Katrina Marie Palmer

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Education

Ph.D. (Mathematics)	May 2004, Emory University, Atlanta, GA
M.A. (Mathematics)	May 1999, Appalachian State University, Boone, NC
B.S. (Mathematics)	May 1995, Roanoke College, Salem, VA

Teaching Experience

Professor 7/15 - present
Associate Professor 7/10 - 6/15
Assistant Professor 8/04 - 6/10
Associate Graduate Faculty 10/04 - present
Appalachian State University, Boone NC
• Courses taught: Graduate Linear Algebra for Teachers, Graduate Linear Algebra, Computational Math for Teachers, Graduate Pedagogy Seminar, Actuarial Senior Seminar, Numerical Methods, Junior Honors, Financial Mathematics, Differential Equations, Linear Algebra, Calculus II, Calculus I, Pre-Calculus, College Algebra, Introduction to Mathematics and Freshman Seminar (Forensic Chemistry Learning Community)

Online Math Instructor 4/14-present
Southern New Hampshire University, Manchester NH
• Facilitate Discrete Math Classes

Summer Ventures Instructor 8/99, 8/00
Appalachian State University, Boone NC 8/07, 8/08
• Taught Applied Mathematics to advanced high school students

Math Camp Instructor 6/06 and 7/99
Appalachian State University, Boone NC
• Taught Word Problems Strategies and Exponential Reasoning to 60 middle and high-school campers

Teaching Associate and Doctoral Fellow 8/00 - 5/04
Emory University, Atlanta GA
• Taught five sections of Business Calculus in reform style
• Taught two semesters of Games and Graphs

Freshman Seminar Instructor 1/03 - 2/03
Emory University, Atlanta GA
• Co-designed and team-taught a three week module on Image Processing.

Instructor for TATTO Teacher Training Program 8/02 and 8/03
Emory University, Atlanta GA
• Led "Why didn't someone tell me?" sessions to 2nd year graduate students

Instructor 5/02 - 6/02
Hawai'i Pacific University, Honolulu HI
• Taught Elementary Statistics to a group of diverse students

Instructor 6/01 - 7/01
Spelman College, Atlanta GA
• Taught Linear Algebra to advanced post-freshmen students

Instructor 7/00 - 8/00
Appalachian State University, Boone NC 7/99 - 8/99
• Taught a lab-based Introduction to Mathematics class

Instructor 1/00 - 6/00
Art Institute of Atlanta, Atlanta GA
• Taught three sections of College Algebra

Teaching Associate 8/98 - 5/99
Appalachian State University, Boone NC 8/96 - 5/97
• Taught a total of six sections of College Algebra with Applications to freshmen

Eighth Grade Teacher 8/97 - 6/98
Brevard Middle School, Brevard NC
• Taught Pre-Algebra and Introduction to Algebra

High School Math Teacher 8/95 - 6/96
Northern Vance High School, Henderson NC
• Taught Algebra II and Algebra IB

Administrative Service

Appalachian State University

Transfer Services Team 1/15 - present
• Transfer Symposium Planning Subcommittee
• Bridge Program Subcommittee

Actuarial Program Assessment Committee 8/15 - present
• Develop goals and assessment methods for actuarial science degree

Business Calculus Redesign Committee 8/15 - present
• Creating new course for College of Business

NCCTM Math Contest Planning Committee 8/15 - present
• Helping plan Western region math contest

Mathematics Program Director for the Appalachian Undergraduate Academy of Science 8/08 - 5/14
• In charge of the Mathematics research clusters and recruitment for the Appalachian Undergraduate Academy of Science (NSF STEP grant)
• Helped run the 5-week Summer Bridge Program

Director of Mathematics (College Teaching) Graduate Program 7/09 - 6/13
- Advise & Recruit Graduate students
- Organize a weekly pedagogy seminar
- Schedule elective courses and assign graduate assistantships

Graduate Council 8/11 - 1/14
- Awards and curriculum subcommittees

General Education Quantitative Literacy Reviewer 5/11 - 5/13
- Follow the QL rubric to evaluate artifacts

Graduate Program Assessment Committee 10/09 - 7/13
- Developed assessment methods for the Masters in Math Ed program 9/14-7/15

Graduate Revisioning Committee 9/09 - 7/10
- Helped change the graduate program to meet new state standards

Actuarial/Statistics Program Assessment Committee 1/09 - 1/10
- Developed assessment methods for both the actuarial science and statistics degrees 9/13 - 5/14

