

CONTACT INFORMATION	Mathematical Sciences Drawer 31 High Point University High Point, NC 27268	Email: agrahams@highpoint.edu Website: linus.highpoint.edu/~agrahams Phone: (336) 841-4532
ACADEMIC EMPLOYMENT	High Point University , Department of Mathematical Sciences <ul style="list-style-type: none"> • Associate Professor of Mathematics, Fall 2017 to present. • Assistant Professor of Mathematics, Fall 2011 to 2017. 	
EDUCATION	University of North Carolina at Chapel Hill <p>Ph.D. in Mathematics, May 2011</p> <ul style="list-style-type: none"> • Dissertation Topic: Explicit formulas for local formal Mellin transforms. • Advisor: Dima Arinkin <p>M.S. in Mathematics, May 2010</p> <p>Whitman College</p> <p>B.A. in Mathematics, May 1998</p> <ul style="list-style-type: none"> • Magna cum laude • Phi Beta Kappa 	
UNIVERSITY COURSES TAUGHT	<ul style="list-style-type: none"> • FYS1000: Game Theory • HNR1304: Mathematics of Democracy • Special Topics in Math • Business Calculus • Precalculus • Calculus Support Workshop • Calculus I • Calculus II • Explorations in Mathematical Research • Mathematical Ideas (Math for Elementary Educators) • Discrete Math • Introduction to Mathematical Thought • Linear Algebra • Calculus III • Geometry • Abstract Algebra • Problem Solving Seminar • Teaching Seminar for Graduate Teaching Assistants (at UNCCH) 	
RESEARCH INTERESTS	Voting Theory, Gerrymandering, Recreational Mathematics, Scholarship of Teaching and Learning, Algebraic Geometry, Local Integral Transforms, Game Theory, Mathematics Education.	
PUBLICATIONS	<p>(with E. Fuselier) <i>Measuring distance in the space of redistricting</i>, in preparation.</p> <p>(with E. Fuselier) <i>The mathematics of Enemy-Protector</i>, in preparation.</p>	

The Surname Impossibility Theorem, Journal of Humanistic Mathematics, Volume 10 Issue 2 (July 2020), pages 222-236. Available at: <https://scholarship.claremont.edu/jhm/vol10/iss2/11/>.

(with N. Zayatz) (2020) *Lack of Monotonicity Anomalies in Empirical Data of Instant-Runoff Elections*, Representation. DOI: 10.1080/00344893.2020.1785536

(with L. Carnell, K. O'Hara, and L.C. Piechnik) *Environmental Impacts: how comparative prior knowledge affects students' Calculus experience*, PRIMUS, 28(10) (2019), 920-935. DOI: 10.1080/10511970.2018.1472682

Explicit calculation of local formal Mellin transforms, Pacific Journal of Mathematics 283-1 (2016), 115–137. DOI: 10.2140/pjm.2016.283.115

(with L. Zack, J. Fuselier, R. Lamb, and K. O'Hara) *Flipping Freshman Mathematics*, PRIMUS, 25(9-10) (2015), 803–813. DOI: 10.1080/10511970.2015.1031302

(with E. Farnell and J. Stockton) *Mat-Rix-Toe: Improving writing through a game-based linear algebra project*, PRIMUS, 24(6) (2014), 491–512. DOI: 10.1080/10511970.2013.876476

Calculation of local formal Fourier transforms, Arkiv för Matematik, 51 (2013), 71–84 DOI: 10.1007/s11512-011-0156-2

HONORS, AWARDS,
GRANTS

Spring 2019	Meredith Clarke Slane Teaching and Service Award
Fall 2017	Granted tenure and promotion to Associate professor
Spring 2015	Co-PI on STEM Club grant for Thomasville City Schools
Spring 2015	Granted Course Reduction Award
2014-2015	High Point University Teaching Scholar Award
2011-2012	Project NExT Fellow
Spring 2011	GAANN Fellowship
Summer 2010	Future Faculty Fellowship Award
Spring 2010	GAANN Fellowship
Spring 2009	Nominated for Linker Teaching Award
1998	Phi Beta Kappa
1998	Award for Outstanding Student Services at Whitman
1994–1998	Whitman Merit Scholar, Whitman College
1994–1998	National Merit Scholar

PRESENTATIONS

Quantifying disenfranchisement: The mathematics of gerrymandering, Colloquium talk at Barnard College. Presented online (Oct. 2020)

Hamming vs. Matrix: The Epic Throwdown, MAA-SE conference. Presented online (Mar. 2020)

Quantifying disenfranchisement: The mathematics of gerrymandering, Colloquium talk at Elon University (Dec. 2019)

Effectiveness of metacognitive study skills intervention in first-year math courses, MAA-SE conference (Mar. 2019)

Gerrymandering: Past and Present, Greensboro Science Cafe (Apr. 2018)

An Empirical Resolution to Arrow's Theorem, MAA-SE conference (Mar. 2018)

Introducing fun research through a one-credit course, MAA-SE conference (Mar. 2017)

Voting Dilemmas: Is democracy a mathematical farce?, Colloquium talk at Longwood University (Oct. 2016)

