



*Division of*  
**Statistics + Scientific Computation**

THE UNIVERSITY OF TEXAS AT AUSTIN

Annual Report  
2011-  
2012

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<http://scc.utexas.edu>



<http://ssc.utexas.edu>

## **Our Mission**

The mission of the Division of Statistics and Scientific Computation is to be a world-class center for statistical science that advances scholarship across The University of Texas at Austin and prepares graduates to flourish in an information-rich world.

## **Our Vision**

The Division of Statistics and Scientific Computation will become a vibrant community of scholars that has a strong intellectual identity and is widely recognized for excellence in interdisciplinary research and high impact educational programs.

## **Our Core Values**

- Commitment to education
- Excellence in research
- Broad engagement with science and society
- Collegiality and integrity

## Director's Corner



Dr. Lauren Ancel Meyers

The Division of Statistics + Scientific Computation celebrated an important milestone this year—five years of campus-wide service and growth in the critically needed areas of statistics instruction, consulting, research, and graduate student development. In 2007, when the SSC was first conceived, inaugural director Sheldon Ekland-Olson recognized that the campus-wide need for statistics was both broad and deep. Working closely with deans and faculty across several colleges, he secured essential support and built the foundations for what has become a thriving center for statistics education and scholarship.

Today the SSC is an invaluable academic home for undergraduates who are learning core data analysis skills, graduate students who are employing modern Bayesian computational methods, a growing core of statistics faculty who are advancing our ability to turn the information explosion of the 21<sup>st</sup> century into knowledge and progress, 100+ associated faculty who are involved in the SSC Lecture Series and advise students in our masters, portfolio, certificate programs, dozens of other faculty who benefit from expert guidance in analyzing their own data, and hundreds of participants from the UT community and outside community, including employees of Facebook, the Texas Department of State Health Services, and the Seton Healthcare Family, who enrolled in our specialized software and Summer Statistics Institute courses.

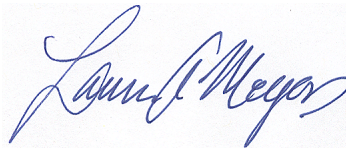
Our accomplishments in 2011-12 were many. Our 5<sup>th</sup> Annual Summer Statistics Institute was our most successful yet. We offered 23 courses to over 550 students, and we are using its proceeds to create new opportunities for UT students to work directly with companies and non-profit organizations to tackle real-world data challenges. SSC recruited an outstanding biostatistician—Dr. Mike Daniels—to its core faculty, bringing the total number of SSC faculty hires to five. We continue to expand our curriculum efforts, building upon the success of the SSC 302 Course Transformation Program to enhance biostatistics and honors statistics opportunities for science majors. This fall, our Ph.D. Statistics proposal will be reviewed by the UT Board of Regents with an anticipated start date of Fall 2013.

I'd like to share a few statistics that highlight the growth and impact we have achieved in just five years:

- \* A 550% increase in the numbers of students taught annually since 2008
- \* A 50% increase in the number students earning an MS Statistics
- \* 100+ students enrolled in new portfolio and certificate programs

- \* An 18% increase in consulting services to UT students and faculty
- \* 20+ statistical short courses offered annually
- \* 47 TA and 6 GRA positions supported.

As we move into the next five years, the SSC is poised to put UT on the map for excellence in statistics teaching and research. We are anything but static. Our dedicated faculty, staff, and students are continually working to create innovative educational opportunities that prepare UT students to flourish in our information-rich world and to grow our vibrant community of renowned scholars who are advancing data-driven research across campus and beyond.



**Lauren Ancel Meyers, Ph.D.**

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## I. SSC HIGHLIGHTS IN 2011–12

### **New SSC Director**

The Division welcomed new Director Dr. Lauren Ancel Meyers on September 1, 2011. Dr. Meyers is a Professor of Integrative Biology with a research focus in mathematical biology. She develops statistical and computational methods for understanding, forecasting and controlling the spread of infectious diseases. She works with public health agencies throughout the world, including the Centers for Disease Control and Prevention and the Texas Department of State Health Services. In 2004 the *MIT Technology Review* named Dr. Meyers as one of the top 100 global innovators under 35.

### **New Faculty Hire**

SSC conducted a year-long search for new faculty which drew over 200 applicants. Professor Michael Daniels accepted our offer, and will be joining the SSC Core Faculty as a Professor for Fall 2012. Dr. Daniels comes to us from the Department of Statistics at the University of Florida, where he has been Chairman of the Department of Statistics. He is a joint hire between the SSC and Integrative Biology. His research interests are in Bayesian Methodology and Biostatistics with current research projects focusing on Bayesian methods for longitudinal cancer data. Dr. Daniels is an elected Fellow of the American Statistical Association and

### **New Graduate Advisor for M.S. in Statistics**

Dr. S. Natasha Beretvas, Associate Professor in Educational Psychology has taken on the roles of Graduate Advisor and Chair of the Graduate Studies Committee for the M.S. in Statistics program as of July 2012. She is also a member of the M.S. Statistics Admission Committee, the Graduate Portfolio in Applied Statistical Modeling Faculty Steering Committee, and is an *ex officio* member of the SSC Core Faculty. Dr. Beretvas' research centers on statistical/psychometric modeling with a focus on hierarchical linear modeling and meta-analytic procedures.

