

# Martha Makowski

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Department of Mathematics  
University of Alabama  
Tuscaloosa, AL 35487

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## Academic Employment

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- Assistant Professor* University of Alabama, Tuscaloosa, AL  
Department of Mathematics  
August 2017-present
- Research Assistant* University of Illinois at Urbana-Champaign, Urbana, IL  
Department of Curriculum & Instruction  
August 2012-August 2017
- Full-time Faculty* Kankakee Community College  
Math, Science and Engineering Division  
August 2008-August 2012

## Education

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- Ph.D.* Curriculum & Instruction  
University of Illinois at Urbana-Champaign, Urbana, IL  
Department of Curriculum & Instruction  
August 2017  
*Advisor:* Sarah Lubienski  
  
*Areas of Specialization:* Mathematics curriculum and instruction;  
elementary mathematics teacher preparation; community college  
students; developmental mathematics; large-scale data analyses;  
quantitative and mixed research methods
- M.S.* Teaching of Mathematics  
University of Illinois at Urbana-Champaign, Urbana, IL  
Department of Mathematics  
May 2007
- B.S.* Mathematics  
Grinnell College, Grinnell, IA  
Department of Mathematics  
May 2004

## Publications

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### *Published*

*Accepted for publication while at The University of Alabama*

Lubienski, S., Ganley, C., Makowski, M., Miller, E., Timmer, J. (accepted with revisions).

“Bold problem solving”: A new construct for understanding gender differences in math problem-solving performance. *Journal for Research in Mathematics Education*.

- Makowski, M. B. (accepted with revisions). Exploring persistence and attitude change in an implementation of *Mathematical Literacy*. *MathAMATYC Educator*.
- Makowski, M. B. (accepted with revisions). The written and oral justifications of mathematical claims of middle school pre-service teachers. *Research in Mathematics Education*
- Ganley, C. M., George, C. E., Cimpian, J. P., & Makowski, M. B. (2018). Gender equity in college majors: Looking beyond the STEM/non-STEM dichotomy for answers regarding female participation. *American Educational Research Journal*, 55(3), 453-487.
- Makowski, M. B., Leckrone, L., & Williams, D. (2018). Consuming, participating and conducting research in community college classrooms. *MathAMATYC Educator*, 9(3), 28-31, 53.

*Accepted for and published prior to employment at The University of Alabama*

- Cimpian, J. P., Thompson, K., & Makowski, M. B. (2017). Evaluating English learner reclassification policy effects across districts. *American Educational Research Journal*, 54(1S), 255S-278S.
- Miller, E., Makowski, M. B. Copur-Gencturk, Y., & Lubienski S. T. (2017). Large-scale data, larger possibilities: A review of *Large-Scale Studies in Mathematics Education*. *Journal for Research in Mathematics Education*, 48(2), 224-228.
- Cimpian, J. R., Lubienski, S. T., Timmer, J. D., Makowski, M. B., & Miller, E. K. (2016). Have gender gaps in math closed? Achievement, teacher perceptions, and learning behaviors across two ECLS-K cohorts. *AERA Open*, 2(4), 1-19.

*Under Review*

- Makowski, M. B., & Lubienski, S. T. (under review). Classroom Data Visualization: Tracking Individuals During Group-Centered Instruction.

*In Preparation*

- Makowski, M. B., Wladis, C., & Williams, D. (in preparation). Research on developmental mathematics: What we know and who should care.
- Makowski, M. B. (in preparation). Convergent and divergent student experiences in a problem-based developmental mathematics class.
- Makowski, M. B., George, C., & Congleton, R. (in preparation). Underrepresented students succeeding in math: The challenges and coping strategies of mathematically talented post-secondary students.

*Published Reports*

- Makowski, M.B. (2014). [Gender and the National Alliance for Doctoral Study in the Mathematical Sciences: The changing academic and career aspirations of Alliance students \(Report No. 6\)](#). Champaign, IL: Math Alliance Research Study.
- Makowski, M.B., Dobson, L., Rincon, B., & George-Jackson, C. (2014). [Descriptive statistics and initial findings from the student survey \(Report No. 5\)](#). Champaign, IL: Math Alliance Research Study.

