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Education:

Ph.D. in applied mathematics from Brown University: August, 1984
M.Sc. in applied mathematics from Brown University: June, 1981
B.A. in mathematics and physics from the College of the Holy Cross: May, 1980

Thesis advisor: P.J. Davis, Ph.D., Brown University

Teaching and related work experience:

1999 - present	Professor and Chair, Department of Mathematics and Computer Science, (except sabbatical leave for 2002-2003 academic year) Salisbury University*
1992 - 1999	Associate Professor, Salisbury State University
1992 - 1995 1996 - 1999	Associate Chair, Department of Mathematics and Computer Science, Salisbury State University
1993 - 2001	Director, Department of Mathematics and Computer Science Tutoring Program, Salisbury State University
1989 -1992	Assistant Professor, Salisbury State University
1984 -1989	Assistant Professor, Stockton State College
1988 -1989	Mathematics Program Coordinator
Summer 1985	Visiting Scholar at Cambridge University, Department of Applied Mathematics and Theoretical Physics.
1982-1984	Teaching Assistant.

Courses taught: Advanced Calculus, Advanced Scientific Computing, Algebra and Elementary Functions, Analysis I&II, Applied Calculus, Calculus I&II, College Algebra, Differential Equations, Discrete Mathematics, Elementary Probability & Statistics, History of Mathematics, Honor's Core IV: Scientific Knowledge, Linear Algebra, Mathematics and Culture, The Mathematical Experience, Numerical Analysis, Operations Research, Precalculus, Scientific Computing, Trigonometry. **Graduate Courses:** Writing to Learn Mathematics, Topics in Mathematics.

*Salisbury State University became Salisbury University in July 2001

National Science Foundation Grants and Award:

- *The PascGalois Project: Visualization in Abstract Mathematics*, effective Jan. 1, 2004 with Co-Principle Investigators Michael J. Bardzell and Eirini Poimenidou \$179,157 .
- *The PascGalois Project: Visualizing Abstract Algebra* Effective January 1, 2001 - December 31, 2003 with Co-Principle Investigator Michael Bardzell; \$74,990 . The final report was submitted to and approved by NSF in spring 2004. (award #DUE-0087644)
- 2005 Salisbury University Distinguished Faculty Award

Publications & Presentations:

- January 2005 Joint Meetings of the American Mathematical Society and the Mathematical Association of America, Atlanta, GA.
 - *A Discrete Mathematics Course for lower-division majors in Mathematics, Computer Science and Education.* joint paper with Homer Austin
 - Poster: *The PascGalois Project: Visualizing Abstract Mathematics* with Michael J. Bardzell
- *The PascGalois Project: Visualization in Abstract Mathematics*, joint work presented by Mike Bardzell at the NSF CCLI conference Invention and Impact: Building Excellence in Undergraduate STEM Education, Crystal City, VA. April 16, 2004; presented with Mike Bardzell NSF CCLI SIGCSE Showcase 04, Norfolk, Va. March 5, 2004; presented at the Mid Atlantic Consortium for research in the Mathematical Sciences 2004 Conference May 26.
- January 2004 Joint Meetings of the American Mathematical Society and the Mathematical Association of America, Phoenix, AZ *The PascGalois Project: Visualizing Abstract Algebra*, presented with Michael Bardzell at the MAA Poster Session: Projects Supported by the NSF Division on Undergraduate Education
- *Searching for Patterns in Pascal's Triangle With a Twist* with Mike Bardzell the Journal of Online MATHematics. See:
<http://www.mathdl.org/mathDL/4/?pa=content&sa=viewDocument&nodeId=493>
- April 2003 Invited Address: The Sulski Lecture *Pascal's Triangle, Cellular Automata and Serendipity* co-sponsored by the College of the Holy Cross and the New England Section of the Mathematical Association of America.
- Salisbury University Internal Publication: *A Discrete Mathematics Primer for First Year College Students*. Under review for publication by McGraw Hill and Addison Wesley.
- March 2003 "Women in Mathematics" joint presentation with Jennifer Bergner as part of the Women's History Month celebration at Salisbury University.
- January 2003 Joint Meetings of the American Mathematical Society and the Mathematical Association of America, Baltimore Maryland.
 - *The PascGalois Project: Visualization Projects for Abstract Algebra* - Joint Paper with Michael J. Bardzell and Cynthia Woodburn.
 - Poster: *The PascGalois Project: Visualizing Abstract Algebra* with Michael J. Bardzell
 - "Using Groups to Generate Automata" with Michael J. Bardzell.

