Lesley W. Wiglesworth

Centre College Department of Mathematics
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Education

Ph.D. in Applied and Industrial Mathematics, University of Louisville, 2008
Dissertation: *A study on unit bar-visibility graphs*, advised by André E. Kézdy
Recipient of Graduate Dean's Citation

Master of Science in Mathematics, University of Louisville, 2007

Bachelor of Arts in Mathematics, Transylvania University, 2004
Magna Cum Laude, with honors in Mathematics
Minors in computer science and educational studies

Professional Experience

Centre College, Danville, Kentucky

H.W. Stodghill, Jr. and Adele H. Stodghill Associate Professor of Mathematics	**August 2021 to present**
Associate Professor of Mathematics	**August 2014 to May 2022**
Chair of the Mathematics Program	**August 2017 to July 2020**
Assistant Professor of Mathematics	**August 2009 to July 2014**
Visiting Assistant Professor of Mathematics	**August 2008 to July 2009**

University of Louisville, Louisville, Kentucky

Graduate Teaching Assistant	**Fall 2004 to Spring 2008**

Research Experience for Graduate Students **Summer 2007**
Participated in a summer research program organized by Professor Douglas West from the University of Illinois Urbana-Champaign. Topics focused on applications of and problems in graph theory and combinatorics. Collaborative research was emphasized

National Science Foundation GK-12 Fellowship **July 2005 - May 2007**
Co-taught in Jefferson County Kentucky Elementary schools. Developed, planned, and implemented inquiry−based lessons using the content standards for the fourth and fifth grade. Awarded to help increase the mathematics content knowledge and best-teaching practices of Jefferson County Public School teachers.

Publications   *denotes undergraduate student

Articles and Book Chapters:

- E. A. Donovan and L. W. Wiglesworth. "Graph Labelings: A Prime Area to Explore." In Mathematics Research for the Beginning Student, Volume 2: Accessible Projects for Students After Calculus, edited by Aaron Wootton, V. Peterson, and C. Lee. Cham: Birkhuser Basel, 2022.

- E. A. Donovan and L. W. Wiglesworth. "Enhancing the Undergraduate Research Experience

by Engaging in Cross-Institutional Research." *PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies*, published online in Dec. 2021.

- L. W. Wiglesworth. "The Mathematics and Impacts of Gambling". In Mathematical Themes in a First-Year Seminar, edited by Jennifer Schaefer, Jennifer Bowen, Mark Kozek, and Pamela Pierce, 23 - 29. Mathematical Association of America, 2021.

- L. Bromberg, J. Gorman, E. McNicholas, J. O'Shaughnessy, and L. W. Wiglesworth. "Parenting and Professing During a Pandemic." An expository publication in the MAA's MathValues. March 4, 2021. Available at: https://www.mathvalues.org/masterblog/parenting-and-professing-during-a-pandemic.

- A. M. McAllister, L. W. Wiglesworth, and J. H. Wilson. "Establishing and Sustaining a Culture of Collegial Collaboration." *PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies*. 30:6 (2020), 668-681.

- E. A. Donovan and L. W. Wiglesworth. "Building an Online Undergraduate Research Community." An expository publication in the MAA's MathValues. June 25, 2020. Available at: https://www.mathvalues.org/masterblog/building-an-online-undergraduate-research-community.

- A. Bigham*, E. A. Donovan, J. Pack*, J. Turley*, L. W. Wiglesworth. "Prime Labelings of Snake Graphs." *The PUMP Journal of Undergraduate Research*, 2 (2019), 131-149.

- A. Kézdy and L. W. Wiglesworth. "Unit-Stack Visibility Graphs." *Journal of Combinatorial Mathematics and Combinatorial Computing*, 88 (2014) 95-110.

- T. Grauman, S.G. Hartke, A. Jobson, B. Kinnersley, D. West, L. W. Wiglesworth, P. Worah, and H. Wu. "The hub number of a graph." *Info. Proc. Letters*, 108 (2008) 226-228.

- L. W. Wiglesworth. "A study on unit bar-visibility graphs." Doctoral Dissertation (2008).

