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Academic Professional, School of Math
Curriculum Vitae

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I. Earned Degrees

Ph.D. in Mathematics, University of Pennsylvania, 2009. Thesis advisor: Robert Powers

B.S. in Mathematics, University of Notre Dame, 2004

II. Employment History

Academic Professional, Georgia Institute of Technology, Fall 2016 - present.

Clinical Assistant Professor, New York University, Fall 2012 - Spring 2016.

Lecturer, University of Pennsylvania, Fall 2011 - Summer 2012

Postdoctoral Fellow, Ben-Gurion University of the Negev, Fall 2009 - Spring 2011.

Supervisor: Daniel Markiewicz

III. Honors and Awards

Recipient of eight Thank a Teacher certificates, Georgia Tech, Fall 2016 – Spring 2020.

Moez Alimohamed Graduate Student Teaching Award, Department of Mathematics, University of Pennsylvania, 2007

Good Teaching Award, Department of Mathematics, University of Pennsylvania, Spring 2006

General Electric Prize for Mathematics, University of Notre Dame, 2004

IV. Summary of Higher Education Administrative and Leadership Experience

Georgia Institute of Technology, 2016 - 2020

Director of Graduate Advising and Assessment, School of Math, Summer 2017 – present.

The position encompasses a broad range of administrative duties for the graduate program. These include serving on the Graduate Committee, writing annual student evaluations and handling comprehensive exams, ensuring Responsible Conduct in Research compliance from first-year doctoral students, organizing meetings for Admitted Students Day, filing annual OATS reports, and handling transfer credit requests for graduate-level mathematics courses.

Director of Postdoctoral Teaching Effectiveness, School of Math, Spring 2017 – present.

I mentor postdoctoral faculty in teaching during their first year, and I participate in organizing and running professional development events for the postdoctoral faculty. In addition, I follow their teaching performance throughout their time at Georgia Tech, communicate with their mentors and the Postdoc Committee when appropriate, and assist the Postdoc Committee in writing its annual evaluation letters.

Course Coordinator, Math 1553 (Introduction to Linear Algebra), Fall 2017 – Spring 2020.

During this period, Math 1553 has been the Institute's largest math course in terms of Fall plus Spring enrollment, with 5,951 students in total. Among the formally coordinated math courses, it is the largest by a substantial margin. The coordinator is responsible for writing the common syllabus, creating and maintaining materials such as worksheets and practice exams, reviewing instructors' exams for fairness,

organizing final exam grading, and assisting instructors with final letter grades, among other responsibilities. The instructor count each semester below includes me as an instructor.

1. Spring 2020: 529 students and 4 instructors.
2. Fall 2019: 1297 students and 8 instructors.
3. Spring 2019: 592 students and 5 instructors.
4. Fall 2018: 1477 students and 8 instructors.
5. Spring 2018: 714 students and 5 instructors.
6. Fall 2017: 1342 students and 10 instructors.

New York University, 2012 - 2016

Course Coordinator, various courses.

Taught the class, created the parent website for the course, set up the WebAssign sites for other instructors in many cases, met with the other instructors of the course to clarify the syllabus and expectations, and stayed in contact with the other instructors throughout the semester to keep the pace and material consistent. When coordinating Algebra and Calculus, Math for Economics I, and Math for Economics II, I also coordinated the writing of the final exam for all sections of the course.

1. Math for Economics II, Spring 2014.
2. Math for Economics I: coordinator or co-coordinator in Fall 2013, 2014, and 2015.
3. Algebra and Calculus, Fall 2013.
4. Linear Algebra: Spring 2013.

Credit Transfer Evaluator, Summer 2014-Fall 2015

For those transfer students wishing to receive credit at NYU for their previous math courses. I used the guidelines of the department to evaluate courses for transfer credit.

V. Education and Mentorship

A. Courses Taught

Georgia Institute of Technology: 2016-present

Semester	Course Number	Course Title	Number of Students
Spring 2020	Math 1553 A1-A3	Introduction to Linear Algebra	86
Spring 2020	Math 1553 C1-C4	Introduction to Linear Algebra	116
Fall 2019	Math 6001	Introduction to Graduate Mathematics	17
Fall 2019	Math 1553	Introduction to Linear Algebra	161
Spring 2019	Math 2550	Introduction to Multivariable Calculus	159
Spring 2019	Math 1553	Introduction to Linear Algebra	104
Fall 2018	Math 6001	Introduction to Graduate Mathematics	20
Fall 2018	Math 1553	Introduction to Linear Algebra	179
Spring 2018	Math 1553 A1-A3	Introduction to Linear Algebra	88
Spring 2018	Math 1553 C1-C4	Introduction to Linear Algebra	115
Fall 2017	Math 6001	Introduction to Graduate Mathematics	27
Fall 2017	Math 1553	Introduction to Linear Algebra	110
Spring 2017	Math 2550	Introduction to Multivariable Calculus	141
Fall 2016	Math 2603	Introduction to Discrete Mathematics	98
Fall 2016	Math 1113	Precalculus	49

