

## **Bret Benesh, The College of St. Benedict/St. John's University**

---

The College of St. Benedict/St. John's University  
Department of Mathematics  
37 College Avenue South  
St. Joseph, MN 56374 USA  
Work: (320) 363-5790  
email: bbenesh@csbsju.edu  
Website: <http://www.users.csbsju.edu/~bbenesh>

**Citizenship:** USA

**Date of Birth:** December 5, 1976

**Place of Birth:** St. Paul, MN

**Employment:**

- Assistant Professor at the College of Saint Benedict and Saint John's University, August 2008 -present
- Preceptor at Harvard University, July 2005 - July 2008
- Teaching Assistant at the University of Wisconsin-Madison, Fall 2000 - Spring 2002, Fall 2004 - Spring 2005
- NSF Kindergarten-Through-Infinity (KTI) Fellow, June 2002-August 2004: This is an NSF program of joint professional development for K-12 teachers and graduate students in mathematics, science, and engineering. Duties included teaching a 9th grade class and attending professional development courses.

**Education:**

- Doctor of Philosophy in Mathematics  
University of Wisconsin-Madison, May 2005  
  
Thesis title: *Counting generators in finite groups that are generated by two subgroups of prime power order*  
Advisor: Nigel Boston
- Master of Arts in Mathematics  
University of Wisconsin-Madison, May 2002
- Bachelor of Science, Magma Cum Laude  
University of Minnesota-Twin Cities, July 1998

**Publications:**

- *The probabilistic zeta function*, Computational group theory and the theory of groups, II, 1–9, Contemp. Math., 511, Amer. Math. Soc., Providence, RI, 2010. 20B35 (20E28).
- *How students use their math textbook*, with T. Boester, A. Weinberg, and E. Wiesner, accepted for publication at PRIMUS Journal.

- *A classification of certain maximal subgroups of alternating groups*, Computational group theory and the theory of groups, 21–26, Contemp. Math., 470, Amer. Math. Soc., Providence, RI, 2008. 20B35 (20E28).
- *A classification of certain maximal subgroups of symmetric groups* with B. Newton, J. Algebra **304** v2, pp 1108-1113.
- *Undergraduates' use of mathematics textbooks* with T. Boester, A. Weinberg, and E. Wiesner. In *Proceedings of the 28th annual meeting for the North American Chapter of the International Group for the Psychology of Mathematics Education* (2006).
- *Counting generators of finite groups that are generated by two subgroups of prime power order*, in preparation.
- *Arithmetic and Geometric Problem Solving for Elementary Education Majors* textbook, in preparation.

**Other Publications:**

- *Comes a day youre gonna have to decide whether its about you or about the work.* Virtual Conference on Core Values at [http://larkolicio.us/blog/?page\\_id=873](http://larkolicio.us/blog/?page_id=873), July, 2011
- *SBF (Standards Based Feedback)*  
SBG (Standards Based Grading) Gala #6 at <http://oldmathdognewtricks.blogspot.com/2011/06/sbg-gala-6.html>, June 23, 2011
- *SBG (Standards Based Grading) Reflections*  
SBG (Standards Based Grading) Gala #6 at <http://oldmathdognewtricks.blogspot.com/2011/06/sbg-gala-6.html>, June 23, 2011

**Research Interests:**

- Finite group theory: primarily permutation groups and probabilistic group theory
- Math education

**Awards and Honors:**

- Awarded CSBSJU Scholarship and Teaching Project Fellowship (course release for research), Spring 2011
- Nominated for Joseph R. Levenson Memorial Teaching Prize at Harvard University, Spring 2007
- Derek Bok Center for Teaching and Learning Certificate of Distinction in Teaching, Fall 2006, Fall 2007
- Recognized by Madison Metropolitan School Board, February 2004

- University of Wisconsin-Madison Mathematics Department's Excellence in Teaching Award, May 2003.
- Participant in the Minnesota State Math Tournament, 1995
- Individual champion of the St. Paul Suburban Math League, 1994-1995

