Amanda Maria Gunning

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Research and Teaching Interests

Science Teacher Education; K-12 Teacher Professional Development in Science; STEM Education; Engineering Practices; Physics Education History

Education

Teachers College, Columbia University, New York
Postdoctoral Fellow, Program in Science Education (September 2010 – June 2012)

Teachers College, Columbia University, New York
Doctor of Philosophy, Program in Science Education, May 2010
Dissertation Title: EXPLORING THE DEVELOPMENT OF PHYSICAL SCIENCE SELF-EFFICACY IN PRESERVICE ELEMENTARY SCHOOL TEACHERS PARTICIPATING IN A SCIENCE EDUCATION METHODS COURSE
Advisor: Felicia Moore Mensah, Ph.D.

City College of New York, New York
Master of Arts, Secondary Science Education, September 2004

University of Richmond, Virginia
Bachelor of Science, Physics, May 1999
Women Involved in Living and Learning Program; Minors: Women's Studies, Mathematics

New York State Permanent Certification
Teacher of Physics and General Science in Secondary Schools, Grades 7 - 12

Professional Experience

Mercy College (September 2012-present)
- Assistant Professor
- Co-Director of the Center for STEM Education
- Field placement supervisor
- Conduct research and publish
- Grant writing and directing
- Faculty Senate, 2014-present, Treasurer (2015)

Teachers College, Columbia University (2007- 2012)
- Adjunct Assistant Professor (Fall 2010 – June 2012)

- Doctoral student advising (filling in for faculty on sabbatical) (Fall 2011)
- Adjunct Instructor (Fall 2007 – Spring 2010)
- Field Placement Supervisor, Program in Science Education, Spring 2009, 2010, 2011, 2012
- Teaching Assistant, Science in Childhood Education, Summer 2011
- Science Mentor, Peace Corps Fellows Program (School year 2009-10)
- Guest Presenter, Harlem Schools Partnership for STEM Education: Hands-on Physical Science for Lower Elementary Grades, Spring 2009
- Guest Instructor, Science in Childhood Education, Spring 2009, Fall 2009

U.S. Satellite Laboratory (2008- Spring 2016)
- Researcher, Fall 2010 – 2012
- Instructor, Summer 2008 – Spring 2016
- Presenter for nation-wide webinars sponsored by Houghton-Mifflin-Harcourt (2012-2014)
- Developing and writing text to accompany 3-dimensional curricular elements for physical science (Summer 2010)

Staff Development Workshops, Inc.
- Presenter of professional development of teachers in science, K-12, Fall 2010 – present
- High School Regents Science Consultant, Spring 2011

North Rockland High School Science Teacher (2004 – 2008)
- Teacher of: General, Regents, Honors and Advanced Placement Physics

Harry S. Truman High School (2002 – 2004)
- Teacher of: Regents Physics, Regents Math & Regents Chemistry (2002 – 2004)

External Funding

Co-Director, Wipro Greater New York Science Education Fellowship Program in partnership with University of Massachusetts Boston (2013-22875004), $1.1 million, 2014-2018
- Manage grant operations, including: budget, events, hiring, research, reports; marketing and participants
- Collaborate with five local, high-need school districts to carry out grant objectives to provide science education professional development to three cohorts of 20 teachers
- Lead programming and provide mentoring for fellows (participants)
- Plan and conduct a tri-site conference for all three university locations that are running Wipro Science Education Fellowships
- Collect, maintain and analyze secure data for grant requirements, research, dissemination and publication

Co-Director, October 2015-September 2016. Step Up to STEM, (US Department of Education, Title III, Part F, P031C110179), $3.64 million. 2011-2016.
- Manage grant operations, including: budget, events, hiring, reports and research
- Oversee community outreach programs

- Initiate and guide establishment of the STEM Learning Center

Co-PI, NSF Robert Noyce Teacher Scholarship Program, Mercy College Intensive STEM Teaching Initiative (MISTI) (DUE-1339951), $1.45 million, 2014-2018
- Develop and maintain relationships with partner community colleges and public schools
- Mentor, instruct and meet with scholars
- Collect, maintain and analyze secure data for grant requirements, research, dissemination and publication

Service to Mercy College

Mercy College Center for STEM Education
- Co-Director
- Organize Saturday STEM Academy, partnerships with school districts, professional development for teachers and family outreach opportunities

Mercy College STEM Email List, initiated Spring 2016
- Working on obtaining permissions to be the administrator of a voluntary email listserve within the College for all faculty and staff interested in STEM-related opportunities