1110 Book Committee 11/09 - 2/10
- Helped pick a new book for Calculus I - Calculus III

Director of Actuarial Science Program 9/08 - 9/09
- Advised all actuarial science majors
- Coordinated speakers, shadow days, and internships
- Created webpages for actuarial sciences
- Smoothed kinks out of the new degree program
- Recruited at local high schools

Math Lab Coordinator 9/05 - 9/09
- Coordinated with the Learning Assistance Program to keep the Math Lab in operation

Actuarial Senior Seminar General Education Committee 8/08 - 1/09
- Created documents for getting MAT 4330 approved as a senior capstone

1010 General Education Committee 8/08 - 11/08
- Helped with documentation for getting 1010 approved for quantitative literacy

Department Personnel Committee
- Served as a voting member on the DPC 7/07 - 7/09
- Served as an alternate member on the DPC 7/06 - 7/07

Actuarial/Statistics Program Assessment Mission Committee 8/07 - 11/07
- Developed goals and objectives for both the actuarial science and statistics degrees

Scholarly Activity Committee 1/06 - 3/06
- Developed guidelines for scholarly activity for release time

Advisor for Math Majors 11/06 - 5/11
• Helped guide math majors 9/14 - present

Computational Math/ Numerical Methods Committee 1/06 - 5/06
• Served on committee to modify courses for the Computational Math track

Department Representative on Family Days Spring 2009
• Spoke with prospective majors and their parents Spring, Fall 2006
Fall 2007 & 2008

Faculty Mentor for Mathematics Graduate Students 9/05 - 12/07
• Work with students to help develop their teaching style 9/08 - present

Mentor for 1010 Faculty 9/05 - 5/06
• Worked with new 1010 faculty to help them with their 1010 class

Actuarial Science Committee 9/05 - 12/06
• Served on committee to propose a new Actuarial Science major

Freshmen Orientation Summer Reading Discussion Leader
• *Iron and Silk* 8/21/05
• *A Home on the Field* 8/19/07
• *The Glass Castle* 8/24/08

Facilitator for Faculty/Student Exchange Session 2005, 2009
• Met with incoming freshmen to address their concerns 2010, 2011

Math 1010 Committee 10/04 - 5/05
• Modified ASU's Introduction to Math Class

Emory University

Howard Hughes Fellowship Committee 2/04 - 4/04
• Served on 2004 Howard Hughes fellowship selection committee

Coordinator for Freshman Seminar 8/03 - 1/04
• Helped develop and administer assessment tools
• Advised teachers and helped develop curriculum

Professional Service

Judge Moody's Mega Competition 2013, 2014
• Judged high school modeling papers 2015, 2016

COMAP Modeling Judge 2006, 2012
• Graded COMAP competition problems 2013

Western Region Science Fair Judge 2013, 2014
• Judged middle school science fair projects

Presentations at area schools

• Draughn High School (Burke County): Coordinated activities to understand actuarial science	11/09 & 2/11
• Cranberry Middle School (Avery County): Coordinated hands on activities to introduce matrix applications	4/09 & 4/10
• Alexander High School (Alexander County): Introduction to Actuarial Science	4/08 & 11/07

Consultant for Westat on an MSTP Project

• University of California at Irvine for the year 5 site visit.	02/08
• Hofsta and SUNY Stony Brook for the year 2 site visit.	07/05

Student Teacher Advisor for Secondary Education Majors Spring 2010

• Observe and provide feedback for student teachers	Spring 2007
	Spring 2006

Journal Referee

• *College Math Journal*	2015
• *Journal of Applied Mathematics*	2011
• *Pattern Recognition*	2011
• *Mathematics Magazine*	2007
• *International Journal of Applied Mathematics and Statistics*	2006

Western Region Math Fair Judge 1998, 2006

• Judged middle school math fair projects	2007

Daytoc Differential Equations Course 10/06 - 5/08

• Developed an on-line Differential equations course

Presentations at NCCTM conferences

• Teaching Trig Through Passive Solar Design	10/15
• It's Electrifying, but is it Affordable?	10/11
• Criminal Investigation through Mathematical Examination	10/10
• Actuarial Activities	10/09
• Matrix Motivation	10/07
• Matrix Lessons & Applications	10/06
• Finding Galaxy Distances	10/05
• Taking Math Beyond the Classroom: Some High School Math Fair Ideas	

Publications

[24] "Revealing the Mathematics of Sustainability," *MAA Notes Volume*, 2017. (with Eric Marland, Alana Baird, Sharareh Nikbakht)

[23] "Revising General Education Math Courses with Client Disciplines," *PRIMUS*, 2017 (with Holly Hirst)

[22] "Hydrology," Module for Students in Classes 9-12, Published by Mathematical and Computational Methods for Planning a Sustainable Future (PS-Future), 2016. (with LeaAnn Pitcher)

[21] "Using Padlets and Online Journals to Enhance Student Learning" *The Proceedings of the Twenty-fourth annual International Conference on Technology in Collegiate Mathematics*, May 2016

[20] "Calculus I Course Design," Accepted by Dee Fink for online publication (2015). (http://www.designlearning.org/of-design/examples/)

[19] "A Geometric View Connecting Determinants to Area," *Consortium*, Spring/Summer 2015.

