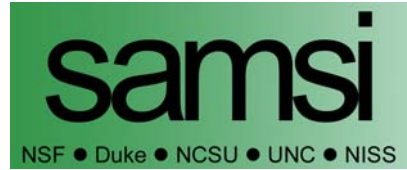


NISS



NISS Affiliates NISS/SAMSI University Affiliates 2006 JSM Meeting

August 6, 2006
Seattle, WA

Agenda

11:00 AM	Welcome and Introductions
11:10	Program Status, NISS Updates, Affiliates Initiatives - Alan Karr - Nell Sedransk - Stanley Young
12:10 PM	Location and Dates for 2006 Annual Meeting
12:15	Lunch and Networking
1:15	SAMSI: 2006-07 and Beyond - James Berger
1:45	Open Discussion
2:00 (or earlier)	Adjourn

Developments at NISS

- Appointment of Nell Sedransk as associate director
 - Nell is also NISS member of SAMSI directorate
- Expanded activity in education statistics
 - ESSI-Statistics
 - NESSI
- New programs
 - New Research Fellowships
 - NISS/Odum Institute Postdoc Program
- Building expansion
- SAMSI renewal

Current NISS Affiliates

- **Corporate:** *AT&T Labs Research*, Avaya Labs, Bell Labs, Aventis Pharmaceuticals, General Motors, GlaxoSmithKline, ICAGEN Inc., Merck & Company, Metabolon, Inc., MetaMetrics, Inc., Nuevolution, RTI International, SAS Institute, SPSS, Telcordia Technologies, Wyeth, Xerox Innovation Group
- **Federal agency + national lab:** Bureau of Labor Statistics, Census Bureau, Los Alamos National Laboratory, National Agricultural Statistics Service, National Cancer Institute, National Center for Education Statistics, National Center for Health Statistics, National Institute of Standards and Technology, National Security Agency

Current NISS-SAMSI University Affiliates

University of California, Berkeley (Statistics), Carnegie Mellon (Statistics), Connecticut (Statistics), Duke (Statistics and Decision Sciences & Mathematics), Emory (Biostatistics), Florida (Biostatistics & Statistics), Florida State (Statistics), George Mason, Georgia (Statistics), Illinois Urbana-Champaign (Statistics), Iowa (Statistics), Iowa State (Statistics), Johns Hopkins (Applied Mathematics/Statistics), Michigan (Statistics & Biostatistics), Missouri-Columbia (Statistics), North Carolina State University (Mathematics; Statistics), North Carolina at Chapel Hill (Biostatistics; Mathematics; Statistics/Operations Research), Oakland (Mathematics/Statistics), Ohio State (Statistics), Pennsylvania State (Statistics), Purdue (Statistics), Rice (Statistics), Rutgers (Statistics), South Carolina (Statistics), Southern Methodist (Statistical Science), Stanford (Statistics), Texas A&M (Statistics), Virginia Commonwealth (Biostatistics)

Affiliates Events: Jan-Jun 2006

<i>Event</i>	<i>Dates</i>	<i>Location</i>
SAMSI ASTRO Opening Workshop	1/22-25/06	RTP
SAMSI FMSE Model Uncertainty Workshop	1/27/06	NISS
SAMSI NDHS Anomaly Detection Mid-Program Workshop (MPW)	2/3/06	NCHS, Hyattsville
SAMSI FMSE Transition Workshop	2/26-28/06	RTP
SAMSI NDHS Social Networks MPW	3/2/06	CMU
SAMSI NDHS Data Confidentiality MPW	3/13/06	NCHS
Workshop on Survey Costs	4/18-19/06	NCES, DC
Affiliates Annual Meeting	4/27-28/06	Athens, GA
Chemometrics Mini-Workshop	5/17-19/06	NISS
SAMSI Undergrad Workshop	5/22-26/06	NCSU
Interface 2006 (*)	5/24-27/06	Pasadena
SAMSI ASTRO Transition Workshop	6/11-14/06	Penn State

