CURRICULUM VITAE
DR. DANIEL JOSEPH GALIFFA

ASSISTANT PROFESSOR OF MATHEMATICS
PENN STATE ERIE, THE BEHREND COLLEGE

CONTACT INFORMATION

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EDUCATION

- Doctor of Philosophy in Mathematics, University of Central Florida (UCF), May 2009
- Master of Science in Mathematics, UCF, May 2006
- Baccalaureate of Science in Mathematics with Physics Minor (Honors), Indiana University of Pennsylvania (IUP), May 2004

RESEARCH INTERESTS

- Mathematical Analysis:
  - Classical and Quantum Hypergeometric Orthogonal Polynomials in One Variable
  - Differential Equations, Functional Equations and Partial Differential Equations
  - Difference Equations
  - Mathematical Biology
  - Numerical Analysis

PREVIOUS ACADEMIC EMPLOYMENT

- Adjunct Professorship in Mathematics, Seminole State College (SSC) Sanford & Oviedo, FL, summers 2005, 2006, 2007, 2008 and 2009
- NSF GO GK-12 Graduate Research Fellowship for academic years 2007-2008 and 2008-2009
- Graduate Teaching Assistantship and full tuition waiver, UCF, 2004-2007
- Adjunct Instructorship in Mathematics, ITT Tech - Lake Mary Campus, FL, summer 2007
- Adjunct Professorship in Mathematics, UCF, summer 2006
- Faculty Center for Teaching and Learning (FCTL) Graduate Teaching Certificate Program with stipend, summer 2006
- Instructor of Record, UCF, summer 2005

MATHEMATICS COURSES TAUGHT AT PENN STATE ERIE

- *Number Theory*
- *Complex Analysis*
- *Numerical Analysis*
- *Discrete Mathematics (4-Credits)*
- *Ordinary & Partial Differential Equations (4-Credits)*
- *Ordinary Differential Equations*
- *Vector Analysis*
- *Matrices*
- *Differential Equations & Linear Algebra*
- *Honors Calculus & Analytic Geometry II*
- *Calculus & Analytic Geometry II*
- *Honors Calculus & Analytic Geometry I*
- *Calculus & Analytic Geometry I*

MATHEMATICS COURSES PREVIOUSLY TAUGHT

- *Differential Equations*, Adjunct Professor, SSC, summer 2009
- *Calculus III With Analytic Geometry*, Adjunct Professor, SSC, summer 2009
- *Calculus II With Analytic Geometry*:
  -Adjunct Professor, SSC, summer 2009
  -Instructor of Record, UCF, summer 2005
- *Concepts of Calculus*, Adjunct Professor, SSC, summer 2008
- *Pre-Calculus*, Adjunct Professor, SSC, summer 2006
- *College Trigonometry*:
  -Adjunct Professor, SSC, summer 2008
  -Adjunct Professor, SSC, summer 2006
- *College Algebra*:
  -Adjunct Professor (2 sections), SSC, summer 2009
  -Adjunct Professor, SSC, summer 2008
  -Adjunct Professor (2 sections), SSC, summer 2007
  -Adjunct Professor, UCF, summer 2006
- *Finite Mathematics (Topics from Geometry, Logic, Set Theory, Probability and Statistics)*:
  -Instructor of Record (2 Sections), UCF, spring 2007
  -Instructor of Record (2 Sections), UCF, fall 2006
  -Adjunct Professor, UCF, summer 2006
  -Instructor of Record, UCF, spring 2006
  -Instructor of Record (2 Sections), UCF, fall 2005
- *Intermediate Algebra*, Adjunct Professor, SSC, summer 2008
- *Problem Solving for Technical Applications* (2 Sections), Adjunct Instructor, ITT Tech - Lake Mary, FL, summer 2007
- *Integrated Arithmetic and Basic Algebra*, Adjunct Professor (6 Credit Course), SCC, summer 2005

RESEARCH PUBLICATIONS

- *An Elementary Approach to Characterizing the Sheffer A-Type 0 Orthogonal Polynomial Sequences*, with Tanya N. Riston[1], to appear in Involve.
- *An Existence Theorem for a Nonlocal Global Pandemic Model for Insect-Borne Diseases*, with John R. Cannon, International Journal of Differential Equations, Volume 2014, Article ID 187685, 10 pages.
- *A Characterization of an Askey-Wilson Difference Equation*, with Boon W. Ong. (Penn State Erie), Journal of Difference Equations and Applications, **20**, p. 1372-1381, 2014.
- *Two Differential Equations for the Linear Generating Function of the Charlier Polynomials*, with Elliot J. Blackstone[1], Applied Mathematics E-Notes, **13**, p. 60-67, ISSN 1607-2510, 2013.
- *Nonlocal Modeling of Insect Borne Diseases*, with John R. Cannon, in "Fevers: Types, Treatments and Health Risks," Nova Science Publishers, Inc., 2013.
- *On the Higher-Order Sheffer Orthogonal Polynomial Sequences*, Springer Briefs in Mathematics, Springer, 2013.
- *An Epidemiology Model Suggested by Yellow Fever*, with John R. Cannon, Mathematical Methods in the Applied Sciences, **35**, p. 196-206, 2012.
- *On a Numerical Method for a Homogeneous, Nonlinear, Nonlocal, Elliptic Boundary Value Problem*, with John R. Cannon, Journal of Nonlinear Analysis; Theory Methods and Applications, **74**, no. 5, p. 1702-1713, 2011.
- *The Sheffer B-Type 1 Orthogonal Polynomial Sequences*, Thesis (Ph.D.) University of Central Florida. 2009. 117 pp. ISBN: 978-1109-16162-5, Proquest® LLC.
- *A Numerical Method for a Nonlocal Elliptic Boundary Value Problem*, with John R. Cannon, Journal of Integral Equations and Applications, **20**, no. 2, p. 243-261, 2008.

