Rachel N. Baumann   Curriculum Vitæ

(520) 812-5900   rachel.baumann@basised.com

Education

University of Arizona
- M.S., Computational Group Theory, May 2015.
- *The Structure of the Socle and Radical Series for Projective Indecomposable Modules of finite Simple Groups.* Master's thesis supervised by Klaus Lux.

University of Arizona
- B.S. Comprehensive Mathematics, Minor in Computer Science, *Summa Cum Laude*, May 2013.
- *Wynn's ρ-Algorithm For Sequence Accelerators Using High Precision Arithmetic*, undergraduate research supervised by M. Brio.

Pima Community College, Tucson, Arizona
- A.A., emphasis in mathematics, May 2010.

Employment

BASIS Oro Valley, Oro Valley, Arizona
- *Subject Expert Teacher*, Department of Mathematics. July 2015 – Present

University of Arizona, Tucson, Arizona
- *Graduate Instructor*, Department of Mathematics. August 2013 – May 2015
- *Adjunct Instructor*, Computer Science Department. June 2013 – July 2013
- *SALT Tutor*, SALT Center. August 2010 – December 2011

Raytheon Missile Systems Research, Tucson, Arizona
- *Research Intern* in theoretical signal processing. June 2012 – August 2012

Fellowship
- Richard A. Harvill Fellowship, 2014.

Honors Awards
- Outstanding Senior, Department of Mathematics, 2013.
- Toubassi Scholarship, Excellent Graduating Senior in Mathematics, 2012-2013.
- Galileo Circle Scholar, Department of Mathematics, 2012.
- Jo Ann Troutman Scholarship, 2012.
- Peet Scholarship, 2012-2013.
- Best Android Application Award, Fall Computing Expo, 2011.
- Wildcat Excellence scholarship, 2010-2013.
- Scholastic All-American Honor, 2009,2010.

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Teaching

BASIS Oro Valley - Department of Mathematics

- *Instructor* for Multivariable Calculus, academic year 2016-2017.

- *Instructor* for AP Calculus AB, academic years 2015-2016, 2016-2017.

- *Instructor* for Pre-Calculus AB, academic years 2015-2016, 2016-2017.

- *Instructor* for Math Expanded Topics, academic year 2015-2016.

University of Arizona - Department of Mathematics

- *Instructor* for Calculus (Math 122A and Math 122B), Spring 2015.

- *Instructor* for Preparation for Calculus (Math 120R), Fall 2014.

- *Co-Instructor* with Cody Patterson for Vector Calculus Problem Solving Workshop (Math 196V), Spring 2014. Designed and organized class activities and discussions, assisted students with exercises and student lead presentations, wrote homework assignments.

- *Instructor* for College Algebra (Math 112), Fall 2013.

- *Course Assistant* for upper division undergraduate level courses in Linear Algebra, Numerical Analysis and Differential Equations. (Math 413, 475, 355), 2011-2012. Graded weekly assignments, lead weekly discussion sessions, substituted as lecturer.

University of Arizona - Computer Science Department

- *Instructor* for Introduction to Discrete Structures (CSc 245), Summer 2013. Intensive four week class with both an online and in-class section. Designed and organized class activities, presentations, and discussions. Wrote homework assignments, weekly quizzes and exams.

- *Section Leader* for Introduction to Discrete Structures (CSc 245), 2012, 2013. Graded weekly assignments, lead weekly discussion sessions, and substituted as lecturer.

Research Experience

University of Arizona - Department of Mathematics

- *Student researcher* in computational group theory in GAP on projective indecomposable modules, 2014-2015. Programming in GAP. Advisor Klaus Lux.

- *Independent Study* on Wynn's ρ-Algorithm, sequence accelerators and high precision arithmetic, Summer 2011. Programming in MATLAB. Advisor M. Brio.

Presentations and Talks

· "Structure of the Socle and Radical Series of Projective Indecomposable Modules of Simple Groups"', graduate research presentation, Department of Mathematics, University of Arizona, Fall 2014.

· "Pure Mathematics: Interesting Open Problems", undergraduate talk on research areas in pure mathematics for Math 396C, Department of Mathematics, University of Arizona, Spring 2014.

· "Topological Groups and Duality", Graduate Colloquium, University of Arizona, Fall 2013.

· "Paradoxes and Problems in Probability", undergraduate talk on probability, University of Arizona, Spring 2013.

· "Bridges of Königsberg", undergraduate talk on graph theory, University of Arizona, Spring 2013.

· "Fun in Math with no Applications", undergraduate talk on magic squares, University of Arizona, Fall 2012.

· "The Misconception of Being Prime and Irreducible", undergraduate teaching assistant seminar, University of Arizona, Fall 2012.

· "Wynn's ρ-Algorithm for Sequence Accelerators Using High Precision Arithmetic", Southwestern Undergraduate Mathematics Research Conference, Tucson, Arizona, Spring 2012.

· "Travel Log Mobile Application Demonstration"', with Joshua Chang, Fall Computing Expo, University of Arizona, Fall 2011.

Outreach Activities

· *Math Circle Volunteer* for the University of Arizona, Department of Mathematics, 2014. Create and lead problem sessions on topics in mathematics for middle-school and high-school students.

· *Vector Calculus Workshop Leader* for the University of Arizona, Department of Mathematics, August 2014. Organized and lead a week long intensive workshop for incoming freshman to help prepare them for Vector Calculus and to be successful in college. Lectured and directed discussion and problem sessions.

· *Workshop Leader* for Sonia Kovalevsky Day, University of Arizona, Department of Mathematics, Spring 2014. Day event to encourage female high-school students and their teachers to continue in further study of mathematics. Wrote and led workshop on Graph theory: Instant Insanity.

· *Panelist* for Panel Discussion: Mentoring undergraduate students in mathematics at the University of Arizona, Fall 2011. Shared information and answered questions on mentoring students and having been mentored in mathematics.

Conferences
- SUnMaRC, Southwestern Undergraduate Mathematics Research conference, Tucson, Arizona, April 2012.
- Fall Computing Expo, University of Arizona Computer Science Department, October 2011.

Memberships
- American Mathematical Society (AMS).
- Mathematical Association of America (MAA).
- Association for Women in Mathematics (AWM).
- Women Advancing Arizona Mathematics (WAAM).

Computing
- Fluent in Java.
- Extensive experience programming in GAP and MATLAB.
- Proficient in HTML, CSS, JavaScript and d3.
- Experiance in C and C++.

Personal

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References   Available upon request.