

# Hays W. Whitlatch

## Curriculum Vitae

### CONTACT INFORMATION

#### Assistant Professor of Mathematics

Gonzaga University

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### EDUCATION

#### Ph.D. Mathematics,

May 2019

University of South Carolina, Columbia, SC

Thesis Title: Successful Pressing Sequences in Simple Pseudo-Graphs

Advisor: Dr. Joshua Cooper

#### M.S. Mathematics,

May 2014

Middle Tennessee State University, Murfreesboro, TN

Thesis Title: Isoperimetric Constants in Graphs with Hyperbolic Properties

Advisor: Dr. Xiaoya Zha

#### B.S. in Mathematics,

May 2008

University of Iowa, Iowa City, IA

### RESEARCH EXPERIENCE

#### Publications

##### In Print

3. J. Cooper, P. Gartland, H. Whitlatch. "A New Characterization of  $\mathcal{V}$ -posets." *Order*. (2019), 1–17.
2. Cooper and Whitlatch. "Uniquely Pressable Graphs: Characterization, Enumeration, and Recognition," *Advances in Applied Mathematics*. **103** (2019), 13–42.
1. Anderson, Bai, Barrera-Cruz, Czabarka, Da Lozzo, Hobson, Lin, Mohr, Smith, Szekely and Whitlatch. "Analogies between the Crossing Number and the Tangle Crossing Number," *The Electronic Journal of Combinatorics*. **25** (2018), 4.24.

##### Submitted

1. G. Dorpalen-Barry, C. Hettle, D. Livingston, J. Martin, G. Nasr, J. Vega H. Whitlatch. "A positivity phenomenon in Elser's Gaussian-cluster percolation model."

### TEACHING EXPERIENCE

#### Gonzaga University

Fall 2019 - present

Math 157: Calculus I (Fall 2019 - 2 sections)

Math 231: Discrete Structures (Spring 2020)

Math 258: Calculus II (Spring 2020)

Math 351: Combinatorics and Graph Theory (Fall 2019)

#### University of South Carolina

Fall 2014 - Spring 2019

Math 111: College Mathematics (Spring 2018)

Math 115: Precalculus (Fall 2015, Spring 2016)

Math 122: Applied Calculus (Fall 2016)

Math 141: Calculus I (Summer 2015)

Math 142: Calculus II (Summer 2016)

Math 170: Finite Mathematics (Fall 2018)

Math 374: Discrete Structures (Summer 2017)

**Duke Talent Identification Program** Summer 2014  
Mathematical Problem Solving

**Vanderbilt University Outreach Center** Fall 2013 - Spring 2014  
Math Fellow for Nashville Metro Schools

**Middle Tennessee State University** Fall 2013, Spring 2014  
Math 1010: Math for General Studies

**MENTOR  
EXPERIENCE**

**Gonzaga University**  
**Undergraduate Research Mentor** Spring 2020 - present  
Mentored one undergraduate students in an investigation project on probabilistic models that can be used to assign haplotypes to DNA windows.

**Undergraduate Research Mentor** Fall 2019 - present  
Co-mentored (with Dr. Katharine Shultis) three undergraduate students in a research project concerning the probability of successfully monitoring an electric grid of size  $n$  by uniformly at random placing  $m$  monitors on the grid. Project is supported by McDonald Grant (Gonzaga University)

**University of South Carolina**

**Graduate Teaching Mentor** Fall 2016 - Spring 2018  
Mentored four novice instructors each semester (16 total over four semesters) as they transitioned from graduate teaching assistants to graduate student instructors. Conducted monthly observations of the novice instructors and held individual post-observation meetings. Facilitated biweekly group meetings with group of novice instructors. NSF Award Id #1544346 and #1725295

**Graduate Research Mentor** Fall 2017 - Spring 2019  
Mentored two Master's degree students in their thesis research under the supervision of Dr. Joshua Cooper. Met weekly with students to discuss research progress, brainstorm new strategies, organize findings, create presentations, etc.

**SCHOLARLY  
PRESENTATIONS**

**Invited Talks**

**A Positivity Phenomenon in Elser's Gaussian-Cluster Percolation Model** March 2020  
Coast Combinatorics Conference  
University of Victoria, BC, Canada

**From Genetics to Graph Theory: Exploring the Origin of Pressing Sequences in Graphs** October 2018  
Math Seminar  
Lafayette College, Easton, PA

**Pressing Sequences for Mitochondrial Genome Graphs** April 2018  
AMS Spring Southeastern Sectional Meeting  
Vanderbilt University, Nashville, TN

**Graph Pressing Sequences on Mitochondrial Genomes** March 2018  
Carolina Math Seminar  
The Citadel, Charleston, SC

**Using Technology in the Classroom** April 2017  
University of South Carolina Teaching Seminar

**Columbia, SC Graduate Student Instructor Mentorship Model** Jan 2017  
AMS Special Session on Teaching Assistant Development Programs:  
Why and How?  
Joint Math Meetings, Atlanta, GA

