JACK R. DALTON

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Research Interests

* Analytic, Elementary, & Computational Number Theory *
* Covering Systems * Distribution of Primes * Lattice Points *

Education

2017-Present **Doctoral Candidate**, Mathematics, GPA: 3.8 / 4.0
University of South Carolina - Columbia

2015-2017 **Master of Science**, Mathematics, GPA: 3.8 / 4.0
University of Vermont
Thesis: An Exposition of Selberg's Sieve

2002-2006 **Bachelor of Science**, Mathematics, GPA: 3.8 / 4.0
University of Massachusetts Dartmouth
Summa Cum Laude

Work Experience

University of South Carolina, Columbia, SC

Teaching:

Instructor of Record:

Math 111i Intensive Basic College Mathematics: Fall 2019
Math 115 Precalculus Mathematics: Fall 2022, Fall 2018
Math 116 Brief Precalculus Mathematics: Fall 2022, Fall 2020
Math 122 Business Calculus: Summer 2022, Spring 2020, Spring 2019
Math 141 Calculus I: Summer 2020
Math 151/152 Calculus Workshop I & II: Spring 2022, Fall 2021
Math 172 Math Modeling for Life Sciences: Spring 2021
Math 241 Vector Calculus: Summer 2021, Summer 2019
Math 344 Applied Linear Algebra: Summer 2018
Math 344L Applied Linear Algebra Lab: Summer 2018

Teaching Assistant:

Math 141 Calculus I: Fall 2017
Math 142 Calculus II: Spring 2018, Summer 2020

Tutoring:

Mathematics Department Tutoring Lab: 2017-Present

University of Vermont, Burlington, VT

Teaching:

Instructor of Record

Math 17 Applications of Finite Math: Spring 2017

Math 19 Fundamentals of Calculus I: Fall 2016

Tutoring:

Help Sessions – Drop-in Tutoring for College Algebra, Precalculus, and Calculus I and II.

Grading:

Math 251 Abstract Algebra I: Spring 2017

Math 241 Analysis of Several Real Variables I: Fall 2016

Mentor Experience

Graduate Teaching Mentor Fall 2020 - Spring 2021.

After a full semester of training, mentored four novice instructors each semester (8 total over two semesters) as they transitioned from graduate teaching assistants to graduate student instructors. Conducted monthly observations of the novice instructors and held individual post-observation reflection and feedback meetings as well as small-group meetings to promote self-reflective teaching. Facilitated bi-weekly critical reflection group meetings with the novice instructors. NSF Award Id #1544346.

Publications

Appeared:

J. Dalton, O. Trifonov, *Extreme Covering Systems*, Journal of Integer Sequences , 25 (9), 2022.

In Progress:

J. Dalton, R. Howard, O. Trifonov, *Lattice Points Close to a Helix*.

J. Dalton, O. Trifonov. *Representing Positive Integers as a Sum of a Square-free Number and Small Prime*.

Talks Given

2022 – PANTS XXXIV

"Some Open Problems in Covering Systems"

2022 – CTNT Conference

"Extreme Covering Systems"

2021 – U of SC Mathematics Graduate Colloquium

"Extreme Covering Systems"

2020 – U of SC Mathematics Graduate Colloquium

"Estimating the number of square-free integers in an interval and the connection with lattice points"

2017 – UVM Graduate Seminar

"e is Transcendental"

2017 – unQVNTS – Extension of Quebec Vermont Number Theory Seminar

"Sieve Methods and How They Relate to Bounded Gaps Between Primes"

2016 – Am I a Seminar – UVM Math Graduate Student Seminar
"Selberg's Sieve"
2016 – Am I a Seminar – UVM Math Graduate Student Seminar
"Introduction to Zhang's Bounded Prime Gaps Proof"