Student Mentored Publications

- E. A. Donovan, E. Hoard*, Y. Lyu*, K. Sutton*. "On the Prime Labeling of the Disjoint Union of Cycles." Submitted to the *Journal of Integer Sequences*.

- A. Davis*, M. Ko*, J. Pinto*. "New Results on Subtractive Magic Graphs." "New Results on Subtractive Magic Graphs," Rose-Hulman Undergraduate Mathematics Journal. Vol. 22 (1), Article 5, Aug. 2021. Available at: `https://scholar.rose-hulman.edu/rhumj/vol22/iss1/5`.

- A. Hayes*, E. Hoard*, Y. Lyu*, J. Pack*, K. Sutton*. "Crossing Paths: A Student Guide to Undergraduate Research," *Horizons*. Vol 27 (3), Feb 2020, pages 10 - 12.

Accepted Publications

- T. Ablondi*, A. Hayes*, and L. Wiglesworth. "Results on Neighborhood Prime Labelings of Graph". Accepted to Involve.

- E. A. Donovan, B. Kronenthal, J. Rychtar, D. Taylor, L. W. Wiglesworth, W. H. T.Wong. "Mentoring Students Virtually in Undergraduate Research." To appear in Future of Undergraduate Research in Mathematical Sciences, edited by M. Dorff, J. Rychtar, and D. Taylor. Mathematical Association of America. Final draft submitted August 2022.

Awards and Recognitions

Mathematics Community:

- NSF Grant DMS-1722563 for $ 7100 through the Center for Undergraduate Research in Mathematics to support cross-institutional undergraduate research between students at Centre College and Murray State University.
- NSF/MAA Grant DMS-0846477 supporting a Regional Undergraduate Mathematics Conference (RUMC)
    - $ 2250 to partially support the Bluegrass Undergraduate Mathematics Symposium at Centre College on October 4, 2014.
    - $ 2000 to partially support the Bluegrass Undergraduate Mathematics Symposium at Centre College on September 28, 2013.
    - for $ 1600 to partially support the Bluegrass Undergraduate Mathematics Symposium at Centre College on September 22, 2012.
    - for $ 2000 to partially support the Bluegrass Undergraduate Mathematics Symposium at Centre College on September 17, 2011.
- Project NExT (New Experiences in Teaching) Fellow   July 2008 - August 2009

Centre College:

- H.W. Stodghill, Jr. and Adele H. Stodghill Professorship   August 2022
- Stodghill research course release   Fall 2021
- Centre Scholar   2012 - 2014, 2021 - present
- Creative Thinking Faculty Fellow   August 2017 - August 2018
  Designs a year-long project designed to encourage students to take more academic risks
- Gear Up! recipient of $2500 for preparing a proposal for external funding.   Fall 2017
- Faculty Development Committee Summer Research Grant ($5400)   Summer 2016
- Faculty Development Committee Summer Research Grant ($2000)   Summer 2015
- Faculty Development Committee Summer Research Grant ($5400)   Summer 2014
- Faculty Development Committee Summer Research Grant ($5800)   Summer 2013
- Faculty Development Committee Summer Research Grant ($6400)   Summer 2011
- Faculty Development Committee Summer Research Grant ($2500)   Summer 2010
- Faculty Development committee Student Travel Grant ($596, joint with J. Heath)   Fall 2009
- Honorary Football Coach   October 2009
- Faculty Development Committee Summer Research Grant ($4650)   Summer 2009

University of Louisville

- Most Outstanding Graduate Student in Mathematics, 2008
- Ken F. and Sandra S. Hohman Fellowship, August 2007-May 2008

Invited Talks

Donovan, E.A. and L. Wiglesworth. "Using Active Learning to Promote Risk-Taking in the Classroom." Women in MathArt: Research, Creativity, and Teaching Conference, Joint with UCR

Diversity and Excellence Workshop. Virtual Conference due to COVID-19. October, 2021.