Makowski, M.B. (2013). [Evaluation vs. educational research \(Report No. 1\)](#). Champaign, IL: Math Alliance Research Study.

### **Presentations**

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- Makowski, M. B. (2020, April). *Sex differences, courses, and mathematics intensive majors: “Bold problem solving” in the postsecondary mathematics pipeline*. Paper accepted for presentation at the annual meeting of the American Educational Research Association, San Francisco, CA. [conference canceled]
- Makowski, M. B. (2020, February). *Content-specific confidence in entry-level college mathematics courses: Relationships and patterns*. Paper presented at the annual meeting of the group for Research in Undergraduate Mathematics Education, Boston, MA.
- Erickson, A., & Makowski, M. B. (2020, February). *What’s the lesson?: Following a lesson study through professional contexts*. Paper presented at the annual meeting of the American Mathematics Teacher Educators, Phoenix, AZ.
- Makowski, M. B. (2019, May). *Developmental mathematics: Student experiences and the questions they raise*. Invited talk given in the mathematics department at the University of Washington at Tacoma, Tacoma, WA.
- Makowski, M. B. (2019, February). *“Bold problem solving” in postsecondary mathematics classes: Validation and patterns*. Poster presented at the annual meeting of the group for Research in Undergraduate Mathematics Education, Oklahoma City, OK.
- Moore, S., Makowski, M. B., & Gleason, J. (2019, February). *Student, teacher, and institution effects on student achievement and confidence in college*. Paper presented at the annual meeting of the group for Research in Undergraduate Mathematics Education, Oklahoma City, OK.
- Lubienski, S. T., Makowski, M. B., & Miller, E. K., (2018, April). *“Bold problem solving”: A new construct for gender equity research*. Paper presented at the research session of the annual meeting of the National Council of Teachers of Mathematics, Washington, D.C.
- Makowski, M. B., & Lubienski, S. T. (2018, April). *Using quantitative diagrams to examine curriculum enactment in a developmental mathematics classroom*. Poster presented at the annual meeting of the American Educational Research Association, New York, NY.
- Lubienski, S.T., Makowski, M. B., & Miller, E. K. (2018, April). *Observing “bold problem-solving” behaviors in high-achieving boys and girls: Findings, issues, and reflections*. Paper to be presented at the annual meeting of the American Educational Research Association, New York, NY.
- Makowski, M. B. & Lubienski, S. T. (2018, February). *Using quantitative diagrams to explore interactions in a group work and problem-centered developmental mathematics class*. Paper presented at the annual meeting of the group for Research in Undergraduate Mathematics Education, San Diego, CA.
- Makowski, M. B. (2018, February). *Convergent and divergent student experiences in a problem-based developmental mathematics class*. Paper presented at the annual

