



904-620-2653



mdedeo@unf.edu



www.unf.edu/~mdedeo

Michelle DeDeo

Professor, University of North Florida

EDUCATION

1998	PhD, Mathematics (Computational Science) Dissertation: <i>Graphs over the Ring of Integers Modulo 2^r</i>	University of California – San Diego
1996	MA, Applied Mathematics	University of California – San Diego
1993	MS, General Mathematics Dissertation: <i>Analytic Functions on the Annulus</i>	California State University – Los Angeles
1991	BS, Mathematics (Honors)	California State University – Los Angeles

EMPLOYMENT

2022 – present	Professor of Mathematics (Visitor 1998-2001; Assistant 2001-2004; Associate 2004-2022)	University of North Florida
1997 – 1998	Adjunct Professor	University of San Diego
1993 – 1998	Teaching Assistant	University of California – San Diego
1994 – 1997	Adjunct Professor	San Diego Community College
1992 – 1993	Adjunct Professor	California State University – Los Angeles

HONORS AND AWARDS

2021	UNF STARS Award: Effects of Florida’s “Pill Mill” Laws on Opioid Overdoses in NE Florida
2021	UNF SOARS Award: Opioid Epidemic on the First Coast with Jeremiah Baclig, Noah DeDeo, Rukhaiya Husain & Iliya Kulbaka
2021	UNF Undergraduate Research Mentor of the Year Award Nominee
2020 – 2021	UNF Deans’ Fellowship: Socioeconomic Impact of the Opioid Epidemic in NE Florida (\$4000 + course release – 1 of 3)
2019 – 2024	\$1.6M Dept of Education Grant Co-PI with the UNF College of Education: “Transforming Teacher Preparation for Duval County” with Wanda Lestrapes, Deborah Reed, KoSze Lee, Christine White, and Daniela Genova
2019	UNF Teaching Innovation Institute Grant: Calculus for Engineers (\$4000)
2019	UNF Outstanding Leadership & Service Award Nominee
2018	UNF Outstanding Undergraduate Teaching Award (Nominated every year 2003--2007 and 2012—2017 and 2023)

2016	University of North Florida, Summer Teaching Grant "Discrete Mathematics II" (\$7500 – 1 of 11)
2004	University of North Florida, Summer Research Grant "Symplectic Maps and Generalizations of the Toda Lattice" (\$5000 – 1 of 10)
2003	University of North Florida, Summer Teaching Grant "Computational Number Theory" (\$5000 – 1 of 7)
2002	University of North Florida, Summer Research Grant "Radon Transforms over k -dimensional rings" (\$5000 – 1 of 10)
1996 – 1998	American Assn. of University Women (AAUW) Dissertation Fellowship (\$20,000)
1996 – 1997	San Diego Community College "Excellence in Teaching" Award

