

Nancy Deans-Chemistry

Sabbatical Summary – AY 19/20

As part of my ongoing effort to improve my teaching and better engage our STEM students, I applied for, and was granted, a one-year sabbatical to research and develop in-class active learning modules for CHEM 105. Evidence in the literature suggests that student constructed knowledge through active learning activities in the STEM classroom lead to increased student learning, increased student engagement, increased student retention in the STEM disciplines, and increased interest in STEM from underrepresented minority students. While this project was designed for face-to-face classes, I am currently implementing the work from this sabbatical project under the remote teaching conditions we are under as part of COVID-19 safety protocols.

The second part of my sabbatical proposal involved curating multiple forms of Open Educational Resources (OER) content (interactive content, animations, simulations) to be used in the introductory chemistry classroom. I am developing web-based assignments that can be used to promote student discussion of scientific topics in the context of current events, major life and health issues, and knowledge that students will require in the workplace.

Sabbatical Work Fall 19 Semester

During the Fall 19 semester I performed a comprehensive literature review of active learning in the college classroom, completed on-line courses and webinars focused on active learning in the STEM disciplines, and researched additional open educational resources specific for introductory chemistry.

Sabbatical Work Spring 20 Semester

During the spring I developed active learning activities for key content areas including measurement, metric units and conversions, dimensional analysis, the atom, the periodic table, compounds, chemical reactions and stoichiometry. I continue to modify and refine these activities for use in the remote teaching environment. Additionally I continue to work on developing assignments based on curated OER content with an emphasis on promoting student discussion on relevant topics as described in a previous paragraph.