2006 Annual Meeting



2006 Annual Meeting



2006 Annual Meeting

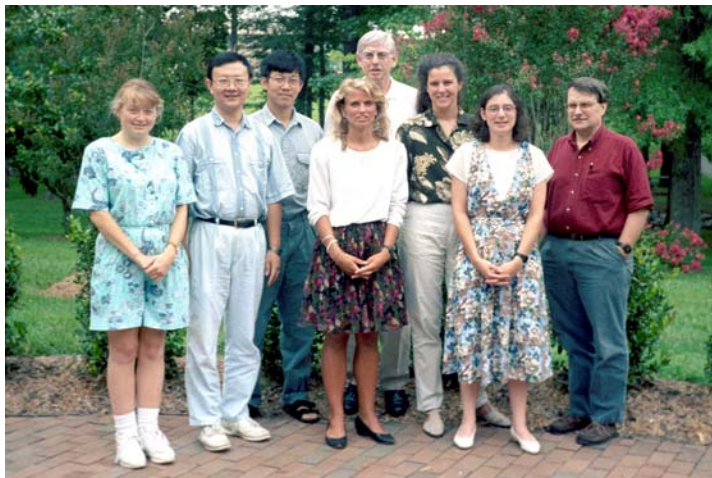


Affiliates Events: Jul-Dec 2006

<i>Event</i>	<i>Dates</i>	<i>Location</i>
SAMSI Summer Program on Multiplicity ...	7/10-28/06	NISS
IMSM '06	7/24-8/1/06	NCSU
NISS Fifteenth Anniversary Dinner	8/5/06	Seattle
JSM Affiliates Meeting	8/6/06	Seattle
NISS/SAMSI JSM Reception	8/7/06	Seattle
Summer School on the Design and Analysis of Computer Experiments	8/11-16/06	IRMACS, Simon Fraser U
QT Working Group Meeting	Sept, TBD	Philadelphia
SAMSI COMPMOD Opening Workshop	9/10-14/06	RTP
SAMSI HD/RM Opening Workshop	9/17-20/06	RTP
Sixth Annual Winemiller Conference: Methodological Developments of Statistics in the Social Sciences (*)	10/11-14/06	Columbia, MO (UMo)
Chemometrics Workshop	Fall 06	NISS
Army Conference on Applied Statistics (*)	10/06	RTP

From the NISS Archives

First Cohort of Postdocs



Construction Boss



NISS Building Dedication



Inaugural Affiliates Meeting



Supporters of NISS



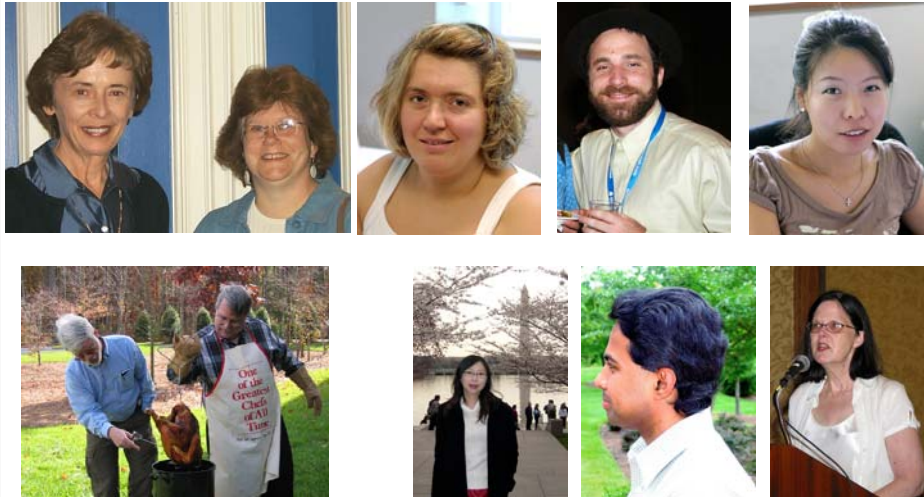
Sacks Award Winners



SPAIG Award



NISS People



Current NISS Postdocs

Name	Ph.D. University	Came to NISS	Principal Activity
Michael Last	UC Davis	2005	LWI
Anna Oganian	Catalonia Polytechnic	2003	Data confidentiality
Mi-Ja Woo	Georgia	2005	Data confidentiality