[18] "An Iterative Algorithm for Large-scale Tikhonov Regularization," *Siam Journal Scientific Computing*, Copper Mountain Special Edition, 2015 (with J. Chung)

[17] "Flipping the Calculus Classroom," *PRIMUS*, 2015.

[16] "Passive Solar," Module for Students in Classes 9-12, Published by Mathematical and Computational Methods for Planning a Sustainable Future (PS-Future), 2014. (with David Black)

[15] "BioMath Module: Tomography," *The UMAP Journal*, Spring 2013. (with Midge Cozzens)

[14] "Tomography: A Geometric and Computational Approach" Module for Students in Classes 9-12, Published by The Value of Computational Thinking across Grade Levels (VCTAL), 2012. (with Midge Cozzens)

[13] "Using SmartPens to Communicate Mathematics Online" *The Proceedings of the Twentieth annual International Conference on Technology in Collegiate Mathematics*, May 2012

[12] "Tomography: Where Mathematics, Biology and Technology Come Together To Solve Problems in Many Areas" Module for High School Students, Published by DIMACS through Integrating Mathematics and Biology (IMB), 2011. (with Midge Cozzens)

[11] "Food Safety, Structural Integrity, and Medical Imaging: What do they have in common?" Module for Students in Classes 11-14, Published by the Command, Control and Interoperability Center for Advanced Data Analysis (CCICADA), A Department of Homeland Security Center of Excellence (with Midge Cozzens)

[10] Differential Equations, an online course written with Dr. Rene Salinas of Appalachian State University, accepted for online publication by LEARN NC of the University of North Carolina at Chapel Hill School of Education, May 2008.

[9] "Creating Basic Animations in MATLAB," *The Proceedings of the Twentieth annual International Conference on Technology in Collegiate Mathematics*, 2008

[8] "Biological Applications in the Mathematics Curriculum," *PRIMUS*, January, 2008 (with Eric Marland and Rene Salinas)

[7] "Preparing Future Faculty: An Interdisciplinary, Undergraduate Science Course Taught by Graduate and Postdoctoral Teacher-Scholars," in *Journal of College Science Teaching*, January/February 2007 p. 24 - 30 (with Jessica McDermott Sales, Dawn Comeau, Kathy Liddle, Lisa Perrone and David Lynn)

[6] "Bridging the Gap: A Research Based Approach for Teaching Interdisciplinary Science to Freshmen," in *Journal of College Science Teaching*, Vol. XXXV, Number 6, May/June 2006 p. 36-41 (with Jessica McDermott Sales, Dawn Comeau, Kathy Liddle, Lisa Perrone and David Lynn)

[5] "Discovering the Mathematics of Image Deblurring," *The Proceedings of the Eighteenth annual International Conference on Technology in Collegiate Mathematics*, 2006

[4] "Quasi-Newton Methods for Image Restoration," in *Advanced Signal Processing Algorithms, Architectures, and Implementations XIV*, edited by Franklin T. Luk, Proceeding of SPIE Vol. 5559 (SPIE, Bellingham, WA, 2004) pp. 412 - 422 (with J. Nagy)

[3] "Steepest Descent, CG, and Iterative Regularization of Ill-Posed Problems," *BIT*, V. 43, pp. 1003 - 1017, 2004 (with J. Nagy)

[2] "Iterative Methods for Image Deblurring: A Matlab Object Oriented Approach," *Num. Algor.*, V. 36, pp. 73 - 93, 2004 (with J. Nagy and L. Perrone)

[1] *Basic Mathematics Study Guide*, Professional Career Development Institute, 2004

Presentations

- "Span" 3/10/17
NCMATYC Annual Conference, Durham Tech Community College, Durham, NC

- "Sustainabilty in QL" 3/9/17
NCMATYC Annual Conference, Durham Tech Community College, Durham, NC

- 'How Mathematics Faculty at Appalachian State Support Transfer Students" 2/17/17
NISTS, Atlanta, GA

