

# Wesley K. Hough

Department of Mathematics  
University of Kentucky  
715 Patterson Office Tower  
Lexington, KY 40506

Email: wesley.hough@uky.edu  
Telephone: (859) 257-6805  
Fax: (859) 257-4078  
Website: <http://www.ms.uky.edu/~houghw/>

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## EDUCATION

- **University of Kentucky**, Lexington, Kentucky August 2012 - Present  
M.A. in Mathematics, August 2014  
Ph.D. in Mathematics, expected May 2017  
Advisor: Benjamin J. Braun  
Dissertation Title: *On Independence, Matching, and Homomorphism Complexes*
- **Hanover College**, Hanover, Indiana September 2008 - May 2012  
B.A. in Mathematics & Economics, *summa cum laude*, May 2012  
Alpha Lambda Delta, Gamma Sigma Pi, and Mortar Board honor societies

## PUBLICATIONS

- B. Braun and W. Hough. Homomorphism complexes of the Boolean algebras.  
Manuscript in preparation.
- B. Braun and W. Hough. Matching and independence complexes related to small grids.  
Submitted. arXiv:1606.01204.
- D. DeSantis, R. Field, W. Hough, B. Jones, R. Meissen, and J. Ziefle. Permutation pattern avoidance and the Catalan triangle. *Missouri Journal of Mathematical Sciences* 25 (2013), no. 1, 50-60.

## TEACHING EXPERIENCE

- **Teaching Assistant**, U.K. Mathematics Department, August 2012 - present  
*Primary Instructor* - Responsibilities include lecturing, leading class discussions, designing syllabi, composing and grading homework and exams, and holding office hours.
  - MA 111 - Introduction to Contemporary Mathematics, Fall 2013
  - MA 114 - Calculus II, Summer 2015
  - MA 123 - Elementary Calculus and Its Applications, Summer 2013
  - MA 138 - Calculus II for the Life Sciences, Fall 2016
  - MA 322 - Matrix Algebra and Its Applications, Summer 2014*Recitation/Workshop Leader* - Responsibilities include leading recitation sections, preparing recitation materials, grading homework and exams, and holding office hours.
  - MA 113 - Calculus I\*, Fall 2015
  - MA 114 - Calculus II\*, Spring 2016
  - MA 123 - Elementary Calculus and Its Applications, Fall 2012
  - MA 123 - Elementary Calculus and Its Applications, Spring 2013
  - MA 137 - Calculus I for the Life Sciences, Fall 2014

- MA 138 - Calculus II for the Life Sciences, Spring 2015
- MA 162 - Finite Mathematics and Its Applications, Spring 2014  
*\*These courses were part of the MathExcel program, an intensive problem-solving approach to the typical engineering calculus sequence. Students spend extra time each week working on enriching exercises in small groups with assistance from the workshop leader and undergraduate assistants.*

- **Boot Camp Instructor**, U.K. Statistics Department, August 2015 & August 2016

Independently taught two-week mathematics “boot camp” review class for new statistics graduate students. Lectured review material, assigned and graded homework and aptitude assessments, and submitted overall evaluation for each student to the Director of Graduate Studies.

- **Hanover 101 Peer Mentor**, Hanover College, Fall 2010 & Fall 2011

Team-taught a section of freshman seminar with a full professor, designed lesson plans, facilitated class discussion, and advised students regarding course registration for next semester.

## FELLOWSHIPS AND AWARDS

- W. C. Royster Outstanding Teaching Assistant Award, University of Kentucky, 2016
- Association of Emeriti Faculty Endowed Fellowship, University of Kentucky, 2016
- Mathematics Fellowship, University of Kentucky, 2015
- Max Steckler Fellowship, University of Kentucky, 2013, 2016
- Scholarship/Leadership Award, Hanover College, 2012
- Morse Mathematical Award, Hanover College, 2012
- Phi Beta Kappa Faculty Award for Student Scholars, Hanover College, 2011
- Dr. John E. Yarnelle Mathematics Prize, Hanover College, 2011
- Excellence in Tutoring Award, Hanover College, 2011
- Dr. Albert G. & Katharine Parker Scholarship, Hanover College, 2008-2012

## TALKS AND PRESENTATIONS

### EXTERNAL

- *Matching and Independence Complexes Related to Small Grids*  
 Fall Central Sectional Meeting of the AMS, University of St. Thomas - Minneapolis,  
 October 28, 2016
- *Grids, Diamonds, and the Comb Algorithm*  
 Contributed Papers Session, SIAM Conference on Discrete Mathematics, Georgia State  
 University, June 8, 2016  
 Graduate Student Combinatorics Conference, Clemson University, April 2, 2016
- *Homology and the Matching Complex*  
 Graduate Student Combinatorics Conference, University of Kentucky, March 29, 2015
- *Graduate School at the University of Kentucky*  
 Math Club, Hanover College, April 8, 2014