Research Initiatives

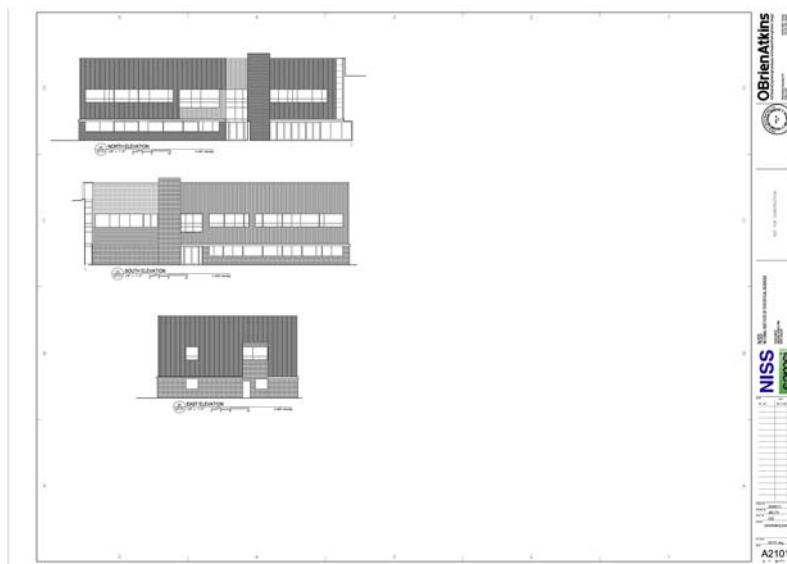
- New thrusts in data confidentiality
 - Bayesian characterization of transparency risk and utility
- Survey cost modeling
 - Agent-based simulation model
 - Outgrowth of 4/06 survey cost workshop
- NIH projects

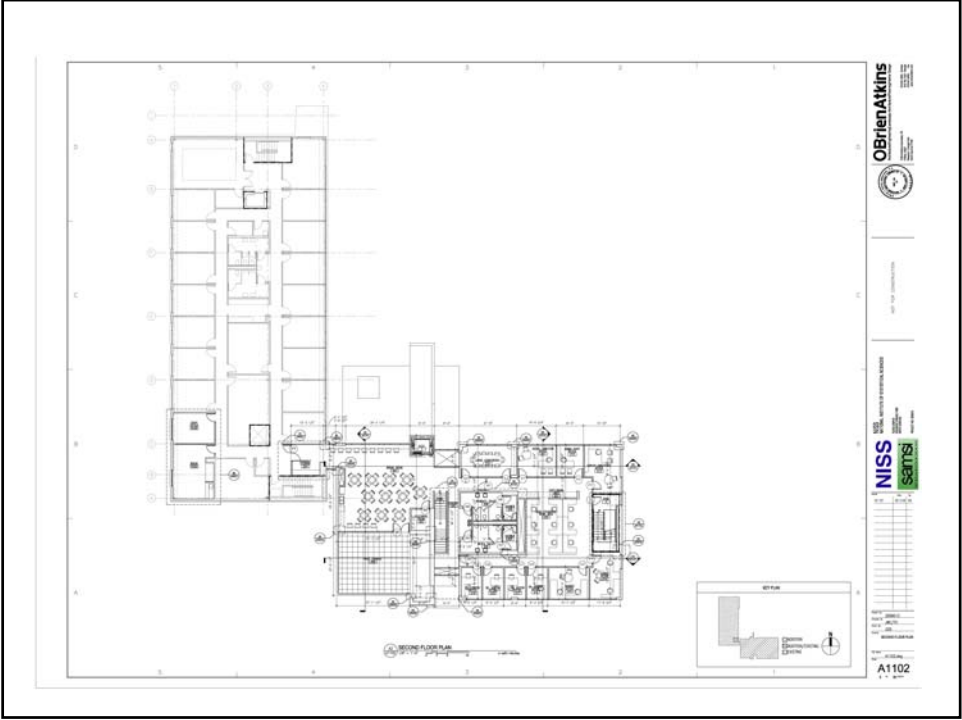
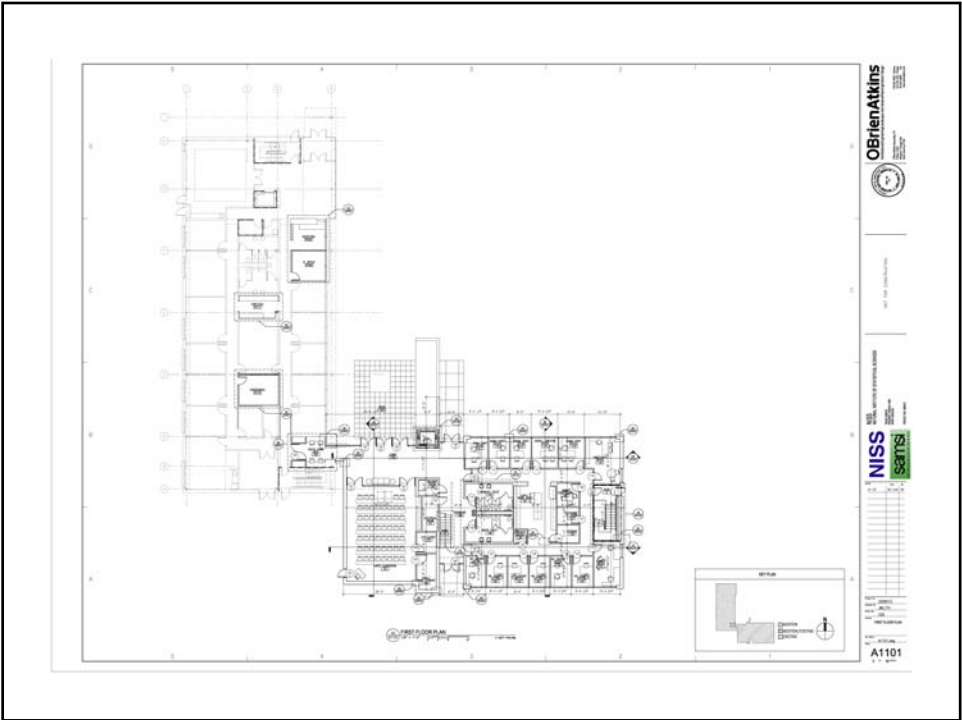
Research Initiatives