- "Padlets and Journals in Calculus" 3/12/16
ICTCM, Atlanta, GA

- "Mathematics of Planet Earth: Passive Solar Design" 3/10/16
NCMATYC Annual Conference, Southwestern Community College, Silva, NC

- "Teaching Trig Through Passive Solar Design" 11/4/15
NCCTM Conference, Greensboro, NC

- "Geometric View of Determinants" 3/13/15
NCMATYC Annual Conference, Pitt Community College, Winterville, NC

- "Reasons to Flip Calculus" 4/17/15
SOCAMATYC Annual Conference, Charleston, SC

- "Flipping the Calculus Classroom" 1/17/14
JMM, Baltimore MD

- "Flipping the Calculus Classroom" 3/14/13
NCMATYC Annual Conference, Haywood Community College, Clyde, NC

- "It's Electrifying, but is it affordable?" 10/25/12
NCCTM Conference, Greensboro, NC

- "Using SmartPens to Facilitate Math Communication Online" 3/24/12
ICTCM, Orlando, FL

- "Using SmartPens to Facilitate Math Communication Online" 1/7/12
  JMM, Boston, MA

- "Using SmartPens to Communicate Math Online" 11/19/11
  Invited Speaker, MAA Florida Local Conference, West Florida State, Pensacola, FL

- "Criminal Investigation through Mathematical Examination Workshop" 10/27/11
  NCCTM Conference, Greensboro, NC

- "Two Applications of Linear Algebra: Population Models and Image Blurring" 3/11/11
  NCMATYC Annual Conference, DCCC, Thomasville, NC

- "ASU Mathematical Sciences: Diverse Mathematics Program Options" 3/11/11
  NCMATYC Annual Conference, DCCC, Thomasville, NC

- "Actuarial Activities" 10/30/10
  NCCTM Conference, Greensboro, NC

- "Triangles in Architecture" 1/19/10
  Invited Speaker, Appalachian State University, Boone, NC

- "Medical Imaging with Connections to Math" 11/20/09
  Invited Speaker, Lenoir-Rhyne University, Hickory, NC

- "Two Applications of Inverse Problems: Reflection Seismology & Image Restoration" 11/19/09
  Invited Speaker, Lenoir-Rhyne University, Hickory, NC

- "Optimization at an Introductory Level" 11/18/09
  Invited Speaker, Appalachian State University, Boone, NC

- "Matrix Motivation" 10/29/09
  NCCTM Conference, Greensboro, NC

- "Online Differential Equations: The Challenges & Changes" 1/7/09
  Joint Mathematics Meeting, Washington DC

- "Teaching Differential Equations On-Line" 9/22/08
  Graduate Student Seminar, Appalachian State University

- "Introduction to Matrices and their Uses" 7/15/08
  Invited Speaker, Rural Schools Professional Development, Ashe County High School, NC

- "Creating Basic Animations in Matlab" 3/7/08
  20th Annual ICTCM Conference, San Antonio, TX

- "Linear Programming" 2/22/08
  Invited Speaker, Maiden Middle School Math Day, Appalachian State University

- "Research in Math? I thought math had already been discovered." 11/5/07
  Invited speaker, Appalachian State University

- "Why is the state bombarding the curriculum with so many matrices?" 10/11/07
  NCCTM Conference, Greensboro

- "Biological Applications Across the Mathematics Curriculum" 1/7/07
  Joint Math Meeting, New Orleans

- "Mathematics of Medical Imaging" 10/05, 10/06, 9/07
  Women in Math Day, Appalachian State University

- "Finding Galaxy Distances and Velocities" 10/5/06
  NCCTM Conference, Greensboro

- "Discovering the Mathematics of Image Deblurring" 3/17/06
  18th Annual ICTCM Conference, Orlando, FL

- "Mathematics of Medical Imaging" 11/2/05
  Invited Talk for CSEMS, Appalachian State University

- "Taking Math Beyond the Classroom: Some High School Math Fair Ideas" 10/13/05
  NCCTM Conference, Greensboro, NC

- "My Journey to the Land of Mathematics" 5/13/05
  Invited Talk for Sonya Kovalevskaya Women in Mathematics Day, Embry-Riddle University, Daytona Beach, FL

- "My Journey to the Land of Mathematics" 3/26/05
  Invited Talk, Wake Technical Community College, Raleigh, NC

- "Image Restoration and Linear Algebra" 11/18/04
  Colloquium, Appalachian State University, Boone, NC

- "Quasi-Newton Methods for Image Restoration" 8/6/04
  SPIE International Symposium for Optical Science and Technology, Denver, CO

