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# Jessie Lenarz

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20680 207th Ct. W  
Lakeville, MN 55044  
(701) 330-5827  
jklenarz@stkate.edu

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**EDUCATION**

**Doctor of Philosophy**, Mathematics May 2005  
Iowa State University, Ames, IA  
Dissertation: Enumeration and Symmetry of Edit Metric Spaces  
Minor: Bioinformatics & Computational Biology

**Master of Science**, Mathematics August 2003  
Iowa State University, Ames, IA  
Thesis: Sphere Packing Bounds on Edit Metric Codes

**Bachelor of Science**, Biology & Mathematics May 1999  
Buena Vista University, Storm Lake, IA  
Minors: General Science, Religion & Philosophy  
Honors: Magna Cum Laude

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**ACADEMIC EXPERIENCE**

**Assistant Professor** August 2013 – present  
Department of Mathematics, Saint Catherine University, St. Paul, MN

**Assistant Professor** August 2012 – May 2013  
Department of Mathematics, Minnesota State University Moorhead, Moorhead, MN

**Assistant Professor** August 2005 – May 2012  
Department of Mathematics & Computer Science, Concordia College, Moorhead, MN

**Graduate Student Teaching Coordinator** May 2002 – May 2005  
Department of Mathematics, Iowa State University, Ames, IA

**Graduate Teaching Assistant** August 2001 – May 2005  
Department of Mathematics, Iowa State University, Ames, IA

**Graduate Research Assistant** May 2000 – August 2001  
Department of Mathematics, Iowa State University, Ames, IA

**Graduate Teaching Assistant** August 1999 – May 2000  
Department of Mathematics, Iowa State University, Ames, IA

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**COURSES  
TAUGHT**

**Saint Catherine University**

Mathematics in Contemporary Society (1 time)  
Precalculus with Corequisite (2 times)  
Precalculus (6 times)  
Statistical Analysis (5 times)  
Calculus I (2 times)  
Calculus II (6 times)  
Discrete Mathematics (3 times)  
Linear Algebra (3 times)  
Probability (2 times)  
Mathematical Statistics (2 times)  
Abstract Algebra (1 time)  
History of Mathematics (1 time)  
Sophomore Seminar (2 times)  
Senior Seminar (2 times)

**Minnesota State Moorhead**

Introduction to Mathematics (Liberal Arts Mathematics) (1 time)  
Beginning Algebra (Developmental Level) (2 times)  
Calculus II (2 times)  
Mathematical Writing (1 time)

**Concordia College**

Exploring Mathematics (Liberal Arts Mathematics) (10 times)  
Calculus I (9 times)  
Calculus II (10 times)  
Calculus III (6 times)  
Linear Algebra (4 times)  
Differential Equations (1 time)  
Applied Mathematics (1 time)  
Combinatorics (1 time)  
Game Theory (1 time)  
Senior Seminar (1 time)

**Iowa State University as sole instructor**

College Algebra (1 time)  
Calculus for the Life Sciences I (1 time)  
Calculus I (1 time)  
Calculus II (1 time)  
Calculus III (3 times)  
Differential Equations (2 times)

**Iowa State University as recitation leader**

College Algebra (1 time)  
Trigonometry (1 time)  
Calculus I (1 time)

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**SELECTED  
TRAINING &  
WORKSHOPS**

**Research Experience for Undergraduate Faculty**

July 2016

American Institute of Mathematics and Institute for Computational and Experimental Mathematics

This is a week long workshop to encourage and support involvement in research with undergraduates by faculty at colleges and universities that emphasize undergraduate education. The goals of REUF are to provide faculty participants with a research experience investigating open questions in the mathematical sciences, to equip participants to engage in research with undergraduate students at their home institutions, to foster long-term research collaborations among some of the faculty participants, and to establish a network of faculty at primarily undergraduate institutions together with faculty at research universities who support collaboration and undergraduate research.

**Teaching Introductory Statistics for Instructors New to Teaching Statistics**

January 2015

Minicourse at the Joint Mathematics Meetings of the AMS and MAA

This is a workshop held over the course of two days, to expose participants to the big ideas of statistics and the ASA-endorsed Guidelines for Assessment and Instruction in Statistics Education (GAISE) report. It considers ways to engage students in statistical literacy and thinking, and contrast conceptual and procedural understanding in the first statistics course.