MANUSCRIPTS SUBMITTED FOR PUBLICATION AND IN PREPERATION

- *A New Way to Solve the $\mathcal{D}_q$-Appell Equation*, with Boon W. Ong.
- *q-Orthogonal Polynomial Solutions to a Class of Difference Equations*, with Sarah J. Johnston.
- *A Complete Characterization of the Sheffer B-Type k Orthogonal Sets*, with Tyler R. Ewing[1].
- *A Numerical Estimate Along a Characteristic Curve for the Temperature Function of a Combustion Model*, with John R. Cannon
- *An Invitation to the Jacobi Polynomials*, with Matthew P. Lachesky[1].
- *The Discrete Sheffer Sequences and the Schrödinger Equation* Form, with Jennifer K. Ulrich (Penn State Erie).

[1] Undergraduate Student coauthor.

RESEARCH ARTICLES

- *The Atomic Bomb (Manhattan Project)**
- *Pregnancy**
- *Aircraft Design**

  *In ***The Encyclopedia of Mathematics and Society***, published by Salem Press and produced by Golson Media, 2011

CONFERENCE PROCEEDINGS

- *On the Analysis of a Nonlocal, Elliptic B.V.P. and its Extensions*, with John R. Cannon, Proceedings of the Seventh Annual Hawaii International Conference on Statistics, Mathematics and Related Fields, January 2008
  http://www.hicstatistics.org/

JOURNAL REVIEWS

- *Journal of Integral Transforms and Special Functions*
- *Journal of Computational and Applied Mathematics*
- *Mathematical Methods in the Applied Sciences*
- *Journal of Integral Equations and Applications*

UNDERGRADUATE RESEARCH STUDENTS SUPERVISED

- **Elliot J. Blackstone:** Penn State Erie Mathematics Major
  - Coauthor of the paper *Two Differential Equations for the Linear Generating Function of the Charlier Polynomials*, listed above
  - Presented *"The Linear Generating Functions for the Charlier Polynomials"* at the Youngstown State University Pi Mu Epsilon Undergraduate Mathematics Research Conference (YSUPME), spring 2012
  - Awarded the Penn State Erie 2011 Undergraduate Summer Research Grant (USRG) for the research project *"The Generating Function(s) for the Charlier Polynomials"*
- **Mark E. Dombrowski:** Penn State Erie Electrical Engineering Major
  - Presented *"q-Orthogonal Polynomial Solutions to Quantized Difference Equations"* at the Mathematical Association of America (MAA) Allegheny Mountain Section Meeting, IUP, spring 2013
  - Presented *"Determining Quantized Orthogonal Polynomial Solutions to a Difference Equation"* at the YSUPME, spring 2013

- Awarded the Penn State Erie 2011 USRG for the research project *"Determining q-Orthogonal Polynomial Solutions to Difference Equations"*

- **Tyler R. Ewing:** Penn State Erie Mathematics/Software Engineering Major
  - Presented *"A Complete Characterization of the Sheffer B-Type k Orthogonal Sets"* at the MAA Allegheny Mountain Section Meeting, IUP, spring 2013
  - Presented *"A Complete Characterization of the Sheffer B-Type k Orthogonal Sets"* at the YSUPME, spring 2013
  - Awarded the Penn State Erie 2012 Undergraduate Summer Research Grant for the research project *"The Sheffer B-Type k Orthogonal Polynomials"*

- **Samantha S. Key**: Penn State Erie Mathematics Major/Statistics Minor
  - Poster presentation: *"Another Way to Look At Sunflower Seeds - Mathematically!,"* at the Penn State Erie Twenty-Third Sigma Xi Annual Undergraduate Research and Creative Accomplishment Conference (URCAC), 2014
  - Completed the research project "A Preliminary Mathematical/Statistical Analysis of the Genetic Variation of Sunflower Seeds," 2014