PUBLICATIONS

PEER-REVIEWED RESEARCH PUBLICATIONS

1. C. Williams and M. DeDeo. "Digital Communication Use before and during Covid among Residential Older Adults." *Geriatric Nursing* **53** (2023 Aug) 116–121. doi: 10.1016/j.gerinurse.2023.07.005
2. M. R. DeDeo. "On the Energy of Transposition Graphs." In: Hoffman, F. (eds) *Combinatorics, Graph Theory and Computing*, pp 305-316. Springer Proceedings in Mathematics & Statistics **388** (2022 Sept) Springer, Cham. doi: 10.1007/978-3-031-05375-7_23
3. J. Butler, M. DeDeo, D. Lambert, D. Murphy. "Population and Nest Site Evidence for Diamondback Terrapins, *Malaclemys terrapin*, in Northeast Florida." *Front. Ecol. Evol.* 10:833199. doi: 10.3389/fevo.2022.833199
4. A. Baker, M. Bagwell, M. DeDeo, et al. "Factors that Contribute to Hospital Readmissions after Arthroscopic Knee Surgeries: A Path for Shared Decision Making." *Knee Surgery, Sports Traumatol Arthrosc.* 2022 Feb 23. doi: 10.1007/s00167-022-06919-2. PMID: 35199185.
5. M. R. DeDeo and Elinor Velasquez. "The Heat Equation on the Poincaré Upper Half Plane." *Proc. of the American Mathematical Society* **149** No. 10 (2021) pp. 4171--4180. doi: 10.1090/proc/15610.
6. M. R. DeDeo and Maansi Garg. "Early detection of pediatric seizures in the high gamma band." *IEEE Access* (2021). doi: 10.1109/ACCESS.2021.3087782
7. M. R. DeDeo. "A Graph Energy Upper Bound using Spectral Moments." *Congr. Numer.* **232** (2019), pp. 233--240.
8. S. Aulakh, M. DeDeo, J. Free, K. Berdeguez, S. Rosenfeld, A. Quinones-Hinojosa, A. Chanan-Khan, S. Ailawadhi. "Survival trends in glioblastoma and association with treating facility volume." *J Clin Neurosci.* **68** (2019 Oct) pp. 271-274. doi: 10.1016/j.jocn.2019.04.028
9. M. R. DeDeo, V. Dang and Y. Ge. "On the Ramanujancy of Heisenberg graphs over Rings of degree δ or more." *Congr. Numer.* **185** (2007), pp. 111--126.

10. M. DeDeo, D. Lanphier and M. Minei. "The Spectrum of Platonic Graphs over Finite Fields." *Discrete Mathematics* **307** (2007) pp.1074--1081. doi: 10.1016/j.disc.2006.07.032
11. M. DeDeo, M. Martínez, A. Medrano, M. Minei, H. Stark, A. Terras. "Zeta Functions of Heisenberg Graphs over Finite Rings." In: Ismail M.E., Koelink E. (eds) *Theory and Applications of Special Functions. Developments in Mathematics* (2005) Springer, Boston, MA. doi: 10.1007/0-387-24233-3_8
12. M. R. DeDeo and Elinor Velasquez. "Radon transforms on Z_n^k ." *SIAM J. Discrete Math* **18** No. 3 (2004/2005) pp. 472--478. doi: 10.1137/S0895480103430764
13. M. R. DeDeo and Elinor Velasquez. "An Introduction to Symplectic Maps and Generalizations of the Toda Lattice." *Congr. Numer.* **169** (2004) pp.127--139.
14. M. DeDeo, M. Martinez, A. Medrano, M. Minei, H.M. Stark, and A. Terras. "Spectra of Heisenberg Graphs over Finite Rings." *Discrete Contin. Dyn. Syst.* (2003) pp. 213--222. doi: 10.3934/proc.2003.2003.213
15. M. R. DeDeo. "Non-Ramanujancy of Euclidean Graphs over the Ring of Integers modulo 2^r ." *Discrete Math* **265** (2003) pp.45--57. doi: 10.1016/S0012-365X(02)00621-0
16. M. R. DeDeo. "Generalized Kloosterman sums over the Rings of Order 2^r ." *Congr. Numer.* **165** (2003) pp.65--75.
17. M. R. DeDeo and Elinor Velasquez. "An introduction to the Radon transform over k -dimensional space of Integers modulo n ." *Congr. Numer.* **156** (2002) pp.201--209.
18. M. DeDeo. "Improving Pass Rates in Mathematics Using Interactive Computer Software." In J. A. Chambers (ed.), *12th Intl. Conference on College Teaching and Learning* (2001) pp.53--58.

PUBLISHED DATASETS & RESOURCES (Publicly available/Open access)

19. **Odd Perfect Number (OPN) Sandbox**, a tool for experimenting with OPNs using large precision integer and floating point processing using the Gnu Multiprecision Arithmetic Library with Matthew Thomas: Available at <https://github.com/mathprojects/OPNSandbox>
20. **Data resource and dashboard for Opioid Distribution in NE Florida** using Tableau: <https://public.tableau.com/app/profile/michelle.dedeo/viz/OpioidsinNEFlorida2006-2014/Dashboard1>
21. **Data analyses of pediatric EEG data** from Boston Children's Hospital: https://figshare.com/articles/dataset/Pediatric_EEG_Data_Analyses_in_High_Gamma_Band_from_Boston_Children_s_Hospital/14044220/3

SUBMITTED TO PEER-REVIEWED JOURNALS

- With C. Williams and A. Joshi. "Perceptions of COVID-19 Among Direct Care Workers in Long-term Care Facilities: Implications for Health Administrators" to *Research in Nursing and Health*.

