

Spring 2016 Projects

Carter Smith	Pythagoras and Diophantus Walk into a Bar...	Algebra / Number Theory
M. Riley Zeigler	The Prime Conspiracy Conspiracy	Algebra / Number Theory
Kartik Chitturi	Fully Homomorphic Encryption	Algebra / Number Theory
Leonel Flores	Group Objects in Categories	Algebra / Number Theory
Marco Campos	Categories, Functors, and Natural Transformations with a Key Example	Algebra / Number Theory
Candace Behrle	Computational Complexity of the Graph Isomorphism Problem	Algebra / Number Theory, Combinatorics / Graph Theory
Arlenne de la Rosa	From $\mathfrak{su}(2)$ to isospin	Algebra / Number Theory, Mathematical Physics
Greg Lyons	Pollard's Rho Algorithm	Algebra / Number Theory, Probability
Peter Marek	Nielsen–Schreier Theorem	Algebra / Number Theory, Topology / Geometry
Sophia Dever	Ping-Pong Problem: A Perfectly Pitiless Proof	Algebra / Number Theory, Topology / Geometry
Sergey Sambros	Functors	Algebra / Number Theory, Topology / Geometry
Cody Freitag	Geometric Group Theory	Algebra / Number Theory, Topology / Geometry
John Ludwig	The Isoperimetric Problem	Analysis
Daniel Hardesty Lewis	On smoothness and Poisson's Equation	Analysis
Katelyn Galbraith	Rotations on the Circle	Dynamical Systems
Mickey Li	Fixed Income Risk and Return Analysis	Financial Math
Helen Smith	Feynman Path Integral	Mathematical Physics
Deborah Sharp	Introduction to Markov Chains	Probability
Nick Bhattacharya	Free Boundaries and Optimal	Probability, Financial Math

	Stopping	
Joe Zhao	Bayesian Updating	Probability, Statistics
Natascha Brauchle	Clusters in Primary Election Data	Statistics
Paulo Alves	Applying Mathematical Logic to Natural Language Inference	Statistics
Meagan Richards	A Statistical Analysis of the Effects of Various Sociological Factors on College Preparedness	Statistics, Analysis
Ewin Tang	Fundamental Groups and the Brouwer Fixed-Point Theorem	Topology / Geometry
Jacob Reinhold	Soap Films and Minimal Surfaces	Topology / Geometry
Tomás Matzner	Urysohn's Lemma and Metrization Theorem	Topology / Geometry
Jacob Caudell	Singular Cohomology of H-Spaces	Topology / Geometry
Aldo Carranza	Classifying 1-manifolds	Topology / Geometry, Analysis
Bryan Richards	Symplectic Geometry, Simplified	Topology / Geometry, Mathematical Physics
Brett Bishop	Numerical Semigroups & Weierstrass Gaps	Algebra / Number Theory
Tamunonye Cheetham-West	Statistical Cryptanalysis of the Vigenere Cipher	Algebra / Number Theory, Probability, Statistics
Jay Hathaway	Why Study the Derived Category?	Algebra / Number Theory, Topology / Geometry, Analysis, Mathematical Physics
Saira Zaman	Conservation Laws	Analysis, Numerical Analysis
Daniel Chupin	I like approximating big loops by broken geodesics and I cannot Lie: Milnor's badass proof that $\pi_2(G)=0$, always. (You'll need to know what G is)	Topology / Geometry
Gabe Reichman	Lens Spaces	Topology / Geometry

Adam Rouhiainen	The "Pseudo" in Pseudo-Riemannian Geometry	Topology / Geometry, Mathematical Physics
Jesse Dohmann	Slivnyak's Theorem and the Boolean Model	Topology / Geometry, Probability
Surya Raghavendran	Quantum Mechanics as a Prefactorization Algebra	Algebra / Number Theory, Topology / Geometry, Mathematical Physics