**Assessment Workshop**

January 2014

Saint Catherine University

This is a two day workshop to discuss assessment at the college and within the department. In particular, training was provided on using Taskstream to share departmental assessment documents.

**New Faculty Orientation**

Fall 2013

Saint Catherine University

This is a three day orientation designed to introduce new faculty to the classroom and Saint Catherine University. Presentations included the mission of the college, curriculum, student support and instructional technology to name a few. The information was both general teaching knowledge and information specific to Saint Catherine University.

**Getting Students Involved in Undergraduate Research**

January 2011

Minicourse at the Joint Mathematics Meetings of the AMS and MAA

This is a workshop held over the course of two days, covering many aspects of facilitating research by undergraduates, such as getting students involved in research, finding appropriate problems, deciding how much help to provide, and presenting and publishing the results. Similarities and differences between research conducted during summer programs and research that can be conducted during the academic year are discussed.

**Faculty Mentoring Seminar**

Fall 2007-Spring 2008

Dovre Center for Faith and Learning, Concordia College

Newer faculty and administrative staff are invited to explore connections between faith and learning within their own work at the college. Following a two-day workshop in August, the group meets on a monthly basis, developing individual projects based in their own disciplines; these projects are presented in a final one-day workshop.

**Project NExT: New Experiences in Teaching** Fall 2006-Fall 2007  
American Mathematical Society/Mathematical Association of America  
Project NExT is a professional development program for recent Ph.D.s. It provides a network of mathematicians teaching at the college level. Attendance is required at one workshop and three professional conferences at which issues facing new faculty members are addressed.

**Preparing Future Faculty** Spring 2003 – Summer 2004  
Iowa State University  
The PFF program supplements the departmental graduate preparation by offering new teaching, mentoring, and learning possibilities, which give postdoctoral fellows and graduate students further credentialing for a competitive job market. The goal of PFF is to better prepare graduates for faculty careers through a combination of seminars, mentoring, and practical classroom and departmental service experiences.

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## GRANTS

**Summer Scholars** June 2016 – August 2017  
Saint Catherine University  
This award gives support to faculty and student collaborators to pursue a project over the course of a summer culminating in presenting their work at the Sister Seraphim Gibbons Research Symposium and one other conference presentation.

**Curriculum Development Grant** June 2015 – May 2016  
Saint Catherine University  
Supports the development of curricula by providing funding for faculty to develop new academic courses and programs.

**Clare Boothe Luce Fellowship** June 2014 – May 2015  
Saint Catherine University  
The grant is focused on increasing and enhancing undergraduate research opportunities for female students majoring in Mathematics, Physics, and Chemistry/Biochemistry. Students collaborate with a faculty mentor on a research project during the summer and the academic year.

**Centennial Scholars Classroom Grant** Summer 2008  
Concordia College  
This program has two goals: to strengthen faculty inquiry and teaching by direct involvement in research in classroom teaching, and to strengthen student learning both through participation in the research and through establishing the best teaching and learning patterns in the classroom.

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## AWARDS & HONORS

**Five Year Service Award** May 2018  
Saint Catherine University  
This award recognizes all faculty who have served the university for five years.

**Pi Mu Epsilon** April 2014  
Minnesota Beta Chapter, Saint Catherine University  
Pi Mu Epsilon is an honor society whose purpose is the promotion and recognition of scholarly activity in the mathematical sciences among students at the academic institutions that have been chartered as chapters of the society.

**Robert and Marion Lambert Award for Teaching Excellence** May 2003  
Mathematics Department, Iowa State University  
This award is given annually to one student in the department.

**Graduate Teaching Excellence Award** May 2002  
Mathematics Department, Iowa State University  
This award is given annually to the top 10% of graduate teaching assistants in the department.

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**PEER-  
REVIEWED  
PUBLICATIONS**

**LMAS: The Key to Enumerating 2-spheres Over the Edit Metric**, Journal of Combinatorial Mathematics and Combinatorial Computing, Volume 58, August 2006.

