

**Symposium on Undergraduate Nano-Education:
"Addressing the Challenges of Nanoscale Science & Engineering Education"**

Presentation: "Nanobiology – A Basic Science in a Nano World"

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Presenter Biography:

Dr. Nathaniel Cady, holds a PhD in microbiology from Cornell University and specializes in research at the interface of nanotechnology and biology. Since becoming an assistant professor at the College of Nanoscale Science and Engineering (CNSE, UAlbany), Dr. Cady has focused on the development of novel biosensor technologies, and is pioneering work on cellular interactions with surfaces. This work includes the study of how surface topography affects cellular adhesion and on the mechanical properties of bacterial biofilms. Dr. Cady's work also focuses on the development of microchip-based sensors for nucleic acid, protein and whole-cell analysis.

Abstract:

Nanobiology bridges the gap between traditional nanoscience/engineering and the exciting world of biological science. A major challenge in teaching nanobiology is to define "what is nanobiology". To address this question, we have developed a series of nanobiology courses that prepare graduate students for research at the interface of nanotechnology and biology. Starting from basic biological concepts our program is designed to teach both fundamental biological concepts and the underlying nanoscale phenomena that is responsible for many biological processes. Most recently, this core nanobiology curriculum has been extended to cover the applications of nanotechnology in the biosciences. A survey of our curriculum and examples of teaching/learning strategies will be discussed.