

# Jessica T. Ivy

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## CV-AT-A-GLANCE

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- Ph.D. in Education, Secondary Education, 2011. University of Mississippi
  - \$653,000+ in externally **Funded Projects** since 2015
  - **2 Scholarly Book Chapters**
  - **14 Peer-Reviewed Publications** since 2013
  - **37 Peer-Reviewed and Invited Presentations** Nationally, Regionally or State since 2008
  - **NCTM Professional Development Services Committee Member** since 2017
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## EDUCATIONAL AND PROFESSIONAL CREDENTIALS

### Education

University of Mississippi, University, MS

*Ph.D. in Education, emphasis in Secondary Education, May 2011*

University of Mississippi, University, MS

*Master of Education, Curriculum and Instruction, emphasis in Secondary Education, May 2008*

University of Mississippi, University, MS

*Bachelor of Arts in Education, Mathematics Education, May 2006*

### Licensure

State of Mississippi, Class AAAA, 7 – 12 Mathematics, License No. 192383, Exp. 6/2025

## PROFESSIONAL EXPERIENCE

Assistant Professor, Annisley Frazier Thornton School of Education, Bellarmine University, Louisville, KY,  
August 2018 – present

- Teaches undergraduate and graduate courses in secondary mathematics education, pedagogy, and general education
- Advises teacher education students
- Maintains an active research agenda focused on the integration of technology in teaching, STEM education, and the recruitment, preparation, and retention of STEM teachers
- Collaborates with colleagues in education and disciplinary fields to acquire funding and conduct research on STEM education
- Serves the field through national committee work with the National Council of Teachers of Mathematics

Assistant Professor, Department of Curriculum, Instruction, and Special Education, Mississippi State University, August 2014 – August 2018

Visiting Faculty, Department of Curriculum, Instruction, and Special Education, Mississippi State University, January 2012 – May 2014

Grant Opportunities Coordinator, Center for Mathematics and Science Education, University of Mississippi, August 2011 – January 2012

Adjunct Instructor, Department of Mathematics, University of Mississippi, Mathematics for Elementary School Teachers I, II (MATH 245, 246), August 2009 – December 2011

Graduate Research Fellow, Center for Mathematics and Science Education, University of Mississippi, June 2007 – May 2011

Mathematics Teacher - Research Assistant, Institute for Innovation in Mathematics Education, University of Mississippi, July 2008 – July 2010

Mathematics Teacher, Booneville High School, Booneville, MS  
August 2006 – May 2007, Pre-Algebra, Algebra II, Trigonometry, Statistics

Mathematics Teacher, Biggersville High School, Biggersville, MS  
2006, Algebra I, Algebra II

#### FUNDED GRANTS

2018 – 2019 National Science Foundation (\$74,497)  
Noyce Capacity Building, StATE STEM: Strengthening and advancing teacher education in STEM  
PI: Dana Franz  
co-PIs: Jessica Ivy, Ryan Walker, Kim Walters, Anastasia Eder

2018 – 2019 National Security Agency (\$100,000)  
GenCyber Teacher Workshop, 2018 Bulldog Bytes  
PI: Jessica Ivy

2018 – 2019 National Security Agency (\$99,552)  
GenCyber Student Camps, Bulldog Bytes  
PI: Sarah Lee  
co-PI: Jessica Ivy

2017 – 2018 National Security Agency (\$100,000)  
GenCyber Teacher Workshop, 2017 Bulldog Bytes  
PI: Jessica Ivy

2016 – 2017 National Security Agency (\$100,000)  
GenCyber Combination Student Camp/Teacher Workshop, 2016 Bulldog Bytes  
PI: Sarah Lee  
co-PI: Jessica Ivy

- 2015 – 2016 Institutes of Higher Learning (\$89,999)  
NCLB/Title II, New Understandings in Math Beyond the 3 Rs (NUMB3RS)  
PI: Jessica Ivy  
co-PIs: Dana Franz, Seth Oppenheimer, Stephanie Lemley
- 2014 – 2015 Institutes of Higher Learning (\$89,754)  
NCLB/Title II, New Understandings in Math Beyond the 3 Rs (NUMB3RS)  
PI: Jessica Ivy  
co-PIs: Dana Franz, Seth Oppenheimer, Stephanie Lemley

