7. Embeddings of Complete Multipartite Graphs in Finite Projective Planes
Ryan Vaughn, University of Mary Washington
Advisor: Oscar Vega, California State University, Fresno (California State University, Fresno REU)

11. Cycles and Cycle-related Graphs in $PG(2,q)$
Jamie Peabody, California State University, Fresno
Jordan White, California State University, Monterey Bay
Advisor: Oscar Vega, California State University, Fresno (California State University, Fresno REU)

Jason Cornelius, Delaware State University
Advisor: Pablo Suárez, Delaware State University (Delaware State University REU)

28. A Multivariate Statistical Inference for the Analysis of Neuronal Spiking Rates
Reina Galvez, California State University, Fullerton
Antouveo Kassab, California State University, Fullerton
Duy Ngo, California State University, Fullerton
Advisor: Sam Behseta, California State University, Fullerton

30. Rook Placements on Young Diagrams: Towards a $q$-Analogue of the Harer-Zagier Formula
Max Wimberley, Massachusetts Institute of Technology
Advisor: Alejandro Morales, LaCIM, Université du Québec à Montréal (MIT REU)

31. Predicting the Presence of Multiple Sclerosis Using Semantic Categories and Logistic Regression
Brayan Ortiz, California State University, Fullerton
Advisor: Mortaza Jamshidian, California State University, Fullerton

Austin Alleman, Santa Clara University
Arturo Fernandez, University of California, Berkeley
Advisor: Martin Short, Institute for Pure and Applied Mathematics (University of California, Los Angeles REU)

50. Mitochondrial Iron: a Mathematical Model for Iron Regulatory Disease
Jessica Lunsford, East Tennessee State University
Advisor: Erika Camacho, Arizona State University (Arizona State University MTBI REU)

59. Atomisticity and Coatomisticity of the Supercharacter Theory Lattices of Cyclic Groups
Daniel Stoertz, Concordia College
Dylan Heuer, Concordia College
Advisor: Anders O.F. Hendrickson, St. Norbert College (Concordia College REU)
62. Design of laser beams in GRIN media for profile transformation and selective resonance
Tim Moon, Rice University
Delani Cele, Ithaca College
Hyunmoon Kim, Princeton University
Philip Burnham, Villanova University
Advisors: Daniel Flath, Macalester College (Macalester College-IMA REU)

64. Pursuit-Evasion in Polygonal Environments: When Can Two Cops Win?
Rosalie Carlson, Harvey Mudd College
Maxray Savage, Macalester College
Claire Djang, Oberlin College
Stephen Ragain, Pomona College
Advisors: Andrew Beveridge, Macalester College (Macalester College-IMA REU)

69. Modeling the Human Papillomavirus (HPV) with Female and Male Protected Classes
Arielle Gaudiello, The Richard Stockton College of New Jersey
Advisors: Brandy Rapatski, The Richard Stockton College of New Jersey

71. Recycling toward a Better Earth through Math
Yvette Niyomugaba, Southwestern University
Advisors: Therese Shelton, Southwestern University

83. Modeling antibiotic resistance in intensive care units
Andre Waschka, North Carolina State University
Advisors: Ralph Smith, North Carolina State University (University of Wyoming REU)

84. Prisoner Reform Programs, and their Impact on Recidivism
Kimberly Gutstein, Humboldt State University
Brenda Martinez, Bryn Mawr College
Iitelhomme Fene, University of Louisiana, Lafayette
Advisors: Luis Melara, Shippensburg University (Arizona State University MTBI REU)

85. How Ideas Grow: Critical Mass in the Linear Threshold Model
Hossein Alidaee, Macalester College
Advisors: Andrew Beveridge, Macalester College

95. Generic Polynomials for Transitive Subgroups of Order 8 and 9
Jonathan Jonker, Michigan State University
Advisors: Jorge Morales, Louisiana State University (Louisiana State University REU)

96. The Two-Dimensional Smoothing of Images via the Total Variational Model
Jo Fawna Reali, California State University, Stanislaus
Paulos Alemu, California State University, Stanislaus
Joshua Galvez, California State University, Stanislaus
Susana Urquizo, California State University, Stanislaus
Advisors: Jung-ha An, California State University, Stanislaus (California State University, Stanislaus REU)

99. A Statistical Model to Detect Copy Number Variation
Elizabeth Cangialosi, University of Delaware
Aashish Gadani, University of Maryland, College Park
Advisors: Yeung Hau Man, Hong Kong University of Science and Technology (RIPS - Hong Kong REU)
110. Using ideal-divisor graphs to classify ideals of finite commutative rings with identity
Lane Bloome, Millikin University
Hailee Peck, Millikin University
Advisor: Joe Stickles, Millikin University

114. Numerical Integration of Rational Bubble Functions with Multiple Singularities
Michael Schneier, University of Pittsburgh
Advisor: Michael Neilan, University of Pittsburgh

127. Accepted Elasticity in Arithmetic Congruence Monoids
Marla Williams, Willamette University
Lorin Crawford, Clark Atlanta University
Jason Steinberg, Princeton University
Advisor: Vadim Ponomarenko, San Diego State University (San Diego State University REU)

128. Growth Functions of Finitely Generated Algebras
Kelsey Wells, Brigham Young University, Idaho
Advisor: Harold W. Ellingsen Jr., The State University of New York at Potsdam (The State University of New York at Potsdam REU)

134. Classifying Extensions of Characteristic p Local Fields
Daniel Scofield, Grove City College
Lindsey Hiltner, University of North Dakota
Advisor: Jim Brown, Clemson University (Clemson University REU)

145. The Varieties of One-Sided Loops of Bol-Moufang Type
Rachel Aldrich, Otterbein University
Sarah Drummond, Eastern Illinois University
Advisor: Reza Akhtar, Miami University (Miami University, Oxford, Ohio REU)

