



**BIOINFORMATICS 2014 FALL SEMINAR SERIES**

Hosted by: Center for Bioinformatics and Computational Biology  
Department of Computer and Information Sciences, &  
Department of Electrical and Computer Engineering  
<http://bioinformatics.udel.edu/seminars>

**MONDAY, October 20, 2014**  
**3:30pm**  
**DBI Room 102**

**Simulating life –  
How computers are shaping biomedical research**

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<http://www.niaid.nih.gov/LabsAndResources/labs/aboutlabs/lb/computationalBiology/Pages/default.aspx>

**ABSTRACT:** Faced with the complexity of living systems, biomedical research has traditionally focused on strongly confined questions that could be answered with experiments providing ‘yes-or-no’ answers, for example, blocking a component A will modify the behavior of another component B’. Driven by recent advances in experimental techniques that permit high-throughput profiling of biological samples or acquiring high-resolution images at the sub-cellular level, the ambition of researchers has become to understand the function of entire networks of interacting components underlying physiological regulatory processes. Fortunately, we are currently witnessing break-throughs in computational capabilities that parallel those seen in the experimental realm. Using examples from cellular signaling pathways and cell migration assays I will discuss how computational approaches allow us to test hypotheses that could not be explored without such support. I will extrapolate to suggest that realistic simulations will be driving elements of biomedical research in the not too far future.