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- meeting of the group for Research in Undergraduate Mathematics Education, San Diego, CA.
- Makowski, M. (2017, April). *Changing student attitudes in a problem centered developmental math class*. Paper presented at the research session of the annual meeting of the National Council of Teachers of Mathematics, San Antonio, TX.
- Lubienski, S. T., Miller, E. K., Makowski, M., & Timmer, J. (2017, April). *Spatial skills, problem solving approaches and gender gaps in middle school*. Paper presented at the research session of the annual meeting of the National Council of Teachers of Mathematics, San Antonio, TX.
- Makowski, M., & Congleton, R. (2017, February). *Underrepresented students succeeding in math: The challenges and coping strategies of mathematically talented post-secondary students*. Paper presented at the annual meeting of the group for Research in Undergraduate Mathematics Education, San Diego, CA.
- Makowski, M. (2017, February). *Outcomes beyond success in a problem centered developmental mathematics class*. Paper presented at the annual meeting of the group for Research in Undergraduate Mathematics Education, San Diego, CA.
- Makowski, M. (2017, January). *Learning for or through problems?: Exploring differentiating experiences in a problem-centered developmental math class*. Paper presented at the annual Joint Mathematics Meetings of the American Mathematics Association and Mathematical Association of America, Atlanta, GA.
- Makowski, M. (2016, October). *High school math in college: Trends and approaches*. 2016 Illinois Council of Teachers of Mathematics annual conference, Peoria, IL.
- Makowski, M. (2016, February). *Student experiences in a problem-solving-based developmental mathematics class*. Poster presented at the annual meeting of the group for Research in Undergraduate Mathematics Education, Pittsburgh, PA.
- Makowski, M. (2015, November). *Student experiences in a problem solving based developmental mathematics class*. Paper presented at the annual meeting of the American Mathematical Association of Two-Year Colleges, New Orleans, LA.
- Makowski, M., & Wilding-Martin, E. (2015, November). *Outcomes from Mathematical Literacy: Do attitudes about math change?*, 2015 American Mathematical Association of Two-Year Colleges annual meeting, New Orleans, LA.
- Makowski, M. (2015, April). *Taking high school level math in college: Issues, trends, and novel approaches*, MSTE Friday Lunch Series (invited), Champaign, IL.
- Makowski, M. (2014, April). *Argument components, justification types, and accuracy of pre-service teachers' mathematical arguments over time*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
- Robinson-Cimpian, J.P., Ganley, C.M., George-Jackson, C.E., Makowski, M.B. (2014, April). *Gender equity in college majors: Looking beyond the STEM/non-STEM dichotomy for answers regarding female participation*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

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Makowski, M. (November 12, 2009). *“Explain your reasoning”*: Assessing through writing. 2009 American Mathematical Association of Two-Year Colleges annual meeting, Las Vegas, NV.

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## Grants

### *Submitted*

\$49,608

*Investigating the similarities and differences between high school and college mathematics environments*

Grant agency: Spencer Foundation

Role: Principal investigator

Period: October 2020 – August 2022

### *Funded*

\$1,500

*Understanding Students’ Math Course Perceptions and Withdraw Patterns at a Large University (CARSCA #255)*

College Academy of Research, Scholarship, and Creative Activity (CARSCA)

University of Alabama College of Arts and Sciences

December 2017-January 2019

\$567,906 (20% of full grant)

*Alabama’s Practitioner Leaders in Underserved Schools for Mathematics (A-PLUS in Math). Noyce Track-3 Master Teacher Fellows Grant*

Grant agency: National Science Foundation

Contribution: 20%

Role: Co-Principal investigator

Period: Summer 2019 – Summer 2025

Website: [Link](#)

\$367,907.80 awarded to date.

Jeremy Zelkowski (Principal Investigator), with James Gleason, Martha Makowski, and Philip Westbrook (Co-Principal investigators).

\$46,000

*NSF Graduate Research Fellowship program – Katie Lynn Taylor*

Grant agency: National Science Foundation

Role: Principal investigator

Period: August 2019 – August 2020

## Teaching Experience

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<i>Tenure-track faculty</i>	University of Alabama Department of Mathematics <i>Courses taught:</i> Math 125: Calculus I Math 355: Theory of Probability Math 403: Advanced Math Connections and Development Math 405: Geometry for Teachers Math 409: Advanced Data Analysis
<i>Course Instructor</i>	University of Illinois at Urbana-Champaign Department of Curriculum & Instruction <i>Course taught:</i> Investigative Approach to Elementary Mathematics Instruction Fall 2013, 2014, & 2015; Spring 2016
<i>Full-time Faculty</i>	Kankakee Community College Math, Science and Engineering Division <i>Courses taught:</i> Pre-algebra II; Beginning Algebra; Intermediate Algebra; College Algebra; Trigonometry; Contemporary Mathematics; Math for Elementary Teachers I & II; Calculus I August 2008-August 2012

