DR. JILL A. COCHRAN
jcochran@berry.edu

EDUCATION

DOCTORATE IN MATHEMATICS EDUCATION — Graduated: Aug. 2010
Texas State University » San Marcos, Texas

TEXAS TEACHER CERTIFICATION (4-8 GENERALIST) — Completed: May 2005
iTeachTexas Alternative Certification

BACHELOR OF SCIENCE, MATHEMATICS EDUCATION — Graduated: May 2004
Southern Utah University » Cedar City, Utah

EXPERIENCE

ASSOCIATE PROFESSOR — Aug. 2016 – present

Activities in addition to assistant professor include

- Received external grant funding as PI
- Directed the STEMTeach program

CHAIR OF MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT — July 2016 – July 2019

- Performed annual evaluations of faculty and encouraged professional growth
- Organized a standing department curriculum committee to standardize shared courses
- Improved assessments of departmental goals
- Expanded the STEMTeach program to include math and science students interested in teaching
- Advocated for twice as many computer science courses as previously taught
- Initiated a placement assessment and preparation learning for initial math courses

ASSISTANT PROFESSOR — Aug. 2010 – July 2016
Berry College » Mount Berry, Georgia

- Taught undergraduate and graduate mathematics courses for pre-service teachers
- Supervised mathematics education student teachers
- Directed study broad experience in Norway
- Continued research about teachers' philosophies about mathematics education
- Assisted middle school teachers at the Berry laboratory school in focusing and vertically aligning the math curriculum as well as serving as a math consultant to both the elementary and middle laboratory schools.
- Supervised undergraduate research projects related to graph theory, estimation strategies, mental math, influences on mathematical potential, 3D printing in the math curriculum
- Served on committees for master's students, teacher education, graduate council, student scholarship, planning council

GRADUATE RESEARCH ASSISTANT — Jan. 2008 – Aug. 2010
Texas State University » San Marcos, Texas

- Processed data about terrorists to give meaningful predictions and visualizations for analysts
- Programmed visualizations and analyzed graph properties to identify areas of interest for both teacher networks and terrorist networks
- Furthered graph theory research in regard to unit distance graphs

MIDDLE SCHOOL MATH & SCIENCE TEACHER — Dec. 2004 - Aug. 2007
Austin Independent School District » Austin, Texas

- Taught seventh grade math and eighth grade science to a diverse group of students in a Title I school
- Developed curriculum for the school and district
- Supervised a student teacher

SUBSTITUTE TEACHER Sept. 2004 - Dec. 2004
Austin Independent School District » Austin, Texas

CURRENT RESEARCH

3D PRINTING AND GEOMETRY

» Creating and implementing lessons in elementary and middle school classrooms that utilizing principles of 3D design and printing to teach key geometry and measurement concepts that are often difficult to appreciate using other forms of instruction.

SECONDARY TEACHER PREPARATION

» Exploring ways to prepare secondary pre-service math teachers to teach math conceptually and developmentally. By exploring activity-based and hands-on approaches, students connect middle and high school curricula and standards to their college level math and educational theories.

MATHEMATICS TEACHERS' PHILOSOPHIES

» Using advanced statistical and geometric data analysis methods, secondary teachers' philosophies about mathematics education were measured and analyzed in relation to historical and theoretically important ideologies.

PUBLICATIONS

Cochran, J. A. (2018). Gone fishing: science, proportions and probability in S. McMillen, E. Friedland, and P. del Prado Hill (Eds.), *Integrating Math across the K-6 Curriculum*. Reston, VA: NCTM.

Cochran, J. A., Cochran, Z. R., Dean, M., Sills, M. (2017). *A new dimension of mathematics with 3D printing & design: Grades 3 - 5.* CreateSpace [self-published].

Cochran, J. A., Cochran, Z. R., & Dean, M. (2017). *A new dimension of mathematics with 3D printing & design: Grades 6 – 8.* CreateSpace [self-published].

