



**Interdisciplinary Workshop for Undergraduate Students
May 28 - June 2, 2019**

Primary Organizers: SAMSI Postdocs
SAMSI Directorate Liaison: Mansoor Haider

Tuesday, May 28th AT NCSU Main Campus

10:00-4:30 **Participant check-in to NCSU North Hall Residence** (GPS for drivers: 35.787227, -78.664813)
2200 Hillsborough Street, NC State University, Raleigh, NC 27607
NCSU vans will pick up from RDU and deliver to North Hall for check in

5:00-7:00 **Welcome Group Reception Dinner at “Talley Student Union (TSU) 3222”** (35.783941, -78.670926)
Coordinator: **Thomas Gehrmann** (NCSU) - Introductions, presentation expectations
All SAMSI postdocs and graduate fellows

Wednesday, May 29nd AT SAS Hall Room 1102 (2311 Stinson Dr Raleigh, NC 27607) (35.784867, -78.666556)

7:30-9:00 **Individual Breakfast** on Hillsborough or TSU or elsewhere.

9:15-9:30 Introduction and overview of SAMSI: Mansoor Haider, Deputy Director, SAMSI

9:30-10:30 **Plenary Talk: David Banks**, SAMSI & Duke University
“Statistical Issues in Agent-Based Models”

10:30-10:45 Beverage Break. Beverage available from 9:00am on (this day only)

10:45-11:15 **Project-I overview: Pulong Ma** (SAMSI)
“Predictive Modeling for Tropical Cyclones with Historical Storm Data” [Tropical Cyclones]

11:15-11:45 **Project-II overview: Wenjia Wang** (SAMSI)
“Subgroup analysis of the Cleveland Heart Disease” [Heart Disease]

11:45-12:15 **Project-III overview: Xinyi Li** (SAMSI)
“Imaging genetics studies on Alzheimer’s disease (AD)” [Brain Imaging]

12:15-1:30 **Group Photo and Group Lunch**

1:30-2:00 **Project-IV overview: John Nardini** (SAMSI)
“How to sample for equation learning methods” [Sampling for ODEs]

2:00-2:30 **Project-V overview: Nikolas Bravo** (SAMSI)
“Forecast the impact of the implementation of the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act” [Affordable Care Act]

2:30-3:00 Beverage Break ends for the day

- 3:30-4:30 **Form 5 Project Groups** (of size 6-7 members)
- 4:30-5:00 **Break out into groups** and meet with the project leaders/mentors
Group Rooms available are SAS 1102, 2102, 2106, 2225, 2229, 2235
- 5:00-6:30 **Individual Dinner** where ever each group decides
- 7:00- Open Group Work time at each group's discretion

Thursday, May 30th AT SAS Hall Room 1102

- 7:45-8:30 **Individual Breakfast**
- 8:45-9:00 Recap and announcements: **John Nardini**
- 9:00-10:00 *Hands-on Introduction to R:*
Wenjia Wang and Xinyi Li (SAMSI) and Graduate Fellows
- 10:00-10:15 **Break**
- 10:15-11:00 *Hands-on Introduction to Python:*
John Nardini (SAMSI)
 - Installation instructions, and Material will be available at:
<http://people.cs.vt.edu/~attia/PythonIntro.html>
 - [The DATeS package, documentation, and tutorials are accessible through:](http://people.cs.vt.edu/~attia/DATeS/)
<http://people.cs.vt.edu/~attia/DATeS/>
- 11:00-12:00 *Hands-on Introduction to MATLAB:*
Nikolas Bravo (SAMSI)
- 12:00-1:30 **Group Lunch**
- 1:30-2:30 Group Work at location of each group's discretion. (Define scope and strategy)
Group Rooms available are SAS 1102, 2102, 2106, 2225, 2229, 2235
- 2:30-2:45 **Break**
- 3:00-4:00 Group Work at location of each group's discretion
- 4:00-5:30 Group Work at location of each group's discretion
- 5:30-6:45 **Individual Dinner**
- 6:45- Open Group Work time at each group's discretion

Friday, May 31st AT SAS Hall Room 1102

- 7:45-8:30 **Individual Breakfast**
- 8:45-9:00 Recap and Announcement: **Xinyi Li** (SAMSI)
- 9:00-10:00 Continue Group Work with Postdocs/Grads
Group Rooms available are SAS 1102, 2102, 2106, 2225, 2229, 2235
- 10:00-10:15 **Break**
- 10:15-12:00 Groups prepare overview of projects. Turn in before lunch
- 12:00-1:30 **Group Lunch**
- 1:30-2:45 Get Feedback/Continue Group Work with Postdocs/Grads
- 2:45-3:15 **Break**
- 3:15-5:00 Continue Group Work with Postdocs/Grads
- 5:00-6:45 **Individual Dinner**
- 6:45- Open Group Work time at each group's discretion

Saturday, June 1st AT SAS Hall Room 1102

- 7:45-8:45 **Individual Breakfast**
- 8:45-9:00 Recap and Announcements: **Pulong Ma**
- 9:00-10:00 Informal 10min overview of the six projects from each Student Group Leaders SAS 1102
- 10:00-10:15 **Break**
- 10:15-12:00 Continue Group Work with Postdocs/Grads
Group Rooms available are SAS 1102, 2102, 2106, 2225, 2229, 2235
- 12:00-1:30 **Individual Lunch**
- 1:30-2:45 Continue Group Work with Postdocs/Grads
- 2:45-3:15 **Break**
- 3:15-5:00 Groups practice presentations with Postdocs/Grads
- 6:00- **Individual Dinner** Open Group Work time at each group's discretion and complete final presentations

