

Jennifer Lynn Cunningham Maeng
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Academic Degrees

University of Virginia

Ph.D. Science Education (May 2011).

Dissertation: Differentiating Science Instruction: Success Stories of High School Science Teachers

M.T. Secondary Science Education (May 2003).

Virginia Postgraduate Professional License. Endorsement: Chemistry

B.Sc. Chemistry, with distinction (May 2003).

University Teaching and Research Experience

University of Virginia, Charlottesville, VA.

Research Associate, Curry School of Education, May 2011-Present.

Project Director for Research and Evaluation for the *Virginia Initiative for Science Teaching and Achievement* (VISTA) Grant (U.S. Department of Education, Investing in Innovation). Coordinated all data collection, data analysis, and evaluation efforts; assisted in the development of evaluation instruments; mentored doctoral and master's students; collaborated with VISTA partners (universities, Virginia Department of Education, school districts); managed budget; communicated research and evaluation findings to VISTA partners and the science education community; supported other VISTA-related work as needed.

Graduate Assistant, Curry School of Education, 2007 – 2011.

Conducted research related to differentiated science instruction, the nature of science, inquiry instruction, and educational technology integration. Presented research papers at local and national education conferences. Edited manuscripts for publication and assisted with grant-writing. Assisted with research and evaluation components of the *Virginia Initiative for Science Teaching and Achievement* (VISTA) grant. Supervised, mentored, and evaluated preservice science teachers. Conducted workshops for in-service teachers and graduate students.

Instructed or assisted in instruction of undergraduate and graduate courses:

- Secondary Science Methods I and II: Fall 2007, Spring 2008, Fall 2009, Spring 2010, Spring 2011
- Secondary Science Methods Lab: Spring 2008, Spring 2009
- Secondary Science Teaching Associateship: Fall 2007, Fall 2008, Fall 2009
- Student Teaching Associateship Seminar: Fall 2007, Fall 2008, Fall 2009

Summer Faculty, Chemistry Department, 2004- Present.

Instructor of record. Modified academic-year curriculum to fit condensed summer session schedule. Developed new lab lectures and new experiments to use during summer and subsequent academic semesters.

- Introduction to College Chemistry Lab I and II: Summer Sessions 2004 – 2011
- Introduction to College Chemistry Lab for Engineers (BRIDGE Academy): Summer Sessions 2004, 2006-2010

Graduate Teaching Assistant, Chemistry Department, 2007 – 2011.

Implemented curricula for College of Arts and Sciences and School of Engineering and Applied Science students in general chemistry laboratory course. Mentored and supervised graduate teaching assistants, taught lab lecture.

- Introduction to College Chemistry Lab I and II: Fall 2007- Spring 2011
- Introduction to College Chemistry Lab for Engineers I and II: Fall 2001 – Spring 2002, Spring 2003, Fall 2007- Spring 2011

K-12 Teaching Experience**Science Teacher**, Charlottesville High School, Charlottesville, VA. 2003- 2007.

Planned and taught Advanced Placement chemistry, general chemistry, general physics, and general earth science curriculums in a diverse population high school. Integrated technology, inquiry, demonstrations, laboratories, inductive, and deductive approaches to enhance learning experiences. Differentiated instruction to meet needs of students at various academic levels. Collaborated with science department members to develop curriculum and pacing guides and differentiated instructional materials for heterogeneously-grouped chemistry classes. Participated in science textbook adoption process and created division mandated chemistry benchmark assessments.

Science Teacher, Summer/Saturday Enrichment Program, University of Virginia. Summer 2003, Winter 2004.

Collaborated with undergraduate engineering students to develop an inquiry-based engineering and technology curriculum. Taught curriculum that promotes interest in engineering and technology through use of inquiry, cooperative learning, and problem solving skills to gifted elementary and middle school students from around the region.