Cochran, J. A., Henderson, T., Ostrander, A., & Taylor, R. (2016). Domination with decay in triangular matchstick arrangement graphs. *Involve, 10*(5), 749–766.

Cochran, J. A., Cochran, Z., Dean, M.*, & Laney, K.* (2016). Expanding geometry understanding with 3D printing. *Mathematics Teaching in the Middle School, 21*(9), 534-542.

Cochran, J. A., Cochran, Z., Hopper, M.* (2016). Will it print? Understanding dimensions with 3D printing. *ICME 13 Conference Proceedings.*

Cochran, J. A. (2015). Organization and visualisation for analysis of forced-choice ipsative data. *International Journal of Research & Method in Education, 38*(4), 413-429.

Cochran, J. A. (2014). Gone fishing: Science, proportions and probability. *Mathematics Teaching in the Middle School, 20*(1), 16-23.

Cochran, J. A. & Hartmann, M.* (2013). Taking the guesswork out of computational estimation. *The Mathematics Educator, 23*(1), 60-73. http://tme.journals.libs.uga.edu/index.php/tme/article/view/263/250

Cochran, J. A. (2012). Proceedings from ICME '12: *International Congress on Mathematics Education:* Does a Balanced Philosophy in Mathematics Education Exist? Seoul, South Korea.

Cochran, J. A. (2010). Secondary Mathematics Teachers' Curriculum Philosophies and Experience, Ph.D. Dissertation, Texas State University-San Marcos.

*Undergraduate student co-author

PRESENTATIONS & COLLABORATION

NOYCE SUMMIT July 10-12, 2019

Co-presented with Melissa Demetrikopoulos
Apprenticeships and Collaborative Professional Development

SOUTHEASTERN NOYCE CONNECTIONS June 23-26, 2019
Co-presented with Zack Walch, Kevin Hoke, Melissa Demetrikopoulos
Mentor Days: Collaborative Professional Development (Poster presentation)

ASSOCIATION OF MATHEMATICS TEACHER EDUCATORS Jan. 6-9, 2019
The Role of Technology in Understanding 3D Geometry

GEORGIA COUNCIL OF TEACHERS OF MATHEMATICS Oct. 17-19, 2018
Co-presented with Frankie Reda
Using Technology to Understand 3D Geometry

GEORGIA COUNCIL OF TEACHERS OF MATHEMATICS Oct. 18-20, 2017
Understanding Dimensions: A Foundation for STEAM

INTERNATIONAL CONGRESS ON MATHEMATICS EDUCATION July 24-31, 2016
Co-presented with Zane Cochran
Will it Print? Understanding Dimensions with 3D Printing

NATIONAL COUNCIL FOR TEACHERS OF MATHEMATICS Nov. 2015
Co-presented with Zane Cochran, Mandi Dean and Kat Pugh
3D Printing Your Elementary Geometry Curriculum

GEORGIA STEM FORUM Oct. 26-27, 2015
Co-presented with Zane Cochran
Maker Academy: A Partnership that Builds Making Opportunities and Leadership

GEORGIA COUNCIL OF TEACHERS OF MATHEMATICS Oct. 14-16, 2015
Measures of Spread and Actively Learning Statistical Concepts

GEORGIA STEM FORUM Oct. 21, 2014
Co-presented with student researcher Zane Cochran
Enhancing your 4-8 Geometry Curriculum with 3D Printing

GEORGIA COUNCIL FOR TEACHERS OF MATHEMATICS Oct. 15-17, 2014
Co-presented with student researchers Zane Cochran, Mandi Dean, Kendra Laney
Enriching Elementary and Middle Grades Geometry Curriculum with 3D Printing

INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION July 1, 2014
Co-presented with student researcher Zane Cochran
Enriching Elementary Geometry Curriculum with 3D Printing

GEORGIA COUNCIL OF TEACHERS OF MATHEMATICS MEETING AT ROCK EAGLE, GA Oct. 17-19, 2013
[Invited Talk] Gone Fishing: Connections to Proportions and Probability in a Real Scientific Context
[Invited Talk] Engaging Elementary Students in a Math Trail with Hands-on Real Life Activities