### **Sheldon Eklund-Olson Post-Doc Fellowship Awarded**

The inaugural Sheldon Eklund-Olson Postdoctoral Fellowship, named in honor of the founding and outgoing Director of SSC, will be filled by Dr. Piyush Rai. Dr. Rai earned his Ph.D. in Computer Science from the University of Utah. His residency is expected to be for two years, beginning in August 2012. His postdoctoral work will be joint between the SSC and the Institute for Computational Engineering and Sciences (ICES).

### **Faculty Awards**

Two members of the SSC were recognized for teaching excellence during 2011–12. Dr. Cathy Stacy received a 2012 Regent's Outstanding Teaching Award—the Board of Regents' highest honor recognizing extraordinary classroom performance and innovation in undergraduate education. Dr. James Scott was honored at the 15<sup>th</sup> Annual College of Natural Sciences Honors and Awards Banquet with a College of Natural Sciences Teaching Excellence Award recognizing his outstanding contributions as an instructor of SSC graduate courses and SSC 325H Honors Statistics.

### **New Home for SSC**

SSC expanded into the Neural Molecular Science Building (NMS) in Spring 2012 to house its growing research and teaching staff. SSC is scheduled to move to a permanent new home in Painter Hall, a 5<sup>th</sup>-floor wing that will provide sufficient space to house all SSC staff, lecturers, graduate students and post-

docs. Faculty will also have a shared office suite and seminar room. Anticipated move in date is summer 2013.

**Ph.D. in Statistics Proposal**

The SSC proposal for a Ph.D. in Statistics received a highly favorable review from the outside reviewer and is slated for a full review by the Texas Board of Regents in August 2012 and the Texas Higher Education Coordinating Board in October 2012. Pending approval, recruitment for the Fall 2013 cohort would begin immediately.

**Certificate in Applied Statistical Modeling**

SSC added an undergraduate certificate program to its educational opportunities for students. The certificate in Applied Statistical Modeling will equip undergraduate students with the tools necessary to understand how to apply statistics to their primary field of study. This certificate program is designed to complement diverse degree programs and to appeal to students across the University in engineering, science, economics, mathematics, and many other disciplines.

**SSC 325H: Honors Statistics**

During Spring 2012 Dr. James Scott piloted the division's first Honors Statistics course for science majors, SSC 325H Honors Statistics. SSC 325H was created in response to a request from the College of Natural Sciences to offer an honors-level statistics course for undergraduates. The course provides students with a solid foundation in modern approaches to statistics, particularly working with multivariate statistical models, which is an important tool for scientists.

**SSC: New Home for Biostatistics**

SSC will assume responsibilities for the instruction of undergraduate biostatistics courses beginning Fall 2012. Previously taught as BIO 318M, the course will now be offered as SSC 328M and will continue to provide a rigorous introduction to statistics for UT science majors. Course instructors and TA's are preparing new lab content and video tutorials in Summer 2012 for fall deployment.

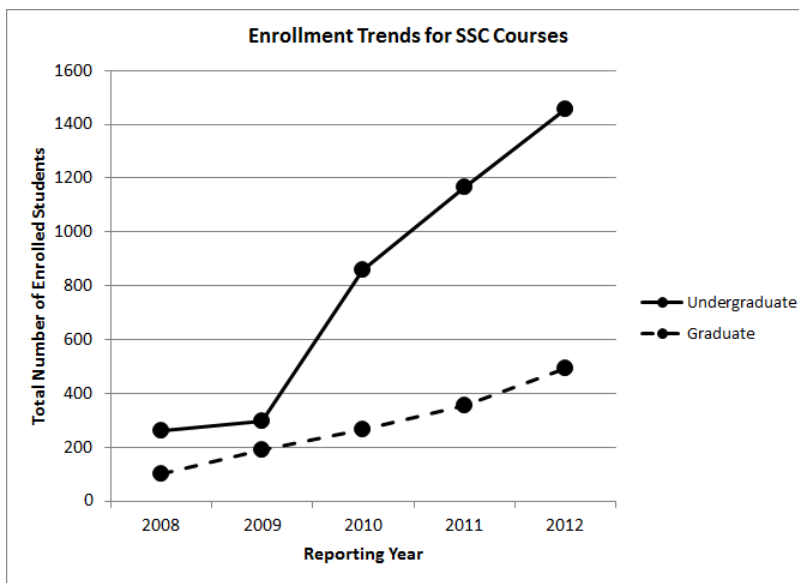
## II. UNIT REPORTS

### A. INSTRUCTION

The demand for statistics and scientific computation courses continues to grow at a fast rate. SSC has responded by creating new courses to meet the needs of the diverse UT student population. SSC offers more than 40 undergraduate and graduate courses each year, ranging from introductory data analysis and undergraduate honors statistics, to advanced graduate topics in Bayesian modeling and computational statistics.