- **Matthew P. Lachesky**: Penn State Erie Electrical Engineering Major/Mathematics Minor
  - Presented *"An Invitation to the Jacobi Polynomials"* at the 2014 URCAC
  - Co-presenter of the talk *"An Invitation to the Jacobi Polynomials,"* listed under 'University Research Presentations'
  - Awarded the 2013 Penn State Erie USRG for the research projects *"The Jacobi Polynomials"* and *"Further Analyzing Higher-Order Sheffer Sequences"*

- **Joshua M. Learn**: Penn State Erie/University Park Biological Engineering Major
  - Presented *"Modeling Birth and Death Process with Orthogonal Polynomial Sequences"* at the 2010 URCAC
  - Completed an independent study focusing on the theory and applications of orthogonal polynomial sequences to birth and death process, summer 2010

- **Gennaro Ricci:** Penn State Erie Mathematics Major
  - Completed a research independent study on the Sheffer Sequences, summer 2011

- **Tanya N. Riston**: Penn State Erie Mathematics Major/Statistics Minor
  - Co-author of the paper *An Elementary Approach to Characterizing the Sheffer A-Type 0 Orthogonal Polynomial Sequences*, listed above
  - Presented *"A Complete Characterization of the Sheffer Sequences,"* at the American Mathematical Society (AMS) Section Meeting, Rochester, NY, fall 2012
  - Presented *"Characterizing the Sheffer A-Type 0 Sequences"* at the 2012 YSUPME
  - Received the 2010-11 Penn State Erie Mathematics Scholarship Award for research accomplishments listed below
  - Awarded the 2011 Penn State Erie USRG for the research project *"Nonlocal Boundary Value Problems"*

- Presented *"On Modifying a Finite Difference Method for a Class of Nonlocal Problems"* at the Mathematical Association of America (MAA) Allegheny Mountain Section Meeting, spring 2011
- Presented *"Investigating the Convergence of an Approximate Solution to a Nonlinear, Nonlocal, Elliptic B.V.P."* at the 2011 YSUPME
- Received the Penn State Erie Undergraduate Student Academic Year Grant for the research project *"Nonlocal Equations and Applications,"* spring 2011

- **Jeffrey X. Scavo**: Penn State Erie Mechanical Engineering Major
  - Presented *"Analyzing the Higher-Order Sheffer Polynomial Sequences"* at the 2011 URCAC, (Awarded *Second Place* in Mathematics), spring 2011
  - Completed the research independent study *'Analyzing the Sheffer B-Type 0 Orthogonal Polynomial Sequences,'* fall 2010
  - Presented *"Investigating the Higher-Order Sheffer Polynomial Sequences"* at MathFest in Pittsburgh, PA, August 2010
  - Awarded the Penn State Erie 2010 Undergraduate Summer Research Grant for the research project *"Analyzing Polynomial Sequences Via Generating Functions"*

PROFESSIONAL TALKS

INVITED CONFERENCE RESEARCH PRESENTATIONS

- *"Recent Developments of Nonlocal Models in Thermodynamics and Epidemiology,"* Computational Analysis of Inverse Problems and Partial Differential Equations, dedicated to John Cannon and Zuhair Nashed (UCF), UCF, summer 2013
- *"Nonlocal Modeling of Physical Phenomena: Past, Present & Future,"* SIAM SEAS 2013 Annual Meeting hosted by Oak Ridge National Laboratory and the University of Tennessee-Knoxville, for the SIAM Mini-Symposium "Numerical Methods for Partial Differential Equations and Real-life Applications," organized by Samuel Jator (Austin Peay State University), spring 2013
- *"Nonlocal Modeling of Insect Borne Diseases,"* at the International Symposium on Biomathematics, Ecology, Education and Research for the Special Session "Ecology," St. Louis, IL, fall 2012
- *"A Characterization of an Askey-Wilson Difference Equation,"* with Boon W. Ong, at the AMS Special Session "Difference Equations and Applications," organized by Micheal Radin (Rochester University), Rochester University, Rochester NY, fall 2012
- *"q-Orthogonal Polynomial Solutions to a Class of Differential-Difference Equations and Extensions"* AMS Special Session "Difference Equations and Applications," organized by Micheal Radin (Rochester University), Cornell University, Ithaca, NY, fall 2011
- *"The Analysis of a Numerical Method for a Homogeneous, Nonlinear, Nonlocal Elliptic Boundary Value Problem With Numerical Experiments"* Seventh Annual American Institute of Mathematical Sciences (AIMS) International Conference on Dynamical Systems and Differential Equations at the University of Texas, Austin, for the special session "Pattern Formation in Biology and Ecology: from Interfaces to Meta-solutions," spring 2008

- *"A Numerical Method for a Homogeneous, Nonlocal, Nonlinear Elliptic Boundary Value Problem,"* SIAM Southeastern Atlantic Section Conference (SIAM-SEAS), UCF, spring 2008

