



**BIOINFORMATICS 2017 Spring SEMINAR SERIES**

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

**MONDAY, April 3, 2017**  
**3:30pm**  
**DBI Room 102**

## **Statistical And Computational Approaches for a Multi-Omics Understanding of Heat Stress Across Organs**

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**ABSTRACT:**

The advent of affordable high throughput methods has produced datasets of unprecedented size and complexity. It is now possible to analyze a biological response from the perspective of different “-omics”. However, computational methods to move from data to insight are lacking. Here, we present strategies that we have used to understand the heat stress response in broiler chicken from a large, tissue rich data set. We combine transcriptomics from several hundred samples to identify modules of genes relatively enriched in specific tissues. This is complemented with several liver metabolomic samples. By leveraging statistical learning techniques, we are able to identify important gene and metabolite biomarkers of the heat stress response and place them in a biological context. Our pipelines provide an excellent system to generate informed hypotheses from high dimensional data, enabling a loop between experimentation and analysis.