147. Hyperbananas: A Family of Flexible Frameworks
Christopher Clement, University of Michigan
Advisor: Jessica Sidman, Mount Holyoke College (Mount Holyoke College REU)

150. Modeling Multidimensional Tolerance Stack-up Using Monte Carlo Methods
Gregory Zajac, University of Missouri
Garrett Castle, Idaho State University
Salil Gadgil, Swarthmore College
Advisor: Matthew Willyard, Pennsylvania State University (Worcester Polytechnic Institute REU)

154. Trirings and Trifields
Brandon Alberts, Michigan State University
Advisor: Rajesh Kulkarni, Michigan State University

155. Stability of traveling-wave solutions to the Whitham equation
Nathan Sanford, Seattle University
Advisor: John Carter, Seattle University

159. Abelian Varieties with Real Multiplication and Maximal Image of Galois
Zane Li, Princeton University
Tony Feng, Harvard University
Advisor: Ken Ono, Emory University (Emory University REU)
160. Graph Theoretical Comparison of *Coprinus cinera* Wild Type and Mutant Networks
Samantha Taylor, Washington & Jefferson College
Catherine Monahan, Washington & Jefferson College
*Advisor: Faun Doherty, Washington & Jefferson College*

211. Comparison of Two Models for Fat/Water Separation in Magnetic Resonance Imaging (MRI)
Cody Gruebele, California State University, Fullerton
*Advisor: Angel R. Pineda, California State University, Fullerton*

216. Bounds on the Size of Sound Monotone Switching Networks Accepting Permutation Sets of Directed Trees
Joshua Brakensiek, Homeschool High School
*Advisor: Aaron Potechin, MIT (MIT, Research Science Institute REU)*

222. The Perfect Parallelepiped Problem
Amy VanHooft, The College at Brockport
Benjamin Sokolowsky, Bucknell University
Rachel Volkert, University of Northern Iowa
*Advisor: Cliff Reiter, Lafayette College (Lafayette College REU)*

234. Hopf-Cole Type Transformations for a Viscous Burgers Equation
Thomas Deatherage, University of Central Arkansas
Brandon Ashley, University of Central Arkansas
*Advisor: Danny Arrigo, University of Central Arkansas*

236. Strings of Special Primes in Arithmetic Progressions
Sarah Peluse, The University of Chicago
Keenan Monks, Harvard University
Lynnelle Ye, Stanford University
*Advisor: Ken Ono, Emory University (Emory University REU)*

238. Improved High-Order Modulation Maximal Likelihood Detection in MIMO System
Skyler Seto, Massachusetts Institute of Technology
Karen Larson, University of California at Los Angeles RIPS
*Advisor: Albert Ku, Hong Kong University of Science and Technology (Hong Kong University of Science and Technology REU)*

264. Combinatorial Models for Diagram Algebras
Mike Reeks, Macalester College
*Advisor: Thomas Halverson, Macalester College*

266. Discrete Morse Theory and Homology
Brian Green, Ursinus College
Alex Onderdonk, Immaculata University
Michael Agiorgousis, Ursinus College
*Advisor: Nicholas Scoville, Ursinus College (Ursinus College REU)*

272. Digraph Sources and Digraphs of Reduced Rings
Alex Schulte, University of St. Thomas
*Advisor: Michael Axtell, University of St. Thomas (Center of Applied Mathematics, UST REU)*
276. Fast Approximation Algorithms for Spectral Clustering
Juan Carlos Ramirez, Instituto Tecnológico Autónomo de México
Advisor: Deanna Needell, Institute for Pure and Applied Mathematics (RIPS-Los Angeles REU)

278. Using Pebble Game Algorithms to Find Non-Generic Embeddings of a Framework
James Farre, The University of Texas at Austin
Advisor: Jessica Sidman, Mount Holyoke College (Mount Holyoke College REU)

283. A New Probability-Based Characteristic in Finite Group Theory
Danny Orton, California State University, Fullerton
Daniel Lenders, California State University, Fullerton
Advisor: Scott Annin, California State University Fullerton

289. Effects of Momentum Trading on Asset Prices
Neeraj Vijay, George Mason University
Advisor: Harbir Lamba, George Mason University

291. Ranking Rankings: a Comparison of the Predictive Power of Sports Ranking Methods
Peter Elliott, University of California at Los Angeles
Daniel Barrow, Pitzer College
Ian Drayer, University of California at Los Angeles
Garren Gaut, University of California at Los Angeles
Advisor: Braxton Osting, UCLA (UCLA REU)

292. A Lower Bound on The Fineness of the Smooth Concordance Group
Joshua Tobin, Columbia University
Advisor: Jen Hom, Columbia University (Columbia University REU)

302. Elliptic Curves with Full 2-Torsion and Maximal Adelic Galois Representations
Sarah Trebat-Leder, Princeton University
David Corwin, Princeton University
Advisor: David Zureick-Brown, Emory University (Emory University REU)

313. A Paradoxical Decomposition of the Real Number Line
Shelley Kandola, St. Lawrence University
Advisor: Sam Vandervelde, St. Lawrence University

317. Co-Circular Central Configurations of Four Vortices
Alexander Gutierrez, Arizona State University
Jonathon Gomez, Brigham Young University, Hawaii
Jesse Robert, University of Hawaii at Hilo
Advisor: John Little, College of the Holy Cross (University of Hawaii at Hilo REU)

321. On the c-strong Chromatic Number of t-intersecting Hypergraphs
Ping Ngai Chung, Massachusetts Institute of Technology
Advisor: Joseph Gallian, University of Minnesota Duluth (University of Minnesota Duluth REU)