- "Visualization Projects for Abstract Algebra", with Michael J. Bardzell. From the PascGalois Project. Booklets and corresponding CD with PascalGT software funded by NSF award #DUE-0087644.
- May 2002 Invited Address at Towson University "*The Geometry of Group Generated Cellular Automata*" with Michael J. Bardzell.
- "The PascGalois Project: Visualizing Abstract Algebra", with Michael J. Bardzell, March issue MAA news letter FOCUS, 2002.
- "The PascGalois Project: Visualizing Abstract Algebra", presented with Michael J. Bardzell at the MAA Workshop for NSF PI's, NSF Headquarters, March 2002. ; presented with Michael J. Bardzell at the MAA Poster Session: Projects Supported by the NSF Division on Undergraduate Education, Joint AMS/MAA National Meetings, San Diego, CA., Jan. 8, 2001.
- January 2000 Joint Meetings of the American Mathematical Society and the Mathematical Association of America, New Orleans, LA:
 - *Groups, Fractal Patterns, and the Dynamics of Cellular Automata* -Joint paper with Michael Bardzell
 - *PascalGT: Conjectures, Explorations, and Reasoning in Abstract Algebra* Joint paper with Michael Bardzell
- In MAA Notes #60: Innovations in Teaching Abstract Algebra *The PascGalois Triangle: a Tool for Visualizing Abstract Algebra* - Joint paper with Michael Bardzell
- Spring 2000
 - 11th Annual Eastern Shore Computer Bowl, Salisbury State University, " Life, Death, and the Six States In-Between " - Joint paper with Michael Bardzell
- January 2000
 - Joint Meetings of the American Mathematical Society and the Mathematical Association of America " Fractal Dimensions For Group Generated Cellular Automata ", Joint paper with Michael Bardzell
- Fall 1999
 - Fall Meeting of the MD/DC/VA section of the Mathematical Association of America "Fractal Dimensions in the PascGalois Triangle" Joint paper with Michael Bardzell
 - Faculty Week Series in the Bell Atlantic Studio, Salisbury State University "Planned Projects Using 3-D Rendering Software " - Joint paper with Michael Bardzell
 - Henson School Seminar Series, Salisbury State University " The PascGalois Project: Computer Visualizations " - Joint paper with Michael Bardzell
- Summer 1999
 - Teaching Statistics Volume 21 Number 2 pps 42-45 *Who's the Winner: an Exercise in Measuring Deviations* joint Paper with William Weber, Eastern Arizona College
- January 1999
 - Joint Meetings of the American Mathematical Society and the Mathematical Association of America Introducing Liberal Arts Students to the Beauty of Abstract Mathematics via Computer Graphics, Groups, and Pascal's Triangle. -joint paper with Michael Bardzell