**Isoperimetric Constants in Infinite Planar Graphs** March 2014  
Combinatorics and Graph Theory Seminar  
Vanderbilt University, Nashville, TN

### **Contributed Talks**

**The Tangle-Crossing Number** November 2017  
University of South Carolina Discrete Math Seminar  
Columbia, SC

**The Mathematics of Gene Editing** September 2017  
University of South Carolina Graduate Seminar  
Columbia, SC

**Uniquely Pressable Graphs** April 2017  
University of South Carolina Discrete Math Seminar  
Columbia, SC

**Mentor Professional Development for  
Mathematics Graduate Student Instructors** Feb 2017  
SIGMAA on Research in Undergraduate Mathematics Education  
San Diego, CA

**Isoperimetric Constants in Graphs with Hyperbolic Properties** March 2015  
Graduate Student Combinatorics Conference  
Lexington, KY

### **INSTITUTIONAL SERVICE**

#### **Gonzaga University**

Committee Member, *University Benefits committee* 2019  
Committee Member, *Applied Mathematics committee* 2019  
Committee Member, *Mathematics tenure-track hiring committee* 2019  
Department Liaison, *Mathematics Association of America* 2019  
Organizer, *Mathematics Graduate School Panel* 2019  
Tutor, *Mathematics Lab* 2019

### **GRANTS, AWARDS AND OTHER HONORS**

#### **Grants Received**

McDonald Work Award, 2019-2020  
Gonzaga University - \$1,913 award

#### **Grants Received**

SPARC Graduate Research Grant, 2018-2019

University of South Carolina - \$5,000 award

**Teaching Resource Development Grant,** 2018-2019  
*Center for Teaching Excellence, University of South Carolina - \$500 award*

### **Travel and Workshop Awards**

**Travel grant for 4-days research visit,** May 2018  
*University of Minnesota (Minneapolis, MN)*  
\$450 in addition to housing

**Graduate Research Workshop in Combinatorics,** May 2018  
*Iowa State University (Ames, IA)*  
\$400 in addition to meals and housing

**AMS Math Research Community,** July 2017  
*Beyond Planarity: Crossing Numbers of Graphs (Snowbird, UT)*  
\$650 in addition to meals and housing

Peer Excellence Award - Mathematics 2015-2016  
*University of South Carolina (Columbia, SC)*

Excellence in Teaching Award - Mathematics 2015-2016  
*University of South Carolina (Columbia, SC)*

### **CONFERENCE PARTICIPATION (\*with full support)**

*Coast Combinatorics Conference* 2020  
*Southeast Center for Math and Biology Annual Symposium\** 2019  
*Mini-Conference on Discrete Mathematics and Algorithms - Clemson\** 2018  
*AMS Spring Southeastern Sectional Meeting - Vanderbilt\** 2018  
*Carolina Math Seminar - The Citadel* 2018  
*Joint Math Meetings - San Diego, CA\** 2018  
*Joint Math Meetings - Atlanta, GA\** 2017  
*Atlanta Lecture Series - Georgia Tech\** 2017  
*Triangle Lecture Series - UNC Greensboro\** 2016  
*Atlanta Lecture Series - Georgia State\** 2016  
*Atlanta Lecture Series - Emory\** 2016  
*Atlanta Lecture Series - Georgia State\** 2015  
*Graduate Student Combinatorics Conference - Kentucky\** 2015  
*Atlanta Lecture Series - Georgia State* 2014

### **ACADEMIC SERVICE**

**Journal Referee, *Theory and Applications of Graphs*** 2018 -2019  
**Reviewer, Cambridge University Press** 2018  
**Co-organizer, *High School Math Contest (U of SC)*** 2017, 2018  
**Coordinator, *U of SC Discrete Math Seminar*** 2017-2018  
**President, *SIAM Student Chapter (U of SC)*** 2017-2018  
**Student Representative, *Math Graduate Council (U of SC)*** 2017-2018  
**Judge, *MAA Undergraduate Student Poster Session (JMM)*** Jan 2018  
**Volunteer, *Math Research Communities Info Booth (JMM)*** Jan 2018  
**Presentation Reviewer, *Discover USC (U of SC)*** Apr 2017  
**Volunteer, *U of SC Recruitment Booth (JMM)*** Jan 2017  
**Proctor, *High School Math Contest (U of SC)*** Feb 2016

### **SKILLS AND MEMBERSHIPS**

**Gonzaga University Society for Women in Mathematics, faculty member.**  
**Mathematics Association of America, member.**  
**Foreign Languages: Spanish (native proficiency).**

**LGBTQ Safe Zone**, ally certification.

**Programming Languages:** html, Maple, SageMath, python.

**Erdős Number** = 2.