

# **NISS/SAMSI University Affiliates Program**



**National Institute of Statistical Sciences  
Statistical and Applied Mathematical Sciences Institute  
19 T.W. Alexander Drive  
P.O. Box 14006  
Research Triangle Park, NC 27709-4006**

# Benefits of Membership

The **NISS/SAMSI University Affiliates Program** is jointly sponsored by the **National Institute of Statistical Sciences (NISS)** and **Statistical and Applied Mathematical Sciences Institute (SAMSI)** and offers membership to mathematical science departments and programs. The Affiliates Program takes advantage of the complementary missions (and proximity) of NISS and SAMSI offering faculty of participating departments important opportunities for shaping and participating in the activities of both institutes, and for interaction with other participants.

The American Statistical Association recognized the vitality and importance of the affiliates program by presenting its 2005 SPAIG Award to the NISS Affiliates and NISS/SAMSI University Affiliates.

## Missions

### **National Institute of Statistical Sciences (NISS)**

To identify, catalyze and foster high-impact *cross-disciplinary research* involving the statistical sciences.

### **Statistical and Applied Mathematical Sciences Institute (SAMSI)**

To forge a new synthesis of the statistical sciences and the applied mathematical sciences with disciplinary science to confront the very hardest and most important data- and model-driven scientific challenges.

### **NISS/SAMSI University Affiliates Program**

To conduct activities and services encompassing dissemination, education, research, professional development and the formation of relationships that simultaneously deliver high value to its members and support the missions of NISS and SAMSI.

## Benefits: Networking and Information Exchange

**As a NISS/SAMSI University Affiliate, your department will benefit from interactions with colleagues at NISS and SAMSI sponsored technical workshops and planning functions.**

University Affiliates enjoy unique opportunities for interaction, information exchange, and networking with like-minded academic colleagues and their government and industry counterparts. NISS workshops are an ideal locale for faculty wishing to orient their research in cross-disciplinary directions. Participation in SAMSI Research Programs through membership in a Working Group, which is now possible even for those located outside the Research Triangle, provides opportunities for statisticians and applied mathematicians to establish collaborations. Affiliates benefit from interactions with colleagues at NISS and SAMSI sponsored workshops, as participants on cross-disciplinary research teams, and at planning meetings. Visits of various lengths to SAMSI by faculty and their graduate student offer opportunities for establishing collaboration and interchange with leading researchers.

## Benefits: Human Resources and Professional Development

Through its national reach within the statistical and mathematical sciences community, NISS and SAMSI serve your department by supporting faculty recruiting and professional development. Advance notice and preferential consideration are given to affiliate departments.

Current activities include:

- **Federal Agency Affiliate Postdoctoral Program**  
Postdoctoral fellows are appointed by NISS for 2-3 year terms in challenging assignments at the Federal agencies, principally in Washington, DC. Such positions may be especially attractive to recent graduates who are not U.S. citizens.
- **Industrial Mathematical and Statistical Modeling Workshop**  
A CRSC/SAMSI sponsored annual workshop in which graduate students in mathematics and statistics, working in teams, explore challenging real-world problems arising in industrial and government laboratory research. Many problems are provided by NISS Corporate Affiliates.
- **Undergraduate Summer Workshop**  
A SAMSI sponsored one-day activity attended by college juniors and seniors (and sponsoring faculty) providing instruction and hands-on experience with real-world problems involving statistics and applied mathematics. Students are exposed to problems related to active SAMSI Research Programs.
- **Affiliates Job Listing Service**  
A NISS service that provides a portal to job listings for all affiliates, and is available at <http://www.niss.org/affiliates/ajls.html>.