CONFERENCE RESEARCH PRESENTATIONS

- *"A Generalized Gaussian Quadrature"* MAA Allegheny Mountain Sectional Meeting, Westminster College, spring 2014
- *"Developing a Discrete Analogue of the Time-Independent Schrödinger Equation via Discrete Orthogonal Polynomial Sequences,"* with Jennifer K. Ulrich, MAA Allegheny Mountain Sectional Meeting, IUP, spring 2013
- *"On the Higher-Order Sheffer Orthogonal Polynomial Sequences"* MAA Allegheny Mountain Sectional Meeting, spring 2012
- *"On the Linear Generating Function for the Charlier Polynomials"* Joint Mathematics Meeting in Boston, MA, spring 2012,
- *"Another Way to Obtain the Sheffer* Type-0 *Orthogonal Polynomial Sequences"* MAA MathFest 2011, Lexington, KY, summer 2011
- *"Generating Functions: From Number Theory to Orthogonal Polynomials"* MAA Allegheny Mountain Sectional Meeting, spring 2011
- *"q-Orthogonal Polynomial Solutions to a Class of Differential-Difference Equations"* Joint Mathematics Meeting in New Orleans, LA, spring 2011
- *"An Epidemiology Model on the Unit Sphere"* (Session Chair) Southeastern Atlantic Conference on Differential Equations at Virginia Tech, VA, fall 2010
- *"An Epidemiology Model Suggested by Yellow Fever"* MAA MathFest 2010, Pittsburgh, PA, summer 2010
- *"The Sheffer* B-Type 1 *Orthogonal Polynomial Sequences"* Joint Mathematics Meeting in Washington, D.C., spring 2009
- *"On the Analysis of a Nonlocal, Elliptic B.V.P. and its Extensions"* (Session Chair) of Numerical Analysis at the Seventh Annual Hawaii International Conference for Statistics, Mathematics and Related Fields, Honolulu, Hawaii, spring 2008
- *"A Finite Difference Method for a Nonlocal, Elliptic, Boundary Value Problem"* Southeastern Atlantic Mathematical Sciences Workshop (a.k.a. Cha-Cha Days), National Institute of Aerospace, Lorton, VA, fall 2007
  http://www.chachadays.org/chachadayspast/chachadays2007.html

UNIVERSITY RESEARCH PRESENTATIONS

- *"The Discrete Sheffer Sequences and the Discrete Schrödinger Equation,"* with Jennifer K. Ulrich, Penn State Erie School of Science Seminar, spring 2014
- *"An Invitation to the Jacobi Polynomials,"* with Matthew P. Lachesky, Penn State Erie School of Science Seminar, fall 2013
- *"Two First-Order Differential Equations for the Generating Function of the Charlier Polynomials"* Penn State Erie School of Science Seminar, fall 2012
- *"The Sheffer Sequences, Part II: Applications"* Penn State Erie School of Science Seminar, spring 2012
- *"The Sheffer Sequences, Part I: Theory"* Penn State Erie School of Science Seminar, spring 2012
- *"An elementary approach to characterizing the Sheffer A-Type 0 orthogonal polynomial sequences"* Penn State Erie School of Science Seminar, fall 2011
- *"General Degree-lowering Operators and Characterizing Quantum Orthogonal Polynomial Sequences Via a Difference Equation"* Penn State Erie School of Science Seminar, spring 2011
- *"A Nonlocal Epidemiology Model"* Penn State Erie School of Science Seminar, spring 2010
- *"Some Insights Into the Sheffer B-Type 1 Orthogonal Polynomial Sequences"* Penn State Erie School of Science Seminar, spring 2010
- *"A Class of Nonlocal, Nonlinear, Elliptic Integral-Differential Equations, Part II"* Penn State Erie School of Science Seminar, fall 2009
- *"A Class of Nonlocal, Nonlinear, Elliptic Integral-Differential Equations, Part I"* Penn State Erie School of Science Seminar, fall 2009
- *"Orthogonal Polynomials, Characterization Theorems and the Sheffer B-Type 1 Class"* Penn State Erie School of Science Seminar, fall 2009
- *Dissertation*, UCF Department of Mathematics, spring 2009
- *"Necessary and Sufficient Conditions for the Orthogonality of the Sheffer B-Type 1 Polynomial Sequences"* UCF Analysis Seminar, fall 2008
- *"The UCF GO GK-12 Experience and Future Opportunities"* UCF Graduate Student Seminar, fall 2008
- *"A Numerical Method for a Nonlocal Elliptic B.V.P."* UCF Graduate Student Seminar, fall 2007
- *"The Concept of an Inverse: From College Algebra to Advanced Mathematics"* UCF FCTL, Summer 2006

ADDITIONAL CONFERENCES ATTENDED

- Pi Mu Epsilon Regional Conferences at YSU (YSUPME), spring 2011, 2012 and 2013
- Penn State Erie Sigma Xi (URCAC), spring 2010, 2011 and 2014
- Eighth Annual NSF GK-12 Conference (Invited), March 2008, Washington, D.C.