#### Enrollment Trends

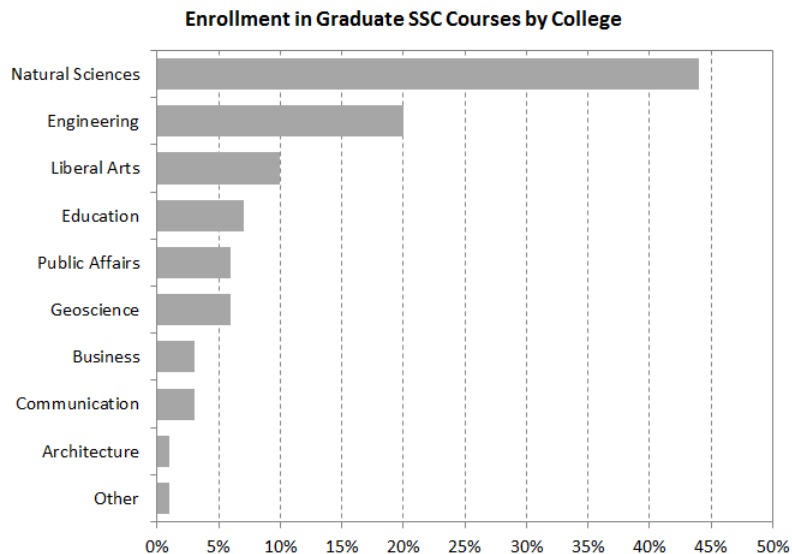
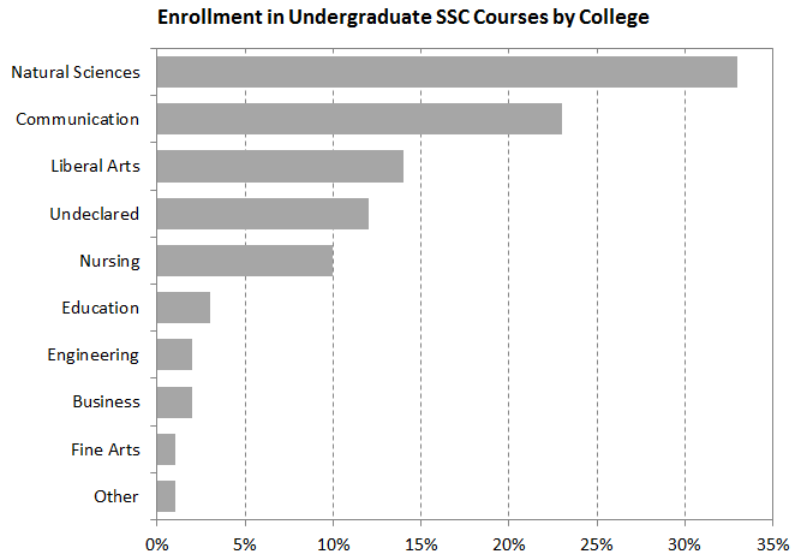
SSC faculty taught 24 undergraduate courses and 20 graduate courses to a total of 2,049 students in 2011–12. This is an increase of 550% over course offerings in our first year of operation 2007–08.



#### Campus Usage

SSC courses serve a broad cross-section of students across campus. Enrollment in 2011–12 is shown by college:





**Highlights**

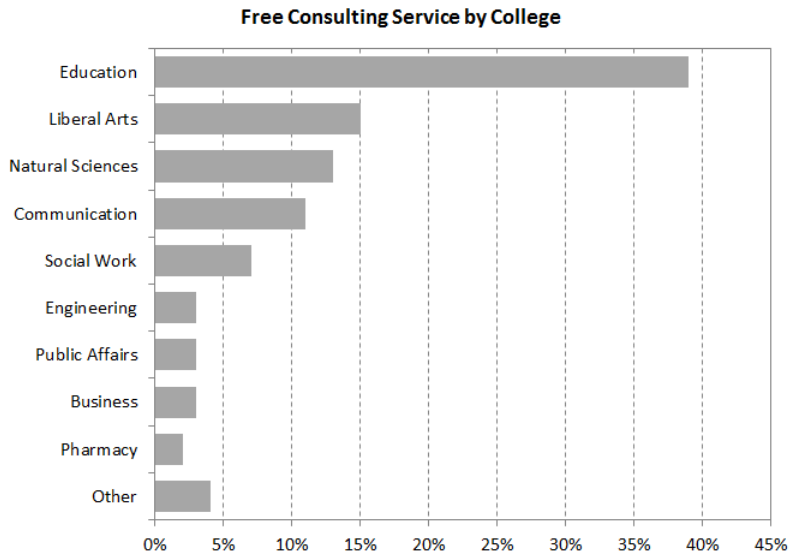
- Course transformation efforts for SSC 302: Data Analysis for the Health Sciences continued through Summer 2012. The faculty and graduate student instructional team developed new labs, updated all assessments for rollout in Canvas, and created an instructional resource site for sustainability. Fall 2012 will be the final semester of the CTP grant.
- Dr. James Scott piloted the division’s first Honors Statistics course for science majors. The course demonstrated the power of statistical modeling and gave students a unique window into the computational underpinnings of modern statistics.

