

NCTM

NATIONAL CENTER FOR
THERAPEUTICS MANUFACTURING

100 Discovery Drive
College Station, TX 77845

PRINCIPLES OF SCALE-UP

Upstream Biomanufacturing and Cell Culture Techniques

August 15-17 2017

This professional development course examines the considerations and challenges in scaling-up bioprocesses. Lecture and hands-on training will cover the applications, platforms, equipment, and variables that are critical to upstream bioprocessing. On Day 1, participants will be introduced to commonly used industrial production platforms and bioreactor configurations and learn the components of multiple bioreactor types. Day 2 will focus on the factors that affect biomanufacturing performance and understanding the effects selected parameters have on product formation. Participants will perform real-time monitoring and trending of cell culture and apply learned concepts toward the development of optimal strategies for productivity and efficiency. The final day of class will present case studies that explore various platforms and scenarios for review and discussion. **Participants will receive 2.4 CEUs upon completion.**

Course Objectives

- Compare and contrast various bioreactor designs and industrial production platforms
- Develop cultivation strategies to improve product formation
- Review physical/chemical relationships in scaling-up bioprocesses
- Evaluate the role critical control parameters such as dissolved oxygen, agitation, pH, and temperature play on cell culture health and product formation
- Analyze real time data and physical parameter trends
- Discuss major scale-up hurdles from lab bench to pilot in order to ensure a successful/reproducible process



Price: \$300 (Course fees subsidized by federal funds)

Class size is limited to the first 12 paid registrants.

REGISTER ONLINE: <https://nctmtp.teex.tamus.edu>

Create Account (if needed), being sure to make note of your User Name and Password. Once your account has been created, select "Login". Enroll in your course of choice from the course catalog.

ABOUT THE INSTRUCTORS

Zivko Nikolov, PhD, is NCTM's Associate Director and Associate Department Head for the Texas A&M Department of Biological and Agricultural Engineering. A Dow Chemical Professor of Bioprocess Engineering, Dr. Nikolov guides NCTM process development efforts and provides technical expertise for coursework. Before joining Texas A&M in 2003, he was Vice President of bioprocess development with ProdiGene Inc., Professor at Iowa State University, and Senior Scientist at Michigan Biotech Institute.

Felipe Nicolau, PhD, is Assistant Research Engineer for NCTM wherein he performs research and training related to cell culturing and upstream biomanufacturing and bioprocessing. Prior to joining NCTM, Dr. Nicolau held various positions in R&D and production for both academia and industry. His primary research interests are in fungal biotechnology where he developed an interest in bioprocess design and safety.

Alexander Wood, MBIOT, is a Research Engineering Associate with the NCTM supporting upstream bioprocessing and mammalian and microbial cell line activities. Mr. Wood serves as lead instructor for NCTM's STEM programs and has developed and taught technical training related to fermentation processes and quality systems administration.

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