

Wiktor J. Mogilski

「Curriculum Vitae」

CONTACT INFORMATION

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EDUCATION

- 2015 **Ph.D. Mathematics**, University of Wisconsin-Milwaukee.
Advisor: Dr. Boris Okun
Dissertation: The Fattened Davis Complex and the Weighted L^2 -(co)homology of Coxeter Groups
- 2009 **M.S. Mathematics**, University of Texas at Brownsville.
Advisor: Dr. Oleg Musin
Thesis: The Four-Vertex Theorem, the Evolute, and the Decomposition of Polygons
- 2006 **B.S. Mathematics**, *summa cum laude*, University of Texas at Brownsville.
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EMPLOYMENT

- ◇ *Assistant Professor*, Utah Valley University (2019-...).
 - This is a tenure-track faculty position with the additional title of Math Department Specialist, which involves the development of online and hybrid versions of Calculus courses.
- ◇ *Visiting Assistant Professor*, Indiana University South Bend (2017-...).
- ◇ *Allen Ziebur Visiting Assistant Professor*, Binghamton University (2015-2017).
 - This position is at the level of Visiting Assistant Professor and comes with the supplemental title of Assistant Director of Calculus. Binghamton is home to one of the leading departments pioneering flipped-classroom teaching and innovation in Calculus, and I was exposed to the intricacies of this. In addition to research and teaching obligations, I also supervised teaching assistants, created course materials and assisted with the department's recent transition to flipped classroom teaching of the Calculus program.
- ◇ *Adjunct Faculty*, Department of Mathematics, Rock Valley College (Summer 2015).
- ◇ *Graduate Teaching Assistant*, Department of Mathematics, University of Wisconsin-Milwaukee (2009-2015).

- ◇ *Post-Graduate Research Assistant*, Department of Mathematics, University of Texas at Brownsville, NSF Grant (2009).
 - ◇ *Graduate Research Assistant*, Department of Mathematics, University of Texas at Brownsville (2007-2009).
 - ◇ *Graduate Teaching Assistant*, Department of Mathematics, University of Texas at Brownsville (2007-2009).
 - ◇ *Course Designer*, Department of Mathematics, University of Texas at Brownsville, THECB Grant (2008).
 - ◇ *Graduate Research Assistant*, Department of Mathematics, University of Texas at Brownsville, FIPSE Grant of Department of Education (2008-2009).
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RESEARCH/PUBLICATIONS

Research Interests: My general research interests lie in the areas of geometric group theory, geometric and algebraic topology, discrete geometry, and algebraic combinatorics. My specific research interests lie in the topics of L^2 -cohomology, CAT(0) geometry and group boundaries, Coxeter Groups, the (weighted) Singer Conjecture, the Strong Atiyah Conjecture, discrete Four-Vertex Theorems, growth series, and exploring new Hilbert-type series for graded rings.

(†) Publications:

- ◇ W.J. Mogilski and W.A. Johnson, *The e-vector of a simplicial complex*, under review, arXiv:1806.05239 [math.CO] (2018).
- ◇ W.J. Mogilski and K. Schreve, *The Atiyah Conjecture and L^2 -cohomology Computations*, *Geometriae Dedicata* (2017). DOI 10.1007/s10711-017-0293-2.
- ◇ W.J. Mogilski, *The fattened Davis complex and weighted L^2 -(co)homology of Coxeter groups*, *Algebraic & Geometric Topology* 16-4 (2016), 2067–2105. DOI 10.2140/agt.2016.16.2067.

(*) This is a merge of two separate papers which can be found on arXiv:

→ W.J. Mogilski, *The weighted Singer conjecture for Coxeter groups in dimensions three and four*, arXiv:1503.02518 [math.AT] (2015).

→ W.J. Mogilski, *The fattened Davis complex and weighted L^2 -(co)homology of Coxeter groups*, arXiv:1502.07783 [math.AT] (2015).

- ◇ W.J. Mogilski, *Polygon Vertex Extremality and Decomposition of Polygons*, *Discrete Mathematics* 310 (17-18) (2010).
- ◇ W.J. Mogilski, *The Four-Vertex Theorem, The Evolute, and The Decomposition of Polygons*, arXiv:0906.2388 [math.MG] (2009).

TEACHING EXPERIENCE/ACADEMIC SERVICE

I am experienced with many types of teaching methodologies, both classroom and online, and with using technology in the classroom. I am especially very proficient and fond of flipped classroom teaching. I also have ample experience in course coordination (I coordinated multiple large sections of Calculus) as well as supervision of teaching assistants.

