

Tom Cuchta

(<http://tomcuchta.com>)

EDUCATION (2015) *Ph.D.*, Mathematics
Missouri University of Science and Technology
Rolla, MO

(2011) *M.A.*, Mathematics
Marshall University
Huntington, WV

(2009) *B.S.*, Mathematics, Applied Mathematics
Marshall University
Huntington, WV

- PUBLICATIONS**
1. Martin Bohner, Tom Cuchta. *The generalized hypergeometric difference equation*. Demonstr. Math. 51, No. 1, 62–75.
 2. Martin Bohner, Tom Cuchta. *The Bessel difference equation*. Proc. Amer. Math. Soc. 145 (2017), no. 4, 1567–1580.
 3. Tom Cuchta. *Discrete Analogues of Some Classical Special Functions*. Doctoral thesis, Missouri S&T, 2015.
 4. Tom Cuchta. *Infinitesimal Time Scale Calculus*. Master's thesis, Marshall University, 2011.
 5. M. Axtell, et al. *Zero-divisor ideals and realizable zero-divisor graphs*. Involve 2, No. 1, 17–27 (2009).
 6. A. Bishop, T. Cuchta, K. Lokken, O. Pechenik. *The nilradical and non-nilradical graphs of commutative rings*. Int. J. Algebra 2 (2008), no. 17-20, 981–994.
 7. T. Cuchta, K. Lokken, W. Young. *Zero-divisor graphs of localizations and modular rings*. Rose-Hulman Undergraduate Math Journal, vol. 9 (2008).

- GRANTS**
1. (2018 November–Present) (*Principal Investigator*) NASA SARP Grant in cybersecurity, NSSC Grant number 80NSSC19K0178 (\$26,300) (with BRIAN BLACKWOOD, BOB NICHEL, and TOM DEVINE)
 2. Grant from NVIDIA Corporation for a Titan XP graphics processing unit (~\$1,000), 17 November 2017 (with BRIAN BLACKWOOD and BOB NICHEL)
 3. Grant from TMC Technologies of West Virginia Corp. subcontract number TMC-2017-002-10 NASA Technical Expertise Support Services (TESS) Issued Under Prime Contract: NNG4SA05Z (\$23,750) 1 August 2017–31 July 2018 (with BRIAN BLACKWOOD and BOB NICHEL)

**TEACHING
EXPERIENCE**

Assistant Professor of Mathematics
Fairmont State University (Fairmont, WV)

Fall 2016-present

Course	Number of sections taught
Real Analysis	1
Differential Equations	1
Linear Algebra	2
Calculus 3	1
Calculus 2	4
Applied Calculus 2	1
Calculus 1	2
Mathematical Logic	3
Trigonometry	5
Applied Statistics	2
College Algebra	1
Applied Tech Math I	1
Pre-College Algebra	1

Instructor

Spring 2016-Summer 2016

Missouri University of Science and Technology (Rolla, MO)

Course	Number of sections taught
Calculus 3	1
“Hit the Ground Running”	1

Teaching Assistant

Fall 2011-Spring 2016

Missouri University of Science and Technology (Rolla, MO)

Course	Number of sections taught
Linear Algebra	4
Differential Equations	1
Calculus 3	7
Calculus 1	2
“Problem Solving Workshop”	2
“Hit the Ground Running”	2

Teaching Assistant

Fall 2009-Summer 2011

Marshall University (Huntington, WV)

Course	Number of sections taught
Trigonometry	3
College Algebra	2
Finite Math	1
Concepts and Applications of Mathematics	1

CONFERENCES

1. *Machine Learning and Monte Carlo at NASA*, Joint Math Meetings, Baltimore, MD, 18 January 2019 (with BOB NICHEL).
2. *Lambert W on time scales*, University of Brasilia, International Workshop on Nonlinear Dynamical Systems and Functional Analysis, 13-16 August 2018.
3. *Discrete special functions*, Penn State Behrend, Allegheny Mountain MAA Meeting, 7 April 2018.
4. *Domain colorings*, Ohio University Eastern, Ohio MAA Fall Meeting, 27 October 2017
5. *The hypergeometric difference equation*, ICDEA 2017, Timișoara, Romania, 24 July-28 July 2017.
6. *The Bessel difference equation*, Duquense University, Allegheny Mountain MAA Spring Meeting, 8 April 2017.
7. *Gompertz dynamic equation*, Wooster College, Ohio MAA Fall Meeting, 28 October 2016.
8. *Introduction to time scale calculus*, Missouri MAA Spring Meeting, 28 March 2015.
9. *The Bessel Difference Equation*, Conference of Partial Differential Equations, Novacella, Italy, 30 May 2014.
10. *Zero-divisor graphs*, MAA Club, Missouri S&T, 17 September 2012.
11. *Greatest Prime Factor Sequence Graphs*, Kenyon College, Ohio MAA Meeting, 30 October 2009.

