



Promoting Scientific Literacy and Effective Citizenship by Infusing Standards Literacy in the Undergraduate General Sciences Curricula

Claudia E. Vergara

Director for Program Evaluation and Assessment
Center for Integrative Studies in General Science

Michigan State University



Development & Implementation of a Standards Curriculum

CISGS Mission: To Enhance Scientific Literacy

Institutional Context: General Education Requirement

- Annually ~12,000 non-STEM majors
- Lecture Courses [ISB & ISP] (6 cr.) & Laboratory courses (2 cr.)

Project Goal: To develop and embed standards education modules in required general science courses:

- Foster scientific and quantitative literacies while enhancing students' understanding of the processes involved in the development of standards.
- Engage students with the complex socioeconomic and ethical implications of standards development, implementation, and compliance in a variety of contexts.

Standards in the Classroom

Laboratory: Inquiry & Experimentation



Students evaluate:

- Organic hops to determine aphid content
- Chloride concentrations in water & soil

Lecture: Environment & Health



Students investigate:

- Use of pesticides
- Food production & antibiotic resistance
- Environment & climate change

Activities: Reading Assignments, Case Studies, Co-curricular, Independent Research, Lab & Field Investigations Stakeholder Role-Playing and Debates

Our Analyses Indicate...

Participation in the Standard modules contributed to students’:

- Increased awareness about standards and standardization processes.
- Increased understanding about the role of science and the scientific process in standard development.
- Increased awareness of the implications of the implementation of, and compliance with standardization processes in a variety of contexts.

MSU Student Impact:

- Lecture courses; N=850
 - Laboratory courses (50 sections); N=1,250
- 4,200 students
yearly**

“[...] I should note that probably the most enduring part of all the work we did on standards – and certainly the most important – is what you have done with the general education classes.” Larry Busch, 2019 (personal communication).

MSU Team

➤ Lawrence Busch- Department of Sociology

CISGS:

➤ Osvaldo Hernandez

➤ Ryan Kimbirauskas

➤ Courtney Wicklund

➤ Gabe Ording ordingga@msu.edu

➤ Claudia E. Vergara vergara@msu.edu

Questions?

