norms and the Effects in a College Classroom* (2008)
  - Michael Kochen: *Mathematics Leading to the Proof of the Gauss-Bonnet Theorem*, (2005)
  - Nicole Trinidad-Martinez, *Mathematical vs. Artistic Proofs/Explanations*, (2004)
  - MaryClara Jones, *Rotational Symmetries of the Regular Polyhedra*, (2003)
  - Dawn Bechthold, *Tessellating the Sphere with Regular Polygons*, (2002)
  - Michelle Carstens & Michael Storrar, *Analysis of Success In Math Courses Based on Placement Exam Scores*, (2000)
  - Ben Dwinell, *Colorado Mathematics Instructors in Higher Education*