SERVICE

To profession

To the Mathematical Association of America

1. (2018 April-Present) Allegheny Mountain Section Director of E-Communications
2. (2018 Spring) Allegheny Mountain Section 2018 Teaching Award Committee

Peer Review

1. 2018: 2 papers for *Journal of Nonlinear Sciences and Applications*; 1 paper for *Journal of Classical Analysis*; 2 papers for *MDPI Mathematics*
2. 2017: 2 papers for *Journal of the Egyptian Mathematical Society*; 2 papers for *Journal of Difference Equations and Applications*; 2 papers for *Journal of Nonlinear Sciences and Applications*
3. 2016: 1 paper for *Journal of Inequalities and Special Functions*; 1 paper for *Journal of Mathematics and Statistics*

To Fairmont State University

1. Committee work
 - a. (2018 Fall-Present) Coordinator of Calculus assessment
 - b. (2018 Fall-Present) Member of Institutional Review Board
 - c. (2018 Fall-Present) Member of Technology Committee
 - d. (2018 Fall-Present) Member of Faculty Senate Executive Committee
 - e. (2018 Spring) Member of Faculty Senate Committee on Committees
 - f. (2017-2018) Member of Student Publications Board
 - g. (2017 Spring-Present) Senator for the Department of Computer Science and Math to Faculty Senate
 - h. (2017 Spring) Member of mathematics program advisory board committee
2. Facilitated undergraduate research in math
 - a. Fall 2018 – 2 students; one writes code for my time scales calculus github project and the other is writing an article with me
 - b. Spring 2018 – 5 students; one presented a talk at the Pi Mu Epsilon conference 24 February and four presented at Allegheny Mountain MAA conference (6 April 2018), four presented at Fairmont State on (26 April 2018)
 - c. Fall 2017 – 3 students; one presented a talk at MAA conference 27 October
 - d. Summer 2017 – 1 student
 - e. Spring 2017 – 3 students
 - f. Fall 2016 – 1 student (foreign exchange student)
3. Wrote letters of recommendation
 - a. 2019: 5 letters
 - b. 2018: 5 letters
 - c. 2017: 1 letter
4. Organized student trips
 - a. 2018: Allegheny Mountain MAA conference, Erie, PA (4 students); Pi Mu Epsilon conference, Youngstown, OH (7 students)
 - b. 2017: Ohio MAA conference, St. Clairsville, OH (1 student); Marshall University differential analyzer, Huntington, WV (4 students); Pi Mu Epsilon conference, Youngstown, OH (4 students)
5. Organized visiting lecturers for department seminars
 - a. 2018: 4 visitors
 - b. 2017: 3 visitors
 - c. 2016: 2 visitors

ACADEMIC ACTIVITIES

29 September 2018	Attended Project NExT workshop on Student Issues and Concerns and Using the Instructional Practices Guide (California, PA)
21 April 2018	Volunteer scorer at WV Math Field Day (Huntington, WV)
30 September 2017	Attended Project NExT workshop on engagement and grading (Grove City, PA)
7 April 2017	Attended Project NExT workshop on expository writing (Pittsburgh, PA)
29 October 2016	Attended Project NExT workshop on teaching statistics (Wooster, OH)
24 September 2016	Attended Project NExT workshop on teaching math to liberal arts majors (Indiana, PA)
2017-present	Member of MAA
2014-present	Member of International Society of Difference Equations
2011-2014	Chancellor's Fellow at Missouri S&T

Miscellaneous

1. Maintainer of an open source Python project on GitHub for time scale calculus:
<https://github.com/tomcuchta/timescalecalculus>
2. Owner and operator of...
 - Time Scale Wiki (<http://timescalewiki.org>)
 - Special Functions Wiki (<http://specialfunctionswiki.org>)
 - Hyperspace Wiki (<http://hyperspacewiki.org>)
3. Maintainer of a solutions manual to Rainville's *Special Functions*
(<https://github.com/tomcuchta/rainvillesfsolutions>).

