

# CASEY M. WARMBRAND

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## EDUCATION

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### University of Arizona

Ph.D. in Mathematics

Expected 2010

### Budapest Semesters in Mathematics

Post Baccalaureate Study in Mathematics

January - May 2004

### Georgia Institute of Technology

B.S. in Discrete Mathematics with Business Option - Summa Cum Laude

December 2003

## RESEARCH PROJECTS and Interests

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### Combinatorics Research Group, Spring 2007 - Present

A Collocation of Combinatorics and Asymptotic Analysis  
Working Group in Arizona Department of Mathematics

### Research Tutorial Group, August 2005 - August 2007

Applications of Combinatorics within Random Matrix Theory  
Advisor: Dr. Kenneth McLaughlin

### Graduate Research Assistant, August 2006 - May 2007

Exploration of Graphical Enumerations of the Continuum Limit of Toda Lattice  
Advisors: Dr. Nick Ercolani and Dr. Kenneth McLaughlin

### Master's Thesis, Defended - January 2007

Asymptotics of Partitions  
Advisor: Dr. Kenneth McLaughlin

### NSF Research Experiences for Undergraduates, April - December 2003

Network Theory applications in the US House of Representatives  
Advisor: Dr. Peter Mucha and Dr. Mason Porter

### Undergraduate Senior Thesis, January - December 2003

Using Affine Transformations to construct a Fractal Alphabet  
Advisor: Dr. Yang Wang

### Game Theory and Poker Modeling, May - August 2006

"Best Response to Tight and Loose Opponents in the Borel and von Neumann Poker Models"

## SELECTED TALKS University of Arizona

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<b>A Comparison of the Schur Measure vs. Plancherel Measure on Partitions</b>	
Combinatorics Working Group	Spring 2009
<b>Aztec Diamond Tilings and Modified Aztec Pacman Tilings</b>	
Oral Examination Defense	Spring 2009
<b>The LGV Method for Weighting Non-Intersecing Paths</b>	
Graduate Colloquium	Fall 2007
<b>Random Tilings of the Aztec Diamond - 3 Part Lecture Series</b>	
Combinatorics Working Group	Fall 2007
<b>Poker Models, Best-Responses, and Bluffing</b>	
Graduate Colloquium	Spring 2007
<b>The Limit Shape of a Typical Partition of <math>n</math></b>	
Master's Thesis Defense	Spring 2007
<b>The RSK Correspondence Between Permutations and Partitions</b>	
Math/Physics Seminar	Fall 2006
<b>Partitions, Young tableaux, and the Plancherel measure</b>	
Graduate Colloquium	Fall 2006

## TEACHING EXPERIENCE

As a graduate teaching assistant at the University of Arizona I have had sole teaching responsibilities in a number of undergraduate courses listed below. These responsibilities include the following:

- Arranging and presenting all lecture materials
- Writing and grading all exams, homework assignments, and quizzes
- Advising and tutoring students during prescribed office hours
- Inspiring creative thought in and out of the classroom

<b>Differential Equations - TA</b>	Fall 2009
<b>Math in Modern Society</b>	Spring 2008
<b>Calculus I</b>	Spring 2006 & Fall 2007
<b>Abstract Algebra - Super TA</b>	Fall 2006 & Spring 2007
<b>Calculus Preperation</b>	Fall 2005
<b>College Algebra</b>	Fall 2004 & Spring 2005

As a Teaching Assistant at the Georgia Institute of Technology I worked for both the Mathematics and Computer Science departments in a number of undergraduate courses listed below. These duties varied from course to course, but listed below is a general scope of these responsibilities:

- Organizing and conducting recitation sessions
- Grading homeworks, quizzes, tests, and final exams
- Advising and tutoring students during prescribed office hours

<b>Finite Mathematics</b>	Fall 2003
<b>Computer Science Theory I</b>	Fall 2003
<b>Calculus II, Series, and Linear Algebra</b>	Spring 2003
<b>Constructing Proofs</b>	Spring 2003

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## LANGUAGES Verbal and Computer

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Fluent in - English

Experience speaking and reading - French, Spanish, Hungarian, and Portuguese

Experience reading - Hebrew

Experience coding - C, Java, Maple, Matlab, HTML, L<sup>A</sup>T<sub>E</sub>X, Beamer, Mac OS X, Linux, MS Excel and Powerpoint

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## RELATED WORK EXPERIENCE

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### Mathematics Tutor

2006 - Present

Tutored College, High School, and Middle School students in a wide range of subjects.

Worked both independently and for a group called 'Tucson Tutors.'

### Research Assistant/Summer Intern

Cohen, Klingenstein, & Marks Inc.

June - August 2002

Researched Large Cap investments; experience with Bloomberg stock quote system,

SEC filings, Risk vs. Reward analysis, various valuation techniques of stocks.

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## FELLOWSHIPS AND AWARDS

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### NSF VIGRE Fellowship

Summer 2008

### REU Fellowship

Fall 2003

### High School Math Honors Society

Academic Year 2000

### President Math Competitive Team

Academic Year 1999

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## PUBLISHED PAPERS

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"A network analysis of committees in the U.S. House of Representatives,"

M.A. Porter, P.J. Mucha, M.E.J. Newman, & C.M. Warmbrand,

*Proc. National Academy of Sciences* **102**, 7057-7062 (2005).

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## REFERENCES

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1. Dr. Kenneth McLaughlin  
Department of Mathematics  
University of Arizona  
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4. Dr. Peter J. Mucha  
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