POSTER PRESENTATIONS

- *"Analyzing a Gasdynamic System via Characteristics"* Society for Industrial and Applied Mathematics (SIAM) Annual Meeting, Pittsburgh, PA, summer 2010
- *"On a Numerical Method for a Homogeneous, Nonlocal, Nonlinear, Elliptic Boundary Value Problem"* Southeastern Atlantic Mathematical Sciences Workshop at UCF (a.k.a. Cha-Cha Days), fall 2009
- *"The Sheffer B-Type 1 Orthogonal Polynomial Sequences and Subsequent Results"* Sixth Annual UCF Graduate Research Forum, spring 2009
- *"An Elementary Approach to I.M. Sheffer's Classifications of Type Zero Orthogonal Polynomial Sequences"* UCF Fifth Annual Graduate Research Forum, spring 2008
- *"Determinant Relationships of Monic Orthogonal Polynomials"* UCF Fourth Annual Graduate Research Forum, spring 2007
- *"On the Different Methodologies of Facilitating the Post-Secondary Calculus Sequence"* UCF FCTL, summer 2006

AWARDS, NOMINATIONS AND FUNDED ACTIVITIES

- Awarded the *Above and Beyond Award* for assistance with the FastStart program, 2013 and 2014
- Nominated for the *Council of Fellows Teaching Award*, spring 2013
- Proposal "Undergraduate STEM Majors in K-12 Education" accepted for the funded 'Penn State Grant Development Program,' spring 2013
  - Attended the two-day workshop "GrantSeeking A-Z," hosted by Lynn Miner, spring 2013
- *Penn State Erie Early Incentive Grant*: Awarded for the funding the collaboration with Sarah J. Johnston (University of South Africa) and for the funding of Mathematica®-based undergraduate research projects, fall 2009: $2,500.00

PI MU EPSILON

- Co-organized the Penn State Erie Second and Third Annual Pi Mu Epsilon Induction Ceremonies, held at Penn State Eire, 2013 and 2014
- Co-organized the Penn State Erie 'Inaugural Pi Mu Epsilon Induction Ceremony,' at the Logan House, fall 2012
- Hold the position of "Permanent Faculty Correspondent"
- Along with Peter T. Olszewski, successfully petitioned for a Penn State Erie chapter of the National Mathematics Honor Society *Pi Mu Epsilon*, summer 2012

CURRENT OUTREACH AND SERVICE ACTIVITIES

- Designed and conducted the workshop *"Let's Talk Math"* to Erie area high school students in the Minority College Experience/Women in Science and Engineering (MCE/WISE) Program, sumemer 2014
- Facilitated the interactive presentation *"The Language of Mathematics"* to students in the Academic Achievers Program, summer 2014
- Designed and conducted the workshop *"'Truss Me', I'm A Mathematician!"* for the Penn State Erie 'Talent Search Program,' summer 2014
- Designed and conducted the workshop (for two middle school groups) *"A Mathematical Snack"* for the Penn State Erie MathOptions for Girls workshop, spring 2014
- Designed and conducted the workshop (for two middle school student groups) *"Secret Codes"* for the Penn State Erie 21st Century Kids Workshop, spring 2014
- Interviewed for the GoErie video clip "Science Olympiad at Penn State Behrend," spring 2014
  http://video.goerie.com/
- Interviewed for WICU (Erie local news) regarding Science Olympiad 2014, spring 2014
- Faculty judge for "Mathcounts" (Erie Chapter); a Middle School Mathematics Competition held at Gannon University, spring 2010 & spring 2014
- Faculty judge for the Nineteenth, Twentieth and Twenty-third Annual Penn State Erie Sigma Xi URCAC, spring 2010, spring 2011 (session moderator) & spring 2014
- Faculty judge for the PA Junior Academy of Science (PJAS), a Middle and High School science competition held at Penn State Erie, spring 2010, 2011, 2012, 2013 & 2014
- Penn State Erie "FastStart" (a mentoring program primarily designed to help first-year students from 'diverse' populations) mentor 2011, 2012, 2013 & 2014
- Judge for the First Lego League middle and high school science competition held at the Penn State Erie Junker Center, fall 2011 and fall 2013
- Assisted twice with the "Career and Internship Fair" (over 150 companies represented at each event) held at the Junker Center, fall 2011 & fall 2013