US Department of Education Title V Grant Development, 2015-2016
- Share ideas and expertise in meetings to plan 2016 grant proposal
- Attend Association for Hispanic-Serving Institutions (AHSIE) conference to bring back information regarding best practices for grant proposal writing

Chair of Department Chair Elections for the School of Education, Spring 2016
- Inform faculty of the process through presentations at faculty meetings
- Lead the ballot creation and voting process
- Guide election tellers through the certification process for four departments

Faculty Senate, 2014-present
- Treasurer (finished out another senator's term), Spring 2015
- By-laws Committee

School of Education Newsletter, 2013-present
- Research, write and edit articles
- Interface with marketing to design conversion to web distribution

Program Development, 2014-2015
- Develop and present Secondary Education programs in Chemistry and Physics to the appropriate College committees

Service to the Field of Science Education

Association for Science Teacher Education - International, 2017-present
- Membership Committee member

Association for Science Teacher Education- Northeast Region, 2014-2018
- Treasurer, comprising half of the executive team
- Plan and lead yearly two-day conference and regional meeting at national conference
- Communicate with and recruit members
- Handle all finances, including PayPal, travel awards and bank account

- Create and maintain web site

Reviewer for *The Physics Teacher*, Spring 2016

Reviewer for Association for Science Teacher Education international conference proposals, 2014-present

Scholarship: Presentations (* Peer Reviewed)

*Gunning, A. M., Marrero, M. E., & Hillman, P. (January, 2017). Changes in High School Science Teacher Self-Efficacy. Presented at the Association for Science Teacher Education Annual International Conference. Des Moines, IA.

*Gunning, A. M., Marrero, M. E., Hillman, P., & Eisenkraft, A. (April, 2016). Vertically Articulated Professional Learning Communities: Developing Collaboration and Practice in a K-12 Science Teacher Professional Development Program. Presented at the National Association for Research in Science Teaching Annual International Conference. Baltimore, MD.

*Gunning, A. M., Marrero, M. E., Jaksha, A. & Hillman, P. (January, 2016). Reflection on Science Teaching Practices in the Context of NGSS After Participation in a Vertically Articulated Professional Learning Community. Presented at the Association for Science Teacher Education International Conference. Reno, Nevada.

*Banavara, N., Haskew-Layton, R. & Gunning, A. (March, 2016). Driving Student Engagement in STEM Fields through Authentic Research. Presented at the 8th Annual Alliance of Hispanic-Serving Institution Educators Conference. Camarillo, CA.

*Haskew-Layton, R. Banavara, N., Gunning, A., & Canger, A. (March, 2016). High Impact Peer Mentoring Practices in Undergraduate Research. Presented at the 8th Annual Alliance of Hispanic-Serving Institution Educators Conference. Camarillo, CA.

* Gunning, A. M., Marrero, M. E., & Tazi, Z., (April, 2015). Family Learning Opportunities and Research in Science and Engineering. Paper presented at the NARST Annual International Conference. Chicago.

Gunning, A., Marrero, M., Tazi, Z. (March 2014) Family Learning Opportunities and Research in Science and Engineering. Mercy College [Faculty Seminar Day] Bronx.

*Eisenkraft, A., Marrero, M. E., Gunning, A. M., Munakata, M., & Pelletier, P., (March, 2015). Science Education Fellowship Program: Supporting District Cohorts of Science Teacher Leaders. Paper presented at the NSTA Annual National Conference. Chicago.

* Gunning, A. M., Marrero, M. E. & Riccio, J. F. (March, 2014). Developing the Next Generation of Science Teachers: Examining Self-efficacy Development for Teaching Engineering Practices. Paper presented at the NARST Annual International Conference. Pittsburgh, PA.

* Gunning, A. M. (January, 2013). Culturally Relevant Teaching as a Framework for learning how to teach science to Students of Disability. Paper presented at the ASTE Annual International Conference. Charleston, SC.

*Abegglen, K. & Gunning, A. M. (March, 2012). Utilizing scientific habits of mind as a framework for professional development for inservice elementary teachers. Paper presented at the NARST Annual International Conference. Indianapolis, IN.

*Gunning, A. M. & Marrero, M. (January, 2012). Examining inservice teachers' mental models on teaching science through online learning. Paper presented at the ASTE Annual International Conference. Clearwater, FL.

*Gunning, A. M. & Mensah, F. (January, 2011). Microteaching: The value of mastery experience in a science methods course. Paper presented at the ASTE Annual International Conference. Minneapolis, MN.

*Gunning, A. M., & Moore Mensah, F. (January, 2009). One preservice elementary teacher's development of self-efficacy and confidence to teach science: A case study. Paper presented at the ASTE Annual International Conference. Hartford, CT.