New York University: courses from Fall 2014 – Spring 2016

Semester	Course Number	Course Title	Number of Students
Spring 2016	Math 121	Calculus I (hybrid lecture)	124
Spring 2016	Math 120	Discrete Mathematics	35
Spring 2016	MAP 101	Quantitative Reasoning: Math Patterns in Nature	68
Fall 2015	Math 213	Math for Economics III	70
Fall 2015	Math 211	Math for Economics I	108
Fall 2015	Math 120	Discrete Mathematics	35
Spring 2015	Math 212	Math for Economics II	133
Spring 2015	Math 211	Math for Economics I	102
Fall 2014	Math 212	Math for Economics II	248
Fall 2014	Math 211	Math for Economics I	174

B. Academic and Career Advising and Guidance Responsibilities

Georgia Tech, 2016 - 2020

Postdoctoral Faculty Teaching Mentor, Spring 2017 – present.

Teaching mentor for all postdoctoral faculty in the School of Math during their first year. I perform a teaching observation for each postdoc, meet with them to discuss the observation, and do multiple observations if appropriate. After their first year, I serve as a general resource to the postdocs for teaching-related matters.

Lead Organizer, School of Math Informal Postdoc Social Events, Spring 2017 – present.

Generally held three or four times each semester. I work with another faculty member to plan a theme for each social event relevant for the time of the semester. I host and handle all logistics for these events.

Co-Organizer, New Faculty Orientation in the School of Math, Spring 2017 – present.

Responsible for co-organizing the schedule, communicating with incoming faculty, arranging and running panel sessions, giving multiple presentations during the orientation, and updating and creating materials.

Faculty Mentor for Select Graduate Student Instructors, Spring 2017 – present.

I share past materials and syllabi. Depending on the course, I may create homework sets for instructors. I serve as a source of advice, and for some instructors I do a classroom observation. In total, I have been a mentor for 11 graduate student instructors across three different math courses: Math 1553, Math 2550, and Math 2603.

Graduate Student Advisor, Summer 2017 – present.

I am the designated course advisor for students in MS Math, MS STAT, and MS CSE in the School of Math. In addition, I am an advisor for PhD students with regard to coursework, the doctoral minor, and graduation requirements.

Undergraduate Student Advisor, Summer 2017 – Fall 2017.

With our Director of Undergraduate Advising and Assessment, I participated in FASET orientations over the summer, then handled on-campus undergraduate advising for a period when the DUAA was teaching abroad.

New York University, 2012 - 2016

Math Major Advisor, Fall 2012 – Spring 2016.

Each semester, a portion of the math majors looking for guidance regarding their course load and trajectory could seek my advice.

C. Educational Innovations and Other Contributions

Contributor to Course Coordination Proposal, Georgia Tech School of Math, Spring 2017.

Along with a group of several faculty members, I contributed to the writing of the course coordination proposal. It passed through a faculty vote, and it has been School of Math policy for some of our core courses since Fall 2017.

Calculus I hybrid course, New York University.

Dr. Selin Kalaycioglu, Dr. Drew Youngren, and I created an interactive Calculus I course with the help of an NYU video team. Outside of lecture, students watch videos and participate in assessments we created. They access course readings online and view other material at their class's website. The course launched in Fall 2015.

Math for Economics III Curriculum, New York University.

Collaborated with Dr. Selin Kalaycioglu to write the syllabus for the course.

VI. Research, Scholarship, and Creative Activities

A. Publications

All publications below are in refereed journals. * Indicates publications at Georgia Tech.

1. **Classification of q -pure q -weight maps over finite dimensional Hilbert spaces*, with Daniel Markiewicz and Robert T. Powers, *J. Funct. Anal.* 277 (2019), no. 6, 1763-1867.
2. *Aligned CP-semigroups*, with Daniel Markiewicz and Robert T. Powers, *Int. Math. Res. Not. IMRN* (2015), no. 15, 6639-6647.
3. *Unital q -positive maps on $M_2(C)$ and cocycle conjugacy of E_0 -semigroups*, *Houston J. Math.*, 39 (2013), 1233-1266.