Environmental Impacts: how comparative prior knowledge affects students' Calculus experience, SOTL conference (May 2016)

Differentiated Calculus: How does prior Calculus knowledge of peers affect students' experience in Calculus?, MAA-SE conference (Mar. 2016)

Monotonicity Violations in Instant Runoff Voting, MAA-SE conference (Mar. 2016)

Monotonicity Violations in Instant Runoff Voting, High Point University (Sept. 2015)

The Mathematics of Enemy-Protector, MAA-SE conference (Mar. 2015)

(with K. O'Hara) *Flipping Freshman Mathematics*, Mathfest (Aug. 2014)

(with L. Zack, J. Fuselier and K. O'Hara) *Flipping Freshman Mathematics*, Presentation as part of HPU panel discussion on the flipped classroom (Mar. 2014)

(with K. O'Hara) *Flipping Freshman Mathematics*, MAA-SE conference (Mar. 2014)

Mat-Rix-Toe: Improving Writing in Linear Algebra, MAA-SE conference (Mar. 2014)

Mat-Rix-Toe: Where Tic-Tac-Toe and Linear Algebra collide, MAA-SE conference (Mar. 2013)

Why democracy is a sham, Democracy USA Colloquium, High Point University (Nov. 2012)

Explicit calculations of local formal integral transforms, Mathfest (Aug. 2012)

Mat-Rix-Toe: Explaining, writing and editing in Linear Algebra, Mathfest (Aug. 2012)

Beyond Jeopardy! Games for Learning Mathematics, Panel discussion given at Joint Mathematics Meetings (Jan. 2012), Co-organizer and moderator.

Extensions of formal power series, High Point University (Mar. 2011)

Local Formal Integral Transforms, GMA Visions Seminar at UNC Chapel Hill (Nov. 2010)

Reduction of the Operator $d/dx + A$ to Canonical Form, GMA Visions Seminar at UNC Chapel Hill (Nov. 2009)

STUDENTS
MENTORED

Drew Faust (2020-present): Impossibility theorems in gerrymandering

Camarie Schmidt (2019-2020): Optimizing final grade by dropping one score.

Sophie Kestner (spring 2019): Calculating efficiency gap in multiparty elections. Sophie presented at High-PURCS in 2019.

Matt Knipfer (2018-2019): Modeling ranked-choice voting and alternative voting methods. Matt presented at MAA-SE in 2019.

Joanna Fass (2017): Optimal strategies for different versions of the linear algebra game MatRixToe. Joanna presented her research at MAA-SE in 2018 and won an award for best presentation.

Nick Zayatz and David Naylor, (2013-2014): Voting anomalies in real-world instant run-off election data. Students presented four times (Twice at Gatlinburg CS conference, MAA-SE, and High-PURCS), and the research led to a publication.

SERVICE

University

- 2020-present: Elected as at-large representative for Faculty Senate.
- 2019: Served on tenure/promotion committee and dean hiring committee for School of Education
- 2018 (spring): Member of ad-hoc committee on student evaluations
- 2017-present: Member of General Education Assessment committee
- 2012-present: Member of Teacher Education Council
- 2013-2016: Member of Global Studies committee
- Organized cultural event (April, 2014): FIXED film.

Departmental

- Peer observation coordinator (2014-), Math Lab coordinator (2014-2020), Placement coordinator (2017-2020)
- Member of Awards subcommittee (2012-2020)
- Assisted with departmental hiring committee in 2015, program review in fall of 2016, and department chair search committee in fall of 2018.

Professional

- Reviewer for PRIMUS, Journal of Humanistic Mathematics, The North Carolina Journal of Mathematics and Statistics, and International Journal of Research in Education and Science.

OTHER TEACHING EXPERIENCE

2006 to 2011	University of North Carolina, Chapel Hill, NC. Taught numerous undergraduate courses.
2003 to 2005	Washington Prep High School, Los Angeles, USA. Taught Algebra II, Geometry and Algebra I.
2000 to 2002	Dantakali M.V., Dharan, Nepal. Taught middle school math in Nepali as a Peace Corps volunteer.
1999	Bunya Combined School, Bunya, Namibia. Taught high school math in English as a Peace Corps volunteer.

CONFERENCES ATTENDED

MAA-SE: Yearly, March 2013-2020.

North Carolina Math Teachers' Circle conference: Cullowhee, NC (July 2019)

Geometry of Redistricting Workshop: Durham, NC (November 2017) and Boston, MA (August 2017)

SCUWM: Duke University, Durham, NC (November 2016)

Mathfest: Portland, OR (August 2014)

Mathfest/Project NExT: Madison, WI (August 2012) and Lexington, KY (August 2011)

Joint Mathematics Meetings: Boston, MA (January 2012) and New Orleans, LA (January 2011)

Eigenvalue and Saturation Problems for Reductive Groups: Chapel Hill, NC (May 2009)

23rd Annual Geometry Festival: Durham, NC (April 2008)

COMPUTATIONAL EXPERIENCE	I am familiar with programming and coding in Java, Python, Maple and Matlab.
MEMBERSHIPS	Mathematics Association of America