
Ana Margarita Rivero Arias

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EDUCATION

Doctor of Philosophy
Specialty in Teaching, Curriculum, & Learning
University of Nebraska-Lincoln, 2017

Master in Organizational Development
Universidad de Monterrey, 2008
Mexico

Master in Education
Universidad de Monterrey, 2004
Mexico

Food Industry Engineer *cum laude*
Universidad de Monterrey, 1996
Mexico

CERTIFICATION

High School National certification in reform-based teaching.
National Board of Education (*Secretaría de Educación Pública, SEP*)
México

RESEARCH INTERESTS

Metacognitive knowledge and practices in secondary science teachers.
Subject matter knowledge and misconceptions in chemistry high school teachers.
Inquiry and formative assessment skills in secondary preservice and in-service teachers.

PROFESSIONAL APPOINTMENTS

Seattle University
Clinical Assistant Professor STEM Education, 2017-Today

University of Nebraska-Lincoln (UNL)
Research assistant, 2013-2017
Teaching assistant, summer 2015 & summer 2016
Practicum and student teacher supervisor, 2014-2016

Universidad de Monterrey (UEM)

High school director of the Academy of Natural Sciences, 2004-2013

Professional development on high school reform-based teaching, 2007-2013

Full time high school science, math, and home-room teacher, 1998-2004

TEACHING

- Co-taught introduction to instructional planning for secondary teachers, Fall 2017
- Coached secondary student teachers, Winter 2017.
- Co-taught secondary science methods course for undergraduate and master preservice science teachers, summer 2015 and summer 2016.
- Designed and facilitated five lessons for the science methods course (Vernier probes, assessment, and equity in science education), 2014-2016.
- Attended the science methods course (as an internship), spring 2014.
- Facilitated the third module (40 hours) of the seminar about reform-based competencies for national teacher certification for more than 100 high school teachers, 2010-2013.
- Designed and facilitated UDEM Institutional Academic Integrity course, 2010-2013.
- Designed and taught a high school chemistry curriculum, activities and evaluation for a high-needs vocational school in Monterrey, Mexico (*Preparatoria Politécnica Santa Catarina*), 2010-2013.
- Designed items for teachers' competencies evaluation at the National Evaluation Center in Mexico (CENEVAL), 2012.
- Taught high school chemistry I and II, biology I, algebra I and II, geometry, research methods, 1998-2013.
- Designed and taught research methods online for high school students, 2003-2005.
- Designed professional development for science teachers on inquiry-based teaching, cooperative learning, scientific practices, teaching competencies and standards, and academic integrity, 2007-2013.

RESEARCH

- Explored knowledge and practices of metacognition in beginning secondary science teachers using a multi-methods approach, 2016-2017.
 - Designed the research methodology, as part of my dissertation work.
 - Recruited participants for a survey ($n=36$), open-ended interviews ($n=15$), and classroom observations ($n=2$).
 - Used an electronic questionnaire on Qualtrix to reach participants.
 - Designed an open-ended questionnaire for open-ended interview to explore knowledge and practices of metacognition.
 - Analyzed quantitative (using SPSS) and qualitative (using MAXQDA) data.
 - Defended the dissertation to the committee.
- Analyzed and evaluated inquiry skills of the graduate teachers from the MAst program (Master of Arts with emphasis in science education), 2013-2017.
 - Conducted more than 150 classroom observations (in-person and video recorded) of secondary science teachers (K6-12).
 - Interviewed more than 95 secondary science teachers about teaching practices.
 - Coached and provided feedback to more than 95 secondary science teachers.
 - Collected and registered observations and interviews.
 - Recruited participants for research study, 2015 - 2017.
 - Administered research files and organized classroom observations, 2013-2016.
 - Communicated with school districts and principals for research approval, 2013-2016.

- Processed requirements for University of Nebraska-Lincoln Institutional Review Board (IRB) approval, 2015 - 2017.
- Supported the development of a National Science Foundation (NSF) grant proposal to fund a new teachers' research study, 2015.
- Analyzed collected data and prepared conference proposals, 2015-2017.
- Designed a survey to analyze the health habits of the student population, as part of a longitudinal study. Developed six health campaigns for high school students, teachers, and families, 2007-2013.
- Headed an action-research project on high school reform-based assessment practices, 2010-2013.
- Collaborated in a case study about using iPads in high school chemistry classroom, 2012-2013.
- Developed a diagnosis and team building intervention for a manufacturing company, 2007-2008.

ADMINISTRATION

- Recruited, selected, coordinated, coached, and evaluated more than 30 high school science teachers (biology, chemistry, environmental science, organic chemistry, and anatomy) and four laboratory assistants every year, 2004-2013.
- Administered and supervised the science curriculum, activities, and assessment in four different programs (bicultural, bilingual, International, and vocational) for 3000 high school students every year.
- Collaborated, as part of the board of high school directors, in planning, organizing, and evaluating projects, recruitment activities, interventions, and curricular revisions, 2004-2013.
- Directed and supervised international advanced science high school courses and evaluation (International Baccalaureate and the College Board's Advanced Placement Program), 2004-2013.
- Designed the science laboratories and systematized safety standards and procedures in five schools.
- Developed on line courses and introduced technology (i.e., smart boards, use of iPads in the science classroom, Blackboard-supported courses) in the science department, 2004-2013.
- Organized more than 10 field trips (national and international) and experiences outside the classroom for high school students (e.g., visit to science museums, recycling facilities, conferences).
- Renewed the Academy of Natural Sciences evaluation system, introducing science standards, and formative and summative assessments.