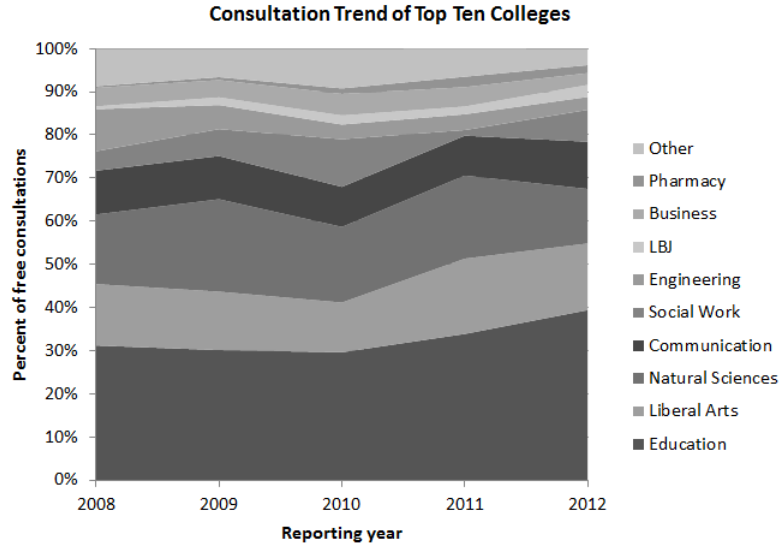
## B. CONSULTING

SSC provides free statistical consulting services to students, faculty, and staff. Clients receive assistance in planning and interpreting analyses, working with statistical software, planning research study designs, and learning how to better organize and manipulate their data. Faculty may also request contract consulting services for more in-depth analyses. In addition, SSC offers a collection of highly-subscribed instructional short courses in various mathematical and statistical software packages for a nominal fee.

### Free Consulting

Free consulting services continued to operate at full capacity in 2011–12. SSC consultants provided 894 hours of free consulting to UT faculty, staff, and graduate students, for an average of 17.9 hours per week. This is an increase of 18% from the first year of operation in 2007–08. Student clients used 89% of these hours, and faculty or staff used 11%. Ninety-one percent of consulting clients reported that their most recent consult was “Very Good” or “Excellent.”



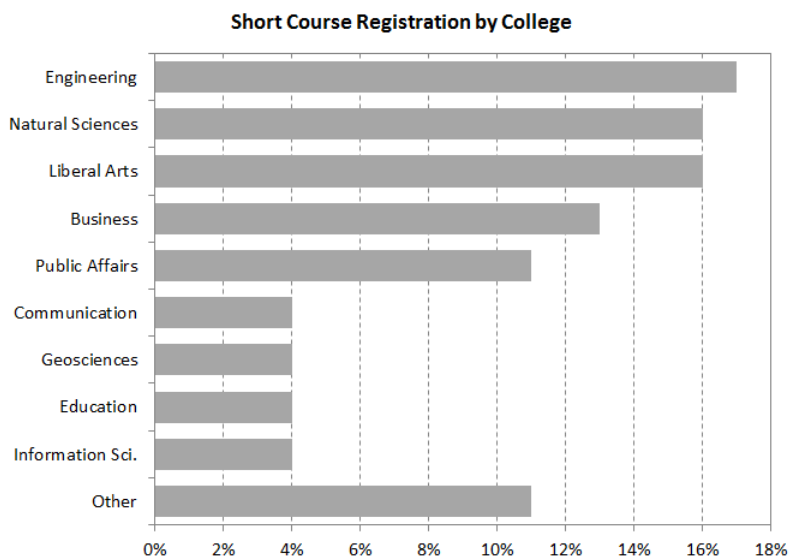


**Contract Consulting**

The SSC provided 103 hours of contract consulting to UT faculty and organizational units, UT System Institutions, and one state agency in 2011–2012. Contract consulting clients generally have more complex data analysis needs and pay a fee for these services. SSC consultants typically provide a detailed reporting of results suitable for publication. The primary clients seeking contract consulting included faculty from the School of Nursing (24%), the College of Education (17%), the McCombs School of Business (17%), the State Agencies (16%), University Health Services (10%), the School of Law (9%), the College of Communication (5%), and the College of Liberal Arts (2%).

**Short Courses**

In 2011–12, the SSC offered a total of 20 short courses on Matlab, Stata, R, and SAS to 306 registrants. SSC met increased demand for these courses by hiring SSC graduate fellows to teach popular introductory software courses. Over 87% of students at short courses rated the course “Good” or “Excellent” on the instructor’s presentation style, ability to answer questions, and responsiveness to student needs.



### Highlights

- SSC licensed statistical and mathematical software for the UT community. Two servers in the College of Natural Sciences continue to provide access to this software for the UT community.
- SSC initiated a graduate student consulting position that was filled by SSC Graduate Fellow, Lindsey Smith. Lindsey met weekly with SSC consultants to prepare for her six hours of consulting appointments and to review email questions to which she responded.
- The SSC/TACC computer lab in Flawn Academic Center (FAC 101B) operated at full capacity throughout the 2011-12 academic year, home to the SSC undergraduate statistics labs, graduate computation courses, and software short courses. It is anticipated that a second computer lab will be established in Painter Hall to help meet the demand for computing facilities when the division relocates in Summer 2013.

## C. SSC GRADUATE DEGREE PROGRAMS

### Ph.D. in Statistics

The SSC proposal for a Ph.D. in Statistics received a highly favorable review from the outside reviewer and is slated for a full review by the Texas Board of Regents in August 2012. Pending approval, recruitment for the Fall 2013 cohort would begin immediately. Hallmarks of the Ph.D. program proposal include:

- Exposure to the central ideas of both Bayesian and classical approaches to inference;
- Integration of substantive areas of application, such as demography, economics, biology, neuroscience and engineering, among others;
- Superior quality of program faculty and the outstanding research environment and resources of the College of Natural Sciences and The University of Texas at Austin as a whole.