- Experimental analysis of algorithms
 - Workshop at DIMACS: 4/06
- Evidentiary statistics
- Proteomics
- Biomedical imaging

Building Expansion

- Needed to accommodate
 - Larger NISS called for by Strategic Vision
 - Larger SAMSI called for by renewal proposal
- Rough parameters
 - 11,600 square feet on two floors
 - Extend southeast from current building
 - Contain offices, large classroom, informal meeting space
 - \$3+ M (?????)
 - Construction: early 2007
 - Occupancy: 1/1/2008





New Researcher Fellowships

- Purpose: Engage new researchers in ongoing NISS projects
- Structure
 - One-month visit to NISS (usually, in summer)
 - Continuing collaboration
 - Participation in follow-on proposals
- 2006 Recipients
 - Scott Holan, University of Missouri
 - Sherry Wang, Southern Methodist University

Room 203 Improvements

- Purpose: facilitate out-of-Triangle participation in SAMSI and NISS activities
- Room will have
 - Full-scale video conferencing
 - Teleconferencing via bridge lines
 - Smart Board for use in WebEx meetings
- Completion: September

“Ongoing” Affiliates Initiatives

- Mobile annual meeting
- Workshops at affiliate sites
- Conference co-sponsorships
- Events hosted by affiliates
- All of these are ARA-eligible!
 - Except the annual meeting, which is a benefit of membership

“New” Affiliates Initiatives

- Affiliates Working Groups
- Exploration Workshops
- Web Meetings
- Flashier monthly updates

Affiliates Working Groups

- Purpose: Move from discussion to research of direct benefit to affiliates
 - Research could be affiliate-funded, agency-funded, ...
 - Affiliates program can fund (limited) project development costs
- Outcomes
 - Completed research (papers, ...)
 - Proposals, including funding for joint postdocs
- Stimuli
 - Discussions at 4/28/06 Annual Meeting
 - Visits to affiliates

Initial Working Groups

- QT for Pharmaceuticals
 - Focus: Methods for analyzing effects on compounds on QT
 - NISS Leaders: Sedransk, Young
 - Participants: GSK (tentative), Merck, Wyeth, others TBD
- Data Confidentiality
 - Focus: Multiple, e.g., transparency risk and utility
 - NISS Leader: Karr
 - Participants: AT&T (?), NCES, NCHS

Initial Working Groups

- Data Quality
 - Focus: TBD. One possibility is predictive models for data quality.
 - NISS Leader: Karr
 - Participants: TBD
- Other Possibilities
 - Survey Cost Modeling
 - ?????