4. *A family of non-cocycle conjugate E_0 -semigroups obtained from boundary weight doubles*, J. Operator Theory 69 (2013), no. 1, 233-256.
5. *E_0 -semigroups and q -purity: boundary weight maps of range rank one and two*, with Daniel Markiewicz and Robert T. Powers, J. Funct. Anal. 262 (2012), no. 7, 3006-3061.
6. *Gauge groups of E_0 -semigroups obtained from Powers weights*, with Daniel Markiewicz, Int. Math. Res. Not. IMRN 2012, no. 14, 3278-3310.
7. *On type II_0 E_0 -semigroups induced by boundary weight doubles*, J. Funct. Anal. 258 (2010), no. 10, 3413-3451.
8. *On K_* -ultrahomogeneous graphs*, with Daniel Isaksen and Stephanie Proctor, Ars Combin. 82 (2007), 83-96.

B. Other Publications and Creative Products

Problem sets for *Interactive Linear Algebra*, by Margalit and Rabinoff. Outside my job of course coordination, I have compiled a collection of homework problems. This is still in progress, and the goal is to incorporate these into the textbook in the future.

C. Presentations

Invited talks

Prime E_0 -semigroups. Mathematics Colloquium, Georgia Southern University, Spring 2017

The Evolving Classroom. Special Colloquium, University of California-Irvine, Spring 2015.

Mathematics in Cryptography. Undergraduate Colloquium, University of California-Irvine, Spring 2015.

Addressing Students' Needs in a Changing Classroom. Rice University, Spring 2015.

To infinity and beyond: what they didn't teach us in linear algebra. Colloquium, Manhattan College, Spring 2012.

The realm of positivity in linear algebra. Bryn Mawr College, Spring 2011.

Completely positive maps and noncommutative dynamics. Analysis Seminar, Drexel University, Spring 2011.

E_0 -semigroups and boundary weight doubles. Math Department Colloquium, United States Naval Academy, Fall 2010.

Selected other talks

Prime E_0 -semigroups. Great Plains Operator Theory Symposium, Kansas State University, Summer 2014.

Boundary weight maps and E_0 -semigroups. Great Plains Operator Theory Symposium, University of California-Berkeley, Summer 2013.

Gauge groups of E_0 -semigroups. Function Theory and Operator Theory: Infinite Dimensional and Free Settings, Ben-Gurion University of the Negev, Spring 2011.

A family of non-cocycle conjugate E_0 -semigroups obtained from boundary weight doubles. AMS Special Session on Noncommutative Harmonic Analysis and Dynamical Systems, Joint AMS and MAA Meetings, New Orleans, Louisiana, Spring 2011.

Local cocycles of certain E_0 -semigroups of type II_0 , after Alvrás, Powers, and Price (parts 1 and 2). Operator Algebras Seminar, Ben-Gurion University of the Negev.

E_0 -semigroups induced by q -pure maps on $M_n(C)$. Great Plains Operator Theory Symposium, Cincinnati, Summer 2009.

VII. Service

A. Public and Community Service

Research Mentor, NYU GSTEM Program, Summer 2013 and Summer 2014

I volunteered to mentor two high school students in a program for young women in math, covering some basics of number theory and guiding each student through a summer project. The students and their research projects are listed below.

- Summer 2014: Alisa Chang, *RSA cryptography from scratch and improving it through the use of cyphers*.
- Summer 2013: Eshka Ne-Kumar, *The nature of odd primes and perfect squares in the triangular numbers*.

B. Institute Contributions

Lead Organizer, Georgia Tech High School Math Competition in 2017 and 2018, and Co-lead Organizer in 2019.

The competition is the Georgia Tech School of Math's largest community outreach event. It hosts 200-300 students from the Atlanta for a full-day event each Spring. The top finishers receive fellowships if admitted to Georgia Tech.

Graduate Committee, Georgia Tech School of Math, 2017 – present.
Secretary of the committee during the 2018-2019 academic year.

Panelist, Teaching Panels for Tenure-Track Candidates, School of Math, 2017 – present
Served on approximately 20 interview panels for asking and addressing questions related to teaching and the graduate program.

Participant, Faculty Focus Groups on TA Professional Development, College of Sciences, Fall 2019.

Contributor, School of Math Course Materials Repository, Summer 2017 – present
The repository hosts many resources for faculty teaching six of our core courses. I have posted materials there for Math 1553 and Math 2551.

Judge, The Career, Research, and Innovation Development Conference (CRIDC) Poster Session, Georgia Tech, January 2020.

School of Math Liaison, Insight Data Science Workshop and Tech Session, School of Math, Fall 2018.

Judge, Research Bound Poster Session, College of Sciences, November 2016.

C. Other Professional Activities

T-Book Interview (with Brendon Thaler), April 2020.
For the 2020 Georgia Tech T-Book, to be distributed to incoming undergraduate students.

Committee Member for Ph.D. Candidacy Exam, Leonard Stevenson, Drexel University, 2015.

VIII. Professional Growth and Development

Safe Space Training, Georgia Tech, October 2019

Implicit Bias Training, Georgia Tech, September 2019