**Students:**

- Hongying "Shadow" Zhao, senior thesis: 2011-2012
- Hongying "Shadow" Zhao, Summer Undergraduate Research Program, Summer 2011
- Cong Van, senior thesis: 2010-2011
- Cong Van, Summer Undergraduate Research Program, Summer 2010
- Jason Lutz, senior thesis: 2009-2010 (winner of "Most Outstanding Senior Thesis at CSBSJU" for 2009-2010)
- Jason Lutz, Summer Undergraduate Research Program: *An Analog for a Basis in Finite Groups*, Summer 2009
- Greg Williamson, Degree of Master of Liberal Arts in Extension Studies at Harvard University: *Memorization of multiplication facts: an investigation into the connection between mastery of basic multiplication facts and performance on fifth-grade standardized math tests*. Expected Graduation Date: Spring 2009
- Jason B. Franklin, Degree of Master of Liberal Arts in Extension Studies at Harvard University: *The use and effectiveness of a class-supporting website in an eighth grade math class in Boston public schools*. Spring 2008
- Armando Segura, Degree of Master of Liberal Arts in Extension Studies at Harvard University: *Supplemental design for a curriculum in non-Euclidean geometry in secondary education mathematics*. Spring 2008
- Deborah Tully, Degree of Master of Liberal Arts in Extension Studies at Harvard University: *The effect of single gender mathematics learning environments on self efficacy and post secondary curricular paths: an Australian case study*. Spring 2008
- Jessica Kuh, Degree of Master of Liberal Arts in Extension Studies at Harvard University: *International Baccalaureate mathematics projects: what they are and why their inclusion in standard American math classes would be beneficial*. (which received the Dean's Prize for Outstanding ALM Thesis in Mathematics for Teaching). Graduation date: Spring 2007
- Jaret Dunn, research assistant through the Faculty Aide Program at the Harvard Extension School, studying the education literature on effective classrooms: Fall 2007

- Greg Williamson, research assistant through the Faculty Aide Program at the Harvard Extension School: studying the correlation between knowledge of the multiplication tables and the 5th grade curriculum: Fall 2007

**Invited Talks:**

- *National Day of Writing Panel*  
Panel discussion hosted by the CSBSJU Writing Center on October 19, 2010
- *When is  $S_n$  maximal in  $S_m$ ?*  
Faculty Research Seminar, St. Olaf College, Northfield Minnesota, October 22, 2010
- *From matrices to magic eight balls: a look at three types of symmetry*  
Colloquium, Concordia College, September 8, 2009
- *STEM education: future issues, concerns and problems for national competitiveness R&D*  
Panel discussion hosted by The Heritage Foundation, October 22, 2008
- *The probabilistic zeta function*  
AMS Sectional Meeting, Western Michigan University, October 18, 2008
- *From matrices to magic eight balls: a look at three (?) types of symmetry*  
Colloquium, Colby College, May 5, 2008
- *Some maximal subgroups of symmetric groups*  
Colloquium, Oregon State University, November 16, 2007
- *Pairing up: a case study in cooperative learning.*  
Derek Bok Center for Teaching and Learning Fall Teaching Conference, Harvard University, September 12, 2007
- *Some maximal subgroups of symmetric groups*  
University of Georgia VIGRE seminar, March 20, 2007
- *A classification of certain maximal subgroups of symmetric groups and alternating groups*  
Zassenhaus Group Theory Seminar, St. Louis University, March 17, 2007
- *A classification of certain maximal subgroups of symmetric groups*  
AMS Sectional Meeting at Davidson College in North Carolina, March 4, 2007
- *A classification of certain maximal subgroups of symmetric groups*  
Colloquium, Western Michigan University, October 12, 2006
- *A different take on teaching*  
Pi Mu Epsilon, Western Michigan University, October 13, 2006
- *Building bridges: a model for connecting K-12 and postsecondary schools*  
University of Wisconsin-Eau Claire, March 2005