- Presented "Majoring in Mathematics..." to the Penn State Erie Freshman Seminar students, fall 2013
- Participated in the FastStart 'Panel Discussion,' which addressed previous successes of the program to new members, summer 2013
- Designed and conducted the workshop *"The Buoyancy Barge"* for Higher Achievement Pittsburgh, held at Penn State Erie, summer 2013
- Assisted with the New Student Orientation Scheduling Lab, summer 2013
- Designed and conducted the workshop *"Mathematics and Sunflower Seeds: How Normal is Nature?,"* with Samantha S. Key, for the Penn State Erie 'Talent Search Program,' summer 2013
- Designed and conducted the workshop *"A Mathematical Glimpse into Nature,"* with Samantha S. Key, for the Penn State Erie MathOptions for Girls workshop, spring 2013
- Faculty judge for the 2012 Science Olympiad event "Sound of Music," held at Penn State Erie, spring 2012 and 2013
- Ran 'Physics Jeopardy!' for the Penn State Erie "Physics Day," fall 2012
- Conducted a radio interview for WPSE regarding recent publications in Mathematical Biology and undergraduate research at Penn State Erie, fall 2012
- Presented *"Graduate School Demystified"* for the Penn State Erie 'Math Club,' fall 2012
- Mathematics faculty representative for the 'First Look Friday' luncheon, which is part of a Penn State Erie high school requirement event, fall 2012
- Presented *"Research in Mathematics..."* to the Penn State Erie Freshman Seminar students, fall 2012
- Gave a short presentation on my current research with undergraduate students to incoming Penn State Erie freshman potential mathematics majors, summer 2012
- Conducted two seminars entitled *"Crack the Code!"* to Erie area high school students in the MCE/WISE Program, summer 2012
- Participated in commencement activities (faculty representative for the School of Science), spring 2012
- Represented Penn State Erie at the University College Mathematics Division Meeting, at Penn State University Park, spring 2012
- Designed and conducted the workshop (for two middle school student groups) *"Codes and Codebreakers"* for the Penn State Erie 21st Century Kids Workshop, spring 2012
- Judge of poster presentations of Lake Erie College of Osteopathic Medicine (LECOM) medical students, UPMC Hamot Heart Institute, Erie, PA, spring 2012
- Judge for the Penn State Erie "Mr. & Mrs. Behrend" Competition, held at Bruno's Cafe, spring 2012
- Judge for the Penn State Erie "Greek Sing" Competition, held at McGarvey Commons, spring 2012

- Participated in *"Pi the Professor"* on 3-14-10, 3-14-11 and 3-14-12, which raised canned goods for the Second Harvest Food Bank in Erie, PA
- Presented *"Cryptology,"* with Paul E. Becker, at the BrewErie Sigma Xi Science Cafe, spring 2012
- Assisted with the *"Acoustics Lab"* at the Penn State Erie "Physics Day," fall 2011
- Gave a short presentation on research opportunities to incoming Penn State Erie freshman potential mathematics majors, summer 2011
- Faculty judge for the Undergraduate Research presentations at MathFest in Lexington, KY, summer 2011
- Conducted two seminars on the *"Applications of Symbolic Logic"* to Erie area high school students in the MCE/WISE Program, summer 2011
- Designed and conducted the workshop *"What is Mathematics All About?"* for the Penn State Erie MathOptions for Girls workshop, spring 2011
- Designed and conducted the workshop *"What DO Mathematicians DO?"* for the Penn State Erie 21st Century Kids Workshop, spring 2011
- Faculty judge for the Undergraduate Poster Presentation held at the Joint Mathematics Meeting in New Orleans, LA, spring 2011
- Mathematics faculty representative for the "Majors Fair" held in McGarvey Commons, fall 2010
- Presented *"Math & Music"* to potential STEM majors at Lawrence Hall, fall 2010
- Organized the Penn State Erie School of Science Seminar "*Mathematica*® 7" hosted by Andy Dorsett from Wolfram Research for the promotion of the computer algebra software Mathematica® 7, spring 2010
- Presented *"Mathematics Research"* to the Penn State Erie Freshman Seminar students, spring 2010
- Mathematics faculty representative for *"Blue and White Days,"* which helps prepare incoming Penn State Erie freshman: 2-3-12, 3-23-12, 4-13-12, 1-24-14, 2-21-14, 3-21-14 & 4-25-14
- School of Science faculty representative for the Penn State Erie Admissions Events:
  - "Spend A Summer Day/Evening Event," 7-31-14
  - "Spend A Summer Day/Evening Event," 7-11-14
  - "Adult Open House," 3-26-14
  - "Open House," 10-19-13
  - "Adult Open House," 10-1-13
  - "Spend A Summer Day/Evening Event," 8-9-13
  - "Adult Open House," 3-21-13
  - "Open House," 2-9-13
  - "Adult Open House," 10-2-12

- "Open House," 8-10-12
- "Spend A Summer Day/Evening Event," 7-26-12
- "Open House," 4-11-12
- "Open House," 3-31-12
- "Open House," 2-11-12
- "Open House," 10-22-11
- "Spend A Summer Day/Evening Event," 7-22-11
- "Open House," 4-2-11
- "Open House," 2-19-11
- "Penn State Day," 10-16-10
- "Adult Open House," 9-29-10
- "Spend A Summer Day/Evening Event," 8-12-10

CURRENT ACADEMIC POSITIONS HELD

- *Honors Advisor in Mathematics*: Penn State Erie Mathematics faculty advisor for students in the Penn State Behrend and Schreyer Honors Programs, 2013-present
- Faculty advisor for the Penn State Erie 'Musician's Club,' 2013-present
- Faculty advisor for the Penn State Erie 'Fantasy Gamer's Club,' 2013-present
- Faculty advisor for the Triangle Fraternity, 2012-present
- Hold the position of 'Assistant Site Director, Northwestern PA Science Olympiad,' 2012-present