PUBLICATIONS IN PROGRESS:

- "Decyphering the ARCOS: A Guide to the DEA's Data on Opioids" (journal article in preparation)
- "Opioid Deaths in Florida Pre- and Post-COVID" (journal article in preparation)

INVITED TALKS & PANELS

- 2020 **Keynote Speaker: 3rd Annual Data Science, Analytics and Artificial Intelligence Conference, Boca Raton, FL : The Rule of 77: Making Decisions**
- 2018 **Invited Panel Speaker: Joint Mathematics National Meeting, San Diego, CA: Paths to Collaboration with Scientists**

SELECT INVITED & SPECIAL RESEARCH PRESENTATIONS

(JMM = Joint Mathematics Meeting; AMS = American Mathematical Society; MAA = Mathematical Assn. Of America)

- January 2024 JMM SIGMAA Special Session on Benefits and Challenges of Mentoring Students in Data-Driven Research Projects:
Data-Driven Research Projects: Benefits and Challenges for Faculty
- April 2022 JMM AMS Special Session on Mathematical Models of Diseases: Analysis and Computation: **State-Space Smoothing Models and the Opioid Epidemic**
- April 2021 2021 UNF STARS Presentation and UNF Biomedical Sciences Research Colloquium: **Effects of Florida's "Pill Mill" Laws on Opioid Overdoses in NE Florida**
- June 2018 ASCO (American Society of Clinical Oncology) Annual Meeting, Chicago, IL: **Association Between Treatment Facility Volume and Mortality of Patients With Glioblastoma**
- January 2018 JMM AMS Special Session on Mathematical Information in the Digital Age of Science, San Diego, CA:
Seizure Prediction using Spectral Density Analysis on Pediatric EEGs
- January 2016 JMM AMS Session on Combinatorics and Graph Theory, Seattle, WA:
Tighter Bounds on the Energy of Ramanujan Graphs
- January 2015 JMM AMS Session on Combinatorics, San Antonio, TX:
Thoughts on the Energy of Ramanujan graphs
- January 2013 JMM MAA Session on Research on the Teaching and Learning of Undergraduate Mathematics, San Diego, CA: **Over A Decade of Improving Pass Rates in Gateway Mathematics Courses using Interactive Software**
- January 2011 JMM Special Interest Group MAA RUME Session on Research on the Teaching and Learning of Undergraduate Mathematics, New Orleans, LA:
Improving Pass Rates in Mathematics using Interactive Software – Revisited
- January 2008 JMM AMS Special Session on Expanders and Ramanujan Graphs: Construction and Applications, San Diego, CA:
On the Ramanujancy of Heisenberg graphs of order 6 or more

- January 2006 JMM MAA Session on Achieving Quantitative Literacy, San Antonio, TX:
Ethnomathematics: Fear or Fusion
- January 2005 JMM AMS Session on Algebraic Structures, Atlanta, GA:
Symplectic Maps and Generalizations of the Toda Lattice
- January 2004 JMM AMS Session on Analysis, Phoenix, AZ:
The Radon Transform on Z_n^k
- January 2002 JMM AMS Session on Series and Fourier Analysis, San Diego, CA:
The Radon Transform in Directional and Toroidal Time Series
- January 2001 JMM MAA Session on Redefining What Makes a Modern “College Algebra”
Experience Means, New Orleans, LA:
Putting “College” Back Into College Algebra

