

## Vita

### TOMMY G. SMITH

Associate Professor of Mathematics Education  
University of Alabama at Birmingham

#### Work

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#### **EDUCATION**

Auburn University, Ed.D. in Mathematics Education, 1989.  
Auburn University, M.Ed. in Mathematics Education, 1983.  
Auburn University, B.S. in Mathematics Education, 1980.

#### **EMPLOYMENT**

**1989-Present** Associate Professor, University of Alabama at Birmingham, Department of Curriculum and Instruction.  
**1988-89** Instructor, Auburn University College of Education, Department of Curriculum and Teaching.  
**Summer 1986- Summer 1988** Graduate Teaching Assistant, Auburn University College of Education.  
**1980-86** Secondary Mathematics Teacher, Muscogee County School District, Columbus, GA.

#### **MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS**

NCTM; ACTM (President- March 1998-March 2000); CACTM; School Science and Mathematics Association; Association of Mathematics Teacher Educators of Alabama (President- November 2012-November 2014); Alabama Mathematics, Science, and Technology Coalition (AMSTEC),

#### **PUBLICATIONS**

Shores, M. L., & Smith, T. G. (2011). Designing and developing GEMS lesson plans for the K-12 classrooms. *Computers in the Schools*, 28(1), 27-38  
Shores, M. L., Smith, T. G. (Fall 2010). A hands-on approach to learning mathematics and science: An evaluation of GEMS lesson plans. *National Teacher Education Journal*, 3(3), 77-81.  
Shores, M. L., Shannon, D. M., & Smith, T.G. (2010). Individual learner variables and their effect on mathematics achievement as students advance from fifth to sixth grade. *Journal of Research in Childhood Education*, 24, 187-194.  
Shores, M. L., & Smith, T. G. (2010). Attribution in mathematics: A review of literature. *School Science and Mathematics Journal*, 110(1), 24-30.  
Shores, M. L., Smith, T. G. & Jarrell, S. L. (Summer 2009). Do individual learner variables contribute to differences in mathematics performance. *SRATE Journal*, 18(2), 1-8.

- Smith, T., Ware, D., Cochran, R., & Shores, M. (2009, February). *Mathematical Investigations in Inquiry-Based Courses for Pre-Service Teachers*. Paper presented at the Conference on Research in Undergraduate Mathematics Education (RUME 2009), February 26 – March 1, 2009, Raleigh, NC. Published in the conference proceedings and available at [http://mathed.asu.edu/crume2009/Smith\\_LONG.pdf](http://mathed.asu.edu/crume2009/Smith_LONG.pdf)
- Co-Author/Presenter of a paper presentation, *A Partnership to Promote Inquiry-Based Mathematics Instruction*, at the Conference on Research in Undergraduate Mathematics Education (RUME 2008), February 28 – March 2, 2008, San Diego, CA with Rachel Cochran. Published in the conference proceedings and available at <http://cresmet.asu.edu/crume2008/Proceedings/Proceedings.html> .
- Co-Author of a paper presentation, *Deepening Mathematics Understanding of Middle School Teachers*, at the Mathematics Science Partnership Learning Network Conference 2008, January 28-29, 2008, Washington, D.C. with Rachel Cochran, Bernadette Mullins and John Mayer. Published online at MSPnet, [http://hub.mspnet.org/index.cfm/lnc08\\_cochran/page/index](http://hub.mspnet.org/index.cfm/lnc08_cochran/page/index)
- Co-Author of a paper presentation, *Inquiry-Based Mathematics Instruction at the University Level*, at the Mathematics Science Partnership Learning Network Conference 2008, January 28-29, 2008, Washington, D.C. with Rachel Cochran, Bernadette Mullins and John Mayer. Published online at MSPnet, [http://hub.mspnet.org/index.cfm/lnc08\\_cochran2/page/index](http://hub.mspnet.org/index.cfm/lnc08_cochran2/page/index)
- Co-Author/Presenter of a paper presentation, *A Partnership to Promote Inquiry-Based Mathematics Instruction*, at the Conference on Research in Undergraduate Mathematics Education (RUME 2008), February 28 – March 2, 2008, San Diego, CA. Published in the conference proceedings and available at <http://cresmet.asu.edu/crume2008/Proceedings/Proceedings.html> .
- Easterday, K.E., Simpson, F.M., & Smith, T. (Editors). (1999). Activities for Junior High School and Middle School Mathematics, Vol. 2. NCTM: Reston, VA.
- Smith, T. "Reflections on the Past 35 Years of Mathematics Education through the Eyes of Dr. Kenneth E. Easterday", Alabama Journal of Mathematics, Vol. 23, No. 1, Spring 1999, pp. 15-28.
- Smith, T. G. (1996). Final Project Report- Improving Mathematics Education in Grades 6-9 Throught the Integration of Content, Technology, and Manipulatives. (NSF Grant Number ESI-9155296). Birmingham, AL: Author.
- Smith, T. G. (Ed.). (1996). Demographics Reports for Improving Mathematics Education in Grades 6-9 Throught the Integration of Content, Technology, and Manipulatives. (NSF Grant Number ESI-9155296). Birmingham, AL: Author.
- Smith, T., Williams, S., & Wynn, N. (1995). "Cooperative Group Learning in the Secondary Mathematics Classroom". In Secondary Schools and Cooperative Learning: Theories, Models, Strategies, J. Pedersen & A. Digby, Eds. Garland Publications, Inc., 281-301.
- Smith, T. & Easterday, K. (1994). Field Dependence-Independence and Holistic Instruction in Mathematics. Birmingham, AL : University of Alabama at Birmingham. (ERIC Document Reproduction Service No. ED 377 072)
- Smith, T. (1993). NSF summer mathematics teacher institute. Renaissance Group Newsletter, 1(2), 5.