With D. Ashlock and S. Houghton, **Construction of Optimal Edit Metric Codes**, Proceedings of 2006 IEEE Workshop on Information Theory, p. 259-263.

With D. Ashlock and S. Houghton, **Bounds on Optimal Edit Metric Codes**, Brock University Technical Report #CS-05-07, Volume 7, 2005.

**Submitted Papers**

With E. Agrimson, J. Flaten, M. McNamara, J. Roith, C. Ross, and K. Smith, **Statistical Tests Exploring a Subset of Variables Related to Weather Balloon Burst Altitude**, Proceedings of the 2016 Academic High Altitude Conference, to appear.

With K. Pelatt, **A Transition to Mastery Based Testing with the Hope of Increasing Student Persistence and Closing the Gender Gap in Mathematics**, submitted to PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies, Submitted: October 2018.

**In preparation**

With J.B. Collins, K. Pelatt, S. Saccon, M. Welz, **Extended Symmetric Spaces and  $\theta$ -Twisted Involution Graphs**, in preparation.

With E. Holzbach, A. Mortenson, and K. Pelatt, **Extended symmetric spaces and  $\theta$ -twisted involution graphs of  $A_n$** , in preparation.

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**PRESENTA-  
TIONS**

**Contributed Talks (Peer Reviewed)**

**Combating Test Anxiety in Under-represented Groups**, Mathfest, Denver, Colorado, August 2, 2018

**Oral Presentations as Assessment in Abstract Algebra**, Joint Mathematics Meetings, San Diego, California, January 13, 2018

**Twisted Conjugation, Extended Symmetric Spaces, and Posets**, MAA North Central Section Meeting, Minneapolis, Minnesota, October 15, 2016

**Statistical Tests Exploring a Subset of Variables Related to Weather Balloon Burst Altitude**, Academic High Altitude Conference, St. Paul, Minnesota, July 1, 2016

**Using Graphs to Examine Benzene-like Structures**, Joint Mathematics Meetings, Seattle, Washington, January 6, 2016

**LMAS: The Key to Enumerating 2-spheres Over the Edit Metric**, Midwest Conference on Combinatorics, Cryptography and Computing, Rochester, New York, October 29, 2004

**Invited Speaker (Peer Reviewed)**

**Creating a Liberal Arts Math Course to Help Students Become Responsibly Engaged in the World**, Concordia College, Centennial Scholars Lecture, Moorhead, MN, October 16, 2008

**Mathematics and Biology**, Buena Vista University Academic and Cultural Events Series, Storm Lake, Iowa, April 20, 2005

**Colloquia**

**Error Correcting Codes**, Pi Mu Epsilon - Minnesota Beta Chapter (Saint Catherine University) Induction Ceremony, April 19, 2018

**Error Correction & Detection**, Pi Mu Epsilon - Minnesota Beta Chapter (Saint Catherine University) Induction Ceremony, May 12, 2015

**Population Genetics: Hardy-Weinberg Equilibrium**, Concordia College Mathematics & Computer Science Colloquium, November 24, 2009

**How to Count Without Using Your Fingers and Toes: An Introduction to Combinatorics**, Concordia College Math Club Presentation, November 19, 2007

**Enumeration and Symmetry of Edit Metric Spaces**, Iowa State University Graduate Student Seminar, Ames, Iowa, April 13, 2005

**Enumeration and Symmetry of Edit Metric Spaces**, Iowa State University Discrete Math Seminar, Ames, Iowa, February 24, 2005

**Sphere Packing Bounds on Edit Metric Codes**, University of North Dakota Mathematics Department Colloquium, Grand Forks, North Dakota, November 23, 2004

**Panel Member**

**Graduate School: Choosing one, getting in, staying in**, Joint Mathematics Meetings, January 7, 2011

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**UNDER-GRADUATE RESEARCH**

**Summer Scholars**

Emma Holzbach & Autumn Mortenson with Dr. K. Pelatt,  *$\theta$ -Twisted Involution Graphs on the Alternating Group*, June – August 2017