Donovan, E.A. and L. Wiglesworth. "Taking Risks in Mathematics with Active Learning." SoCalNv MAA Fall Section Meeting. Virtual Conference due to COVID-19. November, 2021.

Presentations

Donovan, E.A. and L. Wiglesworth. "Mentoring Cross Institutional Undergraduate Research Projects." Joint Mathematics Meeting. Denver, CO. January 2020.

Donovan, E.A. and L. Wiglesworth. "Engaging Undergraduates in Cross-Institutional Research Collaboration." Kentucky Section of the Mathematical Association of America. Centre College, March 2019.

L. Wiglesworth. "Exploring the Mathematics and Impacts of Gambling." Joint Mathematics Meeting. Baltimore, MD. January 2019.

L. Wiglesworth. "Encouraging Students to Take Risks and Embrace Failure." Lilly Conference on Evidence-Based Teaching and Learning. Austin, TX. January 2019.

Swanson, E. R. and L. Wiglesworth*. "Improving Student Success in Calculus Using an Algebra Supplement Course." Joint Mathematics Meeting. Atlanta, GA. January 2017.

Wiglesworth, L. "Videoing as a Means to Improve Students' Oral Communication Skills." Joint Mathematics Meeting. San Diego, CA. January 2013.

Kézdy*, A. E and L. Wiglesworth. "Unit Stack Visibility Graphs." Cumberland Conference on Combinatorics, Graph Theory, and Computing. Middle Tennessee State University. May 2012.

Wiglesworth, L. "An Introduction to Graph Theory Problems." Workshop for Undergraduates. Indiana Section of the MAA. Indiana Wesleyan University, Marion, Indiana. April 2011.

Wiglesworth, L. "Successful Strategies for Improving the Proof Writing of Linear Algebra Students." Joint Mathematics Meeting. New Orleans, Louisiana. January 2011.

Wiglesworth, L. "Unit bar-visibility graphs with transversal number one." 21st Cumberland Conference on Graph Theory, Combinatorics, and Computing. Vanderbilt University, Nashville, Tennessee. May 2008.

Wiglesworth, L. "Unit bar-visibility graphs with transversal number one." Mathematics, Combinatorics, and Algebra Seminar. University of Louisville, Louisville, Kentucky. February 2008.

Wiglesworth, L. "A characterization on a class of unit bar-visibility graphs." 27th Annual Mathematics Symposium. Western Kentucky University, Bowling Green, Kentucky. October 2007.

Wiglesworth, L. "An introduction to unit bar-visibility graphs." Mathematics, Combinatorics, and Algebra Seminar. University of Louisville, Louisville, Kentucky. April 2006.

Hart. J and L. Wiglesworth. "Converting bar graphs to circle graphs." National Science Foundations GK-12 Annual Meeting. Washington D.C. March 2006.

Student Talks and Presentations

T. Ablondi. "Results on Neighborhood-Prime Labelings of Graphs." Pi Mu Epsilon Session of MathFest. Cincinnati, Ohio. August 2019.

- Recipient of Outstanding Student Presentation Award

A. Bigham and J. Pack. "Prime Labelings of Snake Graphs." Kentucky Section of the Mathematical Association of America. Centre College, March 2019.

E. Hoard and K. Sutton. "Results on Cyclic Prime Labelings." Kentucky Section of the Mathematical Association of America. Centre College, March 2019.

Y. Lyu and J. Turley. "Results on Coprime Labelings of Various Graphs." Kentucky Section of the Mathematical Association of America. Centre College, March 2019.

T. Ablondi and A. Hayes. "Results on Neighborhood Prime Graphs." Kentucky Section of the Mathematical Association of America. Centre College, March 2019.

A. Davis, M. Ko and J. Pinto. "Subtractive Vertex and Edge Magic Labelings." Kentucky Section of the Mathematical Association of America. Centre College, March 2019.

W. Hellman, D. Mercer, and L. Wiglesworth. "Predicting Winners for Kentucky Lottery ScratchOffs." RICE Symposium. Centre College. April 2017.

