# DEPARTMENT OF CHEMISTRY AND ENVIRONMENTAL SCIENCE
# VIRTUAL SEMINAR SERIES
# FALL 2020

**DATE:** WEDNESDAY, NOVEMBER 11

**TIME:** 1:00-2:20pm

**LOCATION:** Meeting number: 120 119 5689
Password: EuWfUyEJr0YsiA
https://njit.webex.com/njit/j.php?MTID=me5749cc7a258e4d25900ac3478371cb7
**Join by video system**
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## GUEST SPEAKER

Anne McNeil
Professor of Chemistry
University of Michigan
Ann Arbor, MI

## TOPIC

Making Large Undergraduate Laboratory Courses More Like Research

## ABSTRACT

Laboratory courses introduce students to the discipline's tools, concepts, and ways of thinking through experimentation. There has been a recent shift away from the traditional expository or recipe-based experiments toward inquiry-, discovery-, or problem-based experiments. Similarly, over the last five years, we have completely re-hauled our first-semester undergraduate laboratory course to be more inquiry-driven, informed by the meaningful learning framework, wherein new concepts deliberately build on previously learned concepts to help students connect the new information with their previous knowledge. To adapt meaningful learning for a laboratory context, we introduced the "learn, practice, apply" approach, wherein students first learn a concept or technique, then practice that technique in a different context, and then apply the technique in an organic reaction. This talk will discuss how we applied this approach to teach thin-layer chromatography, liquid-liquid extractions, and green chemistry, each through three, 3-week long modules. Last, we will discuss our assessment metrics, including how this new course impacted student learning and student confidence in the lab.

**BIO**

Anne J. McNeil is currently the Carol A. Fierke Collegiate Professor of Chemistry and Macromolecular Science and Engineering at the University of Michigan. She is also an Arthur F. Thurnau Professor and HHMI Professor. The overarching theme of her research program is to use chemical approaches to solve problems in materials science. She also runs a small research program in chemical education, with the goal of inspiring more students to pursue STEM careers by introducing them to authentic research at an early stage. She is also deeply committed to supporting and promoting people from groups that are historically underrepresented in the field, with numerous initiatives including the website, DiversifyChemistry.com. Prior to Michigan, she was a L'Oreal Postdoctoral Fellow in Prof. Tim Swager's group at MIT. She received her PhD from Cornell University, where she worked with Prof. Dave Collum. She received her BS in Chemistry from the College of William and Mary.

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