Presented at the Nebraska Conference for Undergraduate Women in Mathematics, January 2018

Presented at Scholars at the Capitol Poster Session, February 2018

Presented at Sister Seraphim Gibbons Undergraduate Research Symposium, April 2018

**Clare Booth Luce/Summer Scholars**

Marie Fallon, *Identifying Clar and Fries Numbers for Special Benzenoids*, June 2014 – May 2015

Presented at Mathfest, August 2015

Presented at the National Conference for Undergraduate Research, April 2015

Presented at Sister Seraphim Gibbons Undergraduate Research Symposium, April 2015

### **Honor's Committees**

Marilyn McNamara, *Analysis of Burst Conditions for High Altitude Ballooning*, Member, August 2015 – May 2016

Chantal McMahon, *The World's Longest Job Interview: Student Teaching and Teacher Effectiveness*, Member, January 2015 – December 2015

Marie Fallon, *Comparison of Stability and Perfect Matchings of Isometric Benzenoids*, Chair, August 2014 – May 2015

### **Senior Project Mentor**

Mandee Soliman, *Convergence in the Complex Numbers and the Mandelbrot Set*, Fall 2018

April Gross, *Nontransitive Dice*, Fall 2017

Samantha Stoll, *Programming Dialogue in Video Games: From Dialogue Trees to Artificial Intelligence*, Fall 2017

Emily Elsner, *Infinity*, Fall 2015

Maya Carnie, *Mazes and Algorithms*, Fall 2014

Kristal Jamieson, *Game Theory and Harry Potter's TriWizard Tournament*, Fall 2013

Megan DeHart, *Economics and Game Theory*, Fall 2013

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## **SERVICE**

### **College/Department**

**Assessment Committee**, Saint Catherine University, Fall 2017 – present

**Mathematics Department Newsletter Editor**, Saint Catherine University, Fall 2014 – present

**Women In Math, Science, and Engineering (WiMSE) Club Advisor**, Saint Catherine University, Fall 2014 – present

**Pi Mu Epsilon Chapter Coordinator**, Saint Catherine University, Fall 2014 – present

**Department Assessment Lead**, Saint Catherine University, Fall 2014 – present

**Mathematics Department Search Committee**, Saint Catherine University, Fall 2014 – Spring 2015

**Expanding Your Horizons Coordinator**, Concordia College, Fall 2006 – Spring 2011

**Budget Planning Committee**, Concordia College, Fall 2010

**Student Conduct Board**, Concordia College, Fall 2010

**Curriculum Committee**, Concordia College, Spring 2010

### **Professional**

**Reviewer**, PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies, 2011-present (5 manuscripts reviewed to date)

**AP Calculus Reader**, Educational Testing Service, Summer 2006 – 2008, 2010 – 2012, 2014 – present

**Session Organizer – Teaching Abstract Algebra: Tips and Techniques**,  
Joint Mathematics Meetings, January 13, 2018

**Session Organizer – Teaching Abstract Algebra: Tips and Techniques**,  
Joint Mathematics Meetings, January 4, 2017

**Judge**, Joint Mathematics Meeting Undergraduate Poster Session, January  
2007, January 2010, January 2014, January 2015, January 2016

**Compositor and Reviewer**, Test Bank to Accompany Calculus: Concepts  
and Contexts by James Stewart, 2008

**Session Organizer – Project NExT Panel: Developing a Course**, Joint  
Mathematics Meetings, January 8, 2007

**Reviewer**, Calculus: Early Transcendentals by Jon Rogawski, 2007

**Reviewer**, Calculus Chronicles Series Two by Jon Rogawski, 2005

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**PROFESSIONAL MEMBERSHIPS** Mathematical Association of America, 1999 – present.

Association for Women in Mathematics, 1999 – 2005, 2017 – present.

American Mathematical Society, 1999 – 2013.

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**COMPUTER  
SKILLS**

**Learning Management Systems:** D2L, Moodle

**Online Homework Systems:** WebAssign, MyMathLab/MyStatLab

**Other Software & Languages:**  $\LaTeX$ , Mathematica, Matlab, R, SPOL, Taskstream,  
Banner