## PUBLICATIONS

- Wan, A., & **Ivy, J.** (2018). Adding a new dimension to teaching mathematics educators. In Niess, M. (Ed.), *Handbook of Research on TPACK in the Digital Age*. Hershey, PA: IGI Global.
- Lee, S., *Lineberry, L.*, **Ivy, J.**, White, V., Jankun-Kelly, M., Lynn, R., Minnifield, B., & Vaughan, L. (upcoming 2018). *CodeMS: Developing Equitable Access to Computing and Cybersecurity Education in Mississippi (Conference Paper)*. Annual Conference of CoNECD-Collaborative Network for Engineering and Computing Diversity, Crystal City, VA.
- White, V., Lineberry, L., Grimes, D., Lee, S., **Ivy, J.**, & Bostick, H. (upcoming 2018). *Illuminating the Computing Pathway for Girls in Mississippi (Conference Paper)*. ASEE Annual Conference & Exposition, Salt Lake City, UT.
- Moser, K., **Ivy, J.**, Hopper, P.H. (pending). Rethinking Content Teaching at the Middle Level: An Interdisciplinary Approach, *Middle School Journal*.
- Miller, N.C., McKissick, B.R., **Ivy, J.T.**, & Moser, K. (2017). Supporting diverse young adolescents: Cooperative grouping in inclusive middle school settings. *The Clearing House*, 90(3), 86 – 92.
- Lineberry, L., Lee, S., **Ivy, J.** Bostick, H. (2018). Bulldog Bytes: Engaging Elementary Girls with Computer Science and Cybersecurity (Published Conference Proceedings). *ASEE Southeastern Section Conference*, Daytona Beach, FL. [<http://www.asee-se.org/proceedings/ASEE2018/papers2018/8.pdf>]
- Ivy, J.**, Hollis, S., Franz, D., Lee, Sarah (2017). *Exploring pathways to developing self-efficacy in new computer science teachers*. 2017 ASEE Zone II Conference, Puerto Rico..
- Moser, K. & **Ivy, J.** (2016). Setting the stage with high leverage teaching practices. ASCD Express.
- Ivy, J.** & Franz, D. (2016). Exploring the technological pedagogical content knowledge (TPACK) of high school math teachers: A multiple case study. *Journal of Mathematics Education Leadership*, 17(1), 3 – 19.
- Franz, D., **Ivy, J.**, & McKissick, B. (2016). Equity and access: All students are mathematical problem solvers. *The Clearinghouse: A Journal of Education Strategies, Issues and Ideas*, 89(2), 73 – 78.

- Ivy, J.** (2015). Making math homework work. *Association of Middle Level Educators Magazine*, 2(5), 21 – 23.
- Ivy, J., Miller, N., Moser, K., & McKissick, B.** (2015) Six functions of effective bellringers. *New Teacher Advocate*.
- Ivy, J. & Franz, D.** (2013). Two classroom portraits demonstrating the interplay of secondary mathematics teachers' TPACK on their integration of the mathematical practices. In D. Polly (Ed.), *Common Core Math and Technology*. Hershey, PA: IGI Global, 213–225.
- Moser, K., & **Ivy, J.** (2013). World language teachers: Self-perceptions of their TPACK. *Modern Journal of Language Teaching Methods*, 3(2), 167–190.

#### PEER REVIEWED PRESENTATIONS

- Ivy, J. & Franz, D.** (2018, April). *Rural education: Considering the unique needs of rural math classrooms*. National Council of Supervisors of Mathematics Annual Conference, Washington, DC.
- Franz, D. & **Ivy, J.** (2018, February). *Filling the gap with excellence: A study of high achieving teacher candidates*. Research Council on Mathematics Learning, New Orleans, LA.
- Ivy, J. & Lee, S.** (2017, December). *Innovation in STEM education: Training teachers to integrate cybersecurity*. National Initiative for Cybersecurity Education Conference, Nashville, TN.
- Ivy, J.** (2017, October). *TPACK: One measure of GenCyber Teacher Camp Impact*. NSA GenCyber Fall Meeting, Orlando, FL.
- Franz, D., & **Ivy, J.** (February, 2017). *Planning collaboratively: An interdisciplinary approach for preparing middle school teachers*. Association for Mathematics Teacher Educators Annual Conference, Orlando, FL.
- Moser, K., **Ivy, J.**, & Miller, N. (November, 2016). *Standards-based units for middle level instruction: Focusing on connections*. American Council on the Teaching of Foreign Languages Annual Conference, Boston MA.
- Ivy, J.** (2016, July). *Algebra for all: Sixth Grade Institute*. (Series of sessions). New York City Department of Education. New York, NY.
- Ivy, J., & Dougherty, B.** (2016). *Preview: Interactive Algebra Institute*. National Council of Teachers of Mathematics Annual Conference, San Francisco, CA.
- Ivy, J.** (2015, October). *Tech tools for teaching*. Mississippi Council of Teachers of Mathematics Annual Conference. Oxford, MS.
- Franz, D., **Ivy, J.** (2015, November). *Recruiting high quality mathematics teachers in rural settings*.