### Master's of Science in Statistics

The M.S. Statistics program has grown by an estimated 45% since the SSC took over administration of the program from the Department of Mathematics in Fall 2010. The program received 127 completed applications for admission in Fall 2011, of which 33 applicants were recommended for admission. A

significant proportion of the M.S. in Statistics students complete the degree while pursuing a Ph.D. in another field such as Biological Sciences, Educational Psychology, Mathematics Education, and Sociology.

### Enrollment Trends

Academic Year	Enrollment Count		Graduates
	M.S. only	M.S./Ph.D.	
2010–2011	20	5	7
2011–2012*	28	10	11
<b>TOTAL</b>			18

\* Enrollment and graduation numbers current through Spring 2012.

### Highlights

- Degree requirements for the M.S. Statistics program were updated for the 2011–2013 Graduate catalog to strengthen requirements in computation and the major elective area. The degree program requires 33 semester hours and completion of a Master’s Report. In 2012-13, the GSC will revisit degree requirements in anticipation of the upcoming Ph.D. Statistics program.
- SSC instituted a “Best M.S. Statistics Master’s Report Award,” disbursed Graduate Student Professional Development Awards, and initiated a Brown Bag Lunch Series to give students insight into current research efforts of the faculty. The inaugural Best M.S. Statistics Master’s Report Award was presented to spring graduate Isaac Sasson. Isaac Sasson and Megan Moeller were recipients of the Graduate Student Professional Development Awards.

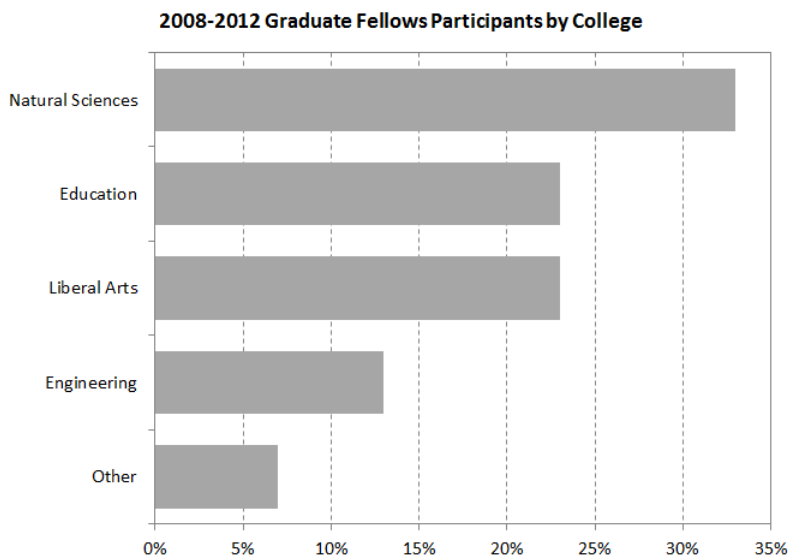
## D. GRADUATE FELLOWS PROGRAM

The Graduate Fellows program is a selective semester-long mentorship for UT graduate students that provides considerable training and experience in statistical analysis and consulting on applied problems in a variety of disciplines. Students learn new statistical methods and gain the confidence to teach themselves other methods in the future. The students also come away with the interpersonal skills required of a professional consultant.

### Fall 2011 Graduate Fellows

Selection for the program is a highly competitive process. For the Fall 2011 program, 39 graduate students from 24 different departments applied for five fellows positions. To be eligible, students must have 30 hours of graduate study or a master’s degree and have a strong applied statistical background, including use of statistical software.

Sally Amen, Statistics  
 Lindsey Smith, Educational Psychology  
 Kori Stroub, Educational Policy and Planning  
 Melinda Ward, Sociology  
 Sasha Wolonsin, Psychology



### UT Faculty Served through Data Analysis in Fall 2011

Data analysis is a fundamental component of the program. Fellows work with faculty members to provide assistance with the statistical or mathematical analysis of their research data. This allows students to gain hands-on experience applying statistical methods to real data while providing faculty and researchers across campus a valuable service.

Dr. Eileen Fowles, Nursing  
 Dr. Forest Novy, Social Work  
 Dr. Dan Robinson, Educational Psychology  
 Dr. Jeanne Ruiz, Nursing  
 Dr. Li Sheng, Communication Studies  
 Keri Stephens, Communication Studies

### Highlights

- Starting in the fall 2011, we allowed the MS Statistics students to take the consulting seminar, which turned out to be a great, hands-on learning experience. Often the MS Statistics students have a limited applied background and being in the seminar exposed them to a variety of new methods as well as actual data analysis.
- Starting in Spring 2013, we will pilot a graduate research fellowship program modeled on the Graduate Fellows program. Five selected students will provide free data analysis services. We plan to partner with corporations, non-profits, as well as faculty in order to obtain projects to work on. This will be another great opportunity for the students to gain experience doing data analysis and applying what they have learned in class to real world problems. In addition to working on their data analysis skills, a big focus will be on summarizing and presenting their results.

## E. CERTIFICATE AND PORTFOLIO PROGRAMS

SSC provides four unique opportunities for students seeking to develop competencies in statistic modeling or scientific computation. The *Portfolio in Applied Statistical Modeling* and the *Portfolio in Scientific Computation* are 12-credit programs available to graduate students interested in strengthening

and applying these skills to their research area. The *Certificate in Scientific Computation* and the *Certificate in Statistical Modeling* are similar 18-hour programs available to undergraduates.

