

Dr. Jeffery J. Boats
Associate Professor of Mathematics

Home Phone:
(586) 722-4917

UDM Department of Mathematics
4001 W. McNichols Road
Detroit, MI 48221-3038

Office Phone:
(313) 993-1503

e-mail:
boatsjj@udmercy.edu

FAX:
(313) 993-1187

WWW: <http://boatsjj.faculty.udmercy.edu>

EDUCATION

August 10, 1999 Doctor of Arts in Mathematics, Carnegie Mellon
[*Dissertation: Linear Algebra Textbook Implementing Instructional Technology*]
1993 Master of Science in Applied Mathematics, Carnegie Mellon
1992 Bachelor of Science in Mathematics, St. Bonaventure University
1992 Bachelor of Science in Physics, St. Bonaventure University

TEACHING

1998-present University of Detroit Mercy [undergraduate mathematics,
undergraduate and graduate mathematics education]
1996-1998 University of Texas at El Paso [instructor, undergraduate mathematics]
1992-1996 Carnegie Mellon [teaching assistant, undergraduate mathematics]

PAST RESEARCH SUBJECTS

Graph theory, algorithms, interconnection networks, instructional technology, mathematics education (college), mathematics education (K-12), linear algebra, numerical analysis, interdisciplinary pedagogy, math history, science history, archaeology.

CURRENT RESEARCH ACTIVITIES

Developing an elimination technique for systems of equations over a group, for exploring open questions in magic labelings; counterintelligence applications in intercommunication directed graph networks; determining pansophies of graphs toward developing an objective measure of the efficiency of routing algorithms used in parallel processing.

CLASSES TAUGHT at UDM

Mathematics, Arts, and Sciences
Algebra (live and online, modular)
Elementary Functions
Analytic Geometry / Calculus I
Analytic Geometry / Calculus II
Analytic Geometry / Calculus III
Linear Algebra
Number Theory
Statistics
History of Mathematics
Senior Capstone Project
Game Theory
Physics II + Laboratory

Teaching of Mathematics
Master's Research Project
Intro to Teaching Elementary School Math I
Intro to Teaching Elementary School Math II
Modern Algebra for Teachers
Geometry I
Geometry II
Statistics for Teachers
Number Theory for Teachers
Teaching Mathematics with Graphing Calculators
Teaching Portfolio
Logic and Mathematical Inquiry

PROFESSIONAL MEMBERSHIPS / AWARDS / HONORS

Regional Mathematics Editor for the *American Journal of Undergraduate Research (AJUR)*
Member of the AMS (American Mathematical Society)
Advisor for UDM's chapter of Pi Mu Epsilon, the National Honorary Mathematics Fraternity
Nominated into *F21* (Faculty for the 21st Century), a division of *PKAL* (Project Kaleidoscope)
Member of the "Pi Society," the science and technology advisors for the Detroit Science Center
Selected by the Educational Testing Service to be an annual Reader for the AP-Calculus Exam
Elected 5 times (10 years) as an E&S delegate to UDM's McNichols Faculty Assembly (MFA)
(also served 4 years on Executive Committee of MFA as *Communications Officer*)

REPRESENTATIVE REFEREED PUBLICATIONS

- Boats, J. and Kikas, L., **Complete multipartite graphs are pansophical**, submitted to *Congressus Numerantium*, May 2019. Under Review.
- Boats, J., Brucaj, A. and Kikas, L., **Superuser Pansophy**, submitted to *Congressus Numerantium*, May 2019. Under Review.
- Boats, J., Kikas, L. and Slowik, J., **A Pansophy Algorithm**, submitted to the *Journal of Combinatorial Mathematics and Combinatorial Computing*, Feb. 2018. Under review.
- Boats, J. and Kikas, L., **The Pansophy of a Graph**, *Congressus Numerantium*, Vol. 229 (2017), pp. 125-134.
- Boats, J., Kikas, L., and Oleksik, J., **Finding Disjoint Paths in the Nova Graph**, *Congressus Numerantium*, Vol. 192 (2008), pp.43-51.
- Boats, J., Kikas, L., and Oleksik, J., **An Algorithm for Finding Disjoint Paths in the Alternating Group Graph**, *The Journal of Combinatorial Mathematics and Combinatorial Computing*, Vol. 64, February 2008.
- Boats, J., Kikas, L., and Oleksik, J., **The Nova Graph: More Disjoint Paths with Minimal Graph Augmentation**, *Congressus Numerantium*, Vol. 184 (2007), pp.71-83.
- Mouyianis, M., Benvenuto, M., and Boats, J., **Elemental Compositions of Herodian Prutah, Copper Coins of the Biblical “Widow’s Mites” Series, via Energy Dispersive X-Ray Fluorescence**, in the ACS Symposium Series 968: Archaeological Chemistry: Analytical Techniques and Archaeological Interpretation, pp. 246-257, 2007; ISBN: 0841274136.
- Misner, J., Benvenuto, M., and Boats, J., **Chemical Compositions of Song Dynasty, Chinese, Copper-Based Coins via Energy Dispersive X-Ray Fluorescence**, in the ACS Symposium Series 968: Archaeological Chemistry: Analytical Techniques and Archaeological Interpretation, pp. 231-245, 2007; ISBN: 0841274136.
- Boats, J., Kikas, L., and Oleksik, J., **An Algorithm for Finding Disjoint Paths in the Alternating Group Graph**, *Congressus Numerantium*, Vol. 181 (2006), pp. 97-109.
- Baker, S, Boats, J, and Hydorn, D., **Quantitative Initiatives in College Biology: Profiles of Projects at Undergraduate Institutions**, in the MAA trade book Math and BIO 2010: Linking Undergraduate Disciplines, pp.101-119, 2005; ISBN:0883858185.
- Boats, J. and Dwyer, N., **Geometric Conjectures: The Importance of Counterexamples**, *Mathematics Teaching in the Middle School*, Vol. 9, No. 4, pp.210-215, December 2003.
- Boats, J., **Recent Advances in Applications of Instructional Technology for Linear Algebra and Numerical Algorithms**, *International Journal of Differential Equations and Applications*, Vol. 3, No. 2, pp.115-126, 2001.