SELECT CONTRIBUTED RESEARCH PRESENTATIONS

- January 2023 JMM AMS Contributed Paper Session on Number Theory and Field Theory:
In Search of Odd Perfect Numbers: A Computational Sandbox
- March 2020 51st Southeastern International Conference on Combinatorics, Graph Theory &
Computing, Boca Raton, FL: **Graph Energy in Interconnection Networks based on
Cayley graphs of Permutation groups**
- January 2020 JMM AMS Contributed Paper Session on Probability Theory, Stochastic Processes
and Statistics, Denver, CO:
Data Science - Challenges in the Quintessential Interdisciplinary Field
- March 2019 50th Southeastern International Conference on Combinatorics, Graph Theory &
Computing, Boca Raton, FL: **The Energy of Ramanujan Graphs**
- January 2019 JMM AMS Contributed Session on Partial Differential Equations, Baltimore, MD: **The
Heat Equation on the Finite Poincaré Upper Half Plane**
- January 2017 JMM AMS Contributed Session on Game Theory, Systems, Control, Atlanta, GA: **An
Alternative Perspective for EEG Analysis**
- January 2014 JMM MAA General Contributed Session on Teaching Mathematics Beyond the
Calculus Sequence, Baltimore, MD:
The Conundrum of Teaching Finite Mathematics
- January 2012 JMM MAA General Contributed Session: Mathematics & Technology, Boston, MA: **A
Decade of Improving Pass Rates in Mathematics using Interactive Software**
- January 2009 JMM MAA General Session: Mathematics and Technology, Washington, DC:
Incorporating Software into College Algebra: Who Wins? We All Do, If...
- January 2007 JMM MAA General Session: Mathematics and Technology, New Orleans, LA:
Incorporating Software in College Algebra: Five Years Later

TEACHING

COURSES TAUGHT at UNF (Subscripts indicate multiple classes; Sabbatical 2016-2017)

GRADUATE

MAS6908 – Graduate Directed Independent Study in Mathematics (2020₍₂₎, 2019₍₂₎)

MAA6417 – Graduate Complex Analysis (2021, 2011)

MAS6218/MAT6933*-Grad. Number Theory (2020, 2017, 2014, 2012, 2009*, 2007*, 2005*, 2003*)

STA6908 - Graduate Directed Independent Study in Biostatistics (2020)

UNDERGRADUATE

CIS4900 – Independent Study in Computer Science (2021₍₂₎)

MAS4900/4906 – Ind. Study in Mathematics (2023, 2021₍₄₎, 2019₍₃₎, 2018₍₂₎, 2012₍₂₎, 2011₍₃₎, 2006)

MAA4402 – Complex Analysis (2022, 2018, 2014, 2013, 2007, 2004)

MAS3203/MAT3930* – Number Theory (2023--2014, 2011, 2009, 2006, 2004*, 2002₍₂₎, 2001)

MHF3404 – History of Mathematics (2013, 2012)

MHF3202 – Foundations of Mathematics (2010, 2009, 2002)

MAD3107 – Discrete Mathematics (2007, 2006, 2000)

MAE 2801 - Mathematics for Elementary Education (2001)

MAC2313 – Calculus III (2016, 2015, 2014, 2011, 2008, 2003--2001)

MAC2312 – Calculus II for Engineers (2020, 2019, 2018, 2017)

MAC2312 – Calculus II (2020₍₂₎, 2018, 2015--2011, 2009, 2008, 2007, 2005₍₂₎, 2000, 1999)

MAC2311 – Calculus I for Engineers (2021, 2019₍₂₎, 2018)

MAC2311 – Calculus I (2024₍₂₎, 2023₍₂₎, 2019, 1999, 1998)

MAC2233 – Calculus for Business (2001)

MAC1147 – Precalculus (2010)

MAC1114 – Trigonometry (2008)

MGF1106 – Finite Mathematics (2023₍₂₎, 2022₍₂₎, 2017, 2016, 2015₍₂₎, 2009, 2006)

MAC1105 – College Algebra: Large Lecture (2015, 2014, 2013₍₂₎, 2012, 2010--2008, 2007₍₂₎, 2006, 2005₍₂₎, 2004₍₂₎, 2003, 2001₍₂₎, 2000₍₂₎, 1999, 1998)

MAC1105 – College Algebra (2015, 2013, 2010--2008, 2003₍₂₎, 2002, 2001₍₂₎, 1999, 1998)

STA3032 – Probability and Statistics for Engineers (2019)

STA2014 – Elem. Statistics for Health & Soc. Sci. (2000)

SELECT COURSE DESIGN/REDESIGN AT UNF

MAT3930 – Computational Number Theory

Received summer teaching grant to develop and taught class in 2004. The computational elements have been merged into all of my undergraduate and graduate Number Theory classes.