## Research Benefits

**As a NISS/SAMSI University Affiliate your representative will contribute to the planning of NISS and SAMSI research initiatives. Through regular communications, NISS/SAMSI keeps affiliates well informed of planning activities. Their input is solicited at scheduled planning forums. Members have access to NISS and SAMSI directors and are kept informed of opportunities for participation in NISS and SAMSI research.**

University Affiliates inform the nature and direction of cross-disciplinary research programs at NISS. Industry, government and national laboratory affiliates bring attention to research problems of broad-reaching interest and contribute required data. NISS organizes research teams to develop proposals for financial support of the work and to carry out the research. Typically, such teams are a mix of personnel from affiliates organizations accompanied by a senior NISS researcher and one or more NISS postdoctoral fellows. Generally, NISS postdoctoral fellows contribute heavily to the team's work.

Monthly email updates and a quarterly newsletter provide timely event-specific information and program updates regarding the progress of NISS and SAMSI initiatives and planning activities. Communications highlight opportunities for participation. Periodic visits by NISS personnel to Affiliate departments improve the understanding by the general faculty of opportunities at NISS and SAMSI, and promote two-way discussion.

SAMSI conducts three one- or two-semester programs each year focused on issues of theory and methodology in the statistical and applied mathematical sciences, and framed by problems in disciplinary science. Some SAMSI programs interact strongly with cross-disciplinary projects at NISS, while others arise from the national community. The SAMSI agenda is a key topic at affiliates planning meetings, and the presence of SAMSI directorate members at these meetings offers the opportunity to influence the future direction of SAMSI Research Programs.

Annually SAMSI takes a national Education and Outreach Program for undergraduate and graduate students interested in statistics and applied mathematics and their application in the disciplinary sciences.

# SAMSI Research Programs

SAMSI organizes its activities around Research Programs focusing on scientific problem areas or areas defined by statistical and mathematical themes that cut across multiple scientific contexts. As a NISS/SAMSI University Affiliate, your representative will attend meetings with SAMSI directors to help identify and plan future research programs.

Research Programs come in three types: **Focused Study Programs** (that push the research far enough to ensure that the catalysis “takes”), **Synthesis Programs** (that assimilate and synthesize existing research, and identify critical research directions and make theoretical and methodological recommendations), and **Pilot Programs** (that undertake small workshops or investigations to explore the possibility of a major SAMSI program in an emerging area).

## **SAMSI Research Programs completed in 2004-5:**

- **Latent (Hidden) Variable Models in the Social Sciences** (Full-year program)
- **Genomes to Global Health: Computational Biology of Infectious Diseases** (Full-year program)
- **Data Assimilation for Geophysical Systems** (Spring and Summer 2005)
- **SAMSI Education and Outreach Program**

## **Current SAMSI Research Programs in 2005-06:**

- **Financial Mathematics, Statistics, and Econometrics** (Fall 2005)
- **National Defense and Homeland Security** (Full-year program)
- **Astrostatistics** (Spring 2006)
- **SAMSI Education and Outreach Program**

## **SAMSI Research Programs scheduled for 2006-2007**

- **High Dimensional Inference and Random Matrices** (Fall 2006)
- **Development Assessment and Utilization of Complex Computer Models** (Full-year program)
- **SAMSI Education and Outreach Program**

# NISS Cross-Disciplinary Research

As a NISS/SAMSI University Affiliate, your representative will attend planning meetings at which topics for future NISS research are formulated. The areas described below indicate the nature and scope of cross-disciplinary research taken by NISS.

## **Digital Government**

Development of theory, methodology and software systems that enable Federal statistical agencies to meet their mandates to both protect confidentiality of their data and disseminate useful information derived from those data.

Data Confidentiality: George T. Duncan, CMU; Stephen E. Fienberg, CMU; Michael Larsen, Iowa State; Stephen Roehrig, Aleksandra Slavkovic, Penn State; Lynne Stokes, SMU. Involvement of government affiliates: BLS, Census, NASS, NCES and NCHS.

Data Confidentiality, Data Integration and Data Quality: Involving, in addition, BTS, Michigan and Purdue.

## **Software Engineering**

Techniques for software testing and profiling based on light-weight instrumentation of fielded software: Novid Notkin, Washington; Adam Porter, Maryland; Alex Orzo, Georgia Tech; Douglas Schmidt, Vanderbilt.