### Enrollment Trends

#### Certificate in Scientific Computation

Since its inception in Fall 2009, 51 students have been admitted into the program, and 11 students have completed the program. Students come from the following departments: Biology, Biochemistry, Electrical Engineering, Biomedical Engineering, Aerospace Engineering, Civil Engineering, Mathematics, Economics, and Physics.

Academic Year	Enrollment Count	Completion Count
2009–2010	19	0
2010–2011	27	5
2011–2012*	51	6
	<b>TOTAL</b>	<b>11</b>

\* Enrollment and completion count through Spring 2012.

#### Portfolio in Applied Statistical Modeling

Since its inception in Fall 2009, 64 students have been admitted into the program and 19 students have completed the portfolio requirements. Participating students are from the following departments: Curriculum and Instruction, Educational Psychology, Health Education, Psychology, Sociology, Nursing, Computer Sciences, Electrical Engineering, and Public Affairs.

Academic Year	Enrollment Count	Completion Count
2009–2010	9	1
2010–2011	24	11
2011–2012*	43	7
	<b>TOTAL</b>	<b>19</b>

\* Enrollment and completion count through Spring 2012.

#### Portfolio in Scientific Computation

Since its inception in Fall 2010, seven students have been admitted to the program. Students come from the following departments: Computational Linguistics, Geoscience, Petroleum and Geosystems Engineering, Physics, Ecology, Evolution and Behavior, and Operational Research and Industrial Design.

Academic Year	Enrollment Count	Completion Count
2010–2011	7	0
2011–2012*	7	0
	<b>TOTAL</b>	<b>0</b>

\* Enrollment and completion count through Spring 2012.

## Highlights

- One noteworthy aspect of the Portfolio program is how it brings together students from a wide variety of disciplines through a semi-annual colloquium and the core course, SSC 380D, which offers the students a survey of advanced statistical methods. Enrollment in the introductory courses was high this past fall and this spring so a large number of students are anticipated to apply at the next application deadline 380D.
- The new Certificate in Applied Statistical Modeling is expected to begin accepting students in Fall 2012. Students will fulfill a two-course sequence on statistical modeling (SSC 325 or SSC 325H and SSC 353), a two-course sequence on probability and inference (SSC 321, M 362K or EE 351K, and SSC 323 or M 378K), and complete two elective courses (six hours) in statistics, machine learning, econometrics, etc. from the approved elective list. Three elective hours must be upper-division, and only one introductory statistics course (e.g. SSC 302-306 or SSC 318M, STA 309, etc.) may count towards the elective requirement. M 408D or M 408M is a prerequisite for the program.

## F. SSC SEMINAR SERIES & STATISTICS IN ACTION

### SSC Seminar Series

Starting Fall 2011, the SSC Seminar Series replaced the Distinguished Lecture Series as the featured speaker series. The series is envisioned as a vital contribution to the intellectual, cultural, and scholarly environment at The University of Texas at Austin for students, faculty, and the wider community. The lecture series provides participants with the opportunity to hear from leading scholars and experts who work in different applied areas, including business, biology, text mining, computer vision, and economics. Each talk is free of charge and open to the public. The fall series featured seven speakers with an average attendance of 30 people. The spring series featured 20 speakers with an average attendance of 25 people. (Please see *Appendix B* for program details.)

### Statistics in Action

Initially created in the Fall of 2009, the Statistics in Action series continued to draw the interest of undergraduate students enrolled in the introductory statistics courses offered by SSC during the Fall 2011 and Spring 2012 semesters. The series provided an opportunity to expose undergraduate statistics students to how professionals in various fields use data. The Statistics in Action series for both semesters included six participating organizations:

#### Fall 2011

PPD  
Austin Energy  
Bazaarvoice  
Department of State Health Services  
Government Officials  
RGM Advisors

#### Spring 2012

Prof. Lauren Ancel Meyers  
Unique Influence  
Department of State Health Services  
AMD  
Bazaarvoice  
Ringtail Design

Overall, student participation was steady. In the Fall 2011, the overall attendance was almost 600 while the Spring had over 850. In the past, the fall attendance was greater. However, in 2011, SSC 302 students were not given credit for attendance due to participation in the Course Transformation Project. Future attendance should be over 1,000 as in previous falls. Students were primarily from the College of Communication, the College of Natural Sciences, the School of Nursing, and the College of Liberal Arts with a total of nine colleges and schools represented.



## G. SUMMER STATISTICS INSTITUTE

The 2012 UT Summer Statistics Institute (SSI) was held May 21–24 in collaboration with the College of Liberal Arts. The Institute featured 23 short twelve-hour courses designed to appeal to a broad range of students, faculty, staff, and the public. All but two courses reached maximum enrollment, including a new course in Bioinformatics, which created such demand that a second Bioinformatics course is scheduled for August.