## Service

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<i>External</i>	
Grant Panel Review	National Science Foundation - EHR Core Research Washington, D.C. January 2020
<i>Internal</i>	
Graduate Admissions committee	Department of Mathematics August 2019 - present
Website committee	Department of Mathematics May 2018 - present
Faculty mentor	Student chapter of the American Women in Mathematics association August 2018 - present
Search committees	
<ul style="list-style-type: none"> <li>2018 - 2019</li> </ul>	Assistant/Associate Professor of Secondary Mathematics Education (Tenure Track) College of Education – Department of Curriculum & Instruction  Assistant/Associate Professor of Elementary Mathematics Education (Tenure Track) College of Education – Department of Curriculum & Instruction

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- 2017-2018 Non-tenure Contract Renewable Faculty Position  
College of Arts and Sciences – Department of Mathematics
  
  - Panel member *Delta Initiative: Capstone Women in STEM* (invited)  
The University of Alabama  
Spring 2019
  
  - Graduate College Fellowship Board Executive Committee* Graduate Student Representative (invited)  
University of Illinois at Urbana-Champaign  
2016-2017 academic year
  
  - Instructional Assistant* *Using Large-Scale Data to Study Student Mathematics Education and Outcomes*  
Washington, D.C.  
American Educational Research Association Institute on Statistical Analysis For Education Policy, May 2016
  
  - Reviewer* *AERA Annual Conference*  
2016, 2018, 2019, 2020 conference cycles
  
  - AMTE Annual Conference*  
2020 conference cycle
  
  - RUME Annual Conference*  
2018, 2019, 2020 conference cycles
  
  - American Educational Research Journal*  
*Caribbean Educational Research Journal*  
*International Journal of Science and Mathematics Education*  
*Journal for Research in Mathematics Education*  
*Mathematics Thinking and Learning*
  
  - College Readiness and Placement Grant* Faculty Liaison  
Kankakee Community College  
January 2009-May 2012  
KCC received funding to implement interventions for high school juniors at risk of not being college ready. Participating faculty served as the primary contacts and mentors for local high school administrators and teachers.
  
  - Assessment Committee* Kankakee Community College  
August 2011-May 2012

## **Fellowships & Awards**

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*Scott Dissertation Completion Fellowship, 2016-2017 school year*

Graduate College

University of Illinois at Urbana-Champaign

University-level fellowship granted through a campus wide competition. Includes a stipend and full tuition waiver.

*Hardie Dissertation Award, April 2015*

College of Education

University of Illinois at Urbana-Champaign

*Hardie Conference Travel Award, April 2014*

University of Illinois at Urbana-Champaign

*State Farm Companies Foundation Doctoral Scholarship Award, August 2013*

University of Illinois at Urbana-Champaign

## **National Workshops & Mentoring Programs**

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*Bauer Grant Writing Workshop*

Thirteen month mentoring workshop designed to facilitate the submission of a grant at the end of the process.

January 2019 – March 2020

*AMTE STaR Fellow – 2018 Cohort*

Competitive fellowship focused on the professional development of pre-tenure faculty in mathematics education.

June 2018 – February 2019

*Mentoring and Partnerships for Women in RUME*

Special Interest Group of the American Mathematical Association on Research in Undergraduate Mathematics Education

February 2015 & 2016

NSF-funded seminar for women conducting research on undergraduate mathematics education.

*Measures of Effective Teaching Longitudinal Database: A Review of the MET Project and Available Data*

ICPSR Summer Program in Quantitative Methods of Social Science

June 2014, Ann Arbor, MI

*Mathematical Knowledge for Teaching*

Instrument training

April 2013, San Francisco, CA

*Project ACCESS*

American Mathematical Association of Two-Year Colleges

August 2009-November 2010



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Mentoring program designed to help new faculty become effective teachers and active members of the mathematics teaching community

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**Professional Organizations**

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*American Educational Research Association*

*American Mathematical Association of Two-Year Colleges*

*Association of Mathematics Teacher Educators*

*Association for Women in Mathematics*

*National Council of Teachers of Mathematics*