**Selected Contributed Talks:**

- *The Representation Theory of Maximal Subgroups of Symmetric Groups*  
Zassenhaus Conference, Towson University, May 29, 2011
- *Adventures with Cooperative Learning and standards-based grading in the college classroom (or, how I tried to re-program myself to teach in only one semester)*  
AMS/MAA Joint Meetings, New Orleans, Louisiana, January, 2011 (anticipated)
- *Hands-on Algebra - Using Algeblocks to Create a Deeper Understanding for Algebra Concepts*  
MCTM Spring Meeting, Duluth, Minnesota, May 1, 2010
- *When is  $S_n$  maximal in  $S_m$ ?*  
MAA NCS Sectional Meeting, St. Paul, Minnesota, April 23, 2010
- *Inquiry based learning at Harvard*  
Mathematical Sciences Research Institute's "Teaching Teachers" workshop, Berkeley, California, May 30-June 1, 2007
- *Inquiry based learning at Harvard*  
R.L. Moore Legacy Conference in Austin, Texas, April 13, 2007
- *Two examples of IBL classrooms for in-service high school teachers: rationals, implementation, and results*  
R.L. Moore Legacy Conference in Austin, Texas, April 12, 2007
- *How your students use their textbook: a preliminary report*  
Mathematics Education Seminar Series (MESS) at Harvard University, Cambridge, MA, April 6, 2007
- *How your students use their textbook: a preliminary report*  
AMS/MAA Joint Mathematics Meetings, New Orleans, LA, January 6, 2007
- *A new geometry*  
A presentation to high school students enrolled in Harvard Summer School, Cambridge, MA, Summer, 2006
- *A classification of certain maximal subgroups of symmetric groups*  
The Ohio State-Denison Mathematics Conference, the Ohio State University, March 2006
- *Counting generators of finite groups that are generated by two subgroups of prime power order*  
Zassenhaus Conference, Auburn University-Montgomery, March 2005
- *Counting generators of finite groups that are generated by two subgroups of prime power order*  
Joint Mathematics Meetings, Atlanta, January 2005
- *An experiment in Japanese Lesson Study*  
Joint Mathematics Meetings, Atlanta, January 2005

- *On maximal subgroups of symmetric groups*  
Group Theory Seminar, University of Wisconsin, Spring 2005
- *A result from probabilistic group theory*  
Group Theory Seminar, University of Wisconsin, Fall 2004
- *Generating finite groups with a unique minimal normal subgroup*  
Group Theory Seminar, University of Wisconsin, Spring 2003
- *Profinite Free Products*  
Group Theory Seminar, University of Wisconsin, Spring 2002

**Classes Taught:**

- Professor at The College of St. Benedict/St. John's University:
  - Complex Analysis, Spring 2012 (expected)
  - Real Analysis, Fall 2011
  - Essential Calculus, Fall 2010
  - Algebraic Structures, Spring 2010
  - Multivariable Calculus, Fall 2009
  - Fundamentals of Mathematics II, Fall 2009
  - Differential Equations, Spring 2009
  - Fundamentals of Mathematics (for Education Majors), Spring 2009, Spring 2011, Spring 2012 (expected)
  - Linear Algebra, Fall 2008, Fall 2010
  - Calculus I, Fall 2008
- Instructor at Harvard University:
  - Linear Algebra and Differential Equations, Spring 2008
  - Discrete Mathematics, Fall 2007
  - Theory and Practice of Teaching Arithmetic, Summer 2007 and Spring 2008
  - Theory and Practice of Teaching Geometry, Summer 2006, Spring 2007, and Summer 2008
  - Introduction to Functions and Calculus II, Spring 2006, Spring 2007 and Spring 2008
  - Introduction to Calculus, Fall 2005, Fall 2006
  - Introduction to Functions and Calculus I, Fall 2005, Fall 2006, Fall 2007
  - Lesson Study Seminar, Fall 2005, Spring 2006, Fall 2006
- Instructor at University of Wisconsin-Madison
  - Geometric Problem Solving for Elementary Teachers, Spring 2005

Arithmetical Problem Solving for Elementary Teachers, Fall 2004

Calculus II, Spring 2002

College Algebra, Fall 2001

- Teaching Assistant at the University of Wisconsin-Madison

9th Grade Integrated Math/CORE Plus at Madison East High School (through KTI), 2003-2004