COMMUNITY SERVICE

- Reviewed proposals for UNL Graduate Student Association's Graduate Travels Award Program, 2016-2017.
- Reviewed proposals for the National Association for Research in Science Teaching (NARST) International Conference, 2016-2017
- Reviewed articles for the school journal, Nebraskan Educator, 2015-2016.
- Served as secretary in the school Graduate Student Association, 2014-2015.
- Facilitated seminars to develop community leaders as part of a social project called "Universidad de Barrios", 2009-2013.
- Collaborated in the design of UDEM Sustainability Center, 2011-2012.
- Academic integrity presentation, parents' school meeting, UDEM High school Unidad Gonzalitos, 2012.

RESEARCH IN PROGRESS

- Teacher education program evaluation and inquiry skills in beginning science teachers (research assistantship).
- Chemistry subject matter knowledge for effective secondary teaching.

PROFESSIONAL ORGANIZATION

Member of the National Association for Research in Science Teaching (NARST), 2015-2017.
 Member of the American Educational Research Association (AERA), 2017-2018
 Member of the Association for Science Teacher Education (ASTE) 2016-2017.

CONFERENCE PRESENTATIONS

- National, peer-reviewed presentations:

Albraith, C., Reinkordt, E., and **Rivero, A.** (2014). Sustainable high school change in Nebraska. Presentation at the Alternative Education Resource Association (AERO) Conference, June 26th, 2014: Long Island, NY.

- International, peer-reviewed presentations:

Rivero, A.M. & Lewis, E.B. (2018). Bonding Ideas about Inquiry: Exploring Knowledge of Metacognition in Beginning Secondary Science Teachers. Presentation at the annual meeting of the National Association for Research in Science Teaching (NARST), March 10-13, 2018: Atlanta, GA.

Lewis, E.B., **Rivero, A.M.**, Lucas, L., & Tankersey, A. (2018). Beginning Science Teachers' Subject Matter Knowledge, Misconception and Emerging Inquiry-based Teaching Practices. Paperset presented at the annual meeting of the National Association for Research in Science Teaching (NARST), March 10-13, 2018: Atlanta, GA.

Lewis, E.B., **Rivero, A.M.**, Musson, A., Lu, J., and Lucas, L. (2016). Building Exemplary Teaching Practices: Following the Paths of New Science Teachers. Paperset presented at the annual meeting of the National Association for Research in Science Teaching (NARST), April 14-17, 2016: Baltimore, MD.

Rivero, A.M (2007). Comparative study of students' human values promotion of an on-line and face-to-face high school chemistry teacher (*Estudio comparativo de la presencia y promocion de valores de un maestro de quimica en las modelidades presencial y en linea en alumnos de preparatoria*). Educational Technology Conference, June, 2007: Monterrey, N.L., Mex.

- Local, peer reviewed presentations:

Lewis, E.B., Musson, A.A., Lu, J., **Rivero, A.M.**, & McCarty, R. (2014) Evaluating A Graduate-Level Teacher Education Program. Paperset presented at the 2014 Nebraska Academy of Science (NAS) Annual Meeting, April 11, 2014: Lincoln, Nebraska.

Rivero, A., (2014). Equity as a desire goal in science teaching: An analysis of pre-service teachers' reading responses. Presentation at College of Education and Human Sciences (CEHS) Students Conference, November, 2014: Lincoln, Nebraska.

- Presentation to the University of Nebraska-Lincoln:

Lewis, E.B., **Rivero, A.**, Lyrica, L., Tankersley, A., & Holding, B. (2017) Discipline-Based Education Research Group, November 9, 2017. Title: *Beginning science teachers' subject matter knowledge, misconceptions, and emerging inquiry-based teaching practices*.

POSTER PRESENTATIONS

Lewis, E.B., **Rivero, A.**, Musson, A., Lu, J., and Lucas, L. (2015). Enacted Teaching Practices of Induction-level Science Teachers. Poster presented at the 2015 Regional Meeting of the NSF Robert Noyce Program Conference, October 29-30, 2015: Omaha, Nebraska.

Rivero, A. (2015). Developing formative assessment skills in secondary science education preservice teachers. Poster presented at the 2015 UNL Research Fair, April 14th, 2015: Lincoln, Nebraska.

PUBLICATIONS IN PROGRESS

Lewis, E.B., **Rivero, A.M.**, Musson, A., Lucas, L., Tankersley, A., & Lu, J. (in prep). Educating Effective Science Teachers: Preparing and following Teachers into the Field. University of Nebraska-Lincoln. Chapter 3. IAP Book Series: Contemporary Perspectives on Accreditation, Assessment, and Program Evaluation in Educator Preparation. Volume II. *Teacher Preparation Program Design and Implementation to Outcomes for Teachers and Students*. Jennifer E. Carinci, Stephen Meyer, and Cara Jackson (Editors).

Rivero, A.M. & Lewis, E.B. (in prep). Bonding Ideas about Inquiry: Exploring Knowledge of Metacognition in Beginning Secondary Science Teachers. *International Journal of Science Education*.

Lewis, E. B., **Rivero, A.**, Lucas, L., & Musson, A. (in prep). How much content knowledge is enough? Teachers' subject matter knowledge, misconceptions, and in- and out-of-field teaching. *Journal of Research in Science Teaching*.

Lewis, E.B., Musson, A., **Rivero, A.**, Lucas, L., & Lu, J. (in prep). Educating highly-qualified science teachers: Preparing and following new teachers into the field. *Journal of Research in Science Teaching*.

GRANT DISSEMINATION REPORTS

Lewis, E.B., Augustyn, L., Frederick, A., Garrett, A., Lucas, L., Musson, A., and **Rivero, A.** (2016). *Noyce Science Teacher Master of Arts with emphasis in Science Teaching Program: Meeting Challenges of 21st Century Classrooms*. UNL Noyce Track I, Phase I, Final Report. University of Nebraska-Lincoln.
(Note: Authors listed in alphabetical order after PI)