Sunday, June 2nd AT SAS Hall Room 1102

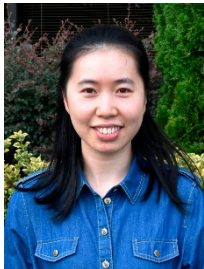
- 7:45-8:30 **Individual Breakfast and check out of rooms and bring all luggage to presentations in SAS.**
- 9:00-9:15 Recap and Announcements: **Wenjia Wang**, Postdoc (SAMSI)
- 9:15-10:30 Group presentations and discussions
[each of the 3 project groups gets 25min each; bring slides loaded on a USB Thumb drive]
- 10:30-10:50 **Break**
- 10:50-11:40 Group presentations [each of the 2 project groups gets 25min each]
- 11:40-12:00 Vote of thanks and Project group photo with mentors
- 12:00 **Adjourn and take box lunch from SAS 1102 Lobby for on the road or shuttle to airport**
Shuttle van to RDU is provided

Photos and Short Bios of Speakers



David Banks is the Director of the Statistical and Applied Mathematics Institute, and a professor in the Department of Statistical Science at Duke University. He obtained his PhD in statistics from Virginia Tech in 1984, then did a two-year postdoctoral fellowship at the University of California at Berkeley. He taught at Carnegie Mellon University and the University of Cambridge, was chief statistician at the U.S. Department of Transportation, and also worked at the National Institute of Standards and Technology and at the Food and Drug Administration. He is a former editor of the Journal of the American Statistical Association and a founding editor of Statistics and Public Policy. He works in risk analysis, dynamic models for text networks, human rights statistics, and some aspects of machine learning.

SAMSI Postdocs and Graduate Fellow [Bios]



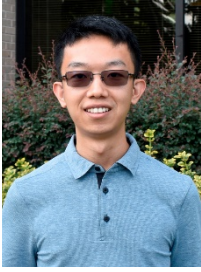
Xinyi Li is currently a postdoctoral fellow at SAMSI, in the precision medicine program. She received her B.S. degree in Statistics in 2012 at Beijing Normal University in China; and she received her M.S. degree in Statistics in 2014 at the University of Georgia. In 2018, she received her Ph.D. in Statistics at Iowa State University. Her research interests lie in developing statistical methods as well as designing computational algorithms in the area of sparse learning, functional data analysis, and high-dimensional nonparametric regression. Her application areas include neuroimaging, genomics, and public health.



John Nardini is a postdoctoral scholar in Precision Medicine at the Statistical Applied Mathematical Sciences and NC State University. His research lies at the interface of mathematical modeling and machine learning. In particular, he applies mathematical modeling to understand the processes underlying cell migration during wound healing and he uses machine learning to derive such models in a data-driven manner. John received his Bachelor's degree in Mathematics from NC State University and his PhD in Applied Mathematics from the University of Colorado.



Pulong Ma is currently a postdoctoral fellow in the SAMSI MUMS program. He received his B.S. degree in Mathematics in 2013 from Northeast Forestry University in China. In 2018, he received his Ph.D. in Statistics from University of Cincinnati. He worked as an intern at Procter & Gamble Company from 2015 to 2016 and at National Center for Atmospheric Research in 2016. His dissertation research was focused on spatial and spatio-temporal statistics with applications in remote sensing science, climate science and environmental science. He was selected as one of the winners of student paper competition in the Section on Statistics and the Environment of American Statistical Association in 2018. While at SAMSI, he is working on Bayesian statistics, uncertainty quantification, and design and analysis of computer experiments with applications in geophysical hazard quantification.



Wenjia Wang is a postdoctoral fellow in the SAMSI Model Uncertainty: Mathematical and Statistical (MUMS) program. He received Ph.D. in Operations Research from Industrial and Systems Engineering, Georgia Tech in 2018. He received his BA in Yuanpei College, Peking University in 2013. His research interests are focused on statistical modeling, statistical design and theoretical analysis of Gaussian process as well as Kriging. He is also interested in their applications in computer experiments, machine learning, and uncertainty quantification.



Nikolas Bravo is currently a graduate student fellow at SAMSI in the MUMS program. He received his BS in mathematics from University of Nebraska-Lincoln in 2014. He is a 5th year PhD student in applied mathematics at North Carolina State University. He is planning on defending his dissertation, "Synthesis of Uncertainty Quantification, Surrogate Modeling, and Robust Control Design for PZT Bimorph Actuators," this summer. His research interests are in modeling, uncertainty quantification, optimization, algorithm development, and control theory and design.

Local Information and Maps

Maps of places around Institute of Advanced Analytics (Alliance Building) and Hunt Library, NCSU

[Google map of North Hall, Aloft Hotel, SAS Hall, Coliseum Deck, and Talley Student Union \(TSU\).](#)

Campus Safety Escort Services: <http://campuspolice.ehps.ncsu.edu/services/safety-escort-services/>

WolfAlert: <https://www.ncsu.edu/emergency-information/>

List of Things to Do in Raleigh: <http://www.visitraleigh.com/>