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS NATIONAL MEETING IN DENVER, CO Apr. 20, 2013
Gone Fishing: Proportions and Probability in a Real Scientific Context

MATHEMATICAL ASSOCIATION OF AMERICA – SOUTHEAST SECTION MEETING IN ROCK HILL, SC Mar. 15, 2013
Co-presented with student researcher Zane Cochran

The Development of Digital Manipulatives on Multiple Platforms for Enhanced Student Explorations

ASSOCIATION OF MATHEMATICS TEACHER EDUCATORS NATIONAL MEETING IN ORLANDO, FL Jan. 25, 2013
Co-presented with Jean S. Lee, Sarah H. Roberts, and Scott A. Courtney (fellows in STaR program)
Developing Practical Images of the Standards of Mathematical Practice to Support Pre-Service Teachers

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS REGIONAL MEETING IN HARTFORD, CT Oct. 26, 2012
Co-presented with student researcher Megan Hartmann
Computational Estimation's Importance in the Middle School

INTERNATIONAL CONGRESS ON MATHEMATICS EDUCATION IN SEOUL, SOUTH KOREA July 10, 2012
Does a Balanced Philosophy in Mathematics Education Exist?

MATHEMATICS ASSOCIATION OF AMERICA – SOUTHEAST SECTION IN MORROW, GA Mar. 2012
Beginning Research with Undergraduates

MATHEMATICS ASSOCIATION OF AMERICA – SOUTHEAST SECTION IN MORROW, GA Mar. 2012
Neat Teaching Idea: Using Dynamic Geometry Software in a Variety of Math Courses

ASSOCIATION OF MATHEMATICS TEACHER EDUCATORS IN FORT WORTH, TX Feb. 2012
Using Unique Campus Resources to Build a Math Trail Experience for K-12 Students: Designing a Mathematically Rich Campus Experience for 1st-3rd Graders (Poster presentation)

MATHEMATICS ASSOCIATION OF AMERICA – SOUTHEAST SECTION AT UNIVERSITY OF ALABAMA Apr. 2011
Teaching Philosophies and Their Relationship to Experience

DOCTORAL MATHEMATICS EDUCATION RECRUITING EVENT AT TEXAS STATE UNIVERSITY Feb. 2011
Are You Smarter than a Sixth Grader: Estimation and Fractions

MATHEMATICS EDUCATION SEMINAR: TEXAS STATE DEPARTMENT OF MATHEMATICS Oct. 2009
Comparing Secondary Mathematics Teachers' Curriculum Philosophies: When Does Experience Matter?

SANDIA NATIONAL LABORATORIES RESEARCH COLLABORATION Aug. 2009
» Increased collaboration with several people at Sandia National Labs about unit distance graphs, social networks and clustering algorithms

COMBINATEXAS: COMBINATORICS IN THE SOUTH-CENTRAL U.S. CONFERENCE Apr. 2009
Finding and Visualizing Networks of Terrorism Buried in Large Data Sets

MATHEMATICS EDUCATION SEMINAR: TEXAS STATE DEPARTMENT OF MATHEMATICS Feb. 2009
Curriculum Philosophies of Secondary Mathematics Teachers

SANDIA NATIONAL LABORATORIES RESEARCH COLLABORATION Aug. 2008
» Collaboration with select individuals at Sandia National Labs about current visualization methods used in analysis of terrorist networks, network problems, and unit distance graphs

GRANTS & AWARDS

ROBERT NOYCE TEACHER SCHOLARSHIP GRANT – NATIONAL SCIENCE FOUNDATION April 2018
Preparing STEM Teachers for Urban and Rural School Districts in Northwest Georgia **$1,191,705**
PI: Jill Cochran, Co-PI: Jackie McDowell, Personnel: Eric McDowell, Todd Timberlake, Mike Morgan, Lindsey Davis

DEVELOPMENT OF UNDERGRADUATES THROUGH RESEARCH GRANT – BERRY COLLEGE May 2016

Understanding Dimension: The Role of Technology in Developing 3D Representations **$620**

