

Building the STEM Pipeline: Diversifying Advanced Introductory Courses

Ruben L. Gonzalez, Jr., Professor of Chemistry at Columbia University

Ann McDermott, Esther Breslow Professor of Biological Chemistry at Columbia University

TUESDAY, NOVEMBER 12, 2019, 5–7 PM | Pizza served
James Muyskens Meeting Room (Summit) • Queens College
RSVP: tinyurl.com/diversifyingSTEM

A demographic imperative challenges science educators across the educational spectrum to investigate the underrepresentation of women, lower-income students, and many communities of color in STEM fields and related professions. In many undergraduate science programs, first-year courses are positioned as both prerequisites and gatekeepers for competitive STEM-related programs. Our accelerated introductory chemistry courses typically attract students who are most likely to major and/or seek out research laboratory positions in chemistry or related fields, and the demographic makeup of these accelerated courses indicates the overrepresentation of White and Asian males. In a recent initiative designed to diversify the pipeline to advanced studies in chemistry, we implemented a number of interventions aimed at building a diverse class roster, overcoming stereotype threat, and supporting all students throughout the course. We collected students' quantitative and qualitative feedback as well as metrics of student success (course grades and retention rates). At this workshop, we will examine some of the data and reflect as a group on the possibilities and challenges of interventions designed to make an elite first-year undergraduate chemistry course successful for a diverse range of students. We will conclude by discussing the implications of these kinds of interventions toward building more inclusive higher education pipelines throughout the academy.



Ruben's laboratory uses single-molecule biophysical approaches to investigate the structural dynamics of biomolecular machines. He teaches undergraduate and graduate chemistry and has worked to build STEM pipelines in higher education for the past 15 years.



Ann's research group uses magnetic resonance methods to investigate how conformational exchange of enzymes is coordinated to the chemical reactions they execute. She teaches undergraduate and graduate chemistry and has led equity and diversity outreach for over 25 years.

The **Complicated Conversations Series** addresses the rich and complex benefits and challenges afforded by a diverse student body, faculty, and staff via workshops and seminars on a wide range of topics, such as the intersection of students' raced, classed, gendered, and abled experiences in schools, at Queens College, and in society at large.

—Dr. Limarys Caraballo, Series Organizer, Department of Secondary Education & Youth Services

Hosted by the Department of Secondary Education & Youth Services and several co-sponsors
Funded by the Office of the Provost and the Office of the Dean of Education