The 2012 SSI saw a total student enrollment of 571 people, with 25 faculty/instructors from 16 departments. This year's attendance breakdown was: 43% UT Students, 23% UT Faculty-Staff, 15% Non-UT Students, and 19% Other Non-UT. This year the SSI offered a featured workshop on May 23 presented by Dr. Michael Jordan of U.C. Berkeley titled, "An Introduction to Bayesian Nonparametrics with Applications," which drew over 70 attendees. Dr. Jordan also presented a workshop for the SSI faculty luncheon on May 24 titled, "At the Interface of Statistics and Computation: A Scalable Bootstrap, Matrix Completion, and Stein's Method." The 2012 SSI brought in a gross income of \$136,980, with a total net profit of \$61,578.93.

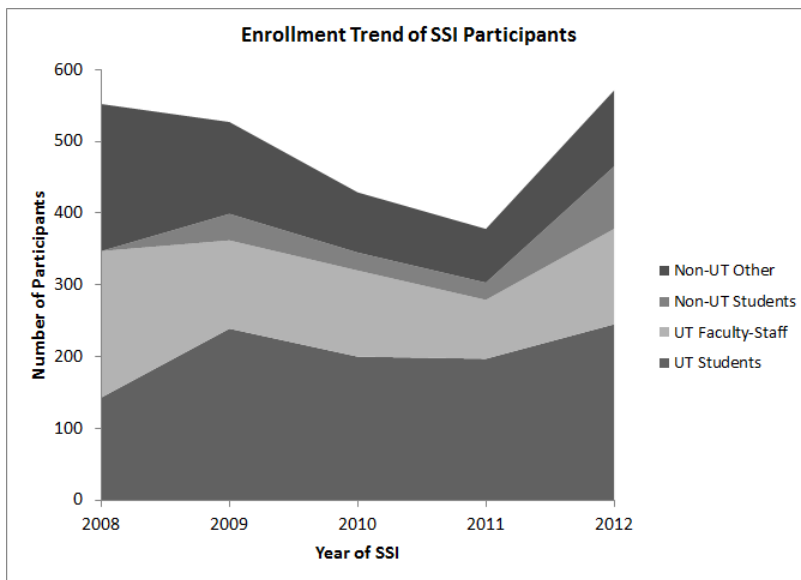
The full list of courses and instructors is:

Course	Instructor's Name	Department
Introduction to Statistics	Rene Dailey Dan Robinson	Communication Studies Educational Psychology
Statistical Foundations	James Bryant	Biological Sciences
Introduction to Stata	Greg Hixon	Psychology
Introduction to R	Sam Scarpino	Center for Computational Biology and Bioinformatics
Multivariate Data Analysis Using R	James Scott	SSC & Information, Risk, and Operations Mgmt
Data Analysis Using SAS	Matt Hersh	SSC
Introduction to Data Mining	Weijia Xu	Texas Advanced Computing Center
Introduction to GIS	Jennifer Miller	Geography and the Environment
Introduction to Regression	Michael Mahometa	SSC
Advanced Regression	Carlos Carvalho	SSC & Information, Risk, and Operations Mgmt
Introduction to NGS Bioinformatics	Scott Hunicke-Smith Jeffrey Barrick	Genome Sequencing Analysis Facility Chemistry and Biochemistry
Bayesian Statistics for Social Sciences	Stephen Jessee	Government
Common Mistakes in Using Statistics	Martha Smith	Mathematics (Prof. Emeritus)
Computational Analysis of Social Networks	Inderjit Dhillon	Computer Science

