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NISS/SAMSI Affiliate Update

April 2014

Affiliates Meeting in Baltimore a Success



Junior colleagues presented brief presentations of their talks before the ENAR Conference.

The NISS and SAMSI affiliates meeting held March 16 in Baltimore was a great success!

The meeting highlighted two hard problems: A Cross-Sector High-impact Project and A Cross-Sector Research Opportunity. The afternoon discussion was about how to become a leader in the profession. Senior leaders in the profession shared their experiences and advice to junior colleagues.

Copies of the presentations from the meeting can be found [here](#). Photos from the meeting can be seen [here](#).



(L-R) John Stufken, U. Georgia, John Eltinge, Bureau of Labor Statistics, Susan Ellenberg, U. Pennsylvania, and Joseph Heyse, Merck, share their experiences with younger colleagues.

SAMSI Events

Education and Outreach

Undergraduate Modeling Workshop

May 18-23, 2014

[Details here.](#)

Summer Program: The International Surface Temperature Initiative

Sponsored by SAMSI & Institute for Mathematics Applied to Geosciences

When: July 8-16

Where: Boulder, CO

Deadline to apply: May 1

[Details here.](#)

Education and Outreach

Industrial Mathematical and Statistical Modeling Workshop for Graduate Students

When: July 14-22, 2014

Where: Raleigh, NC

Deadline to apply: April 15

[Details here.](#)

Mathematical and Statistical Ecology Opening Workshop

When: August 18-22, 2014

Where: RTP, NC

See below for details.

Bioinformatics Opening Workshop

When: September 8-12, 2014

Where: RTP, NC

See below for details.

Co-Sponsored NISS Events

Women in Statistics Conference

Co-sponsored by The Caucus for Women in Statistics

When: May 15-17, 2014

Where: Durham, NC

[Details here.](#)

SRCOS 2014 Summer Research Conference

When: June 4, 2014

Where: Galveston, TX

[Details here.](#)

Co-Sponsored SAMSI Events

Computational Methods for Surveys and Census Data in the Social Sciences

Co-sponsored by CANSSI/CRM

When: June 20-21, 2014

Where: Centre de Recherches Mathématiques (CRM) in Montréal, Canada

[Details here.](#)

2014-2015 SAMSI Programs

"[Beyond Bioinformatics, Statistical and Mathematical Challenges](#)," will look at the statistical and mathematical challenges arising in the analysis of genomic and related data with the goal of addressing relevant biological questions. As genomic and related data are growing more complex, novel methods need to be developed to help with data synthesis and analysis to answer previously inconceivable questions about biological processes. This program will focus on: 1) Statistical pre-processing of emerging high throughput data; 2) Dependence in high-dimensional data; in particular, multivariate discrete counts; 3) Integration of multi-omics data; 4) Modeling dynamics of mixtures, such as populations of cells, variants and meta-genomics; and 5) Big data and machine learning for addressing 'omic issues.

The opening workshop will be held September 8-12, 2014.

Program leaders for "Beyond Bioinformatics" include: Alexander Alekseyenko, NYU School of Medicine; Karin Dorman, Iowa State University; Nick Hengartner, Los Alamos National Lab; Susan Holmes, Stanford University; Katerina Kechris, University of Colorado-Denver; Shili Lin, The Ohio State University; Dan Nettleton, Iowa State University and Hongyu Zhao, Yale University.

"[Mathematical and Statistical Ecology](#)." This program brings together three groups of researchers – statisticians, mathematicians and theoretical ecologists – to study and develop the interactions among different approaches that ecological modeling has developed. One approach is that theoretical ecologists have developed mathematical models that are analyzed using traditional tools of applied mathematics, such as partial differential equations (PDEs) and dynamical systems. These models are then used to look at resilience, tipping points or other ecological properties. A second approach, typically used by statisticians and data analysts, involves sophisticated statistical tools such as Bayesian hierarchical models that are applied to large spatio-temporal datasets, but often these models are developed without the detailed consideration of nonlinear dynamics. Some of the topics that will be explored through the year include: 1) Critical thresholds and tipping points; 2) Resilience of ecological systems; leading indicators; 3) Multi-scale and multivariate statistical method; 4) Climate and Biodiversity; 5) Implications for public policy. There is also likely to be a joint working group between the two programs, on the topics of Landscape Genomics.

The opening workshop for this program will be held August 25-29, 2014.

Program leaders for "Mathematical and Statistical Ecology" include: Philip Dixon of Iowa State University, Lou Gross of the University of Tennessee and NIMBioS, Jennifer Hoeting of Colorado State University, Mevin Hooten of Colorado State University, Lea Jenkins of Clemson University, Claire Lunch of the National Ecological Observatory Network, Ron McRoberts of the US Forest Service, Jay Ver Hoef of NOAA, and Linda Young of the National Agricultural Statistics Service.

More information about either of these programs and how to get involved can

be found on the SAMSI website: <http://www.samsi.info>.

NISS and SAMSI

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