COMPUTER SKILLS

Computer Languages: L^AT_EX, PHP, SQL, HTML, CSS, Python, Prolog
Software: Mathematica, MATLAB, MediaWiki, Apache webserver, MySQL server, Git, SSH, Mathcad

SEMINAR TALKS & POSTERS

1. *Gompertz growth model on time scales*, time scales seminar, Missouri S&T, 4 May 2016.
2. *Apéry's proof that $\zeta(3)$ is irrational*, Analysis Seminar, Missouri S&T, 22 April 2016.
3. *Inverse Laplace transform on time scales*, time scales seminar, Missouri S&T, 17 February 2016.
4. *Hardy's Result that infinitely many zeros of the Riemann zeta function lie on the critical line*, Analysis Seminar, Missouri S&T, 4 December 2015.
5. *Discrete analogues of some special functions*, time scales seminar, Missouri S&T, 21 October 2015.
6. *The Discrete Gaussian Bell*, time scales seminar, Missouri S&T, 23 September 2015.
7. *Hyperspaces and time scale calculus*, Hyperspace Seminar, Missouri S&T, 30 March 2015.
8. *Discrete Hermite polynomials*, Time Scales Seminar, Missouri S&T, 8 October 2014.

9. *Isolated time scales and Haskell*, Time Scales Seminar, Missouri S&T, 24 September 2014.
10. *Khinchin's Constant*, Analysis Seminar, Missouri S&T, 12 September 2014.
11. *The oscillatory behavior of discrete Bessel functions*, Time Scales Seminar, Missouri S&T, 19 May 2014.
12. *The Bessel difference equation*, Chancellor's Fellows Poster Session, Missouri S&T, 24 February 2014.
13. *Polish spaces and topological games*, Topology Seminar, Missouri S&T, 14 February 2014.
14. *The discrete Bessel equation*, Time Scales Seminar, Missouri S&T, 5 February 2014.
15. *Laplace Transform on Time Scales*, Analysis Seminar, Missouri S&T, 8 November 2013.
16. *Ends of topological spaces (part 3)*, Topology Seminar, Missouri S&T, 22 October 2013.
17. *Ends of topological spaces (part 2)*, Topology Seminar, Missouri S&T, 15 October 2013.
18. *Ends of topological spaces*, Topology Seminar, Missouri S&T, 8 October 2013.
19. *On Bessel's equation and Bessel functions*, Time Scales Seminar, Missouri S&T, 11 September 2013.
20. *On time scales Hermite polynomials*, Time Scales Seminar, Missouri S&T, 1 May 2013.
21. *Examples of inverse limit systems where each factor space is $[0, 1]$ (part 2)*, Topology Seminar, Missouri S&T, 1 November 2012.
22. *Monodiffic functions – a Gaussian integer analog to complex calculus*, Analysis Seminar, Missouri S&T, 26 October 2012.
23. *Examples of inverse limit systems where each factor space is $[0, 1]$* , Topology Seminar, Missouri S&T, 25 October 2012.
24. *The Gamma function on time scales (part 2)*, Time Scales Seminar, Missouri S&T, 19 September 2012.
25. *Graphs of upper semi-continuous functions*, Topology Seminar, Missouri S&T, 13 September 2012.
26. *The Gamma function on time scales*, Time Scales Seminar, Missouri S&T, 12 September 2012.
27. *Sketch of Dirichlet's theorem on arithmetic progressions*, Analysis Seminar, Missouri S&T, 24 February 2012.
28. *Nicholson's blowflies equations*, Time Scales Seminar, Missouri S&T, 29 February 2012.
29. *All about ∞* , MAA Club, Missouri S&T, 6 February 2012.
30. *A topological proof that the set of prime numbers is infinite*, Topology Seminar, Missouri S&T, 30 January 2012.
31. *Newman's short proof of the Prime Number Theorem*, Analysis Seminar, Missouri S&T, 9 December 2011.
32. *Infinitesimal time scale calculus*, Time Scales Seminar, Missouri S&T, 19 October 2011.

33. *Period three implies indecomposability*, Topology Seminar, Missouri S&T, 6 October 2011.