CONFERENCES ORGANIZED

- MIGHTY XLV** – *The 45th Midwestern Graph Theory Conference*
University of Detroit Mercy, October 5th and 6th, 2007
(In collaboration with Lazaros Kikas)
- MIGHTY XLIX** – *The 49th Midwestern Graph Theory Conference*
University of Detroit Mercy, April 16th and 17th, 2010
(In collaboration with Lazaros Kikas and Nart Shawash)
- MIGHTY LV** – *The 55th Midwestern Graph Theory Conference*
University of Detroit Mercy, March 28th and 29th, 2014
(In collaboration with Lazaros Kikas and Nart Shawash)
- MIGHTY LXI** – *The 61st Midwestern Graph Theory Conference*
University of Detroit Mercy, March 30th, 2019
(In collaboration with Lazaros Kikas)
- MAA (Mathematical Association of America) Annual Michigan Sectional Meeting**
University of Detroit Mercy, April 5th and 6th, 2019
(In collaboration with Dawn Archey)

RESEARCH WORKSHOPS

DIMACS DyDAn workshop, “*Data Analysis in Law Enforcement & Homeland Security*,” July 2007
(DIMACS: Center for Discrete Mathematics and Computer Science – Rutgers/Princeton)
(DyDAn: Dynamic Data Analysis)

REPRESENTATIVE INVITED LECTURES

- “The Pansophy of Multipartite Graphs,” given jointly with Lazaros Kikas at MIGHTY LXI (The 61st Midwestern Graph Theory Conference), Detroit, MI, March 2019.
- “The Pansophy of Multipartite Graphs,” given jointly with Lazaros Kikas at the 50th Southeastern International Conference on Combinatorics, Graph Theory and Computing, Boca Raton, FL, March 2019.
- “Wheel Graphs are Pansophical,” given at the 32nd MCCCC (Midwestern Conference on Combinatorics and Combinatorial Computing) in Duluth, MN, October 2018.
- “*Graph Pansophy*,” given jointly with Lazaros Kikas at MIGHTY LVIII (The 58th Midwestern Graph Theory Conference), Grand Rapids, MI, October 2017.
- “*Expected Value for Routable Disjoint Paths Given Random Terminal Selections*,” given at the AMS Central Sectional Meeting, Indiana University, Bloomington, IL, April 2017.
- “*Expected Value for Routable Disjoint Paths Given Random Terminal Selections*,” given at the 48th Southeastern Conference on Combinatorics, Graph Theory and Computing, Boca Raton, FL, March 2017
- “*Finding Disjoint Paths in the General Nova Graph*,” given at the 39th Southeastern International Conference on Combinatorics, Graph Theory and Computing, Boca Raton, FL, March 2008.
- “*The Nova Graph: An Improvement to the Alternating Group Graph*,” given at the 38th Southeastern International Conference on Combinatorics, Graph Theory and Computing, Boca Raton, FL, March 2007.
- “*An Algorithm for Connecting Paths in Cayley Graphs*,” given at Pace University, November 2006.
- “*The Nova Graph: An Improvement to the Alternating Group Graph*,” given at MIGHTY XLIII (The 43rd Midwestern Graph Theory Conference), Fort Wayne, IN, November 2006.
- “*An Algorithm for Finding Disjoint Paths in the Alternating Group Graph*,” given jointly with Lazaros Kikas at the 37th Southeastern International Conference on Combinatorics, Graph Theory and Computing, Boca Raton, FL, March 2006.
- “*Teaching Many Levels at Once – An Example Using Secret Codes*,” given at the 2005 Annual Meeting of the DACTM (Detroit Area Council of Teachers of Mathematics), Lansing, MI, November 2005.
- “*Teaching Many Levels at Once – An Example Using Secret Codes*,” given at the 2005 Annual Meeting of the MCTM (Michigan Council of Teachers of Mathematics), Lansing, MI, October 2005.
- “*Being a Catalyst and a Progressive Provocateur on Your Campus for Interdisciplinary Activities, New Pedagogies, and Other New Initiatives*,” given jointly with Stokes Baker at the October 2004 national meeting of Project Kaleidoscope, in Dallas, TX.
- “*A Perspective On Constructing Computer Tutorials*,” given at the October 2001 national meeting of Project Kaleidoscope, in Madison, WI.
- “*Using Instructional Technology in Teaching Linear Algebra and Numerical Analysis*,” given at the October 2001 sectional meeting of SIAM (Society of Industrial and Applied Mathematics) at Oakland University.
- “*Recent Advances in Applications of Instructional Technology for Linear Algebra and Numerical Algorithms*,” at the Ninth International Colloquium on Numerical Analysis and Computer Science with Applications, August 2000, in Plovdiv, Bulgaria.
- “*On Using Computer Tutorials to Tailor Linear Algebra for Secondary Teachers*,” at the Déc. 1999 meeting of the SMC (Société Mathématique du Canada), in Montreal, Quebec.