- *In the Footsteps of Newton*  
Kentucky Section of the MAA Annual Meeting, Transylvania University, April 5, 2013  
Bluegrass Undergrad. Mathematics Symposium, Centre College, September 22, 2012
- *Permutation Pattern Avoidance and the Catalan Triangle*  
Butler Undergraduate Research Conference, Butler University, April 20, 2012  
AMS Session on Undergraduate Research, Joint Mathematics Meetings of the AMS  
and MAA, Boston, MA, January 6, 2012  
Shenandoah Undergraduate Mathematics & Statistics Conference, James Madison  
University, October 22, 2011

INTERNAL

- *Discrete Morse Theory*  
Topology Seminar, University of Kentucky, October 6, 2016
- *Independence Complexes, Matching Trees, and Discrete Morse Theory*  
Discrete CATS Seminar, University of Kentucky, September 26, 2016
- *Independent Sets, Matchings, and Line Graphs*  
Graduate Student Colloquium, University of Kentucky, February 17, 2016
- *In the Footsteps of Newton*  
Math Club, University of Kentucky, January 21, 2016
- *Independence Complexes and Matching Trees: The Cell Stands Alone!*  
Graduate Student Colloquium, University of Kentucky, September 15, 2015
- *Non-Vanishing Homology of the Matching Complex*  
Graduate Student Colloquium, University of Kentucky, February 11, 2015
- *Limits, Colimits, and Homotopy... Oh, my!*  
Topology Seminar, University of Kentucky, November 6, 2014
- *A Little TLC*  
Discrete CATS Seminar, University of Kentucky, October 14, 2013
- *Permutation Pattern Avoidance and the Catalan Triangle*  
Graduate Student Colloquium, University of Kentucky, September 5, 2012

**CONFERENCES ATTENDED**

- AMS Fall Central Sectional Meeting, University of St. Thomas - Minneapolis, October 2016
- SIAM Conference on Discrete Mathematics, Georgia State University, June 2016
- Graduate Student Combinatorics Conference, Clemson University, April 2016
- Triangle Lectures in Combinatorics, Duke University, October 2015
- Graduate Student Combinatorics Conference, University of Kentucky, March 2015
- Wachsfest, University of Miami, January 2015
- Triangle Lectures in Combinatorics, High Point University, October 2014
- Graduate Student Combinatorics Conference, Auburn University, April 2014
- Triangle Lectures in Combinatorics, Univ. of North Carolina at Chapel Hill, February 2014
- Triangle Lectures in Combinatorics, North Carolina State University, September 2013
- Young Mathematicians Conference, The Ohio State University, August 2013
- Kentucky Sectional of the MAA Annual Meeting, Transylvania University, April 2013

- Bluegrass Undergraduate Mathematics Symposium, Centre College, September 2012
- Butler Undergraduate Research Conference, Butler University, April 2012
- Joint Mathematics Meeting of the AMS and MAA, Boston, MA, January 2012
- Shenandoah Undergrad. Math & Stats Conference, James Madison Univ., October 2011

## **SERVICE AND OUTREACH**

- **Co-Chairperson**, U.K. Mathematics Graduate Student Council, Fall 2014 - Spring 2016
- **Student Representative**, U.K. Graduate Student Congress, Spring 2015 - Spring 2016
- **Panel Member**, Teaching Assistant Orientation, University of Kentucky, January 2016
- **Panel Member**, Graduate Student Orientation, University of Kentucky, August 2013-2016
- **Program Assistant**, Central Kentucky Math Circles, University of Kentucky, Spring 2015
- **Session Moderator**, Graduate Student Combinatorics Conf., U. Kentucky, March 2015
- **Expert Judge**, KY Junior Academy of Science Annual Meeting, U. Kentucky, April 2014
- **Graduate Representative**, Young Mathematicians Conf., Ohio State U, August 2013

## **SUMMER EXPERIENCES**

- **IMMERSE** Mathematics Program, University of Nebraska at Lincoln, Summer 2012  
Topics: numerical linear algebra and probabilistic analysis
- **Research Experience for Undergraduates**, James Madison University, Summer 2011  
Topics: topological and algebraic combinatorics

## **PROFESSIONAL MEMBERSHIPS**

- American Mathematical Society
- Society for Industrial and Applied Mathematics
- Association for Women in Mathematics