PENN STATE ERIE ACADEMIC COMMITTEES

- Committee on Research (2014)
- Student Life (2014)
- Nominating Committee (2013-2014)
- Matrices Syllabus Committee (2013)
- Strategic Planning/Direction Committee (2012-2013)
- FT1 (One-Year Full Time Instructor) Faculty Search Committee (2010-2011)
- Calculus Textbook Review Committee (2011-2012)
- Research Committee (2011-2012)
- Athletic Committee (2010-2012)

ACADEMIC WORKSHOPS ATTENDED

- MAA Allegheny Mountain Section NExT Workshop: *"Extreme Calculus,"* presented by Paul Zorn (MAA President), spring 2012
- Penn State Erie *"Advising Workshop,"* spring 2011
- MAA Allegheny Mountain Section NExT Workshop: *"How to Write Mathematics Well,"* presented by Ivars Peterson, spring 2011

PENN STATE ERIE MATH & SCIENCE SUMMER INSTITUTE*

- Faculty workshop presenter and facilitator with stipend, summers 2010, 2011 & 2012

*The Penn State Erie Math & Science Summer Institute aims at increasing the skills and content knowledge of middle high school math and science teachers from schools with low state assessment scores.

GREATER ORLANDO (GO) GK-12 NSF FELLOWSHIP

GK-12 stands for graduate teaching fellows in K-12 education. This program provides funding for graduate students in NSF-supported science, technology, engineering, and mathematics (STEM) disciplines to acquire additional skills that will broadly prepare them for professional and scientific careers in the 21st century. Through interactions with teachers and students in K-12 schools and with other graduate fellows and faculty from STEM disciplines, graduate students can improve communication, teaching, collaboration, and team building skills while enriching STEM learning and instruction in K-12 schools.
SOURCE: http://www.nsf.gov/

GO GK-12 NSF FELLOWSHIP AWARD

- Awarded prestigious $30,000 GO GK-12 NSF Fellowship through the College of Optics and Photonics Center for Research and Education in Optics and Lasers (CREOL) for both academic years 2007-2008 and 2008-2009

SCIENCE CLASSES FACILITATED

- Presently facilitating two periods of basic eighth grade Earth/Space Science and three periods of eighth grade Earth/Space Science for gifted students at Jackson Middle School, Orange County, FL, incorporating an IBL approach to mathematics and physics experiments into the curriculum
- Facilitated five periods of seventh grade physical science at Ocoee Middle School, Orange County, FL, incorporating an Inquiry-Based Learning (IBL) approach to mathematics and physics experiments into the curriculum, academic year 2007-2008

GO SCIENCE BOWL

- Organizer and judge for three "GO-BOWL" events (Middle and High School Science Competition): "The Spaghetti Tower", "Buoyancy Barge" and "Laser Light Show"', April 2009
- Organizer and judge for two "GO-BOWL" events "The Spaghetti Tower" and "Buoyancy Barge", April 2008
- Selected as a judge for the "GO-BOWL", April 2007

SPECIAL PROJECTS DESIGNED AND IMPLEMENTED

- Designer and coordinator of a project entitled *"The Rocket Project",* which will have seventh grade students at Ocoee Middle School in Orange County, FL building Estes model rockets and also making predictions about the nature of each rocket launch using basic trigonometry, spring 2009
- Designer and coordinator of a year-long project entitled *"Creating the Scientists of Tomorrow",* which had seventh grade science students at Ocoee Middle School utilize Pasco GLX probware technology to analyze data collected in Inquiry-Based Science activities, academic year 2007-2008

GO SCIENCE OLYMPIAD

- Selected as a lab designer, coordinator and judge for "Grab-A-Gram" at the Florida Elementary School Science Olympiad, UCF, May 2008
- Selected as a lab designer, coordinator and judge for "Mystery Architecture" at the Florida Middle and High School Science Olympiad, UCF, March 2008
- Selected (with stipend) to give two one-hour presentations to potential Science Olympiad judges at the 2008 East Orlando "Coast-to-Coast Coaches Conference," UCF, October 17-18, 2008

RESEARCH AND TRAVEL GRANTS RECEIVED WHILE AT UCF

- UCF Board of Trustees Graduate Studies Research/Travel Grant, spring 2009: $300.00
- Awarded NSF Travel Grant (DMS-0738356) for participation in the Seventh Annual AIMS Conference on Dynamical Systems and Differential Equations at the University of Texas Austin, Spring 2008: $400.00
- 2007-2008 Florida Progress Energy Empowerment Grant awarded for Pasco Xplorer GLX technology and pH probware for the project "Creating the Scientists of Tomorrow": $3,000.00
- 2007-2008 Workforce Central Florida Enrichment Grant for funding of "The Rocket Project": $1,000.00
- UCF Mathematics Department Graduate Travel Grant, spring 2008: $1,100.00
- UCF Board of Trustees Graduate Studies Research/Travel Grant, spring 2008: $450.00

