Curriculum Vitae

Delena Bell Gatch

Department of Physics, Georgia Southern University Email: dbgatch@georgiasouthern.edu

Education:

Ph.D. in Physics, University of Georgia, December 2000.

B.S. in Physics (Summa Cum Laude), Georgia Southern University, December 1995.

Ph.D. Dissertation:

Advisors: Drs. William M. Yen and William M. Dennis

Title: Experimental and Theoretical Investigation of the Photon Avalanche Phenomenon in

Praseodymium Doped Lanthanum Trichloride

Employment:

Interim Director of Assessment, Office of Institutional Effectiveness, Georgia Southern University, January 2014 to present.

Associate Professor, Department of Physics, Georgia Southern University, August 2011 to present.

Assistant Professor, Department of Physics, Georgia Southern University, August 2006 to August 2011.

Temporary Assistant Professor, Department of Physics, Georgia Southern University, January 2001 to July 2006.

Post Doctoral Research Assistant, Department of Physics and Astronomy, University of Georgia, October 2000 thru December 2000.

Graduate Assistant (Research and Teaching), Department of Physics and Astronomy, University of Georgia, January 1996 thru September 2000.

Undergraduate Research Assistant, Department of Physics and Astronomy, University of Georgia, June 1995 to September 1995.

Undergraduate Teaching Assistant, Department of Mathematics, Georgia Southern University, September 1993 to June 1995.

Honors and Awards:

University System of Georgia Board of Regents' Teaching Excellence Award, 2013-2014

Georgia Southern University Award for Excellence in Contributions to Instruction, 2011-2012

Allen E. Paulson College of Science and Technology Award of Excellence in Teaching, 2009-2010

Governor's Teaching Fellow, 2009-2010

Sigma Pi Sigma, Inducted May 1995

Phi Kappa Phi Honor Society, Inducted May 1995

Golden Key National Honor Society, Inducted May 1995

Gamma Beta Phi Honor Society, Inducted April 1993

Professional Affiliations:

South Atlantic Coastal Section of the American Association of Physics Teachers, President, 2014-2015

South Atlantic Coastal Section of the American Association of Physics Teachers, President Elect, 2013-2014

American Association of Physics Teachers

Southeastern Scholarship of Teaching and Learning Colloguy

American Physical Society

Publications:

Journal Articles:

Trent W. Maurer, Deborah Allen, Delena Bell Gatch, Padmini Shankar, and Diana Sturges, "Students' Academic Motivations in Three Disciplines," Journal of the Scholarship of Teaching and Learning, Volume 13, Number 5, pp 77-89 (December 2013).

Trent W. Maurer, Deborah Allen, Delena Bell Gatch, Padmini Shankar, and Diana Sturges, "Students' Academic Motivations in Allied Health Classes," Journal of Allied Health Sciences and Practice, Volume **10**, Number 1 (January 2012).

Delena Bell Gatch, "Restructuring Introductory Physics by Adapting an Active Learning Studio Model," International Journal for the Scholarship of Teaching and Learning, Volume 4, Number 2 (July 2010).

Delena Bell Gatch, "Book Review: Terry Doyle's Helping Students Learn in a Learner-Centered Environment," International Journal for the Scholarship of Teaching and Learning, Volume 3, Number 1 (January 2009).

Delena Bell Gatch, Danny M. Boye, Yongrong Shen, Marek Grinberg, William M. Yen, Richard S. Meltzer, "Pressure Dependence of the Impurity-trapped Exciton emission in BaF₂:Eu and Ba_xSr_(1-x)F₂:Eu," Physical Review B, Volume **74**, 195117 (2006).

Delena Bell Gatch, William M. Dennis, and William M. Yen, "Infrared Detection Scheme with the Photon Avalanche Effect," Applied Optics: Optical Technology and Biomedical Optics, Volume **42**, Number 44, pp 615-620 (2003).

Yongrong Shen, Delena B. Gatch, Ulises R. Rodriguez-Mendoza, Garry Cunningham, Richard S. Meltzer, William M. Yen, and Kevin L. Bray, "Pressure-induced Dark-to-Bright Transition in Ce³⁺:Lu₂O₃," Physical Review B, Volume **65**, 212103 (2002).