- Baird, W., Easterday, K., Rowsey, R., & Smith, T. (1993). A comparison of Alabama secondary science and mathematics teachers: Demographics and perceived needs. *School Science and Mathematics*, *93*(4), 175-182.
- Easterday, K., & Smith, T. (1992). A survey of mathematics teacher needs. *School Science and Mathematics*, *92*(4), 211-219.
- Easterday, K., & Smith, T. (1992). Personal demographics and teaching assignments of Alabama's secondary mathematics teachers. *Alabama Journal of Mathematics*, *16*(1 & 2), 17-30.
- Easterday, K., & Smith, T. (1992). A Monte Carlo application to approximate the integral  $e^{\int dx}$ . *School Science and Mathematics*, *92*(1), 23-25.
- Easterday, K., & Smith, T. (1991). An application of the Monte Carlo Method to approximate pi. *Mathematics Teacher*, *84*(5), 387-390.

## **PRESENTATIONS at PROFESSIONAL MEETINGS**

### **National**

- Smith, T., Mayer, J. & Ware, D. (2012, January). *Inquiry-Based Courses at UAB for Prospective Elementary and Middle School Teachers Modeling the Standards for Mathematical Practice*. Paper presented at the Joint Mathematics Meeting of the MAA and AMS, January 7, 2012, Boston, MA.
- Shores, M. L., & Smith, T.G. (November, 2010). *Girls engaged in mathematics and science: An evaluation of GEMS Exhibition*. Paper presented at the School Science and Mathematics Association (SSMA) 2010 Convention, Ft. Myers, FL.
- Shores, M. L., & Smith, T.G. (November, 2010). *A hands-on approach to learning mathematics and science: Evaluation of GEMS lesson plans*. Paper presented at the School Science and Mathematics Association (SSMA) 2010 Convention, Ft. Myers, FL.
- Shores, M. L., & Smith, T.G. (November, 2010). *The design and development of lesson plans for K-12 classrooms*. Paper presented at the School Science and Mathematics Association (SSMA) 2010 Convention, Ft. Myers, FL.
- Shores, M. L., & Smith, T.G. (October, 2010). *Exploring female pre-service teachers' perceptions of student attributions in mathematics*. Paper presented at the 2010 Research on Women in Education (RWE) Conference, Philadelphia, PA
- Mullins, B., Cochran, R., Mayer, J, & Smith, T. (2009, April). *Challenging Courses for All Students*. Paper presented at the 87<sup>th</sup> Annual Meeting of the National Council of Teachers of Mathematics, Washington, D.C.
- Shores, M. L., Hardy, S., Smith, T. G., & Radford, D. (2009, April). *GEMS*. Paper presented at the April 2009 Annual Conference for American Educational Research Association, San Diego, CA.
- Shores, M. L., Hardy, S., Smith, T. G., Radford, D., Baird, S. A., Parks, S., & Elliott, E. B. (2009, March). *Engaging girls in mathematics and science*. Paper presented submitted at the 20<sup>th</sup> Annual SITE International Conference, Charleston, SC.