MAD3108 – Discrete Mathematics II

Received summer teaching grant to develop and incorporate into the new Discrete Mathematics track in Mathematics, but due to budget and class constraints this class has never been offered.

MAC2312 – Calculus II for Engineers

MAC2311 – Calculus I for Engineers

Received a Teaching Innovation Institute grant to develop under the direction of the School of Engineering with two colleagues (Drs. Hamid and Genova) to improve calculus for engineers by incorporating more real-world applications. Multiple classes now taught every semester since 2018.

FACULTY ADVISING: Theses, Capstones & Independent Studies

MASTERS' THESIS

Spring 2005	Dennis Perusse	Sieve Methods & Goldbach's Conjecture
Spring 2004	James Griffin	Ramanujan Graphs

MASTERS' THESIS COMMITTEE

Spring 2021	Matthew Thomas	Minimizing Reaction Systems
Fall 2020	Rhys Jones	Maximality and Applications of Subword-Closed Languages
Summer/Fall 2018	Katie Bakewell	Self-Assembly of DNA Graphs and Postman Tours

HONORS' PROGRAM THESIS & CAPSTONE

Spring 2021	Kaci Biats	An Exploration of Perfect Numbers
Fall 2017	Monica Rice	The Dirichlet Problem and Applications
Spring 2004	Elizabeth Hendrix	Women in Mathematics: Motivating Factors For Doctorates in Academia vs. Professionals in the Actuarial Sciences

CAPSTONE (since 2015)

Spring 2021	Kaci Biats	Topics in Number Theory
	Andre Sierra	Image Recognition
	Craig Goodman	Elliptic Curves and Applications in Cryptography
	Erich Jones	Modular Arithmetic in Check Digits & Hash Functions
Spring 2020	Thomas Hunt	Predictors in Glioblastoma patients
	Erin Thompson	Factors in Brain Tumor Survival
Fall 2019	Gabriel Kilgore	Arithmetic Functions
Spring 2019	Mikayla Short	Gaussian Primes and Moats
	Isaac Quiros Lum	Ramanujan Graphs
Fall 2015	Monica Rice	The Dirichlet Problem and Applications

RECENT DIRECTED INDEPENDENT STUDY

Graduate Mathematics & Statistics (MAT 6908/STA6908)

Fall 2021	Sarah Duncan	Number Theory
Fall 2020	Salika Sar	Elliptic Curves & Cryptography
Fall 2020	Matthew Thomas	Computational Number Theory
Fall 2019	Joseph Free	Statistics in Medicine
Summer 2019	Parul Malurenda	Graduate Complex Analysis

Mathematics (MAT4906/4900)

Spring 2023	Ryan Farrel	Applied Number Theory
Summer 2019	Andre Sierra	Complex Analysis
Spring 2019	Mikayla Short	Biostatistics
Fall 2018	Isaac Quiros Lum	Computational Number Theory
	Mikayla Short	Complex Analysis
Spring 2012	Chad McDaniel	Number Theory
	William Olsen	Complex Analysis
Spring 2011	Teresa Graham	Number Theory
	Murphy Griffin	Complex Analysis
	Rachel Levanger	Computational Number Theory
Summer 2010	Chad McDaniel	Complex Analysis

Computer Science (CIS4900)

Spring 2021	Jeremiah Baclig	Data Science (Python, JMP and Tableau)
	Iliya Kulaka	Data Science (Python, JMP and Tableau)

SERVICE (current positions in **bold**)