- Joint Meetings of the American Mathematical Society and the Mathematical Association of America Using Pascal's Triangle to Visualize Abstract Algebra Concepts -joint paper with Michael Bardzell
- Fall 1998
 - Association for General and Liberal Studies "Meet me in St. Louis" conference on Overarching Principles in General Education: *Mathematics in General Education: Skills or Mode of Inquiry?* Joint Paper with Steven Hetzler
 - Mathematics Association of America, MD/DC/VA section Fall Meeting: *Using Computer Graphics to Investigate Group Structure* - joint paper with Michael Bardzell
- January 1998:
 - Joint Meetings of the American Mathematical Society and the Mathematical Association of America *A Tale of Three Numbers: an Application of Mathematics to the Psychology of Aesthetics* -joint paper with J. Craig Clarke
- Fall 1997
 - Empirical Studies of the Arts Volume 15, Number 2 -- 1997 *The Shape of Things: But Not the Golden Section* George K. Shortess, J. Craig Clarke, and Kathleen Shannon
 - PRIMUS Volume 7 pp. 222-234 – 1997 *Mathematics & Culture: A Unique Liberal Arts Experience* Carla N. Schultes and Kathleen M. Shannon.
- January 1997 Joint Meetings of the American Mathematical Society and the Mathematical Association of America
 - *The Richard A. Henson School of Science and Technology Undergraduate Research Symposium: Six Years of Success*
 - *Student Poster sessions at Section Meetings: One more Way to get Student Chapters Involved*
 - *Who's the Winner? An Exercise in Measuring Deviations.* joint paper with William Weber from Eastern Arizona College
- December 1996: *THE HENSON SCHOOL UNDERGRADUATE RESEARCH SYMPOSIUM* joint article with Paul Greccay published in Salisbury State University's *Academically Speaking* .
- Summer 1996:
 - Internal SSU publication, used as a text or supplemental text in Mathematics & Culture, History of Mathematics, Analysis and Calculus: *What is Calculus? Where Did it Come From and Why Should I Care?*
- April 1996:
 - Spring Meeting of the Mathematical Association of America, Maryland/DC/Virginia Section. "Pascal's Triangle, Cyclic Groups, Tilings and Computer Graphics".
- January 1996:
 - Joint Meetings of the American Mathematical Society and the Mathematical Association of America "Calculus for Liberal Arts: a Humanistic Approach"
- November 1995:
 - International Conference on Technology in Collegiate Mathematics "Chaos: an Introduction to Spreadsheets"
- April 1995
 - Maryland Council of Teachers of Mathematics, Salisbury State University "Writing to Learn Mathematics"
- January 1995:
 - Joint Meetings of the American Mathematical Society and the Mathematical Association of America "Mathematics in Culture; Culture in Mathematics: Broadening the Horizons of Future Mathematics Teachers" and "Activities and Topics to Excite Future Teachers." Joint papers with Carla Schultes.

- Joint Meetings of the American Mathematical Society and the Mathematical Association of America "Reflections on the First Five Years of a Student Chapter or What to Do When Your Officers Graduate"
- Calculus Workshop Salisbury State University "DERIVE Introduction"
- November 1994:
 - International Conference on Technology in Collegiate Mathematics "Using Spreadsheets and DERIVE to teach Differential Equations."
 - Salisbury State University High School Mathematics Contest Presentation "Mathematical Mind Reading: the Chinese Remainder Theorem"
 - Faculty Development Workshop at Hillsborough Community College. "Using Spreadsheets and DERIVE to Teach Mathematics"
- Fall 1994: Writing Across the Curriculum Fall Conference Salisbury State University "Using Writing to Help Solve Problems" (presented by Carla Schultes)
- January 1993: Joint Meetings of the American Mathematical Society and the Mathematical Association of America. "Empowering Students to Learn From and With Each Other."
- December 1993: Bennett Senior High School Mathematics Honor Society "What's Bigger than Infinity?"
- January 1992: Joint Meetings of the American Mathematical Society and the Mathematical Association of America. "Mathematics and Culture: A Liberal Arts Mathematics Course."
- Fall 1992: International Journal of Mathematical Education in Science and Technology 1992 Vol. 23, No. 4, pgs 543-547: "A Problem to Foster Critical Thinking in Mathematics."
- June 1991:
 - Montclair State College. Full Day Workshop on: "Using Writing to Encourage Students to Think Critically About Mathematics and Science"
 - Wicomico County Mathematics Teachers. "Using Writing to Teach Mathematics"
- April 1991:
 - Salisbury State University, Henson School of Science and Technology, Spring Workshop on Critical Thinking Workshop on: "Using Writing to Encourage Students to Think Critically About Mathematics and Science"
 - Spring Meeting of the Mathematical Association of America, Maryland/DC/Virginia Section. "Writing Assignments for Mathematics Instruction."
- January 1991: Joint Meetings of the American Mathematical Society and the Mathematical Association of America. Joint paper with Elizabeth Curtin Assistant Professor of English, Salisbury State University "Special Problems: An Alternative to Journals in Mathematics Courses." Primus: Volume II Number 3 September 1992.
- October 1990: Institute for Critical Thinking Conference, Critical Thinking: Focus on Science and Technology: "Using Writing to Encourage Students to Think Critically About Mathematics and Science" Proceedings Published.
- January 1990: Joint Meetings of the Mathematical Association of America and the American Mathematical Society: "An Argument for Increasing the Scope of the Mathematics Core." PRIMUS Volume I Number 1 March 1991.
- March 1990: Salisbury State University High School Math Contest: "What's Bigger than Infinity"
- 1989: Stockton State College Physics Department Seminar: "Approximation of Functions and Data"