L. Sledd. "Variations on Narrow Dots-and-Boxes." Bluegrass Undergraduate Mathematics Symposium. Danville, Kentucky. October, 2014.

T. Conroy, J. Elam, L. Sledd, and L. Wiglesworth. "Two-Stack Unit Bar-Visibility Graphs." RICE Symposium. Centre College. April 2014.

T. Conroy, J. Elam, L. Sledd, and L. Wiglesworth. "Two-Stack Unit Bar-Visibility Graphs." Bluegrass Undergraduate Mathematics Symposium. Danville, Kentucky. September, 2013.

R. Liu, L. Wiglesworth, and M. Zhou. "The Gold Grabbing Game on Caterpillars." RICE Symposium. Centre College. April 2012.

R. Liu, L. Wiglesworth, and M. Zhou. "The Gold Grabbing Game on Caterpillars." Bluegrass Undergraduate Mathematics Symposium. Danville, Kentucky. September, 2011.

R. May and L. Wiglesworth. "Game-Acquisition Numbers of Ladder Graphs." RICE Symposium. Centre College. April 2010.

R. May and L. Wiglesworth. "Game-Acquisition Numbers of Ladder Graphs." Miami University Ohio Undergraduate Research Conference and Thirty-Seventh Annual Conference. Oxford, Ohio. October 2009.

Community Presentations and Panels

Utilizing Lessons Learned During the Pandemic to Strengthen Undergraduate Research Moving Forward (with P.E. Harris and E. Donovan). 2021 Mathematical Association of America Virtual Programming, September 2021.

CURM Model of Collaboration (with E. Donovan). 2021 CURM Faculty Workshop. Virtual Training Session, May 2021.

CURM Model of Collaboration (with E. Donovan). 2020 CURM Faculty Workshop. Virtual Training Session, May 2020.

Adventures in Mastery-Based Grading. Centre College Pedagogy Luncheon, November 2019.

Highlighting Undergraduate Research in Mathematics and the Center for Undergraduate Research in Mathematics: A Panel Discussion (with E. Donovan, M. Dorff, E. Hoard, J. Pack, and R. Schugart). Kentucky Section of the Mathematical Association of America. Centre College, March 2019.

Encouraging Students to Take Risks and Embrace Failure. Centre College Pedagogy Luncheon, February 2019.

Risky Business: finding balance supervising and conducting research with students. Centre College Friday Faculty Hour, October 2017.

Advising as Mentoring (with M. Gulley, M. Klooster, J. Neyhouse, and B. Weston). Centre College Pedagogy Luncheon, October 2013.

Rehearsing Presentations for Insightful Feedback (with C. Frey and K. Skogsberg). Centre College Faculty Retreat, August 2013.

Peer Instruction in Your Courses (with J. Haile). Centre College Faculty Retreat, April 2013.

Guarding Art Galleries and Prison Yards. Centre College Family Weekend, September 2011.

So you think you want to go to Grad School? Centre College, October 2009.

What I wish I knew then! Centre College, August 2009.

Collaborative Research with Undergraduate Students

Summer 2020: Ari Robbins '22 and Natalie Cha Olguin '22. The game of Grim on graphs.

Summer 2019: Matthew Gray '20, Daniel McAllister '20, and James Pack '21. Closed-Neighborhood Prime Labelings of Graphs.

Fall 2018 - Spring 2019: Timothy Ablondi '20, Ashley Hayes '19, Matthew Ko '20, Yangsai Liu '19, James Pack '21, Jason Pinto '19, Kelsey Sutton '19, Jordan Turley '19. Research on Various Graph Labelings.

Summer - Fall 2016: Duncan Mercer '17 and Will Hellman '18, Predicting Winners for Kentucky Lottery Scratch-Offs.

Spring 2015: Levi Sledd '16, Graph Detour Intersections.

Summer 2014: Levi Sledd '16, Open Problems Workshop.

Fall 2013: Jeff Elam '14 and Levi Sledd '16, Unit Bar-Visibility Graphs.

Summer 2013: Tristan Conroy '15, Jeff Elam '14, and Levi Sledd '16, Unit Bar-Visibility Graphs.

