

## Fall 2015 Projects

Souparna Purohit	Diophantine Approximation	Algebra / Number Theory
M. Riley Zeigler	Quadratic Fields and Divisor Functions	Algebra / Number Theory
Nathan Guermond	Rice's Theorem and Undecidability	Combinatorics / Graph Theory
Gabe Reichman	Seifert Circles	Topology / Geometry
Greg Lyons	Determining Surfaces	Topology / Geometry
Rose Nguyen	The Perron-Frobenius Theorem	Dynamical Systems
Tori Bradley	Maximizing Expected Utility of a Wealth Process	Financial Math
Juliet Campbell	Using a Binomial Tree to Evaluate Options	Financial Math
Jonathan Walker	Optimal Control of Vibrating Springs n' Things	Dynamical Systems
Mickey Li	BGM Model in Interest Rate Derivatives	Financial Math
Cassandra Galindez	Planarity	Combinatorics / Graph Theory
Cody Freitag	Extremal Combinatorics	Combinatorics / Graph Theory
Jesse Dohmann	Connectivity Threshold for Erdős-Rényi Random Graphs	Probability / Statistics
Paulo Alves	Models of Mathematical Objects	Algebra / Number Theory
Anh Huynh	Card Shuffling	Probability / Statistics
"Jason" Yi-Hung Lin	The Matrix Tree Theorem and Algebraic Methods in Graph Theory	Combinatorics / Graph Theory
Patricia O'Brien	Finite Difference Method	Numerical Analysis
Jacob Temple	Polya's Pattern Theorem	Combinatorics / Graph Theory
Robert Mitchell	Things that take things to things; a brief introduction to categories, functors, and adjoints	Algebra / Number Theory
Brett	Lehmer's Conjecture over $\mathbb{F}_q[x]$	Algebra / Number Theory
Aldo Carranza	Matrix Lie Groups	Algebra / Number Theory

Peter Marek	Prime Number Theorem	Algebra / Number Theory
James Dix	Geometric Quantization	Topology / Geometry
Carlos Villarroel	Blowup Maps	Topology / Geometry
Caleb Miller	Introduction to Algebraic Geometry	Algebra / Number Theory
Daniel Chupin	How do you quantize a classical system? (Not a joke)	Mathematical Physics
Richard Morris	Persistent Homology	Topology / Geometry
Feng Ling	(Co)Fiber Sequences	Topology / Geometry
Surya Raghavendran	Computing Integrals	Mathematical Physics
Nick Bhattacharya	Spectral Theory of Differential Operators	Analysis
Samantha Unger	Ramsey Numbers and Graph Colorings	Combinatorics / Graph Theory