*Gunning, A. M. (August, 2007). The Old 'New Movement' Among Physics Teachers. Paper accepted to the American Association of Physics Teachers. Greensboro, NC.

*Gunning, A. M. (October, 2006). The Old 'New Movement' Among Physics Teachers. Paper presented at the Northeast ASTE Annual Conference. Amherst, MA.

Scholarship: Publications (* Peer Reviewed)

*Gunning, A. M. & Marrero, M. E. (2017). Examining inservice teachers' mental models on teaching science through online learning. The Online Journal of New Horizons in Education-January, 7(1).

*Gunning, A. M. (2016). Italian American Nobel Laureates. In E. Martone (Ed.), *Italian Americans: The History and Culture of a People*. ABC-CLIO, LLC. Santa Barbara, CA.

*Hillman, P., Coddett, A., Gunning, A. & Marrero, M. (2016) Vertically Articulated Professional Learning Communities: Building Collaboration and Practice amongst K-12 Science Teachers. *Open Online Journal for Research and Education*. (5) ISSN: 2313-1640

*Gunning, A., Marrero, M., Morrell, Z. (2016) Family Learning Opportunities and Research in Science and Engineering. *Electronic Journal of Science Education*. 20(7).

Gunning, A. (2016, March, 30). Every citizen deserves an education [Editorial]. The Photo News, page 12. http://www.thephoto-news.com/apps/pbcs.dll/article?AID=/20160330/OPINION03/160339999/0/SEARCH

*Marrero, M.E., Gunning, A.M., and Buonamano, C. (2016). A House for Chase the Dog: Second-Grade Students Investigate Material Properties. In Froschauer, L. (Ed) Bringing STEM to the Elementary Classroom (pp. 141-148). Arlington, VA: NSTA Press.

*Marrero, M. E., Gunning, A. M. & Woodruff, K. (2016). Using Authentic Earth Data in the K-12 Classroom. In M. J. Urban & D. A. Falvo (Eds.), *Improving K-12 STEM Education Outcomes through Technological Integration* (281-309). Hershey, PA.

*Marrero, M. E., Gunning, A. M. & Buonamano, C. (2016). Engineering Encounters: A House for Chase the Dog. *Science and Children.* 53 (5).

* Gunning, A. M. & Sheppard, K. (2015). The Roots of Physics Teaching: The History of Physics Teacher Education in the USA. In C. Sandifer & E. Brewe (Eds.), *Recruiting and Educating Future Physics Teachers: Case Studies and Effective Practices* (27-34). College Park, MD.

*Tazi, Z., Gunning, A. M., & Marrero, M. E., (2015). Engaging Parents as Coteachers. *Educational Leadership*. 72(6).

*Marrero, M. E., Gunning, A. M. & Germain-Williams, T. L., editors. (2014). *Global Education Review*, STEM issue.

Gunning, A. M. & Marrero, M. E. (2014) Exploring Science with Our Youngest Learners. Westchester Association for The Education Of Young Children Newsletter.

*Marrero, M. E., Gunning, A. M. & Tazi, Z. (2014). The Wonderful World of Worms: A family-friendly activity uses worms to help young students investigate cause and effect. *Science and Children*. 52(3).

*Sheppard, K. & Gunning, A. M. (2013). The other Hall Effect: College Board physics. *The Physics Teacher*, 51 (6), 364-367.

*Gunning, A. M. & Moore Mensah, F. (2011). One preservice elementary teacher's development of self-efficacy and confidence to teach science: A case study. *Journal of Elementary Science Education*, 22, 171-185.

Professional Enrichment and Accomplishments

- Consulting for the Aaron Academy, New York on the development of a new science curriculum for middle and high school students with autism (2009-2012)

- Created an Academy of Engineering at North Rockland High School to provide students with the opportunity to pursue an integrated experience of math, science and technology with co-curricular activities to increase interest in the fields of engineering (2006-2008)

- Attended International Technology Educators Association Conference in March 2006 to learn more about integrating technology and science in classroom and curriculum

- Completed Advanced Placement Teacher Training in physics, offered by the College Board, Summer 2005

- Participated in the National Science Foundation Sponsored Science and Mechatronics Aided Research for Teachers Program at Polytechnic University, Brooklyn, Summer 2004

- New York City Teaching Fellow, June 2002-2004

- Former Journalist: Associate Producer, CBSNews.com; Assignment Desk Assistant, CBS News Radio; and Page, CBS Evening News with Dan Rather; New York, 1999-2002