Delena Bell Gatch, W. M. Dennis, and William M. Yen, "Photon avalanche effect in LaCl₃:Pr³⁺," Physical Review B, Volume **62**, pp 10790-10796 (2000).

Delena Bell Gatch, Scott A. Holmstrom, and William M. Yen, "Photon avalanche in Pr³⁺:LaCl₃," Journal of Luminescence, Volume **83-84**, pp 55-59 (1999).

Textbooks:

Delena Bell Gatch, **Test Item File for College Physics Wilson Buffa Lou**, Pearson Prentice Hall, Upper Saddle River, NJ, 7th Edition (2009).

Delena Bell Gatch, **Test Item File for Physics Walker**, Pearson Prentice Hall, Upper Saddle River, NJ, 4th Edition (2009).

Delena Bell Gatch, **Test Item File for Physics for Scientist and Engineers with Modern Physics Giancoli**, Pearson Prentice Hall, Upper Saddle River, NJ, 4th Edition (2008).

Delena Bell Gatch, **Test Item File for College Physics Wilson Buffa Lou**, Pearson Prentice Hall, Upper Saddle River, NJ, 6th Edition (2006).

Delena Bell Gatch, **Test Item File for Physics Walker**, Pearson Prentice Hall, Upper Saddle River, NJ, 3rd Edition (2006).

Delena Bell Gatch, **Test Item File for Sixth Edition Physics: Principles with Applications Giancoli**, Pearson Prentice Hall, Upper Saddle River, NJ (2005).

Presentations:

Invited Talks:

Delena Bell Gatch, "Engaging Students in the Classroom to Improve Critical Thinking Skills," University System of Georgia Teaching and Learning Conference, Athens, GA, April 2014.

Delena Bell Gatch, "Reflections on Teaching," Georgia Southern University Focus on Excellence – Contributions to Instruction Lecture, Statesboro, GA, February 2013.

Delena Bell Gatch, "Using Technology in the Sciences," Keynote Address for Promoting Student Success Through Technology Based Assessment at Louisiana State University, April 2011.

Delena Bell Gatch, "Conversion of Traditional Laboratories into Inquiry Based Laboratories," Georgia Southern University Physics Department Colloquium, Statesboro, GA, March 2009.

Wendie Stripling and Delena Bell Gatch, "Comparative Study: Traditional versus Studio Calculus-Based Physics II," Georgia Southern University Physics Department Colloquium, Statesboro, GA, April 2007.

Delena Bell Gatch, "Piloting Studio Physics at Georgia Southern University," Partnership for Reform in Science and Mathematics (PRISM) National Science Foundation Three Year Site Visit, Statesboro, GA, October 2006.

Delena Bell Gatch, "Learning Outcomes," Georgia Southern University Physics Department Colloquium, Statesboro, GA, October 2005.

Delena Bell Gatch, "Investigation of the Photon Avalanche Phenomenon in Praseodymium Doped Lanthanum Trichloride", Georgia Southern University Physics Department Colloquium, Statesboro, GA, October 2001.

Workshops Conducted:

Delena Bell Gatch, Michelle Cawthorn, and Joy Darley, "Designing Courses for Significant Learning: Student Centered Classrooms," Workshop for New Faculty Entering into the College of Science and Mathematics at Georgia Southern University, Summer 2014.

Delena Bell Gatch, Michelle Cawthorn, and Joy Darley, "Designing Courses for Significant Learning: How to Excel at Teaching and Learning," Workshop for New Faculty Entering into the College of Science and Mathematics at Georgia Southern University, Summer 2013.

Teresa Flateby, Delena Bell Gatch, Melissa Garno, LeVon Wilson, "Academic Assessment Workshop," Workshop for Georgia Southern University Faculty Promoting Best Practices in Academic Program Assessment, Two Sessions Offered, May and June 2013.

Delena Bell Gatch, Michelle Cawthorn, and Joy Darley, "Filling Up Your Pedagogical Toolbox: How to Excel at Teaching and Learning," Workshop for New Faculty Entering into the College of Science and Mathematics at Georgia Southern University, Summer 2012.

Laura Frost, Delena Bell Gatch, Judith Longfield, and Diana Sturges, "Scholarship of Teaching and Learning: Impact in the Classroom and Beyond," Workshop for University System of Georgia Faculty Development Series, March 2011.