Publications

Bell, R., **Maeng, J. L.**, Peters, E. E., & Sterling, D. R. (2010, May). Scientific inquiry and the nature of science task force report. Richmond, VA: Virginia Mathematics and Science Coalition.

Bell, R.L., **Maeng, J.L.**, Peters, E.E., & Sterling, D.R. (In Press). *Teaching about scientific inquiry and the nature of science: Toward a more complete view of science*. VMSC Journal of Mathematics and Science.

Bell, R.L., Mulvey, B., & **Maeng, J.L.** (In Press). *Beyond understanding: Process skills as a context for nature of science instruction*. In Myint Swe Khine, Ed. *Advances in the Nature of Science Research: Concepts and Methodologies*.

Papers in Progress

Bell, R.L., **Maeng, J.L.**, & Binns, I.C. (In Review). Learning in context: Technology integration in a teacher preparation program informed by situated learning theory. *Journal of Research in Science Teaching*.

Maeng, J.L., Bell, R. (In Progress). Differentiating science instruction: Experiences of secondary teachers. *Journal of Science Teacher Education*.

Maeng, J.L., Bell, R., Mulvey, B., & Smetana, L. (In Progress). Is one computer enough? Preservice teachers' use of technology to support whole-class inquiry. *Journal of Science Education and Technology*.

Bell, R.L., Mulvey, B.K., & **Maeng, J.L.** (In Progress). Transforming preservice teachers' views of the nature of science: A process-skills based approach. *Journal of Research in Science Teaching*.

Maeng, J.L., & Bell, R. (In Progress). Differentiating science instruction: Simple strategies for science teachers. *The Science Teacher*.

Presentations

National

Maeng, J.L. & Bell, R.L. (accepted). *Outcomes of the Virginia Initiative for Science Teaching and Achievement (VISTA) Professional Development*. A paper for the Annual meeting of the National Association of Research in Science Teaching, Indianapolis, IN. (March, 2012).

Mulvey, B., **Maeng, J.L.**, & Bell, R.L. (accepted). *Developing preservice science teachers' NOS conceptions and commitment to NOS instruction Using a process-skill-based approach*. A paper for the Annual meeting of the National Association of Research in Science Teaching, Indianapolis, IN. (March, 2012).

Maeng, J.L. & Bell, R.L. (submitted). *Alternatives to dissection in the digital age*. A paper for the Annual meeting of the National Association of Science Teachers, Indianapolis, IN. (March, 2012).

Smetana, L.K., **Maeng, J.L.** & Bell, R.L. (submitted). *Digital resources in the science classroom: TPACK in action*. A paper for the Annual meeting of the National Association of Science Teachers, Indianapolis, IN. (March, 2012).

Maeng, J.L. & Bell, R.L. (accepted). *Secondary science teachers experiences differentiating science instruction*. A paper for the Annual Meeting of the Association of Science Teacher Educators, Clearwater, FL. (January, 2012).

Mulvey, B., **Maeng, J.L.**, & Bell, R.L. (2011, April). *Process skills as a bridge to the nature of science: Developing preservice science teachers' conceptions*. A paper for the Annual meeting of the American Educational Research Association, New Orleans, LA.

Maeng, J.L., Mulvey, B., & Bell, R.L. (2011, April). *Models of instruction for technology-enhanced whole-class inquiry*. A paper for the Annual meeting of the National Association of Research in Science Teaching, Orlando, FL.

