

# Torin Greenwood

North Dakota State University  
Department of Mathematics  
1210 Albrecht Boulevard  
Fargo, ND 58108-6050

## WEBPAGE

<https://www.ndsu.edu/pubweb/~togreenw/>

## E-MAIL

[torin.greenwood@ndsu.edu](mailto:torin.greenwood@ndsu.edu)

## RESEARCH INTERESTS

Discrete mathematical biology, analytic combinatorics, RNA folding, and probability theory.

## EDUCATION & TRAINING

- Ph.D. in Mathematics**, University of Pennsylvania May 2015  
Thesis: *Asymptotics of Bivariate Generating Functions with Algebraic Singularities*. Advisor: Robin Pemantle
- M.A. in Mathematics**, Duke University December 2011
- M.A. in Mathematics**, University of Pennsylvania May 2010  
Thesis: *Quantum Random Walks*. Advisor: Robin Pemantle
- B.A. in Mathematics and Music**, University of Pennsylvania May 2010

## APPOINTMENTS

- Assistant Professor** August 2019 - present  
Department of Mathematics, North Dakota State University
- Assistant Professor** August 2018 - May 2019  
Department of Mathematics, Rose-Hulman Institute of Technology
- IMPACT Postdoctoral Scholar** August 2015 - July 2018  
School of Mathematics, Georgia Institute of Technology  
IMPACT = Interdisciplinary Mathematics Preparation and Career Training  
NSF workforce Award 1344199. Mentor: Christine Heitsch

## PUBLICATIONS

- Multivariate generating functions: asymptotics and examples* (in preparation).
- How Parameters Influence SHAPE-Directed Predictions*, with C.E. Heitsch. (Book chapter, submitted.)
- Sublinear variance in Euclidean first passage percolation*, with M. Bernstein and M. Damron. Preprint: <https://arxiv.org/abs/1901.10325>
- Deconvolving RNA Base Pairing Signals*, with C.E. Heitsch. Preprint: <http://arxiv.org/abs/1801.03055>
- Asymptotics of bivariate analytic functions with algebraic singularities*. In: JCTA, vol. 153, pp. 1-30 (2018). Available online: <http://www.sciencedirect.com/science/article/pii/S0097316517300833>

PUBLICATIONS,  
CONT

*Quantum random walks on the integer lattice: Examples and phenomena* (with A. Bressler, R. Pemantle, and M. Petkovšek). In: *Algorithmic Probability and Combinatorics*, AMS Contemporary Mathematics series, vol. 520 (2009), pages 221-240.

HONORS &  
AWARDS

*Herbert S. Wilf Memorial Award* for research and teaching, University of Pennsylvania. (2015)  
*Moez Alimohamed Graduate Student Award for Distinguished Teaching in Mathematics*, University of Pennsylvania. (2014)  
*Penn Prize for Excellence in Teaching by Graduate Students*, University of Pennsylvania. (2013)  
*Departmental Good Teaching Award*, University of Pennsylvania. (2012, 2013, and 2014)

TALKS

Tri-College Colloquium, Minnesota State University, Moorhead <i>Examples in Analytic Combinatorics</i>	November 2019
Joint Math Meetings, Baltimore <i>Using Experimental Data to Deconvolve Structural Signals.</i>	January 2019
Joint Math Meetings, San Diego <i>Using Experimental Data to Deconvolve Structural Signals.</i>	January 2018
Banff workshop on Lattice Walks at the Interface of Algebra, Analysis, and Combinatorics. <i>Multivariate Algebraic Generating Functions: Asymptotics and Examples.</i>	September 2017
SIAM Conference on Applied Algebraic Geometry, Georgia Tech. <i>Multivariate Algebraic Generating Functions: Asymptotics and Examples.</i>	July 2017
CanADAM, Ryerson University <i>Using Experimental Data to Deconvolve Structural Signals.</i>	June 2017
Dartmouth College Combinatorics Seminar <i>RNA Folding and Analytic Combinatorics.</i>	May 2017
FPSAC Conference, Vancouver, BC <i>Asymptotics of the Coefficients of Bivariate Analytic Functions with Algebraic Singularities.</i>	July 2016
Analysis of Algorithms Conference, Strobl, Austria <i>Asymptotics of the Coefficients of Bivariate Analytic Functions with Algebraic Singularities.</i>	June 2015
CanADAM, University of Saskatchewan <i>Asymptotics of the Coefficients of Bivariate Analytic Functions with Algebraic Singularities.</i>	June 2015
Joint Math Meetings, San Antonio <i>Asymptotics of the Coefficients of Bivariate Analytic Functions with Algebraic Singularities.</i>	June 2015
Bryn Mawr College Math Seminar <i>Quantum Random Walks on the Integer Lattice.</i>	April 2010
AMS Fall Western Section Meeting, University of British Columbia <i>Quantum Random Walks.</i>	October 2008