National Council of Teachers of Mathematics Regional Conference. Nashville, TN.

**Ivy, J.** & Franz, D. (2014, November). *Research to Practice: A partnership between university faculty and middle school teachers*. Annual Conference for Middle Level Education, Nashville, TN.

**Ivy, J.** (2014, May). *Standards for Mathematical Practice: Repackaging best practices*. Mississippi Association of Mathematics Teacher Educators, Oxford, MS

**Ivy, J.** (2013, November). *The foreign nature of language in your classroom*. National Council of Teachers of Mathematics Regional Conference, Louisville, KY.

**Ivy, J.,** Franz, D., Steimle, A., McShea, C., Peters, M., Livingston, C., & Floyd, T. (2013, September) *Graduate programs informational session*. Mississippi Council of Teachers of Mathematics Annual Conference, Biloxi, MS.

**Ivy, J.,** & James, J. (2013, January). *Sustained professional development: A vehicle for promoting mathematically proficient leaders in elementary schools*. Association of Mathematics Teacher Educators Annual Conference, Orlando, FL.

Franz, D., & **Ivy, J.** (2013, January). *Formalizing a school-university partnership. What's in it for me?* Association of Mathematics Teacher Educators Annual Conference, Orlando, FL.

**Ivy, J.** (2012, September). *Technology in practice*. Mississippi Council of Teachers of Mathematics Annual Conference, Starkville, MS

**Ivy, J.** (2011, April). *Secondary mathematics teachers' perceptions of their integration of instructional technologies*. The University of Mississippi Graduate Student Council Poster Symposium, Oxford, MS.

Riales, J., James, J. & **Ivy, J.** (2011, January). *Algebra for all: Using TI-Navigator to provide equal opportunities to at-risk students*. Association of Mathematics Teacher Educators Annual Conference, Irvine, CA.

Barlow, A., Horton, L., Gompa, V., Franz, D., Livingston, C., Harmon, S., **Ivy, J.**, Peters, M. & McShae, C. (2010, October). *A graduate degree: Is it for you?* Mississippi Council of Teachers of Mathematics Annual Conference, Hattiesburg, MS.

James, J. & **Ivy, J.** (2010, October). *Developing mathematically proficient leaders in elementary schools*. Mississippi Council of Teachers of Mathematics Annual Conference, Hattiesburg, MS.

**Ivy, J.** (2009, November). *x to Why: Tools for development of productive dispositions in algebra*. National Council of Teachers of Mathematics Regional Conference, Minneapolis, MN.

**Ivy, J.** (2009, October). *The magic bullet: How to prepare for the big test*. Mississippi Council of Teachers of Mathematics Annual Conference, Oxford, MS.

Barlow, A., Steimle, A., **Ivy, J.**, Fillingim, J., James, J. & Wells, E. (2009, February). *Mission possible: Overcoming obstacles faced in an elementary mathematics methods course*. Association of Mathematics Teacher Educators Annual Conference, Orlando, FL.

### INVITED PRESENTATIONS

**Ivy, J.** (upcoming 2018, October). 2018 (ICS)<sup>2</sup> Security Conference. *STEAM – Why not? (Panel discussion)*, New Orleans, LA.

**Ivy, J.** (2017, October). *2017 GenCyber Bulldog Bytes Teacher Workshop poster*. GenCyber Fall Conference, Orlando, FL.

**Ivy, J.** (2016, July). *Algebra Readiness Institute: Middle School*. (Series of sessions) National Council of Teachers of Mathematics Interactive Institute, Denver, CO

**Ivy, J.** (2015, July). *Algebra Readiness Institute: Middle School*. (Series of sessions) National Council of Teachers of Mathematics Interactive Institute, Chicago, IL.

**Ivy, J.**, & Miller, N. C. (2015, July). *Web 2.0 and Apps for Foreign Language Educators*. World Language Educators Workshop. Starkville, MS.

**Ivy, J.** (2014, July). *Algebra Readiness Institute: Middle School*. (Series of sessions) National Council of Teachers of Mathematics Interactive Institute, San Diego, CA.