- Maeng, J.L.**, Mulvey, B., & Bell, R.L. (2011, March). *Integrating digital images and video in the science classroom*. A paper for the Annual meeting of the National Association of Science Teachers, San Francisco, CA.
- Mulvey, B., **Maeng, J.L.**, & Bell, R.L. (2011, January). *Transforming preservice science teachers' views of the nature of science: A process skills-based approach*. A paper for the Annual Meeting of the Association of Science Teacher Educators, Minneapolis, MN.
- Maeng, J.L.**, & Bell, R.L. (2010, March). *Learning in Context: Technology Integration in a Teacher Preparation Program Informed by Situated Learning Theory*. A paper presented at the Annual Meeting of the National Association of Research in Science Teaching, Philadelphia, PA.
- Maeng, J.L.**, Mulvey, B., Smetana, L., & Bell, R.L. (2010, March). *CSI: Collaborative science inquiry*. A paper presented at the Annual meeting of the National Association of Science Teachers, Philadelphia, PA.
- Maeng, J.L.**, Bell, R., & Mulvey, B. (2010, January). *Is one computer enough? Preservice teachers' use of technology to support whole-class inquiry*. A paper presented at the Annual Meeting of the Association for Science Teacher Education, Sacramento, CA.
- Bell, R., **Maeng, J.L.**, & Binns, I., (2009, January). *Context and content: Preparing teachers to use technology to support reforms-based instruction*. A paper presented at the Annual Meeting of the Association for Science Teacher Education, Hartford, CT.

State and Local

- Maeng, J.L.**, Henricksen, D. (2011, November). *Differentiating science in secondary classrooms*. A paper for the Annual Meeting of the Virginia Association of Science Teachers, Roanoke, VA.
- Maeng, J.L.**, Whitworth, B., Shaikh, I., Rock, C., Stewart, W., Bell, R.L. (2011, November). *Digital alternatives to hands-on dissection*. A paper for the Annual Meeting of the Virginia Association of Science Teachers, Roanoke, VA.
- Bell, R.L., Sterling, D., **Maeng, J.L.**, & Peters, E. (2010, November). *Teaching about scientific inquiry and the nature of science*. A paper for the Annual Meeting of the Virginia Association of Science Teachers, Hampton, VA.
- Maeng, J.L.**, Brown, K., Lai, H., Palmer, B., Mulvey, B., & Bell, R.L. (2010, November). *Exploring the nature of science: Theories and laws*. A paper for the Annual Meeting of the Virginia Association of Science Teachers, Hampton, VA.
- Brown, K., Lai, H., Palmer, B., Mulvey, B., **Maeng, J.L.**, & Bell, R.L. (2010, November). *Inquiring about inquiry: Scaffolding inquiry instruction*. A paper for the Annual Meeting of the Virginia Association of Science Teachers, Hampton, VA.
- Maeng, J.L.**, & Mulvey, B. (2010, January). *Using technology to support whole-class inquiry: A study of preservice science teachers*. A paper presented at the Curry Research Conference, Charlottesville, VA.
- Maeng, J.L.**, Stocke, L., Frank, E., & Bell, R.L. (2009, November). *Teaching physical & earth science with digital media*. A presentation at the Annual Meeting of the Virginia Association of Science Teachers, Reston, VA.

- Maeng, J.L.**, Chapman, M., Egge, N., Hidy, M., & Bell, R.L. (2009, November). *Simulating biology: Computer simulations to promote learning*. A presentation at the Annual Meeting of the Virginia Association of Science Teachers, Reston, VA.
- Maeng, J.L.**, Baird, A., Culbert, K., Tonga, M., & Bell, R.L. (2008, November). *Bringing physical science to life digitally*. A presentation at the Annual Meeting of the Virginia Association of Science Teachers, Hampton, VA.
- Maeng, J.L.**, Hayne, K., Landauer, J., Smith, G., & Bell, R.L. (2008, November). *Collaborative science inquiry: The sequel*. A presentation at the Annual Meeting of the Virginia Association of Science Teachers, Hampton, VA.
- Cunningham, J.**, Buford, L., Justus, C., O'Conner, E., Zafrane, D., Farquhar, H., Smetana, L., & Bell, R.L. (2007, November). *CSI: Collaborative science inquiry*. A presentation at the Annual Meeting of the Virginia Association of Science Teachers, Williamsburg, VA.
- Cunningham, J.**, & Harrell, K. (2006, November). *Effective differentiation of a high school chemistry course*. A presentation at the Annual Meeting of the Virginia Association of Science Teachers, Roanoke, VA.