- Shores, M. L., Elliott, Erin. B., Smith, T., Radford, D., Baird, S. A., Parks, S., & Hardy, S. (2008, November). *Girls Engaged in Math and Science (GEMS)*. Paper presented at the E-Learn 2008 World Conference, Las Vegas, NV.
- Shores, M. L., & Smith, T. G. (2008, November). *Exploring pre-service teachers' perceptions of student attributions in mathematics*. Paper presented at the 2008 Annual Convention for School Science and Mathematics Association, Raleigh-Durham, NC.
- Calhoun, C. & Smith, T.. *Making Fractions Meaningful for Your Students*, presented at the National Council of Teachers of Mathematics, 85th Annual Meeting, Atlanta, GA, March 23, 2007.
- Ware, D. & Smith, T.. *A Conceptual Understanding of Functions: Does Anybody See It Differently?*, presented at the National Council of Teachers of Mathematics, 85th Annual Meeting, Atlanta, GA, March 22, 2007.
- Calhoun, C. & Smith, T. "L-PAQ: Linking Problem-Solving, Assessment, and Questioning in Grades 3-5", presented at the National Council of Teachers of Mathematics, 84th Annual Meeting, St. Louis, MO, April 29, 2006.
- Calhoun, C. & Smith, T. "Using Games to Promote the Process Standards and Reinforce Basic Skills", National Council of Teachers of Mathematics, 83rd Annual Meeting, Anaheim, CA, April 8, 2005.
- Smith, T. & Calhoun, C. "Activities to Connect Data Analysis and Chance to Your Students' World", National Council of Teachers of Mathematics, 82nd Annual Meeting, Philadelphia, PA, April 23, 2004.
- Co-Presenter of "EdGrid at UAB: Uses of Modeling and Visualization in Preparing Pre-service Teachers", with Gypsy Abbott. Society for Information Technology and Teacher Education, 15<sup>th</sup> International Conference, Atlanta, GA, March 2, 2004.
- Smith, T. "EdGrid: Uses of Modeling and Visualization in Preparing Preservice Teachers". National Council of Teachers of Mathematics, 81<sup>st</sup> Annual Meeting, San Antonio, TX, April 10, 2003.
- Co-Presenter of "EdGrid: Integrating Computer-based Modeling and Scientific Visualization into Teacher Education Programs", with Lisa Bievenue and Linda Grisham. Society for Information Technology and Teacher Education, 14<sup>th</sup> International Conference, Albuquerque, NM, March 29, 2003.
- Co-Presenter of "Scientists Becoming Teachers: Lessons Learned from Teacher Partnerships", with Delwyn Harnisch, Sharon Comstock, and Gypsy Abbott. Society for Information Technology and Teacher Education, 14<sup>th</sup> International Conference, Albuquerque, NM, March 27, 2003.
- Smith, T. & Calhoun, C. "Wanna Bet! Taking the Mystery Out of Probability and Statistics", 80<sup>th</sup> Annual Meeting of the National Council of Teachers of Mathematics, April 22, 2002, Las Vegas, NV.
- Co-Presenter of "Moving K-12 Teachers into 21<sup>st</sup> Century Science with 21<sup>st</sup> Century Technology: Building the Educational Grid for Pre-service Training" with a panel at the 13th International Conference of the Society for Information Technology & Teacher Education, March 20, 2002, Nashville, TN.
- Smith, T., Abbott, G., & Ware, D. "Use of Modeling and Visualization in K-12 Classrooms: Preparing Pre-Service Teachers", presented at the EdGrid/NCSA Meeting, Arlington, VA, May 31, 2001.