Delena Bell Gatch, Lorraine Gilpin, Judith Longfield, and Trent Maurer, "Scholarship of Teaching and Learning: What? Why? When? Who?," Workshop at Southern Polytechnic State University, March 2011.

Laura Frost, Delena Bell Gatch, and Trent Maurer, "Scholarship of Teaching and Learning: Inquiring into Learning," SoTl Symposium of the South, October 2010.

Delena Bell Gatch, Lorraine Gilpin, Judith Longfield, and Diana Sturges, "Scholarship of Teaching and Learning: Inquiring into Learning," Workshop at Savannah State University, Savannah, GA, April 2010.

Laura Frost, Delena Bell Gatch, Trent Maurer, and Diana Sturges, "Scholarship of Teaching and Learning: What? Why? When? Who?," Seminar Hosted by Georgia Southern University's Center for Excellence in Teaching for Faculty Developers and Administrators from other Universities in the Southeastern United States, Statesboro, GA, January 2010.

Conference Presentations:

Delena Bell Gatch and Trent W. Maurer, "Exploring Student Commitment to Use Peer Advice", 2014 Scholarship of Teaching and Learning Commons Conference, Savannah, GA, March 2014.

Diana Sturges, Trent W. Maurer, Delena Bell Gatch, Deborah Allen, and Padmini Shankar, "Students' Academic Motivation and Grade Estimation: Should We Care?" 2014 Scholarship of Teaching and Learning Commons Conference, Savannah, GA March 2014.

Michelle Cawthorn, Delena Bell Gatch, and Joy Darley, "Effects of an Intensive New Faculty Workshop on Teaching," Governor's Teaching Fellows Reunion, Athens, GA, January 2014.

Delena Bell Gatch, "Creative Exercises in Introductory Physics," 2013 Summer Meeting of the American Association of Physics Teachers, Portland, OR, July 2013.

Krystal Ramos and Delena Bell Gatch, "Utilizing Creative Exercises in High School and College Physics Courses," 2013 Spring Meeting of the South Atlantic Coastal Section of the American Association of Physics Teachers, Gainesville, GA, April 2013.

Deborah Allen, Diana Sturges, Trent Maurer, Delena Bell Gatch, and Padmini Shankar, "Student Academic Motivations in a Graduate Nursing Program," Sigma Theta Tau International Mu Kappa Chapter Research Day, Statesboro, GA, March 2013.

Delena Bell Gatch, Michelle Cawthorn, and Joy Darley, "Effects on Teaching of an Intensive Summer New Faculty Workshop," 2013 Scholarship of Teaching and Learning Commons Conference, Savannah, GA, March 2013.

Deborah Allen, Diana Sturges, Trent Maurer, Delena Bell Gatch, and Padmini Shankar, "Student Academic Motivations in a Graduate Nursing Program," 2013 Scholarship of Teaching and Learning Commons Conference, Savannah, GA, March 2013.

Delena Bell Gatch, Michelle Cawthorn, and Joy Darley, "Effects of an Intensive New Faculty Workshop on Teaching," Second Annual Georgia Scholarship of STEM Teaching and Learning Conference, Statesboro, GA, March 2013.

Colleen Beyer, Thomas Koballa, Delena Bell Gatch, Leslie S. Jones, Sharmista Basu-Dutt, and Farooq Khan, "Research Participants Discuss STEM Conference Participation and Impact on Thinking and Practice," Second Annual Georgia Scholarship of STEM Teaching and Learning Conference, Statesboro, GA, March 2013.

Delena Bell Gatch, "Trig-Based Physics Students: Who are they? Why are they taking Physics? What are their strengths and weaknesses? How can we better serve them?," 2012 Spring Meeting of the South Atlantic Coastal Section of the American Association of Physics Teachers, Athens, GA, April 2012.

Delena Bell Gatch, "Exploring the Impact of Studio Courses on Student Learning," First Annual Scholarship of STEM Teaching and Learning Conference, March 2012.

Trent Maurer, Deborah Allen, Delena Bell Gatch, Padmini Shankar, and Diana Sturges, "Students' Academic Motivations in Three Disciplines," 2012 Scholarship of Teaching and Learning Commons, March 2012.