---

## TEACHING EXPERIENCE

### **At North Dakota State University**

Introduction to Abstract Mathematics - Math 270  
Fall 2019. 9 students.

### **At the Rose-Hulman Institute of Technology**

Bioinformatics - BMTH 312.  
Spring 2019. 6 students.

Discrete and Combinatorial Algebra II - Math 375.  
Spring 2019. 19 students. Winter 2018. 19 and 20 students.

Calculus II - Math 112  
Winter 2018. 16 students. Fall 2018. 22 and 23 students.

### **At the Georgia Institute of Technology**

Classical Mathematical Methods in Engineering - Math 4581.  
Summer 2018. 47 students.

Probability and Statistics with Applications - Math 3670.  
Fall 2017. 69 students. Spring 2017. 83 students.

Calculus II - Math 1552.  
Fall 2016. 81 students.

Honors Program Applied Combinatorics - Math 3012 HP.  
Spring 2016. 12 Georgia Tech students (in class), 12 high school students (online).

Applied Combinatorics - Math 3012.  
Fall 2015. 58 students.

### **At Duke University**

Calculus I - Math 31L.  
Fall 2011. 20 students.

### **At the University of Pennsylvania (T.A.)**

Undergraduate calculus, partial differential equations, and “Ideas in Mathematics.” Graduate real analysis.

---

## STUDENT SUPERVISION

**Senior Capstone Project**, NDSU. Kaleb Burnham (Fall 2019).

### **Georgia Tech IMPACT REU**

- Mentored undergraduates Jason Kolbush (Georgia Tech) and Taylor Strickland (Agnus Scott) on project, *Shape Data and Hidden Markov Models*.
  - Led professional development seminars for all six students
-

---

**TRAVEL  
FUNDING**

Workshop on Genomics, Pattern Avoidance, and Statistical Mechanics, Schloss Dagstuhl, Germany, 2018. \$2000 USD.  
Symposium on RNA Biology XII, UNC Chapel Hill, 2017. \$125 USD.  
Presented poster: *The problem with deconvolving structural signals*.  
CanaDAM, Ryerson University, 2017. \$400 CAD.  
SouthEastern Probability Conference, Duke University, 2017. \$750 USD.  
FPSAC Conference, Vancouver, BC, 2016. \$750 USD.  
CanaDAM, University of Saskatchewan, 2015. \$335 CAD.

---

**PROFESSIONAL  
SERVICE**

**Organizer**  
Joint Math Meetings, San Diego January 2018  
Special Session: Applied and Computational Combinatorics.  
CanaDAM, Ryerson University June 2017  
Minisymposia: Discrete Mathematical Biology, Parts I and II.  
Mathematical Biology Seminar, Georgia Tech Spring 2017  
Combinatorics Seminar, Georgia Tech Spring 2017

**Faculty Advisor**, oSTEM, NDSU Fall 2019 - present

**Member of Curriculum Development Group** (Rose-Hulman) Fall 2018  
• Reviewing content in combinatorics courses

**Reviewer**  
Bulletin of Mathematical Biology, Electronic Journal of Combinatorics, ORDER,  
Online Journal of Analytic Combinatorics, International Journal of Biomathematics

**Judge**  
Undergraduate Research Symposium, Georgia Tech Spring 2017

**Master TA** (University of Pennsylvania) 2014-2015  
• On the hiring committee for new TAs.  
• Trained, observed, and guided TAs.

---