Selected Professional and Community Activities:

- 2003 - present; 1996 -2002 : Faculty Senate -- 1997-2000 Faculty Senate Webmaster. 1998-99 Secretary.
- 2002 - present Designated Senator to the Faculty Welfare Committee
- 2002-2003: Mathematics Association of America MD/VA/DC Section Student Activities Coordinator
- Spring 2002: External reviewer for Frostburg State University's degree programs in Mathematics and Actuarial Science.
- 1997 and 2001 Provost Search Committees.
- 1997 - 2000: SSU General Education Task Force
- 1997 - 1998: SSU NCUR Organizing Committee
- 1997 - present: Mathematical Contest in Modeling Judge (International Contest)(except 2002)
- 1997: Biology Department Promotions Committee for Dr. Paul Greccay
- 1996- 1997: Salisbury State University High School Mathematics Contest Committee, co-chair.
- 1996: Department Promotions Committee
- 1995: University Promotions Committee
- 1994 - present: Mathematics Association of America MD/VA/DC Section Student Chapter Coordinator
- 1993 - 1995: Department Calculus Committee and Department Core Curriculum Committee.
- 1993 - 1995: Chair, Ad Hoc Committee on Teaching, Salisbury State University.
- 1992 - 2001: Mathematical Association of America Ad Hoc Committee on Student Hospitality Centers.
- 1992 - 1995: Mathematical Contest in Modeling Triage Judge.
- 1991 - 1998 Henson School of Science and Technology Undergraduate Research Symposium Organizing Committee. Chair, 1992-1995; Co-chair 1995 - 1998.
- 1991 - present: University Committee on Academic Policies (except (1993-94)) Chair 96-present
- 1990 - 1993: Department Search Committee, Salisbury State University
- 1990 - 1995: Secretary, Wicomico Environmental Trust
- 1990 - 1999: Faculty Advisor to the Student Chapter of the Mathematics Association of America, Salisbury State University
- 1990 - 1999: Departmental Committee on Mathematical Environment, Chair, 1990-1991 Salisbury State University
- 1990 - 1995: Department Steering Committee, Salisbury State University
- 1993-1994; 1996-1998: Second Vice Chair, Executive Committee of the University Forum, S.S.U.
- 1990 - 1991: Departmental Committee on Core Curriculum and Education, S.S.U.
- 1989 - 1990: Search Committee for the Dean of the Henson School of Science, S.S.U.
- 1989 - 1990: Departmental Curriculum Committee, S.S.U.
- 1988 - 1989: College Outcomes Evaluation Program committee on General Education, Stockton State College
- 1988 - 1989: Chair, College Outcomes Evaluation Program committee on Research, Scholarship and Creative Expression, Stockton State College
- Spring 1988: Search Committee for Dean of the Division of Natural Sciences and Mathematics (Internal Search), Stockton State College
- 1986 - 1989: General Studies Committee, Convener for General Studies in Natural Sciences and Mathematics, Stockton State College
- 1985 - 1989: Academic Policies Committee, Stockton State College, chair for 1988-1989
- 1984 - 1989: Campus Hearing Board, Stockton State College
- 1985 : Cardiopulmonary Resuscitation (CPR) Instructor
- Spring 1985: Faculty Review Committee, Stockton State College