Trent Maurer, Deborah Allen, Delena Bell Gatch, Padmini Shandar, and Diana Sturges, "Students' Academic Motivations in Three Disciplines," Annual Research Day of Mu Kappa Chapter of Sigma Theta Tau International Honor Society at Georgia Southern University, March 2012.

Delena Bell Gatch, Trent Maurer, Diana Sturges, Padmini Shankar, and Deborah Allen, "Non-Science Majors Academic Motivation in Science Courses," 2011 Fall Joint Meeting of the North Carolina Section and South Atlantic Coastal Section of the American Association of Physics Teachers, Asheville, NC, November 2011.

Trent Maurer, Deborah Allen, Delena Bell Gatch, Padmini Shankar, and Diana Sturges, "Students' Academic Motivations in Allied Health Classes," 2011 Scholarship of Teaching and Learning Commons, March 2011.

Delena Bell Gatch, "Conversion to Guided Inquiry Laboratories in Introductory Physics Courses," 2011 Winter Meeting of the American Association of Physics Teachers, January 2011.

Krystal Ramos and Delena Bell Gatch, "The Constructs of Positive Attitude," 2011 Winter Meeting of the American Association of Physics Teachers, January 2011.

Krystal Ramos and Delena Bell Gatch, "Finding the Roots of a Positive Attitude toward Learning Physics," 2010 Scholarship of Teaching and Learning Commons, Statesboro, GA, March 2010.

Delena Bell Gatch, "Reflections on a Three Year Project, Restructuring Introductory Physics," 2009 Spring Meeting of the South Atlantic Coastal Section of the American Association of Physics Teachers, Columbia, SC, March 2009.

Delena Bell Gatch, "Conversion of Traditional Laboratories into Inquiry Based Laboratories," 2009 Scholarship of Teaching and Learning Commons, Statesboro, GA, March 2009.

Delena Bell Gatch, "Inquiry Based Introductory Physics Laboratories," 2008 Spring Meeting of the South Atlantic Coastal Section of the American Association of Physics Teachers, Gainesville, GA, March 2008.

Delena Bell Gatch and Mark Edwards, "Implementing Studio Physics," 2007 Scholarship of Teaching and Learning Commons, Statesboro, GA, November 2007.

Delena Bell Gatch, "Restructuring Introductory Physics by Integrating Modern Educational Technologies," 2007 Summer Meeting of the American Association of Physics Teachers, Greensboro, NC, July 2007.

Delena Bell Gatch, W. M. Dennis, and William M. Yen, "Model of the photon avalanche effect in Pr³⁺:LaCl₃," 2000 March Meeting of the American Physical Society, Minneapolis, MN, March 2000.

Delena Bell Gatch, Scott A. Holmstrom, and William M. Yen, "Photon avalanche in LaCl₃:Pr³⁺ (8%)," 1999 Centennial Meeting of the American Physical Society, Atlanta, GA, March 1999.

Poster Presentations:

Diana Sturges, Trent W. Maurer, Deborah Allen, Delena Bell Gatch, and Padmini Shankar, "Motivation and Grade Expectation: The Case of Human Anatomy and Physiology Classes," Annual Human Anatomy and Physiology Society Conference, Jacksonville, FL, May 2014.

Kyle Mahoney, Trent Maurer, and Delena Bell Gatch, "Exploring Student Commitment to Use Peer Advice," Georgia Southern University Honors Research Symposium, Statesboro, GA, April 2014.

Kyle Mahoney, Trent Maurer, and Delena Bell Gatch, "Exploring Student Commitment to Use Peer Advice," Georgia Southern University School of Human Ecology Undergraduate Research Symposium, Statesboro, GA, April 2014.

Delena Bell Gatch, "Creative Exercises," Georgia Southern University SoTL Expo, Statesboro, GA, April 2013.

Deborah Allen, Diana Sturges, Trent W. Maurer, Delena Bell Gatch, and Padmini Shankar, "Students' Academic Motivations in a Graduate Nursing Program," Georgia Southern University SoTL Expo, Statesboro, GA, April 2013.

Delena Bell Gatch, Jim LoBue, and Michelle Cawthorn, "What You Should Know: Transitioning to College Science Courses," Second Annual Georgia Scholarship of STEM Teaching and Learning Conference, March 2013.

Trent Maurer, Deborah Allen, Delena Bell Gatch, Padmini Shankar, and Diana Sturges, "Students' Academic Motivations in Three Disciplines," Georgia Southern University SoTL Expo, Statesboro, GA, March 2012.