**Ivy, J.** (2013, June). *Algebra Readiness Institute: Middle School*. (Series of sessions) National Council of Teachers of Mathematics Interactive Institute, New Orleans, LA.

Dougherty, B. & **Ivy, J.** (2013, June). *Algebra Readiness Institute: Professional Development Strand*. (series of add-on sessions) National Council of Teachers of Mathematics Interactive Institute, New Orleans, LA.

Dougherty, B. & **Ivy, J.** (2013, June). *x to Why: Generalizing big ideas to support big learning*. *NCTM Algebra Readiness Institute* (Keynote): Grades 6 – 8, New Orleans, LA.

**Ivy, J.** & Riales, J. (2011, January). *Teaching with technology*. Mississippi NASA Space Grant Consortium Annual Teachers' Conference, Oxford, MS.

**Ivy, J.** & Riales, J. (2010, January). *How to incorporate NCTM's five process standards in your classroom*. Mississippi NASA Space Grant Consortium Annual Teachers' Conference, Oxford, MS.

**Ivy, J.** & James, J. (2009, January). *From graphing calculators to interactive tools: How to use the TI-Navigator system to improve teaching and learning in the classroom*. Mississippi NASA Space Grant Consortium Annual Teachers' Conference, Oxford, MS.

**Ivy, J.** (2008, January). *Raising the standard*. Mississippi NASA Space Grant Consortium Annual Teachers' Conference, Oxford, MS.

## RESEARCH PROJECTS

NSA GenCyber Bulldog Bytes Teacher Workshop Experiences, 06/2016 – present, PI and Director

This study includes the exploration of teachers' integration of cyber security and programming concepts in their planning for content instruction, with a focus on TPACK specific to disciplinary content.

Indicators of Successful Pathways to Technological Degrees and Careers: A Longitudinal Study of Technological Access, Tools, Education, and Opportunities in the Deep South, 06/2016 – present, Co-PI

This project involves collecting and analyzing data from middle and high school boys and girls engaged in a summer cyber experience to better understand gender and race inequities within the workforce.

Interdisciplinary Unit Design in Secondary Methods Courses 01/2015 – 05/2016, Co-PI

This collaborative project involves studying the impact of interdisciplinary unit planning during secondary methods courses on teacher preparation.

New Understandings in Mathematics Beyond the 3 Rs (NUMB3RS), 04/2015 – 04/2017, PI, Director

This funded professional development study focuses on the implementation of instructional and content area literacy strategies, rigorous content, and the integration of educational technologies in secondary mathematics classrooms.

Recruiting Challenges and Successes of the MET Program, 01/2014 – 12/2017, Co-PI

The purpose of this research is to document the challenges associated with recruiting high-achieving high school senior to teach secondary math by committing to an incentive-based, cross-university cohort program.

Communication Barriers in Mathematics Classrooms, 08/2012 – 05/2013, Co-PI

This qualitative research study includes the use of a series of language-embedded mathematics tasks to provide a foundation for discussion of the challenges faced by both English Language Learners and native English Speakers in the mathematics classroom. The study participants are pre-service teachers, and the setting is a senior-level mathematics methods course.

A Survey of Foreign Language Teachers' TPACK, 01/2012 – 05/2012, Co-PI

The purpose of this study was to obtain a vision of the Technological, Pedagogical, and Content Knowledge (TPACK) of in-service foreign language teachers. Data was gathered from more than one hundred teachers, who were contacted through the ACTFL listserv and assessed using an instrument to gather data about self-perceptions and beliefs of each theme of TPACK.

NSF RDE-FRI, Award No: 0726300), 9/01/2007 – 8/31/2010, The Effectiveness of Texas Instrument Navigator Technology on Algebra I Achievement, Graduate Assistant

This project examined the effectiveness of the TI-Navigator technology on Algebra I achievement and attitudes on high school students with diagnosed learning disabilities or who were considered "at risk of academic failure."

Secondary Mathematics Teachers' Perceptions of their Integration of Instructional Technologies (Dissertation study), 2010 - 2011

The purpose of this qualitative study was to explore secondary mathematics teachers' perceptions of their progression through the levels described in the TPACK development model. Data, including teacher interviews, sample lessons, and classroom observations, were collected and analyzed for common themes.

MaPLES Initiative (Congressional Initiative, United States Department of Education), 2010 – 2011, Graduate Fellow, Co-writer for grant

The University of Mississippi's Center for Mathematics and Science Education (CMSE) implemented and evaluated a model for improving mathematics education at the elementary grade levels. The goals of this project were to provide data demonstrating significant improvement in teacher content knowledge and pedagogical skills, as well as improved student understanding and performance on mathematics content assessments.

