MATHEMATICS AT UNI – Faculty Research Interests

Kimberly Conner’s research interests are designing and examining the teaching and learning of proof at the secondary level, with particular interest in the introduction to proof. (kimberly.conner@uni.edu)

Mark Ecker examines spatially correlated data, methodologies for modeling the spatial correlation as a function of the distance and direction of pairs of sites, and methodologies for modeling block (areal) averages and detecting extreme observations. (mark.ecker@uni.edu)

Sam Eskelson’s research interest is mathematics teacher preparation, formal and informal learning opportunities, and classroom practices; he is also interested in mathematics education for students with special education needs. (samuel.eskelson@uni.edu)

Heather Gallivan’s research interests are in issues of culture and race in mathematics teaching and learning, and preparation of prospective teachers for socio-culturally diverse school settings. (heather.gallivan@uni.edu)

Theron J Hitchman studies geometry, dynamics and Lie theory. He is particularly interested in the rigidity properties of discrete subgroups and their relations with differential geometry. (theron.hitchman@uni.edu)

Elizabeth Hughes**'** research interests are in designing practice-based learning experiences for teachers (where authentic artifacts of practices such as mathematical tasks, student work, and classroom episodes in the form of narrative or video cases are used and analyzed through various lenses) and examining the development of teachers' mathematical knowledge for teaching. (elizabeth.hughes@uni.edu)

**Blair Izard’s** area ofresearch interest is the influence of cultural learning on the preparation of preservice mathematics teachers and incorporating social justice tasks into math classrooms. (blair.izard@uni.edu)

**Syed Kirmani** develops stochastic models, particularly for applications in engineering reliability and survival analysis. (syed.kirmani@uni.edu)

**Min Ho Lee** examines number theory and algebraic geometry, abelian varieties, and algebraic varieties that generalize the shape of a torus. He is also interested in automorphic forms which generalize periodic functions and automorphic forms in connection with families of abelian varieties. (min.lee@uni.edu)

**Shangzhen Luo’s** research interests include stochastic analysis, stochastic control and their applications to financial mathematics and actuarial science. He also does research on hidden Markov processes and filtering theory. (shangzhen.luo@uni.edu)

**Catherine Miller** studies teacher cognition, how and what teachers think about mathematics as it relates to the teaching of mathematics, and how they use this knowledge in their classrooms. Additionally, she studies the development and application of pedagogical content knowledge in mathematics teachers. (catherine.miller@uni.edu)

**Douglas Mupasiri’s** research interest includes:Functional Analysis (Banach space theory, locally convex space theory), measure theory, topology, descriptive set theory, and probability theory. (douglas.mupasiri@uni.edu)

**Mike Prophet** investigates optimal approximations to particular types of mathematical data and abstract approximation theory. (mike.prophet@uni.edu)

**Suzanne Riehl** investigates the special functions of ordinary differential equations, focusing on the Sturm-Liouville and Dirac problems on the half line. (suzanne.riehl@uni.edu; [www.math.uni.edu/~riehl](http://www.math.uni.edu/~riehl))

**Chepina Rumsey’s** research interests are mathematical discourse and argumentation, number sense and arithmetic properties, teacher professional development and lesson study. (chepina.rumsey@uni.edu)

**Douglas Shaw** investigates a theorem-schematic approach to the Collatz Conjecture, mathematically honest ways to improve collegiate mathematics teaching, and combinatorics and number theory. (doug.shaw@uni.edu)

**Marius Somodi** is interested in algebraic number theory. He investigates the properties of number fields that have isomorphic Witt rings of quadradic forms. (marius.somodi@uni.edu; [www.math.uni.edu/~somodi](http://www.math.uni.edu/~somodi))

**Adrienne Stanley** specializes in Set Theoretic Topology, Logic and Combinatorics. She studies minimum requirements for balanced sets. (adrienne.stanley@uni.edu)

**Olly Steinthorsdottir** has two interrelated research emphases, gender equity in mathematics education and teaching and learning for understanding within the domain of whole numbers and rational numbers in Pre-School through Middle School. (olly.steintho@uni.edu)

**Brian Townsend’s** research interest is in Algebraic reasoning. (brian.townsend@uni.edu)

**Bill Wood’s** area of research is in discrete conformal geometry and applications of geometry. (bill.wood@uni.edu)

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