- "Steepest Descent, CG, and Iterative Regularization of Ill-Posed Problems" 3/30/03
  6th Annual IMACS meeting on Iterative Methods, Denver, CO

- "Steepest Descent, CG, and Iterative Regularization of Ill-Posed Problems" 7/16/03
  SIAM Conference on Applied Linear Algebra, Williamsburg, VA

Grants

External

[6] "MPE Connecting Community Colleges," a grant submitted on 9/30/15 with Eugene Florini ($9,000)

[5] "Appalachian Undergraduate Academy of Science," an NSF grant (# 0756928) submitted on 9/18/2007 with Rahman Tashakkori, Nicole Bennett, Phillip Russell, and Barry Kurtz ($1,555,868)

[4] "Math-Biology Workshop," a Shodor/ SC07 grant for Summer 2007 with Eric Marland and Rene Salinas ($19,890)

[3] 2006 MAA Tensor Grant, "Vertically Integrated Workshop for Women in Mathematics" ($3100)

[2] ASU Proposal #06-0088 "Feasibility Study for a PSM in Financial Mathematics at Appalachian State University" with Bill Bauldry, Brian Felkel, Joel Sanqui ($3500)

[1] 2005 MAA Tensor Grant, "Vertically Integrated Workshop For Women in Mathematics" ($3000)

Internal

[7] "Fourteen in 14," Learning Technology Online Course Development, Appalachian State University, 10/13 ($5000)

[6] "Learning Outcomes for MAT 1010," General Education Shared Learning Outcomes Development, Appalachian State University, 5/12 ($250)

[5] "Using Smartpen Technology to Teach Math Online," Appalachian Foundation Fellows Grant, Appalachian State University, 2/11 ($4810)

[4] Faculty and Academic Instructional Mini-Grant, Appalachian State University, 7/06 ($175)

[3] Faculty and Academic Development Registration Grant, Appalachian State University, 12/05 ($100)

[2] Faculty and Academic Development URC Grant, Appalachian State University, 3/05 with Dan Caton ($2900)

[1] Faculty and Academic Development Registration Grant, Appalachian State University, 11/04 ($250)

Workshops

- "Redesign Institute" 5/15
  Workshop for course redesign based off of Dee Fink's Book (funded by Hubbard Center) Boone NC

- "PS-Future (Planning for a Sustainable Future) Workshops" 9/13, 3/14 & 9/14, 9/15
  Workshop to develop modules related to sustainability at the high school level (funded by NSF) Bedford, MA

- "VCTAL Workshops" 3/12, 9/12 & 3/13
  Workshop to develop computational math modules at the high school level (funded by NSF) Bedford, MA

- "BioMap Workshops" 3/11 & 9/11
  Workshop to develop math-biology modules at the high school level (funded by NSF) Bedford, MA

• "Math-Biology Workshop" 9/07
Workshop to develop math-biology modules (funded by Shodor and SC07)
Boone, NC

• "Image/Vision Based Problem Solving" 11/06
SC2006 Education Program (funded by IEEE Computer Society and ACM)
Tampa, FL

• "Simple and Complex Discrete-time Population Models in Ecology" 7/06
DIMAC, Reconnect Satellite Conference 2006: Morgan State University (funded by NSF) Baltimore, MD

• "Image/Vision Based Problem Solving" 11/05
SC2005 Education Program (funded by IEEE Computer Society and ACM)
Seattle, WA

• "The Mathematics of Medical Imaging" 7/05
DIMAC, Reconnect Satellite Conference 2005: Spelman College (funded by NSF) Atlanta, GA

Radio Interview

NPR Interview on Origins of ORDER, a Freshman Seminar Course
Emory University, Atlanta, GA, aired 10/28/03
www.publicbroadcasting.net/wabe/news.newsmain?action=article&ARTICLE_ID=562216

Teacher Training/Certification

North Carolina Teacher Certification 6-12
TATTO Program, Emory University, Atlanta GA, August 2000

Actuary Exams

Exam P/1 - passed May 2004
Exam FM/2 - passed November 2006

Professional Memberships

Mathematical Association of America
Society of Industrial and Applied Mathematics

Teaching Awards and Honors

Honorary Inductee to Tau Sigma, National Honor Society for Transfer Students, Spring 2015
Nominated for the 2008-2009 Richard N. Henson Outstanding Advisor Award, ASU
Nominated for the Brantz Award for Outstanding Teaching in Freshman Seminar, ASU, 2006
Howard Hughes Medical Institute Fellowship, Emory University, 2004
Dean's Teaching Fellowship, Emory University, 2003-2004