Working Group Operation

- Formation
 - At affiliates meetings
 - As a result of ongoing discussions
- Face-to-Face Kickoff Meeting
 - Could be coupled with Technology Day or Workshop
- Regular Web/teleconferences
 - Weekly? Monthly?

Exploration Workshops

- Purposes
 - Address key questions
 - EXPLORE: What are the opportunities for the statistical sciences in area X?
 - Example: 12/02 NISS-LANL sponsored meeting on NDHS
 - MOVE: Now that (Affiliates, CATS, ...) has identified issues associated with area Y, how does the community move to address them?
 - Example: 4/06 Survey Cost Workshop
 - Help NISS and SAMSI set priorities and serve community
- Mechanism
 - Ideas from affiliates (only)
 - Committee of affiliates will review and select
 - Held at affiliate sites if possible
- Plan: 2-3 per year

Web Meetings

- NISS and SAMSI will both use WebEx to support working group meetings
 - Features include
 - Shared desktop
 - Annotation
 - Multiple platforms
 - Up to 15 non-Triangle participants
- Continue to use teleconference bridges
 - Up to 32 non-Triangle participants

NISS/SAMSI Reception

- Monday, 5-7 PM, Sheraton Cirrus Ballroom
- 2006 Sacks Award Winner
 - A????? R?????
- 2006 NISS Distinguished Service Awards
 - N????? F?????
 - I????? O?????
 - J????? S?????
 - D????? S?????

The logo for SAMSI (Statistical and Applied Mathematical Sciences Institute) features the word "samsi" in a bold, lowercase, sans-serif font. The letters are black and set against a green rectangular background that has a gradient from a darker green on the left to a lighter green on the right. The letter 'i' has a small black square dot above it.

samsi

NSF • Duke • NCSU • UNC • NISS

SAMSI Summary

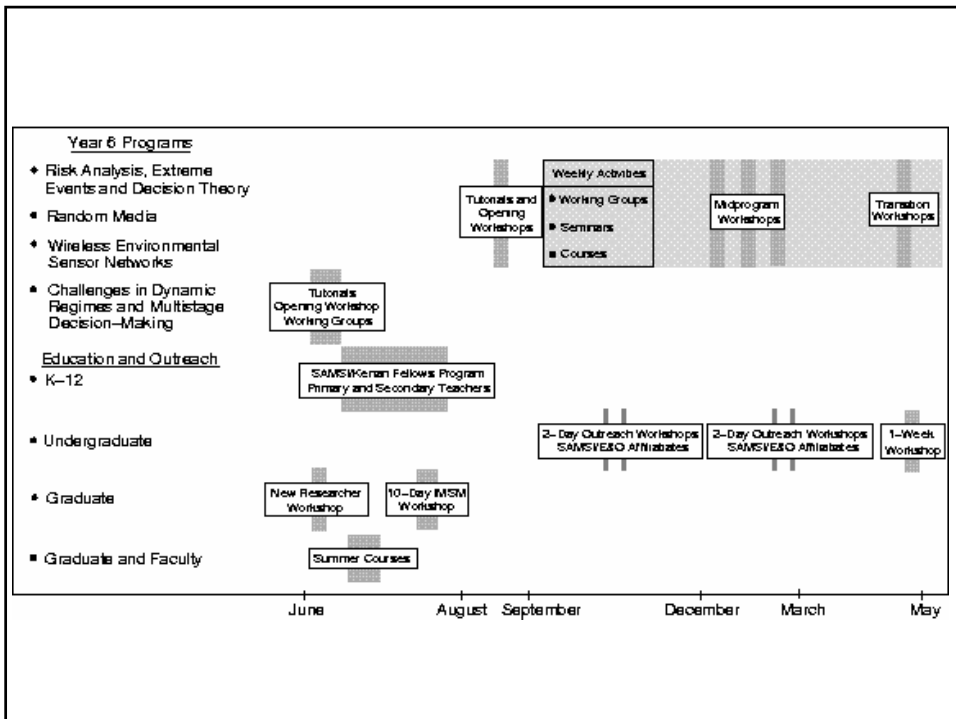
- Renewal proposal for 2007-12
 - Significantly increased scale: \$3.5M/year
 - Institutes are not centers
 - Reviews of the renewal proposal were strong overall
 - SAMSI is successful
 - SAMSI responded well to the third-year review
 - Site visit: October 9-11, 2006
 - New space being planned
- Evolving directorate
 - Currently, Jim Berger (Duke), Chris Jones (UNC), Alan Karr/Nell Sedransk (NISS), Ralph Smith (NCSU)
- For past activities, reports on programs, etc., see the webpage.