Service:

- ◇ Here is a link to Calculus II instructional videos that I created with graduate student Rachel Skipper for Binghamton University:
<https://www.youtube.com/watch?v=BMacx8Jt6-U&list=PLeT8NSIXdCnEjwUacb4HZs64H1U200WH3>
- ◇ Mentored teaching assistant Kathleen Moskowitz in my Fall 2016 Differential/Integral Calculus course and in my Spring 2017 Integration Techniques and Applications course.
→ This was for credit in a graduate independent study course MATH 597 “Calculus and Mathematical Learning” and part of a new partnership with the Binghamton Mathematics Department and the Masters of Arts in Teaching program.
- ◇ Mentored undergraduate grader Katherine Tashman in my Fall 2016 Real Analysis course.
- ◇ Mentored graduate student Ulysses Alvarez which assisted me in my Spring 2017 Calculus III course.
→ Ulysses was on a grant with a clause that prevented him from officially teaching, so I did this to help him gain teaching experience.

Teaching/Coordinating:

Utah Valley University	Fall 2019	College Algebra (2 sections, one hybrid) Trigonometry
Indiana University South Bend	Spring 2019	Calculus I Calculus III Introduction to Mathematical Reasoning (Proofs)
	Fall 2018	Mathematics in the World (Liberal Arts) Calculus III Abstract Algebra I
	Spring 2018	Mathematics in the World (Liberal Arts) Finite Mathematics Calculus II
	Fall 2017	Mathematics in the World (Liberal Arts, 2 sections) Calculus I
Binghamton University	Spring 2017	Coordinator: Differential & Integral Calculus Coordinator: Integration Techniques & Applications Calculus & Mathematical Learning (graduate ind. study) Differential & Integral Calculus Integration Techniques & Applications Calculus III
	Fall 2016	Real Analysis I Calculus & Mathematical Learning (graduate ind. study) Differential & Integral Calculus

	Summer 2016	Designer/Creator of Calculus II Videos
	Spring 2016	Integration Techniques & Applications Infinite Series Calculus III
Binghamton University	Fall 2015	Differential & Integral Calculus (2 sections) Calculus for Business & Management
Rock Valley College	Summer 2015	Calculus III
University of Wisconsin-Milwaukee [Instructor of Record]	Spring 2015	Intermediate Algebra (Online Course, 2 sections)
	Fall 2014	Calculus I
	Fall 2013	Calculus II
	Fall 2012	Calculus III
	Fall 2011	Grading Assistant for Linear Algebra (Graduate) Worked in Calculus Gateway Lab
	Fall 2010	Essentials of Algebra (2 sections)
	Fall 2009	Intermediate Algebra (2 sections)
University of Texas at Brownsville [Instructor Assistant]	Spring 2009	Geometry II (Undergraduate)
	Fall 2008	Calculus I
	Spring 2008	Calculus I
	Fall 2007	College Algebra & Calculus I

AWARDS & HONORS

- ◇ Monetary award for excellence (Dec. 2016). *Presented to faculty at Binghamton University based on anonymous recommendations.*
- ◇ Morris and Miriam Marden Award in Mathematics (2015). *Award given for a mathematical paper of high quality with respect to both exposition and mathematical content.*
- ◇ Ernst Schwandt Teaching Award (2015). *Award presented to Graduate Teaching Assistants who demonstrate outstanding teaching performance.*
- ◇ Mark Lawrence Teply Award (2015). *Award presented to a graduate student who exhibits outstanding research potential with funds awarded for the purchase of books to aid in research.*
- ◇ Graduate Teaching Assistantship and Chancellor's Award the University of Wisconsin-Milwaukee (2014-2015).
- ◇ GAANN Fellowship at the University of Wisconsin-Milwaukee (2009-2014).
- ◇ Graduate Assistantship at the University of Texas at Brownsville (2007-2009).
- ◇ Scholastic Excellence Award for M.S. in Mathematics (2008).

CONFERENCE & SEMINAR TALKS

Speaker/Participant:

- ◇ "The e -vector of a simplicial complex", 53rd Annual Spring Topology and Dynamical Systems Conference, Birmingham, Alabama (March 15, 2019).
- ◇ "The e -vector of a simplicial complex", 33rd Summer Conference on Topology and its Applications, Western Kentucky University, Bowling Green KY (July 19, 2018).

