

# NISS/SAMSI Affiliate Update

December 2012

## 2013-14 SAMSI Programs

### Program on Computational Methods in Social Sciences

This SAMSI program will bring together statisticians, computational mathematicians and social scientists to develop new methodology and applications in the context of modern social science datasets.

The structure of the program will revolve around three major areas where new statistical and computational methodology are being developed for social science problems: (a) social networks; (b) agent-based models; (c) new methodology for censuses and surveys. The three areas are not independent and there are many possibilities for interactions among them, for instance, in the use of network designs in surveys or in agent-based models as a tool for studying the evolution of dynamic social networks. Another likely theme is *causal inference*, which is a topic of interest in connection with all three of the major areas of the program. [Click here](#) for details on the program and how to apply.

### Low-Dimensional Structure in High-dimensional Systems

The LDHD program is devoted to the development of methodological, theoretical, and computational treatment of high-dimensional mathematical and statistical models. Possibly limited amounts of available data pose added challenges in high dimensions. The program will address these challenges by focusing on low-dimensional structures that approximate or encapsulate given high-dimensional data. Cutting edge methods of dimension reduction will be brought together from probability and statistics, geometry, topology, and computer science. These techniques include variable selection, graphical modeling, classification, dimension reduction in matrix estimation, empirical processes, and manifold learning. For more information and to apply, [click here](#).

## SAMSI Summer Programs

### Neuroimaging Data Analysis

The term "Neuroimaging Data Analysis" (NDA) encompasses a broad array of imaging, mathematical, and statistical methods for the analysis of neuroimaging data. We will be analyzing high-dimensional, correlated, and complex neuroimaging data as well as clinical and genetic data obtained from various cross-sectional and clustered neuroimaging studies. The neuroimaging studies usually collect structural, neurochemical, and functional images as well as clinical and genetic data, all of which will be discussed during this program.

**When:** June 4-14, 2013

## Featured Affiliate - National Agricultural Statistics Service (NASS)

The National Agricultural Statistics Service (NASS) is the survey and estimation arm of the U.S. Department of Agriculture. NASS conducts hundreds of surveys each year and conducts a Census of Agriculture every five years. These national surveys, in combination with various sources of available administrative data, form a rich data basis for forecasting/estimating a broad array of farm and rural characteristics covering virtually every aspect of U.S. agriculture. Production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, farm finances, chemical use, and changes in the demographics of U.S. producers are some examples of the statistical data gathered by NASS.

For more information about NASS, [click here](#).

**Where:** Research Triangle Park, NC  
**Deadline to apply:** **March 15, 2013**  
[Details here.](#)

### **Modern Statistical and Computational for Analysis of Kepler Data**

This three week mini-research program will focus on statistical and computational challenges associated with analyzing exoplanet data from NASA's Kepler mission. The Kepler mission is designed to survey a portion of our region of the Milky Way galaxy to discover dozens of Earth-size planets in or near the habitable zone and determine how many of the billions of stars in our galaxy have such planets.

The first day (Monday, June 10, 2013) will consist of invited talks (~20-30 minutes each + questions) chosen: 1) to highlight key problems that can be addressed using Kepler data, 2) to help participants understand the nature of Kepler data, and 3) to provide an introduction to selected statistical methods that are likely to be applied during the program.

**When:** June 10-28, 2013  
**Where:** Research Triangle Park, NC  
**Deadline to apply:** **May 10, 2013**  
[Details here.](#)

### **LDHD Summer School**

Please see the full program description above under Low-Dimensional Structure in High-dimensional Systems.

**When:** August 11-16, 2013  
**Where:** Research Triangle Park, NC  
[Details here.](#)

## **SAMSI Events**

### **SAMSI/NCAR Workshop on Massive Datasets in Environment and Climate**

**When:** February 13-15, 2013  
**Where:** Mesa Lab, National Center for Atmospheric Research (NCAR), Boulder, Colorado  
[Details here.](#)

### **Undergraduate Workshop Focusing on Data-Driven Decisions in Healthcare**

**When:** February 22-23, 2013  
**Where:** Research Triangle Park, NC  
**Deadline to apply:** **January 25, 2013**  
[Details here.](#)

### **SAMSI/SAVI Workshop on Environmental Statistics**

**When:** March 4-6, 2013  
**Where:** Research Triangle Park, NC  
**Deadline to apply:** **February 8, 2013**  
[Details here.](#)

### **Transition Workshop, Data-Driven Decisions in Healthcare**

**When:** May 9-10, 2013  
**Where:** Research Triangle Park, NC  
Details to come.

### **Undergraduate Modeling Workshop**

**When:** May 13-17, 2013  
**Where:** Research Triangle Park, NC and NCSU  
Details to come.

P.O. Box 14006, Research Triangle Park, NC  
[www.niss.org](http://www.niss.org) and [www.samsi.info](http://www.samsi.info)



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