- UCF Student Government Association Academic Travel Grant, spring 2008: $250.00

SERVICE, POLITICAL AND CAMPUS ACTIVITIES WHILE AT UCF

- Received award of "Honorary Teacher" for participation in the Orange County Public Schools "Teach-In" at Columbia Elementary School, Orlando, FL, October 2008
- Active member of the UCF Student Government, the Graduate Student Association (GSA), 2006-2009
- GSA Graduate Tuition and Stipends Committee member, 2007-2009
- Selected among fellow GSA members to present two talks about personal UCF research experiences at the UCF Graduate Student Orientation, UCF Fairwinds Alumni Center, August 2007
- Graduate Student Advisory Board member, 2007-2008

UNDERGRADUATE ACADEMIC AWARDS AND ACHIEVEMENTS

- Elected as the president of the PA Zeta chapter of the national mathematics honor society Kappa Mu Epsilon, 2002-2004
- Active member of the National Physics Honor Society Sigma Pi Sigma for academic years 2002-2004
- Recognized by the National Deans List for both academic years 2002-2003 and 2003-2004
- Recognized as a USAA All-American Scholar for academic years 2002-2003 and 2003-2004
- Selected from all qualifying natural science majors to receive IUP's Pearl-June Gaalous academic scholarship, spring 2003

PROFESSIONAL ORGANIZATIONS

- Mathematical Association of America (MAA)
- American Mathematical Society (AMS)
- Society for Industrial and Applied Mathematics (SIAM)
- SIAM OPSFA (Orthogonal Polynomials, Special Functions and Applications)
- Kappa Mu Epsilon
- Pi Mu Epsilon
- Sigma Pi Sigma
- Young Mathematician's Network
- American Physical Society (APS)

COLLEGE TEACHING CERTIFICATE

- Graduate Teaching Certificate for teaching post-secondary college courses, awarded from the UCF FCTL, summer 2006:
  -Gave research presentations and participated in peer critiques of each presentation
  -Researched and discussed pertinent issues related to post-secondary teaching
  -Practiced utilizing various teaching methods, like student-based instruction

PROJECT NExT

- Awarded the 2010-2011 Exxon-Mobile Project NExT Fellowship
- Co-Organizer of the Panel Session *"Spending Your Summers Effectively and Efficiently"* for the 2011 MAA MathFest in Lexington, KY
- Attended the following workshops:
  - *"Getting Your Research Off to a Good Start,"* presented by Joe Gallian, MAA MathFest, Lexington, KY, summer 2011
  - *"Applying For Grants From the National Science Foundation,"* presented by Joe Gallian, MathFest, Lexington, KY, summer 2011
  - *"Developing Student's Mathematical Language Skills,"* various presenters, Joint Mathematics Meeting in New Orleans, LA, spring 2011
  - *"Directing Undergraduate Research,"* various presenters, Joint Mathematics Meeting in New Orleans, LA, spring 2011
  - *"Advising Mathematics Students Academically and Professionally,"* presented by James Sellers (Penn State, University Park), MathFest, Pittsburgh, PA, 2010
  - *"Using Visualization Software in Abstract Algebra,"* presented by Brad Emmons, MathFest, Pittsburgh, PA, 2010

MATHEMATICAL GENEALOGY

Source: http://www.genealogy.ams.org

- Yours truly, Ph.D. 2009, Advisor: Mourad E.H. Ismail
- Mourad E.H. Ismail, Ph.D. 1974, Advisor: Waleed Al-Salam
- Waleed Al-Salam, Ph.D. 1958, Advisor: Loenard Carlitz
- Loenard Carlitz, Ph.D. 1930, Advisor: Howard Mitchell
- Howard Mitchell, Ph.D. 1910, Advisor: Oswald Veblen
- Oswald Veblen, Ph.D. 1903, Advisor: Eliakim Hastings Moore
- Eliakim Hastings Moore, Ph.D. 1885, Advisor: H.A. Newton
- H.A. Newton, B.S. Yale 1850, Advisor: Michel Chasles
- Michel Chasles, Ph.D. 1814, Advisor: Siméon Poisson
- Siméon Poisson, Advisor: Joseph Lagrange
- Joseph Lagrange, Ph.D. Advisor: Leonhard Euler

ERDÖS & EINSTEIN NUMBERS

- Erdös Number **4** (four times) through John R. Cannon
  Sources: http://www.oakland.edu/enp/ & http://www.ams.org/mathscinet/
- Einstein Number **5** (four times) through John R. Cannon
  Source: http://www.ams.org/mathscinet/

REFERENCES

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- Dr. Mourad E. H. Ismail, Professor of Mathematics (Thesis Advisor), UCF
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  Office Phone: (407) 823-2797