Krystal Ramos and Delena Bell Gatch, "Restructuring Introductory Physics by Adapting an Active Learning Studio Model," The Sixth Annual College Office of Undergraduate Research Symposium, Statesboro, GA, April 2011.

Meghan Lang and Delena Bell Gatch, "The Computer Age: How It Affects Students' Understanding of Mechanics," The Sixth Annual College Office of Undergraduate Research Symposium, Statesboro, GA, April 2011.

Delena Bell Gatch and Krystal Ramos, "Restructuring Introductory Physics by Adapting an Active Learning Studio Model," Georgia Southern University Second Annual SoTL Expo, Statesboro, GA, April 2011.

Trent W. Maurer, Deborah Allen, Delena Bell Gatch, Padmini Shankar, and Diana Sturges, "Students' Academic Motivations in Allied Health Classes," Georgia Southern University Second Annual SoTL Expo, Statesboro, GA, April 2011.

Krystal Ramos and Delena Bell Gatch, "Finding the Roots of a Positive Attitude toward Learning Physics," The Fifth Annual College Office of Undergraduate Research Symposium, Statesboro, GA, April 2010

Delena Bell Gatch, "Improving Problem Solving Skills: Conversion from Structured to Guided Inquiry Laboratories," Georgia Southern University Inaugural Annual SoTL Expo, Statesboro, GA, March 2010.

Delena Bell Gatch, "Improving Problem Solving Skills: Conversion from Structured to Guided Inquiry Laboratories," 2009 International Society for the Scholarship of Teaching and Learning Conference, Bloomington, IN, October 2009.

Wendie Stripling and Delena Bell Gatch, "Comparative Study: Traditional versus Studio Calculus-Based Physics II," Georgia Southern University College of Science and Technology Advisory Board Meeting, Statesboro, GA, April 2007.

Delena Bell Gatch, Scott A. Holmstrom, and William M. Yen, "Photon avalanche in Pr³⁺:LaCl₃," Dynamical Processes in Excited States of Solids, Puerto Rico, May 1999.

Grant Support:

"The Computer Age: How It Affects Students' Understanding of Mechanics", Faculty Mentor for Jessica Meghan Lang, ASPIRES Student Research Award, May 2010-August 2010, \$3,000

"Standards-Based Science for High School Teachers-2009", Missy M. Bennett, Delena Bell Gatch, and Jeffrey Orvis, "No Child Left Behind" Title II Part A Higher Education IMPROVING TEACHER QUALITY, March 2009-March 2010, \$35.037

"Finding the Roots of a Positive Attitude toward Learning Physics", Faculty Mentor for Krystal Ramos, ASPIRES Student Research Award, May 2009-August 2010, \$3,000

"Standards-Based Science for High School Teachers", Missy M. Bennett, Delena Bell Gatch and Jeffrey Orvis, "No Child Left Behind" Title II Part A Higher Education IMPROVING TEACHER QUALITY, March 2008-May 2009, \$24,511

"Standards-Based Science for High School Teachers", Missy M. Bennett, Delena Bell Gatch, and Jeffrey Orvis, "No Child Left Behind" Title II Part A Higher Education IMPROVING TEACHER QUALITY, March 2007-June 2008, \$34,512

"Travel Request for 2007 Summer AAPT Meeting in Greensboro, North Carolina", Delena Bell Gatch, Georgia Southern University Faculty Development Committee Professional Travel Grant, July 2007, \$800

"Project BEST (Becoming Exceptional Science Teachers), Michelle K. Fields, Delena Bell Gatch, and Missy M. Bennett, National Science Foundation – Partnership for Reform in Science and Mathematics (PRISM) Minigrant, May 2006-June 2007, \$11,575

"Magnetizing Third Grade Instruction through Performance-Based Assessment", Estella Newkirt, Delena Bell Gatch, and Missy M. Bennett, National Science Foundation – Partnership for Reform in Science and Mathematics (PRISM) Mini-grant, May 2006-June 2007, \$3,950

"Improving Mathematics and Science Achievement through Differentiated Instruction", Tracey Perryman-Sikes, Delena Bell Gatch, and Missy M. Bennett, National Science Foundation – Partnership for Reform in Science and Mathematics (PRISM) Mini-grant, May 2006-June 2007, \$4,210