GEORGIA POWER Jul. 2014
Maker Academy **$30,000**
Co-authors: Zane Cochran and Jackie McDowell

ROBERT NOYCE TEACHER SCHOLARSHIP GRANT – NATIONAL SCIENCE FOUNDATION Sept. 2013
R.I.S.E. to the Call (Not funded) **$1,437,265**
Co-Authors: Jackie McDowell, Eric McDowell, Andrew Bressett, Todd Timberlake

DEVELOPMENT OF UNDERGRADUATES THROUGH RESEARCH GRANT – BERRY COLLEGE Mar. 2014
3D Printing Geometry: A New Dimension in Elementary Education **$928**

TECHNOLOGY COURSE ENHANCEMENT – BERRY COLLEGE Feb. 2014
Technology redesign in MAT 111 – Introduction to Statistics **$2,300**

COURSE ENHANCEMENT GRANT – BERRY COLLEGE June 2012
Complete course redesign in MAT 340 – Methods for Middle Grades and Sec. Math Instruction **$1000**

MAJOR SERVICE AND RELATED CONSULTING

HACKBERRY VOYAGERS – STEM FIELD TRIPS FOR ELEMENTARY STUDENTS Aug. 2017 – present
- » Designed station activities, coordinated logistics, organized up to 40 college student volunteers
- » Hosted at least 3 groups of up to 80 elementary students each year

TEACHER WORKSHOPS – FLOYD COUNTY MIDDLE AND HIGH SCHOOL TEACHERS Jan. 2015 – June 2017
- » Designed program and taught with the goal of increasing the teachers' content knowledge and knowledge of technology while modeling best practices in mathematics education to middle and high school in-service teachers during monthly meetings during the spring and two weeks of training during the summer.

MATH TRAIL – MATH FIELD TRIP FOR ELEMENTARY STUDENTS Oct. 2012 – Dec. 2016
- » Designed station activities, coordinated logistics, organized up to 40 college student volunteers
- » 275 elementary students came over two days in Oct. 2012 from Floyd County Schools
- » 50 elementary students participated from Berry Elementary for two days in Nov. 2012, 2013 and 2014
- » Four groups of approximately 80 students each participated in the fall of 2016

TEACHER WORKSHOPS – FLOYD COUNTY ELEMENTARY SCHOOL TEACHERS June - July 2012
- » Designed lessons, helped coordinate instructors to introduce the new Common Core State Standards and teach best practices in mathematics education to K-5 in-service teachers over 2 weeks of workshops

TEACHER WORKSHOPS – ATLANTA ACADEMY Aug. 2011
- » Introduced elementary teachers to hands-on techniques and math workshop lessons in a 1 day workshop

TEACHER WORKSHOPS – FLOYD COUNTY MIDDLE AND HIGH SCHOOL TEACHERS June - July 2011
- » Designed lessons and team-taught them with the goal of increasing the teachers' content knowledge and introducing them to the future Common Core State Standards while modeling best practices in mathematics education to middle and high school in-service teachers over 3 weeks of workshops

ASSOCIATIONS

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS
GEORGIA COUNCIL OF TEACHERS OF MATHEMATICS
ASSOCIATION OF MATHEMATICS TEACHER EDUCATORS
GEORGIA ASSOCIATION OF TEACHER EDUCATORS

STAR FELLOW – A national program for promising new faculty in mathematics education Accepted 2010
MAA-SE NEXT FELLOW – A regional program for promising new faculty in mathematics Accepted 2010

HONORS

Chancellor's Scholarship for Distinguished Mathematics Education Doctoral Student
Received 2009 » Texas State University-San Marcos

Alpha Chi National Honor Scholarship Society
Received 2003 » Southern Utah University

USAA National Collegiate Mathematics Award: Outstanding Mathematics Major
Received 2003 » Southern Utah University

CRLA Advanced and Master Tutoring Certificates
Received 2002 » Southern Utah University