

# Brian G. Kronenthal

## Contact Information:

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## Education:

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- University of Delaware; Newark, DE (henceforth abbreviated UD)
  - Ph.D. in Mathematical Sciences expected May 2013  
Advisor: Dr. Felix Lazebnik
  - Masters of Science in Mathematical Sciences May 2009
- Lafayette College; Easton, PA (henceforth abbreviated LC)
  - Graduated Summa Cum Laude with Honors May 2007
    - \* Bachelor of Science in Mathematics
    - \* Minor in French
  - Honors Thesis:
    - Combinatorial Game Theory: Analyzing Games with “Numbers”*
    - Studied Surreal Numbers, the game Hackenbush, and other related topics
    - Advisor: Dr. Derek Smith

## Awards and Honors:

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- Baxter-Sloyer Graduate Teaching Award 2011-2012
- Nominee for the K. Patricia Cross Future Leaders Award Fall 2011
- Professional Development Award July 2011
  - Provided support to attend  $\mathbb{F}_q10$  conference in Ghent, Belgium.
- UNIDEL Research Fellowship Spring 2011
- Nominee for the UD Excellence in Teaching Award 2008-2009
- Recipient of the Wesley S. Mitman Prize Spring 2007
  - “Awarded to the [LC] graduating senior most outstanding in mathematics.”
- Recipient of the Professor James P. Crawford Prize in Mathematics Spring 2006
  - “Awarded to a student who has made a special contribution to the mathematics community at Lafayette by participating in and providing leadership for the co-curricular activities of the department.”
- Elected member of Phi Beta Kappa Spring 2006
- Elected member of Pi Mu Epsilon Spring 2006

- Elected member of Sigma Xi Spring 2006
- Marquis Scholar 2003-2007

From LC website: “Lafayette recognizes its most outstanding applicants with Marquis Scholarships....Lafayette seeks students who have demonstrated intellectual curiosity in addition to their superior academic achievement. Curriculum, grades, rank in graduating class, and scores on standardized tests are all considered. Furthermore, the College looks for students creatively engaged in the life of their communities and who, like the College’s namesake, have made a difference through significant accomplishments in school and community.”

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**Service:**


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- Conference for new graduate teaching assistants August 2010 and 2011  
 This university-wide conference is intended to help new graduate students prepare for their duties as a teaching assistant. I have co-facilitated the following sessions:
  1. Addressing Grading Issues and Proctoring Exams
  2. Managing the Class: What Do I Do When?
  3. Teaching Mathematics Discussion Sections: Tips from TAs
- Senior TA panelist at a session for new graduate teaching assistants January 28, 2011  
 Title of the panel is “De-Mystifying the TA Experience: A Discussion-Oriented Session for First-Time Graduate Teaching Assistants.”
- Follow-up session for new graduate teaching assistants October 22, 2010  
 This session on “Addressing Grading Issues and Proctoring Exams” is primarily for TAs who did not have an opportunity to attend the corresponding session during the conference. Additional time was devoted for discussing problems that new TAs encountered in their first few months at UD.
- GRIPS 2010 (Graduate Review of Important Problems for Success) August 2010  
 Assisted new UD graduate students in a review of Analysis and  $\text{\LaTeX}$
- LC Math Club President 2005-2007

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**Talks and Presentations:**


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- “Monomial Graphs over Finite Fields and the Complex Numbers”  
 UD Department of Mathematical Sciences Winter Research Review February 10, 2012
- “On the Factorization of Quadratic Forms in Three Indeterminants”  
 MAA EPaDel Section Meeting (Bryn Mawr College) November 19, 2011
- “On the Puzzling Properties of Quadratic Forms”  
 UD Discrete Mathematics Seminar October 18, 2011
- “On Monomial Graphs and Generalized Quadrangles”  
 $\mathbb{F}_q10$ : The 10th International Conference on Finite Fields and their Applications  
 (Ghent, Belgium) July 11, 2011

- “On the König-Rados Theorem”  
UD Discrete Mathematics Seminar July 5, 2011
- “The Girth of the Glorious Graph Gamma”  
UD Graduate Student Seminar May 11, 2011
- “On Monomial Graphs and Generalized Quadrangles”  
7th Annual Graduate Student Combinatorics Conference (Penn State University) April 10, 2011
- “A strategy for constructing new generalized quadrangles”  
UD Department of Mathematical Sciences Winter Research Review February 11, 2011
- “Girth of an Important Monomial Graph”  
MAA EPaDel/NJ Joint Section Meeting (LaSalle University) November 6, 2010
- “Isomorphic Girth Eight Monomial Graphs”  
UD Discrete Mathematics Seminar November 3, 2010
- “Prodigious Permutation Polynomials”  
UD Graduate Student Seminar October 27, 2010
- “On the Girth of Certain Bipartite Graphs”  
UD Department of Mathematical Sciences Winter Research Review February 12, 2010
- Panelist for “Q&A on Preparing for Preliminary and Candidacy Exams”  
UD Graduate Student Seminar October 14, 2009
- “Analyzing Combinatorial Games with ‘Numbers’ ”  
UD Discrete Mathematics Seminar March 13, 2009
- Short presentation on “First Year Summer Research”  
UD Graduate Student Seminar September 10, 2008
- “The Prevalence of Paradoxical Dice” (joint with L. Traldi)  
AMS Eastern Section Meeting at the Stevens Institute of Technology (Hoboken, NJ) April 14, 2007

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**Publications:**

- “Monomial graphs and generalized quadrangles”. *Finite Fields and Their Applications*; to appear.
- (with L. Traldi) “Tied Dice”. *Journal of Combinatorial Mathematics and Combinatorial Computing*. **68** (2009), 85-96.

Product of 2006 research. We studied sets of  $n$ -sided dice with “paradoxical properties,” particularly the interaction between pairs of tied dice, as well as other dice with certain attributes.

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**Teaching Experience:**

- As an instructor, I have taught (with complete responsibility) the following courses at UD:
  - Math 115: Pre-Calculus
  - Math 210: Discrete Mathematics I

- Math 241: Analytic Calculus and Geometry A
- Math 242: Analytic Calculus and Geometry B
- As a Teaching Assistant, I have assisted with the following courses at UD. Responsibilities have included running discussion and Maple lab sections; holding office hours; creating quizzes; grading exams, quizzes, and homework.
  - Math 210: Discrete Mathematics I
  - Math 241: Analytic Calculus and Geometry A
  - Math 242: Analytic Calculus and Geometry B
  - Math 243: Analytic Calculus and Geometry C