Workshops

- Bell, R.L., **Maeng, J.L.**, Gonczi, A., Wheeler, L., & Whitworth, B. (2011). *Simplifying Inquiry Instruction*. A workshop for teachers. Prince William County Public Schools, In-Service Training. August 31, 2011.
- Maeng, J.L.** (2011). *Successful teaching techniques to use in the lab*. A workshop for graduate teaching assistants. University of Virginia, Teaching Resource Center, August 17, 2011.
- Chiu, J., **Maeng, J.L.** & Mulvey, B. (2010). *Teaching science inquiry: Inquiry experiments and levels of inquiry*. A workshop for teachers. Fredrick County Public Schools, In-Service Training. November 1, 2010.
- Bell, R.L., & **Maeng, J.L.** (2010). *Teaching about the nature of science in your classroom: A process skills-based approach II*. A workshop presented at the Collegiate School Science Teacher Inservice, Richmond, VA. October 13, 2010.
- Maeng, J.L.** (2010). *Successful teaching techniques to use in the lab*. A workshop for graduate teaching assistants. University of Virginia, Teaching Resource Center, August 19, 2010.
- Bell, R.L., & **Maeng, J.L.** (2010). *Teaching about the nature of science in your classroom: A process skills-based approach*. A workshop presented at the Collegiate School Science Teacher Inservice, Richmond, VA. March 30, 2010.
- Maeng, J.L.** (2009). *Successful teaching techniques to use in the lab*. A workshop for graduate teaching assistants. University of Virginia, Teaching Resource Center, August 19, 2009.
- Bell, R.L., & **Cunningham, J.** (2008). *Inquiry experiments*. A workshop for teachers. Charlottesville City Schools, In-Service Training, August 13, 2008.

Cunningham, J. (2008). *Successful teaching techniques to use in the lab*. A workshop for graduate teaching assistants. University of Virginia, Teaching Resource Center, August 20, 2008.

Service

Manuscript Reviewer, *The Science Teacher*, National Science Teachers Association, 2010 - present.

Manuscript Reviewer, *School Science and Mathematics*, School Science and Mathematics Association, 2009 - present.

Manuscript Reviewer, *Journal of Virginia Science Education*, Virginia Association of Science Teachers, 2009 - present.

Proposal Reviewer, Annual meeting of *Association for Science Teacher Education*, 2011, 2010.

Proposal Reviewer, *Society for Information Technology & Teacher Education International Conference*, 2010.

Co-chair, Proposal Committee, *Curry Research Conference*, Charlottesville, VA, 2010 – 2011.

Presider, Annual Meeting of the *Association for Science Teacher Education*, 2010, 2009, 2008.

Presider, *Curry Research Conference*, University of Virginia, Charlottesville, 2010.

Judge. Chemistry/ Consumer Science. *Virginia Junior Academy of Science*, 2011, 2010, 2009, 2006, 2005.

Section Chairperson. Chemistry/ Consumer Science. *Virginia Junior Academy of Science*, 2007, 2003, 2001.

Judge. Charlottesville High School *Science Expo*, Charlottesville, VA, 2010, 2009, 2008.

Virginia Standards of Learning Assessments Content Review Committee, Chemistry, Virginia Department of Education, 2006.

Awards and Honors

University of Virginia Faculty Senate: Dissertation Year Fellowship

Department of Chemistry: Excellence in Undergraduate Teaching in Chemistry Award

The Curry Foundation: Alice Gunter and Edgar J. Gunter Jr. Scholarship (technology in education)

Virginia Space Grant Consortium: Scholarship for Teacher Education

Alpha Chi Sigma: Chemistry Award

Professional Associations

American Educational Research Association

Association for Science Teacher Education

National Association for Research in Science Teaching

National Science Teachers Association

School Science and Mathematics Association

Virginia Association of Science Teachers