COMMUNITY/PROFESSIONAL

2020 – present	Lead Advisor	UNF's Florida Data Science for Social Good (FL-DSSG) Program
2017 – present	Researcher	Mayo Clinic Research Collaborator
2001 – present	Reviewer	Various journals such as SIAM Discrete Mathematics, Ars Combinatorica and Combinatorics, Graph Theory & Computing
2001 – present	Reviewer	American Mathematical Society MathSciNet (35 reviews)
2001 – present	Reviewer	Textbooks with named reviewer recognition published by: Addison Wesley, Brooks Cole, Wiley & Sons, Hawkes Learning, McGraw-Hill & Pearson
2016 – 2017	Organizer	30 th SERMON (Southeastern Regional Meeting on Numbers) Conference Host & Co-Organizer (NSA & NSF Sponsorship)
2000 – 2004	Member	WJCT Community Advisory Board (elected to represent UNF)

UNIVERSITY SERVICE

2020 – present	Member	UNF Academic Programs Committee (APC)
2016 – present	Mentor	UNF Honors College
2011 – 2023	Chair	University Appeals Committee (Member: 2004-2010)
2018 – 2022	Advisor	UNF Grappling Club
2021	Reviewer	UNF Diversity, Equity and Inclusion Grant
2020 – 2021	Member	UNF NSF ADVANCE Grant Exploratory Committee
2018 – 2020	Advisor	UNF Kickboxing Club
2007 – 2009	Member	UNF Nominations and Elections Committee
2005 – 2006	Chair	UNF Ad Hoc Committee on Compression & Inversion
2005 – 2006	President	UNF College of Arts & Sciences Faculty Association
2004 – 2006	Treasurer	UNF - United Faculty of Florida
2004 – 2005	Vice President	UNF College of Arts & Sciences Faculty Association
2002 – 2004	Member	UNF Academic Standards Committee
1998 – 2004	Member	UNF Faculty-Student Mentor Program

DEPARTMENTAL SERVICE

2022 – present	Member	Graduate Committee, Subcommittee for MS in Data Science, and Subcommittee for MS in Biostatistics
2018 – present	Member	Professional Development & Resource Committee (Chair 2004-2018)
2018 – 2020	Chair Member Member Member	Ad-Hoc Annual Evaluations & Operating Procedures Committee Ad-Hoc P&T Guidelines Committee Distance Learning Committee General Education Committee
2018 – 2019	Member Member	Distance Learning Committee (Chair 2015-2016) Math-Stat Emporium Committee (Chair 2015-2016)
2004 – 2013	Coordinator	Departmental Coordinator for College Algebra
2009 – 2010	Member	Departmental Search Committee
2002 – 2004	Coordinator	Departmental Coordinator for Finite Mathematics
2003	Contributor	Departmental Website Major Redesign
2002 – 2004	Co-Advisor	UNF Mathematics and Statistics Club
2000 – 2005	Coordinator	UNF APP Mathematics Program Co-Coordinator and Instructor

PROFESSIONAL TRAINING

TOL 4100 (Spring 2016)/**TOL 6100** (Summer 2016)

Intensive seminars that cover distance learning pedagogy, course design, instructional strategies, communication strategies, and online assessment. TOL6100 was offered in a hybrid format that included five online modules, a face-to-face roundtable discussion, and face-to-face culminating presentation day. Throughout the seminar faculty participate in individual instructional design consultations including graphic and media development support.

Microsoft Azure Microdegree (Summer 2020)

Azure Machine Learning (ML) can be used for any kind of machine learning from classical ML to deep learning as well as supervised and unsupervised learning. Learned to build, train, and track machine learning and deep-learning models in an Azure Machine Learning Workspace. Program focused on Azure Machine Learning studio as a web portal in Azure Machine Learning for model training, deployment, and asset management.

PROFESSIONAL MEMBERSHIPS

AMS (American Mathematical Society); **IEEE** (Institute of Electrical and Electronics Engineers); **AAUW** (American Assn. Of University Women); Phi Kappa Phi Honor Society