## CURRENT SERVICE

### National

NCTM Professional Development Facilitator (2016 – present)

NCTM Professional Development Services Committee (2017 – 2019)

NCTM CAEP Standards, 2012, Program Reviewer (2015 – present)

Advisory Board Member and Grade 8 Leader, NCTM Algebra Readiness Task Force (2011 – 2017)

Mississippi Representative to Praxis II Middle School Mathematics Score Setting Study (2013)

### State/Regional

MAMTE, President (2016 – 2018)

MCCRS Math Review Committee, Mississippi Department of Education (2015)

Reviewer, MDE K-12 Instructional Support Committee, Mathematics (2014)

Mississippi Council of Teachers of Mathematics, Consultant for Annual Meeting (2012)

### Mississippi State College of Education & University

College of Education Recruitment and Outreach Committee (2017 – 2017)

MSU Partnership School Steering Committee (2017 – 2018)

MSU, College of Education Assessment Committee (2016 – 2018)

MSU, CISE, Secondary Education Undergraduate Coordinator (2015 – 2018)

Advisor, Kappa Delta Pi Honors Society, Mississippi State University Chapter (2013 – 2018)

MSU Mississippi Excellence in Teaching Program Advisory Board Member (2013 – 2018)

MSU, College of Education Faculty Council, Vice Chair (2016 – 2017)

College of Education Scholarship Committee, Mississippi State University (2013 – 2015)

CISE Scholarship Committee, Mississippi State University (2013 – 2015)

OCFBI Advisory Board, Secondary Program Area Representative (2012 – 2015)

Day One Team Mentor, Mississippi State University (2012)

### Additional Service Involvement

Math Fair Judge, Saltillo Elementary School (201)



Preservice Teacher STAI-B Evaluator, The University of Mississippi (2007 – 2010)  
Family Math Night Presenter & Facilitator, Saltillo Primary School (2010)  
Science Fair Judge, North MS Regional Science Fair, University of Mississippi (2007 – 2009)  
Family Math Night Facilitator, Della Davidson Elementary School (2009)  
Engineering Competition, Exam writer and proctor, University of Mississippi (2009 – 2010)  
MathCamp Instructor, Center for Mathematics and Science Education (2007)

#### PROFESSIONAL DEVELOPMENT/CONSULTING

Contractual Professional Development Services and Interactive Workshop Curriculum Design, National Council of Teachers of Mathematics (2011 – present)

Professional Development and Curriculum Design for the City of New York Department Education, on behalf of the National Council of Teachers of Mathematics, NYC Algebra for All Initiative (2016 – present)

Professional Development and Curriculum Design for the Starkville School District, Middle grades mathematics teacher professional learning communities (2014 – 2016)

Professional Development Design and Implementation, Oktibbeha County School District (through conservator during consolidation transition), Elementary and Middle School Mathematics (2014 – 2015)

Professional Development Contractor, North Mississippi Education Consortium, Embedded consulting in North Mississippi Schools, K-12 Mathematics Content and Pedagogy Sessions and Co-taught Lessons with participants (2009 – 2011)

Professional Development Facilitator for the Center for Mathematics and Science Education (2009 – 2012)

#### HONORS AND AWARDS

Imagine, Innovate, and Inspire: Practitioner of Distinction Alumni Award, University of Mississippi (2017)

Education Policy Fellowship Program Fellow, Institute for Educational Leadership (2016 – 2017)

Lucinda Rose Teaching Award, Mississippi State University (2016)

Clyde Muse Service Award, Mississippi State University (2014)

Outstanding Doctoral Student in Secondary Education, The University of Mississippi (2011)

Extra Mile Award, Booneville High School (2007)

Most Outstanding Preservice Teacher Candidate Award, Ole Miss Chapter of Phi Delta Kappa (2006)

Robert W. Plants Student Teaching Award, The University of Mississippi (2006)

Jean M. Shaw Mathematics Education Award, The University of Mississippi (2006)

CURRENT PROFESSIONAL AFFILIATIONS

Association for Mathematics Teacher Educators, member (AMTE)

Mississippi Association of Mathematics Teacher Educators, Past President (MAMTE)

National Council of Teachers of Mathematics, PDSC Committee (NCTM)

Kappa Delta Pi, Education Honor Society, Theta Chi Chapter (Member, former co-Counselor)