- Smith, T. & Calhoun, C. "Promoting the NCTM Process Standards through Investigations, Games, and Problems", presented at the 79<sup>th</sup> Annual Meeting of the NCTM, Orlando, FL, April 5, 2001.
- Smith, T. & Calhoun, C. "Taking the Mystery Out of Probability and Statistics: Hands-On and Minds-On Applications", presented at the 78th Annual Meeting of the National Council of Teachers of Mathematics, Chicago, IL, April 13, 2000.
- Smith, T. & Calhoun, C. "Challenging Students to Think Critically Through Problem Solving Activities and Games", 75th Annual NCTM National Conference, Minneapolis, MN, April 18, 1997.
- Smith, T. "Mathematical Applications in Science and technology - MAST", Annual Meeting of the School Science and Mathematics Association, Williamsburg, VA, November 10, 1995.
- Smith, T. & Calhoun, C. "Developing Critical Thinking Skills in the Middle Grades", 74th Annual NCTM National Conference, San Diego, CA, April 25, 1996.
- Smith, T. "Integrating Content, Technology, and Manipulatives the NSF Way." NCTM 73rd Annual Meeting, Boston, MA, April 8, 1995.
- Smith, T & Calhoun, C. . "Games and Tricks to Motivate Students and Reinforce Basic Skills." NCTM National Conference, Indianapolis, April 16, 1994.
- Smith, T & Calhoun, C. "Probability and Statistics in the Upper Elementary Grades." 71st Annual meeting of the NCTM, Seattle, WA, April 1, 1993.
- Smith, T. "Applications of Secondary School Mathematics in the Sciences." Annual meeting of the School Science and Mathematics Association, Marquette, Michigan, October 1992.

## **Regional**

- Shores, M. L., & **Smith, T. G.** (February, 2010). *Designing and developing GEMS lesson plans for K-12 classrooms*. Paper presented at the 2010 Annual Conference for Eastern Educational Research Association (EERA), Savannah, GA
- Shores, M. L., Hardy, S., Smith, T., & Radford, D. (2009, February). *Exploring GEMS (Girls Engaged in Math and Science)*. Paper presented at the annual meeting of the Eastern Educational Research Association Conference, Sarasota, FL.
- Shores, M. L., Smith, T., & Hardy, S. (2009, February). *Individual learner variables and their affect on mathematics achievement as students advance from fifth to sixth grade*. Paper presented at the annual meeting of the Eastern Educational Research Association Conference, Sarasota, FL.
- Cochran, R. & Smith, T.. *Successes and Challenges of Implementing Inquiry-Based Instruction at the University Level*, presented at the Annual Conference of the Mid-South Educational Research Association, Birmingham, AL, November 9, 2006.
- Co-Presenter of "From Concrete Experiences To Abstract Models: Making The Simulation Connection In Education", with Gypsy Abbott, Warren Jones, Edna Gentry, Lois Harper, and Donna Ware. Huntsville Simulation Conference- HSC 2003 , Huntsville, AL, October 30, 2003.
- Smith, T. & Calhoun, C. Southeastern Regional Association of Teacher Educators (SRATE), Savannah, GA, November, 1990. "Junior Academy of Math: Dealing with the Equity Issue in Mathematics."

Smith, T. & Calhoun, C. NCTM Central Regional Conference, Louisville, KY, October 10, 1991. "Real-World Mathematics Through Probability and Statistics."

Smith, T. NCTM Central Regional Conference, Louisville, KY, October 11, 1991. "Enlivening Mathematics Through Applications: Algebra, Geometry, and Probability."

Smith, T. NCTM Southeastern Regional Conference, Baltimore, MD, November 1, 1991. "Applications of Secondary School Mathematics: Teaching Secondary School Geometry."

Smith, T. NCTM Southern Regional Conference, March 12, 1993, Columbus, GA. "Activities to Implement the Problem Solving and Probability and Statistics Standards."

Smith, T. NCTM Southern Regional Conference, Jackson, MS, Oct. 21, 1993. "Applications of Secondary School Mathematics in the Sciences."

Smith, T. NCTM Southern Regional Conference, Richmond, VA, Feb. 14, 1994. "Activity Based Problem Solving in the Middle Grades."