Honors and Awards

Commonwealth Scholar, University of Massachusetts Dartmouth
Stanley Z. Koplik Certificate of Mastery Award, State of Massachusetts, Dept. of Education
Louis Simeone Award, Academic Excellence, UMass Dartmouth
Lawrence Kennison Award, Academic Excellence, UMass Dartmouth
AP Scholar with Honor Award, College Board

Exams and Certificates

HarvardX Certificate CS50x: Introduction to Computer Science 1
SOA Exam P / CAS Exam 1: Passed
SOA Exam FM / CAS Exam 2: Passed
SOA Exam MFE / CAS Exam 3F: Passed
SOA VEE Economics: Approved
SOA VEE Corporate Finance: Approved

Volunteer/Other

2022 Discover UofSC: Afternoon Session Reviewer
2020-2021 Graduate Advisory Council Student Representative
Fall 2019, Spring 2020, Fall 2020 – USC Math Graduate Colloquium Co-organizer
2018-19 Fluid Dynamics Math Dept. Happy Hour Organizer
2018 Habitat for Humanity Restore volunteer – coordinated donation drop offs
2018 32nd High School Mathematics Contest Volunteer – U of SC
2017 Coordinated catering for participants at Sage Days 87, UVM, Burlington, VT

Conferences Attended

2022 – PAlmetto Number Theory Series (PANTS) XXXIV – UNC Charlotte
2022 – Connecticut Summer School in Number Theory Research Conference (CTNT) UConn
2022 – Combinatorial and Additive Number Theory (CANT) – Remote
2021 – Combinatorial and Additive Number Theory (CANT) – Remote
2021 – PAlmetto Joint Arithmetic, Modularity, & Analysis Series (PAJAMAS) III – Remote
2020 – AMS Fall Sectional – Special Session on Analytic Number Theory – Remote
2020 – PAlmetto Joint Arithmetic, Modularity, and Analysis Series (PAJAMAS) – Remote
2019 – John H. Barrett Memorial Lectures – University of Tennessee, Knoxville
2019 – NSF CMBS: L-Functions & Multiplicative Number Theory- University of Mississippi
2019 – PAlmetto Number Theory Series (PANTS) XXXII – UNC Charlotte
2019 – PAlmetto Number Theory Series (PANTS) XXXIII – Clemson University

2019 – Analytic & Combinatorial Numb. Thry: The Legacy of Ramanujan U of Illinois Champaign
2018 – PAlmetto Number Theory Series (PANTS) XXXI – University of South Carolina
2018 – Connecticut Summer School in Number Theory & Research Conference (CTNT) – UConn
2018 – PAlmetto Number Theory Series (PANTS) XXVII – University of Tennessee Knoxville
2016 – Quebec-Maine Number Theory Conference – Universite Laval, Quebec City, Quebec
2016 – Connecticut Summer School in Number Theory & Research Conference (CTNT) – UConn
2016 – Rubin Fest - L-functions and Arithmetic – Harvard University
2016 – Super QVNTS - Kummer Classes and Anabelian Geometry – University of Vermont
2016 – Quebec-Vermont Number Theory Seminar (QVNTS) – McGill & Concordia, Montreal
2007 – Joint Math Meetings – New Orleans, LA

Grants (facilitated)

Incubator Grant for Basic College Mathematics Active Learning Resources Fall 2019

Senior personnel on an internal incubator grant ($10,000) funded by the College of Arts and Sciences. Lead a team in developing and implementing the final product of 119 pages of problem set and 69 pages of lesson plans for Basic College Mathematics, allowing graduate students to save (under an initial analysis) of 30-35 hrs/semester of content prep, redirecting time towards student learning.

Incubator Grant for Pre-Calculus Active Learning Resources Fall 2018

Junior personnel on an internal incubator grant ($10,000) funded by the College of Arts and Sciences. Member of a team developing and implementing the final product of 121 pages of problem sets and even more pages of lesson plans for Pre-Calculus, allowing graduate students to save (under an initial analysis) of 26-30 hrs/semester of content prep, redirecting teacher time/effort towards student learning.