Summer 2011: Rouhan Liu '13 and YaYa Zhou '13, Gold-Grabbing Game on Catepillars.

Summer and Fall 2009: Rachel May '10, Game Acquisition on Circular Ladders.

Service to Centre College

Centre College Committees

- Faculty Development Committee — Fall 2019 - present
  - Chair — Fall 2020 - present
- QEP Implementation Committee — Fall 2015 - present
  - Chair — Fall 2018 - present
  - L.I.N.C. Program Coordinator — Fall 2015 - Fall 2018
- Human Resources Committee — Fall 2016 - Spring 2019
- Sexual Harassment Committee — Fall 2015 - Fall 2016
- Curriculum Committee and Academic Standards — Fall '11 - Spr. '13 and Fall '14 - Spr. '15
  - Chair — Fall 2014 - May 2015
  - Subcommittee on Grade Inflation — Fall 2011
  - Subcommittee on Centre's AP Credit Dual Credit Policy — Fall 2011 - Fall 2012
- Advising Task force — Fall 2013 - present
- Athletics and Recreation committee — Fall 2010 - Spring 2014
- Faculty Steering Committee — Fall 2014 - Spring 2015
- General Education Committee — Fall 2013 - Summer 2014
- CTL Advisory Board — Fall 2013 - present
- Math Club sponsor — Fall 2010 - Spring 2012
- College Council — Fall 2009 - Spring 2012
- Diversity Committee — Fall 2009 - Summer 2010

Centre College Search Committees

- Mathematics, Chair — 2022
- Director of the Center for Teaching and Learning, Co-chair — 2019 - 2020
- Mathematics, Chair — 2020
- Mathematics, Chair — 2019
- Associate Vice President for Diversity Affairs and Special Assistant to the President — 2018
- Mathematics — 2016 - 2017
- Mathematics — 2014 - 2015
- Director of the Center for Career and Professional Development — 2013 - 2014
- Mathematics — 2012 - 2013
- Dramatic Arts — 2011 - 2012
- Young and Olin Hall Administrative Assistant — Summer 2011

- Mathematics   2010 - 2011

Centre College Mathematics Program

- Chair   Fall 2017 - Summer 2020
- Mathematics Placement Committee   Summer 2011 - present
- Mathematics Program website designer and administrator   Fall 2012 - August 2017
- Mathematics Program Self Study Co-Chair   Fall 2011 - Spring 2012

Other Centre College Service

- Baseball Faculty Liaison   August 2018 - present
- Faculty Learning Communities
    - Enhancing Risk Taking in Students (leader)   August 2017 - Spring 2018
    - How Students Learn   Fall 2016
    - Scholarship of Teaching and Learning   August 2013 - August 2015
    - Austism Spectrum Disorders   Spring 2013 - August 2015
- Undergraduate Research Working Group   February 2014 - July 2014
    - tasked with providing a definition of Undergraduate Research at Centre College and recommendations for evaluation of undergraduate research in faculty annual reviews and in the tenure and promotion process
- Swim Team Liaison   September 2010 - Spring 2018
- Volunteer Assistant Swim Coach   September 2008 - March 2010

Service to the Greater Academic Community

- Reviewer for:
    - PRIMUS: Probems, Resources, and Issues in Mathematics Undergraduate Studies
    - Rose-Hulman Undergraduate Mathematics Journal
    - Journal of Combinatorial Mathematics and Combinatorial Computing
- Mentorship Facilitator for MAA Project NExT and the MAA Mentoring Network   2019
- Nominating Committee, Kentucky Section of the Mathematical Association of America   September 2013 - May 2014
- Panel participant at the University of Kentucky Mathematics Graduate Student Seminar   February 2011
- MathFest Student Presentation judge   August, 2009
- MAA Undergraduate Poster Session judge   January 2009
- Project NExT Panel Session Organizer for the 2009 JMM   October 2008 - present
- Laukhuf Elementary School Math Fair organizer   May 2007
- Laukhuf Elementary School Pi Day organizer   March 2007