## **Social Networks**

Models for dynamics of social networks: Kenneth Bollen, UNC; David Banks, Duke; H.T. Banks, NCSU; Kathleen Carley, CMU; Negash Medhin, NCSU.

## **Data Quality**

Initial projects with BTS and EPA, and the DGII project.

## **Education Statistics**

Studies and reports for the NCES addressing such topics as high school graduation, completion and dropout indicators, U.S. participation in international assessments, and surveys to determine Title IX compliance

## **NISS Technical Meetings**

**NISS workshops, short courses and Technology Days are planned with the primary objective of serving Affiliates. As a NISS/SAMSI University Affiliate, your representative will attend planning meetings at which topics for future NISS technical meetings are developed.**

## **Annual Planning and Business Meetings for Affiliates**

**As a NISS/SAMSI University Affiliate, your representative will attend annual meetings where information is given and opportunities are provided to participate in planning of future directions.**

Regularly scheduled meeting:

Affiliates Planning Meeting, on the first Friday in March, at NISS/SAMSI headquarters or an affiliates site  
JSM Affiliates Meeting, in August on Sunday of the Joint Statistical Meetings

## **Proposal Development Grants Benefit**

A competitive grants program supported by the Affiliates Proposal Development Fund provides grants to NISS/SAMSI University Affiliates to help pay expenses associated with the development of cross-disciplinary research proposals. An annual \$25,000 pool provides support for up to two such awards. Allowable costs include workshops, travel, graduate and postdoctoral time, acquisition of test-bed data, and pilot analyses. PI or co-PI salaries and indirect costs may not be covered. For details, see <http://www.niss.org/affiliates/apdf/apdf.html>

## **Fees and Financial Benefits**

**One-half of the membership fee is available on account to the affiliates to defray the cost of their full engagement in the program.**

The annual membership fee for NISS/SAMSI University Affiliates is \$3,000 per year. Membership runs July 1 through June 30. Two or more departments on the same campus of an institution may share a membership, but must also share benefits. Advanced payment of fees for multiple years is possible.

### **Annual meeting cost support**

Expenses incurred by one affiliate representative attending the affiliates annual meeting (held in March at an affiliate site or at NISS headquarters) are reimbursed.

### **Registration fee waived**

Registration fees of \$1,500 normally charged for NISS short courses are waived for affiliates.

### **Discounted membership fees**

Departments at institutions that do not offer the doctoral degree in a mathematical science field may be eligible for discounted rates. Interested departments should contact Alan Karr (919.685.9300 or [karr@niss.org](mailto:karr@niss.org))

# Current NISS/SAMSI University Affiliates

University of California - Berkeley, Department of Statistics  
Carnegie Mellon University, Department of Statistics  
Duke University, Institute of Statistics and Decision Sciences, and Department of Mathematics  
Emory University, Department of Biostatistics

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University of Florida, Department of Statistics  
Florida State University, Department of Statistics  
George Mason University, Department of Applied and Engineering Statistics  
University of Georgia, Department of Statistics

—  
University of Illinois Urbana-Champaign, Department of Statistics  
Iowa State University, Department of Statistics  
University of Iowa, Department of Statistics

—  
Johns Hopkins University, Department of Applied Mathematics and Statistics  
University of Michigan, Departments of Statistics and Biostatistics  
University of Missouri - Columbia, Department of Statistics

—  
North Carolina State University, Department of Statistics  
North Carolina State University, Department of Mathematics  
University of North Carolina at Chapel Hill, Department of Statistics  
University of North Carolina at Chapel Hill, Department of Biostatistics  
University of North Carolina at Chapel Hill, Department of Mathematics

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Oakland University, Department of Mathematics and Statistics  
Ohio State University, Department of Statistics  
Pennsylvania State University, Department of Statistics

—  
Purdue University, Department of Statistics  
Rice University, Department of Statistics  
Rutgers University, Department of Statistics  
Southern Methodist University, Statistical Science Department

—  
Stanford University, Department of Statistics  
Texas A&M University, Department of Statistics  
Virginia Commonwealth University, Department of Biostatistics