9th Grade Algebra at Madison La Follette High School (through KTI), 2002-2003

Topics in Finite Mathematics, Spring 2001

Calculus II, Fall 2000

**Service:**

**The College of St. Benedict/St. John's University**

- Natural Science Representative for CSBSJU faculty senate, Fall 2011-present
- Reviewer for National Conference on Undergraduate Research (NCUR) student papers, Spring 2011
- Founder and co-organizer for CSBSJU Project Euler team, Spring 2011-present
- Member of CSBSJU mathematics department's Faculty Hiring Committee, Fall 2010-Spring 2011
- Chair of CSBSJU mathematics department's committee to create program for math endorsement for education majors, Spring 2010
- Co-advisor for CSBSJU Math Society, Fall 2009-Spring 2011
- Founder and organizer of College of St. Benedict/St. John's University Group Theory Seminar, Fall 2009-present
- Co-organizer of CSBSJU Category Theory Seminar, Fall 2008-Spring 2009
- Referee for Involve!, a mathematics journal for undergraduates
- Representative for Math Department on Building Committee, Fall 2008-present
- Organizer of the Putnam Team, Fall 2008-present
- Attended CSBSJU information/recruitment session in St. Paul for high school seniors, Spring 2009
- Member of Calculus Textbook Selection Committee, Spring 2009
- Supervisors of Individualize Learning Projects (Alec Torigian, Fall 2008 and Emily Dauk, Spring 2009)

**Harvard University**

- Organizer of Mathematics Education Seminar Series (MESS) at Harvard University, Fall 2007
- Harvard Freshman Advisor, Fall 2007 - Spring 2008
- Participant in AWM's Teacher Partnership Program (partnered with Leanne Kaufmann), March 2007 - present
- Referee for the Journal of Group Theory
- Math Club/Math Table Committee, Fall 2006 - Spring 2008 (Chair from Fall 2007 - Spring 2008)
- Mathematics Placement Test Committee, Fall 2006 - Spring 2008
- Apprentice Committee, Fall 2006 - Spring 2008
- Co-coordinator of hiring and training undergraduate course assistants for calculus, Spring 2006 - Spring 2008
- Coordinator for Teaching Undergraduate Mathematics Seminar II (TUMS II)/Reflections on Learning and Instructional Difficulties Seminar (ROLAIDS), Fall 2005 - Spring 2007
- Coordinator for Mathematics Question Center, a tutoring center for calculus students, Fall 2005 - Spring 2006
- Visiting Calculus Courses Committee, Fall 2005 - Spring 2008

**University of Wisconsin-Madison**

- Co-creator of teacher professional development workshop *Misconceptions in Algebra*, Madison Metropolitan School District, June 2004
- Teaching Assistant Evaluation Committee, Fall 2003-Spring 2005
- Committee for Teaching Assistant Policies and Procedures, Fall 2004 - Spring 2005

**Professional Affiliations:**

- Mathematical Association of America, 2006-present
- American Mathematical Society, 2000-present
- Massachusetts Mathematics Association of Teacher Educators , 2007-2008
- Minnesota Council of Teachers of Mathematics, 2007-2009
- Mathematicians and Education Reform, 2007-2009
- Association for Women in Mathematics, 2006-2009

**Additional Experiences and Skills:**

- Participant in “Writing Great Clicker Questions: Quantitative Clicker Questions” webinar, hosted by i>clicker and Lee Gibson on July 28, 2011
- Participant in “Cooperation in the Classroom” in Minneapolis, MN, July 26-29, 2010
- Co-organizer of the “Scrapheap Showdown,” a fundraiser for the Somerville Mathematics Fund. This is an engineering challenge for high school students to build machines such as cars, catapults, and windmills out of “junk.” Spring 2006- Spring 2008
- Proficient in Spanish
- Some knowledge of spoken Norwegian
- Participant in Massachusetts Mathematics Association of Teacher Educators symposium, Roger Williams University in Bristol, RI, June 12, 2007
- Participant in the Ninth and Tenth Annual Legacy of R. L. Moore Conferences, Austin, Texas, May 2006 and April 2007
- Participant in System-wide Change for All Learners and Educators (SCALE) NSF site visit, Los Angeles, CA, July 2004
- Participant in Diversity in Mathematics Education (DiME) Seminar, University of Wisconsin-Madison/Madison Metropolitan School District, Fall 2002 - Spring 2004
- Analyst, Andersen Consulting (now Accenture Consulting), August 1998 - August 2000