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Discrete Mathematics Seminar

Time: Friday, September 16, 2016, 2:15-3:15 PM
Room: 237 Derrick Hall
Title: What patterns does DNA methylation have?
Speaker: Dr. Shuying Sun, Department of Mathematics

Abstract:

DNA methylation is an epigenetic event. It plays a significant role in both normal and cancerous cell development. Specifically, it regulates the expression of genes in cancerous cells. Therefore, it is important to study DNA methylation patterns in cancer samples. Examples of different cancer DNA methylation patterns are differential methylation, heterogeneity, hemimethylation, and co-methylation. In this talk, I will introduce these patterns and show the statistical methods and algorithms that we have developed to identify different patterns. These methods and algorithms include two hidden Markov model-based methods (HMM-Fisher and HMM-DM), a first-ever hemimethylation identification pipeline (HMPL), and some previous and ongoing research projects conducted with Honors Summer Math Camp students.