

UC SAN DIEGO NANOENGINEERING SEMINAR

Monday, October 29th, 2018 11:00am - 12:00pm

LPSOE Faculty Recruitment Seminar Presentation

ASML Conference Center (SME 248)

“Applications of Chemical Engineering Principles to Bioreactor Design”

Dr. Alyssa Powell

Temporary Lecturer

University of California, San Diego

Abstract: The chemical engineering curriculum is applicable to a wide range of fields, including the chemical, energy, semiconductor, medical, and biotechnology industries. In this seminar, I will discuss how the design of a biopharmaceutical manufacturing facility requires an understanding of material and energy balance, mass and heat transfer, reaction kinetics, process control, and separation process principles. I will focus on teaching the fundamental concept of material balance, using oxygen transfer in a bioreactor as an example. If time permits, I will also cover additional chemical engineering principles as applied to bioreactor design.

Biosketch: Alyssa Powell received her Ph.D. in Chemical Engineering from Stanford University in 2013 under the supervision of Dr. James Swartz. Prior to that, she received her B.S. in Chemical Engineering from University of California Berkeley. For the last 5 years, Dr. Powell worked as an upstream process development scientist at a biotechnology company, Ambrx, Inc. At Ambrx, she developed fed-batch stirred-tank bioreactor processes utilizing bacterial fermentation and mammalian cell culture for biopharmaceutical protein production. Dr. Powell also taught as a temporary lecturer at UCSD for the Fall 2017 and Fall 2018 quarters (CENG 100 and CENG 122).