Smith, T. & Calhoun, C. NCTM Eastern Regional Conference, Charleston, WVA, November 3, 1994. "Using Problems to Develop Critical Thinking Skills."

Smith, T. NCTM Southern Regional Conference, Birmingham, AL, February 9, 1995. "Problem Solving in the Middle Grades."

Smith, T. & Calhoun, C. "Using Games to Encourage Problem Solving and Reinforce Skills", Southern Regional NCTM Conference, Atlanta, GA, February 27, 1997.

Smith, T. "Problem Solving in the Middle Grades", presented at the Southern Regional Meeting of the National Council of Teachers of Mathematics, Mobile, AL, March 16-18, 2000.

### **State and Local**

Smith, T. and Calhoun, C.. "A Proposal for a New Major in Middle Grades Mathematics: A Collaboration Between the Department of Mathematics and the School of Education at UAB", presented at the TEAM Math Annual Conference, Tuskegee, AL, August 27, 2005.

Numerous other math workshops with local schools and with the ACTM State Conferences.

### **FUNDED GRANTS**

Co-PI (with Gypsy Abbott) - "GK-12: EdGrid Graduate Teaching Fellows Program". Funded by the NSF (UAB is a subcontractor with UIUC as the lead institution) for \$552,240. May 2001-May 2004.

Co-PI (David Radford - PI) - "Planning and Development of the Birmingham Center for Learning and Teaching in Science, Math, and Technology". Funded by the National Science Foundation for \$194,729. October 2001-October 2002.

Co-PI (with Gypsy Abbott) - "Use of Modeling and Visualization in K-12 Classrooms: Preparing Preservice Teachers" (ASPIRE grant). Funded by the National Center for Supercomputing Applications (NCSA) for \$167,629. September 1999- September 2002.

Co-PI (Lee Meadows- PI) - "Math and Science Teachers for the 21<sup>st</sup> Century: The FACT Project". Internal grant funded by the UAB SOE as part of EL 21, \$7500, 1997-98 academic year.

Co-PI (Lee Meadows- PI) - "Strategic Teaming to Advance the Readiness of Teachers" (Alabama Start). Funded by the National Science Foundation (NSF) for \$100,000. February 1996- January 1997.

Principal Investigator- "Strengthening Algebra and Geometry Achievement (SAGA)". Funded by the Alabama Commission on Higher Education (ACHE)- under the D.D. Eisenhower Program RFP for \$33,831. 1995.

Principal Investigator- "Improving Mathematics Teaching in Grades 6-9 Through the Integration of Content, Technology, and Manipulatives". Funded by the National Science Foundation (NSF) for \$534,480. 1992-1996.

Principal Investigator- "Teaching Algebra and Geometry Using Manipulatives and Calculators"- Funded by ACHE- D.D. Eisenhower Program for \$37,444. 1994.

Principal Investigator- "Inservice Training in the Use of Mathematics Manipulatives, in Grades 7-12". Funded by ACHE- D.D. Eisenhower Grant for \$35,343. 1993.

Principal Investigator- "Inservice Training in the Use of Mathematics Manipulatives, in Grades 4-6"- (with C. Calhoun, also Principal Investigator). Funded by the ACHE- D.D. Eisenhower Grant for \$62,180. 1992.

## **TEACHING RESPONSIBILITIES**

My major area of courses taught has been in secondary mathematics education, both undergraduate and graduate levels. Additional courses include undergraduate and graduate general secondary education courses, as well as, mathematics courses for elementary and secondary education students. Specific courses include:

EHS 401 (Secondary School Teaching Methods I)

EHS 465/565 (Secondary School Curriculum: Mathematics)

EHS 616 (Teaching Secondary School Mathematics)

EHS 681 (Special Topics in Education)

EHS 651 (Innovative Practices in Secondary Education)

EHS 648 (Creative Teaching in Secondary Schools)

EHS 728-729 (Educational Specialist Project I & II)

EHS 490/691 (Student Teaching)

EHS 489/690 (Student Teaching Seminar)

MA 305 (History of Math)

MA 313/513 (Patterns Functions and Algebraic Reasoning)

MA 314/514 (Geometric and Proportional Reasoning)