- ◇ Participant: The 35th Annual Workshop in Geometric Topology, Calvin College, Grand Rapids (June 14-16, 2018).
- ◇ Participant: The 19th Annual Midwest Scholarship of Learning and Teaching Conference, IUSB, South Bend (April 6, 2018).
- ◇ “A Survey of Recent Computations of L^2 -Betti Numbers”, speaker and invited participant (NSF Grant): Thematic program “ L^2 -invariants and their analogues in positive characteristic”, Instituto de Ciencias Matematicas. Madrid, Spain (March 04-18, 2018).
- ◇ “ L^2 -cohomology: Fun & Conjectures Abound”, Mathematics and Statistics Colloquium, Cal Poly Pomona (May 02, 2017).
- ◇ “The Strong Atiyah Conjecture and Computations of L^2 -Betti Numbers”, 51st Spring Topology and Dynamical Systems Conference, New Jersey City University (March 09, 2017).
- ◇ “The Strong Atiyah Conjecture and Computations of L^2 -Betti Numbers”, Workshop in Geometric Topology, Colorado Springs, CO (June 09-11, 2016).
- ◇ “The Strong Atiyah Conjecture and Computations of L^2 -Betti Numbers”, 50th Spring Topology and Dynamical Systems Conference, Baylor University, Waco, TX (March 10-13, 2016).
- ◇ “The weighted Singer Conjecture for Coxeter groups in dimensions three and four”, The 32nd Annual Workshop in Geometric Topology, Texas Christian University, Dallas, TX (June 25-27, 2015).
- ◇ “On the weighted Singer Conjecture for Coxeter groups in dimensions three and four”, Seventh Discrete Geometry and Algebraic Combinatorics Conference, South Padre Island, TX (April 8-11, 2015).
- ◇ “The Weighted L^2 -(co)homology of Coxeter Groups”, Joint Math Meetings 2015, San Antonio, TX (January 2015).
- ◇ “On the weighted Singer Conjecture for Coxeter groups in dimensions three and four”, Topological Methods in Group Theory, A conference in honor of Ross Geoghegan’s 70th birthday, Ohio State University, Columbus, OH (June 16-20, 2014).
- ◇ “On the weighted Singer Conjecture for Coxeter groups in dimensions three and four”, The 31st Annual Workshop in Geometric Topology, University of Wisconsin-Milwaukee, (June 12-14, 2014).
- ◇ “The fattened Davis complex and weighted L^2 -(co)homology of Coxeter groups”, Sixth Discrete Geometry and Algebraic Combinatorics Conference, Organized by The University of Texas at Brownsville Department of Mathematics (April 9-12, 2014).
- ◇ “The fattened Davis complex and weighted L^2 -(co)homology of Coxeter groups”, The 30th Annual Workshop in Geometric Topology, Calvin College, Grand Rapids, Michigan (June 13-15, 2013).
- ◇ “Interested in a Ph.D. in Mathematics?” (talk directed to undergraduate/graduate students), University of Texas at Brownsville, Mathematical Seminar Friday, PPOHA Grant Invited Speaker Series (January 20, 2012).
- ◇ “ ℓ^2 Methods in Topology”, University of Texas at Brownsville, Mathematical Seminar Friday, PPOHA Grant Invited Speaker Series (January 20, 2012).
- ◇ “Geometric Proofs of Discrete Four-Vertex Theorems”, Workshop In Geometric Group Theory, Colorado Springs, Colorado (June 11, 2010).
- ◇ “Geometric Proofs of Discrete Four-Vertex Theorems”, Third Texas Southmost Geometry and Topology Conference, South Padre Island, Texas (April 17, 2010).

- ◊ “The Four-Vertex Theorem and Decomposition of Polygons”, Discrete Geometry Workshop, South Padre Island, Texas (April 18, 2009).

Seminar Talks:

- ◊ “The Strong Atiyah Conjecture and Computations of L^2 -Betti Numbers”, Binghamton Geometry & Topology Seminar (Feb 09, 2017).
- ◊ “ L^2 -cohomology: Conjectures Abound!”, Binghamton Geometry & Topology Seminar (September 27 & October 6, 2016).
- ◊ “The weighted Singer Conjecture for Coxeter groups in dimensions three and four”, Binghamton Geometry & Topology Seminar (September 10, 2015).
- ◊ “The fattened Davis complex and weighted L^2 -(co)homology of Coxeter groups”, University of Wisconsin-Milwaukee Topology Research Seminar (Feb 5, 10, 12 & 17, 2014).
- ◊ “ L^2 homology for non-right angled Coxeter groups”, University of Wisconsin-Milwaukee Topology Research Seminar (September 24, October 3, 8 & 10, 2012).
- ◊ Series of talks based on book “Introduction to Morse Theory” by Yukio Matsumoto, University of Wisconsin-Milwaukee Student Topology Seminar (Summer 2011-Fall 2011).
- ◊ “Discrete Four-Vertex Theorems, Decomposition of Polygons, and the Evolute”, University of Wisconsin-Milwaukee Topology Research Seminar (September 14 & 16, 2009).
- ◊ “Evolutes and the Four-Vertex Theorem”, University of Texas at Brownsville Mathematics Department Seminar (October 24, 2008).
- ◊ “On Semisimple Lie Algebras”, University of Texas at Brownsville Mathematics Department Seminar (November 30, 2007).

ADDITIONAL SKILLS

- Multilingual: ◊ I read, write and speak three languages fluently: English, Polish, and Spanish. I can also read Russian.
- Computer Proficiency: ◊ Proficient with computers and technology in general, excelling in building computers, hardware repairs, and also general proficiency in standard programs such as Microsoft Office, Acrobat Professional, Adobe Photoshop.
- ◊ I am experienced with mathematical computational engines such as Matlab and the GAP Algebra system.
- ◊ I am experienced with the programming languages Visual Basic and C++.
- ◊ I am proficient with LaTeX and creating documents, as well as programming within the TeX environment.

REFERENCES

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