Formal Teaching:

Courses Taught:

Conversations with Professors (FYE 1000)

University Orientation (GSU 1210)

Physics Lab I (PHYS 1113)

Physics Lab II (PHYS 1114)

Introduction to Physics I (Trigonometry-Based Mechanics) (PHYS 1111)

Introduction to Physics II (Trigonometry-Based Electricity and Magnetism) (PHYS 1112)

Principles of Physics I (Calculus-Based Mechanics) (PHYS 2211)

Principles of Physics II (Calculus-Based Electricity and Magnetism) (PHYS 2212)

Modern Physics I (PHYS 3536)

Modern Physics II (PHYS 3537)

Thermal Physics (PHYS 5530)

Studies in Physics for Secondary Teachers (PHYS 5536G)

Standard Based Science for High School Teachers (ESED 7090)

Supervisory Teaching:

Mentored Kyle Mahoney, physics major, in Undergraduate Research (2013-present)

Mentored Dillon Marcy, physics and astronomy major, in Service Learning Student Facilitator Training (2013) Mentored Daniel Cistola, physics and astronomy major, in Service Learning Student Facilitator Training (2012-2013)

Mentored Jessica Meghan Lang, physics major, in Undergraduate Research (2010-2012)

Mentored Krystal Ramos, physics major, in Undergraduate Research (2009-2013)

Directed Amy Ferguson, science education graduate student, in Independent Study (2006-2007)

Mentored Wendie Stripling, physics major, in Undergraduate Research (2006-2008)

Development of Curriculum Materials:

Authored prelecture videos for addressing students' misconceptions for use with ten different textbooks within MasteringPhysics (2013-present)

Authored 325 multiple choice prelecture concept questions for use with nine different textbooks within MasteringPhysics (2013)

Eleven Guided Inquiry Labs for Laboratory Courses for Trigonometry-based Introductory Physics (2010)

Two Online Courses for Non-Traditional Students Seeking Teacher Certification (2008)

Guided Inquiry Labs for Studio Physics, funded by NSF-ASPIRES grant (2007-2009)

Supplemental Instruction Materials for Studio Physics, funded by NSF-ASPIRES grant (2007-2008)

Studio Physics Courses, funded by NSF-PRISM grant (2006)

Academic Service:

Department:

Chair, Curriculum Committee (2006-present)

Chair, Textbook Adoption Committee (2006-present)

Coordinate Pre/Post Assessment of Student Learning (2006-present)

Astronomy Tenure Track Faculty Search Committee (2013-2014)

Departmental Final Exam Committee (2007-2011)

Departmental Tutor, Weekly (2008-present)

Astronomy Lecture Search Committee (2008)

Administrator of WileyPLUS Online Homework System (2004-2006)

College:

Course, Curriculum, and TEC Committee (2006-present)

Faculty Governance Committee (2011-2013)

Faculty Advisor in the College of Science and Technology's Advisement Center (2008-2011)

Participated in 3rd Year Review for National Science Foundation ASPIRES Grant (2009)

Award for Excellence in Teaching Committee (2004-2005)

Award for Excellence in Service Committee (2002-2003)

University:

Program Assessment Leader for the College of Science and Mathematics, Allen E. Paulson College of Engineering and Information Technology, and Jiann-Ping Hsu College of Public Health (2012-present)

Academic Assessment Steering Committee (2011-present)

Scholarship of Teaching and Learning Leadership Team (2010-present)

SOAR Advisor (2010-2013)

Eagle Science Camp Instructor (2002-2010)

Conversations with Professors (2007-2009)

School House Rocks (College of Education, Recruitment) (2008)

Eagle Quest Summer Institute for Math and Science Instructor (2006-2007)

PRISM Regional Coordinating Committee (2004-2008)

Reviewed PRISM Mini-Grants (2004-2005)

A Peak at Southern (College of Education, Recruitment) (2005)

Professional:

Mastering Physics Faculty Advisor (2008-present)

Editorial Review Board, International Journal for the Scholarship of Teaching and Learning (2007-present) Reviewed Multiple Prospectus and Textbook Chapters for Pearson Education, John Wiley and Sons, McGraw-Hill, and Brooks-Cole