Enhancing National Involvement with SAMSI

- Deputy Director
 - 2 year, rotating position, filled from national statistics or applied math community
 - Multiple, negotiable roles
- National program leadership
- National leadership on the Governing Board
- National participation in working groups
 - Earlier this year: teleconference + previously shared material
 - Currently: teleconference + shared workspace
 - Next year: full-scale video/data conferencing

SAMSI Programs

- 3 full research programs per year, at interfaces
 - Involve both statistics and applied math
 - Often involve probability, computational sciences, OR
- Intensive summer programs
- Education and outreach programs
- Planning/hot topics/brainstorming workshops



Opportunities for Participation

- Proposing and leading a research program
- Visiting researchers (short and long term)
- Workshop participation
- Providing testbed problems and data
- Postdoctoral opportunities (2+ years)
- Graduate students
 - participate in major research programs
 - summer interdisciplinary workshops and schools
- Undergraduate workshops
- K-12 fellows for curriculum development

Influence of Affiliates on SAMSI

- Program planning and involvement
 - 2003-04: INT, DMML
 - 2004-05: LVSS
 - 2005-06: NDHS
 - 2006-07: Computer Models
 - 2007-08: Risk Analysis
- Activities
 - Intensive summer research programs
 - Summer schools and technology transfer workshops
 - Enhanced involvement of graduate students in programs
 - Technologies for remote participation in working groups

Past SAMSI Programs

- 2002-03
 - Inverse Problem Methodology in Complex Stochastic Models
 - Large Scale Computer Models for Environmental Systems
 - Challenges in Stochastic Computation
- 2003-04
 - Network Modeling for the Internet
 - Multiscale Model Development and Control Design
 - Data Mining and Machine Learning
- 2004-05
 - Latent Variable Models in the Social Sciences
 - Data Assimilation in Geophysical Systems
 - Computational Modeling of Infectious Disease
- 2005-06
 - National Security and Homeland Defense
 - Financial Mathematics, Statistics and Econometrics
 - Astrostatistics
 - Multiplicity and Reproducibility in Scientific Studies

2006-07 Programs

- Development, Assessment and Utilization of Complex Computer Models
- High Dimensional Inference and Random Matrices
- Summer Program on Dynamic Treatment Regimes and Multi-Stage Decision Making:
June 18-29, 2007
 - Leaders: Marie Davidian (NCSU), Susan Murphy (Michigan)

Development Assessment and Utilization of Complex Computer Models (full year)

- **Activities**
 - Summer school for students, postdocs, and others
 - August 11-16, 2006 at Simon Fraser University
 - 2 day short course; 2 days of software; 2 days of hands-on practice
 - Opening workshop will be September 10-14, 2006
 - Working groups meet throughout the year
 - Numerous workshops and other research events organized by the subprograms (including two joint with NCAR)
- **Program Leaders:** Susie Bayarri (U. Valencia, Chair), Bruce Pitman (U. Buffalo), Peter Reichert (EAWAG), Tom Santner (OSU), Darren Wilkinson (U. Newcastle); Dave Higdon (LANL Liaison), Scott Mitchell (Sandia Liaison), Derek Bingham (Simon Fraser U., Liaison to the Canadian National Program and Complex Data Structures); James Berger (SAMSI, Directorate Liaison), and Mary Wheeler (National Advisory Committee Liaison)

Subprograms

- **Engineering Models**
 - Program Leader: Tom Santner (Ohio State University, Chair), David Higdon (LANL), Angela Patterson (General Electric Research)
- **Granular Flow and Fluid Models**
 - Program Leaders: Bruce Pitman (U. Buffalo, Chair), Luis Pericchi (Univ. Puerto Rico); Sorin Mitra (UNC-Chapel Hill, Local Scientific Coordinator)
- **Environmental/Ecological Models**
 - Program Leaders: Peter Reichert (EAWAG, Chair), Lenny Smith (LSE); Ken Reckhow (Duke) and Montse Fuentes (NCSU) - Local Scientific Coordinators
 - *Working groups in Aquatic Models and in Atmospheric/Climate Models*
- **Systems Biology Working Group**
 - Working Group Leader: Darren Wilkinson (U. Newcastle), Tom Banks (NCSU, Local Coordinator)
- **Methodology**
 - Program Leaders: Susie Bayarri (U. Valencia, Chair), Michael Goldstein (U. Durham), Tony O'Hagan (Sheffield Univ.), Jerry Sacks, Henry Wynn (LSE); Robert Wolpert (Duke, Local Scientific Coordinator)
 - *Working Groups in Surrogate Models, Validation, Optimization and Design*

High Dimensional Inference and Random Matrices

- Potential emphases
 - Extreme sample eigenvalues
 - Properties of sample eigenvectors
 - Empirical distribution of eigenvalues
 - Design of snapshots for computer model approximation
 - Nonlinear/topological approaches to dimensional reduction
 - Bayesian utilizations of random matrices
 - Stochastic evolution of random matrices
 - Statistical issues involving EOFs in climatology

- *Program leaders:* Iain M. Johnstone (Stanford; chair), Peter Bickel (Berkeley), Helene Massam (Toronto), Douglas Nychka (NCAR), Craig A. Tracy (UC Davis); Chris Jones (director liaison); G. W. Stewart (Maryland; NAC Liaison),
- *Scientific Committee:* Myles Allen (Oxford), Estelle Basor (California Polytechnic, San Luis Obispo), David Donoho (Statistics, Stanford), Persi Diaconis (Statistics, Stanford), Jianqing Fan (Princeton), Ken McLaughlin (Mathematics, Univ. of Arizona), Neil O'Connell (Univ. of Warwick, UK), Ben Santner (Lawrence Livermore), Jack Silverstein (Mathematics, N.C. State), Ofer Zeitouni (Univ. of Minnesota)
- Activities
 - Opening Workshop and Tutorials: Sept. 17-20, 2006
 - Working groups (including one that is bimodal)
 - Midprogram and closing workshops.

SAMSI Programs for 2007-08

- Random Media
 - Leaders: TBA; Ralph Smith (SAMSI; Directorate Liaison); Rick Durrett (Cornell; NAC Liaison)
- Risk Analysis, Extreme Events and Decision Theory
 - Leaders: Alicia Carriquiry (Iowa State), Dipak Dey (Connecticut), Wolfgang Kliemann (Iowa State), Stephen Pollock (Michigan); Alan Karr (NISS; Directorate Liaison); Lawrence Brown (Penn; NAC Liaison)
- Wireless Environmental Sensor Networks
 - Leaders: Paul Flikkema (NAU, Chair), Zoe Cardon (Connecticut), Jim Clark (Duke), Don Estep (Colorado State), Deborah Estrin (UCLA), Mark Hansen (UCLA); Nell Sedransk (NISS; Directorate Liaison); Bin Yu (UC Berkeley; NAC Liaison)

Potential Programs for 2008-09

- Sequential Monte Carlo methods for scientific computing
- Mathematical and statistical models for neuronal activity
- Agent-based modeling in the social sciences
- Algebraic techniques in statistics and systems biology

Suggestions for Future Programs

- Dynamic networks and their applications
- Psychology program, including psychological brain imaging
- Environmental mapping/spatial epidemiology
- Nanotechnology of ??? (Brainstorming session in Fall 2006 at Purdue)
- Random graphs
- Quantum computation
- Uses of simulation in optimization
- Mesoscale molecular modeling
- [Environmental] Toxicology
- Functional data [in ???]
- Flow control
- Visual analytics