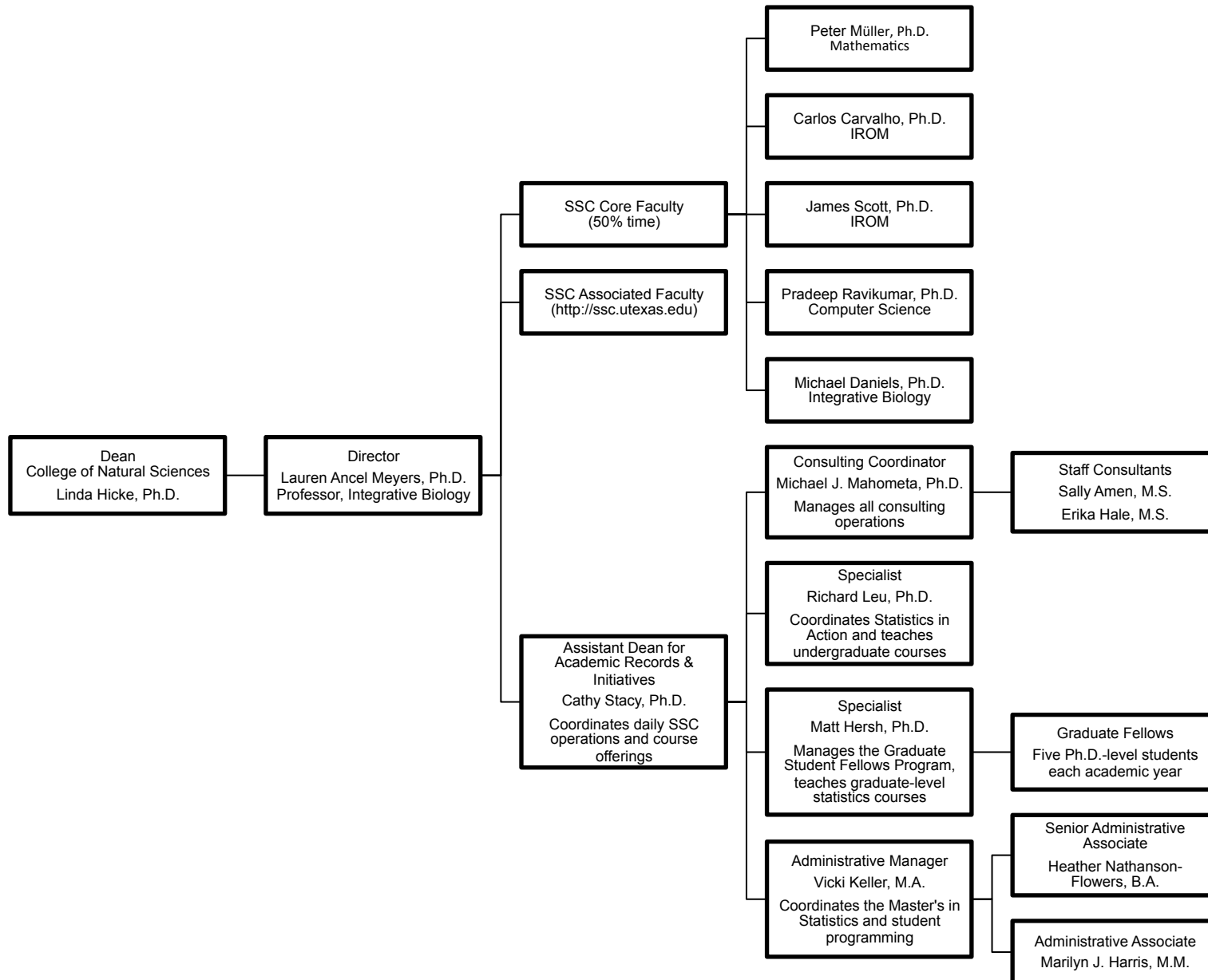
Event History Analysis	Dan Powers	Sociology
Hierarchical Linear Modeling	Keenan Pituch	Educational Psychology
Hierarchical Linear Modeling	Tasha Beretvas	Educational Psychology
Making Sense of Multivariate Data	Jerry Manheimer	Human Development and Family Science
Modern Machine Learning	Pradeep Ravikumar	SSC & Computer Science
Questionnaire Design Analysis	Marc Musick	Sociology
Power Analysis for Proposal Writing	Nate Marti	fmr SSC Consulting Services Manager
Structural Equation Modeling	Tiffany Whittaker	Educational Psychology
Time Series Modeling	Tom Sager	Information, Risk, and Operations Mgmt

**Highlights**

- This year the SSI showed one of the highest percentages of enrollment outside of UT Austin, which reached 34%, due in part to increased external marketing. The largest increase in enrollment occurred in the area of non-UT Austin students, which jumped from an average of 5% enrollment to 16% of the total enrollment.
- SSC offered a new course in Bioinformatics to this year’s Summer Statistics Institute (SSI), taught by Dr. Scott Hunicke-Smith and Dr. Jeffrey Barrick. The course showed such a high demand at this year’s SSI, that the SSC is currently offering the same course in a workshop format during Summer 2012.



Appendix A: SSC Organizational Chart



## Appendix B: SSC Core Faculty

### Carlos Carvalho, Assistant Professor, IROM



Dr. Carvalho's interest is in the development of methodological aspects of structured probability models for large-scale multivariate problems, with applications ranging from financial time series to high-throughput cancer genomics. His work pays special attention to the development and improvement of associated computational tools for model selection and inference, with current projects in financial econometrics and empirical asset pricing problems.

Dr. Carvalho did his undergraduate studies in Brazil. He received his Ph.D. in Statistics from Duke University in 2006. Before moving to The University of Texas, he was an Assistant Professor at The University of Chicago Booth School of Business.

#### Honors:

- 2009–10 *Donald D. Harrington Faculty Fellow* – The University of Texas, Austin.
- 2008–09 *IBM Corporation Scholar* – The University of Chicago.
- 2007 *Dennis V. Lindley Prize* for innovative research in Bayesian Statistics. Honorable Mention for “Dynamic Matrix-Variate Graphical Models.”
- 2006 *Leonard J. Savage Award* for outstanding doctoral dissertation in Bayesian econometrics and statistics – Honorable Mention.

### Peter Müller, Professor, Mathematics



Dr. Müller's interest is in methods and applications of Bayesian inference. More specifically, he is working on nonparametric Bayesian inference, decision problems, and applications to biomedical research problems. Nonparametric Bayesian inference refers to prior models for infinite dimensional random quantities, typically random probability measures. Decision problems include particular clinical trial design and multiple comparison procedures. Other applications Dr. Müller is interested in include inference related to dependence structure, specifically graphical models to formalize inference about dependence for high throughput genomic data. Another large area of application is population pharmacokinetic and pharmacodynamic models, which give rise to many good applications that exploit many of my methodological interests.

Dr. Müller's undergraduate education is from Universität Wien and Technische Universität Wien, Austria. He received his Ph.D. from Purdue University where he worked under Jim Berger on MCMC for constrained parameter problems. He spent several years at the Institute of Statistics and Decision Sciences (ISDS), Duke University, and at M.D. Anderson Biostatistics.

#### Honors:

- Fellow of the American Statistical Association
- President of the International Society for Bayesian Analysis (2010)
- Robert R. Herring Distinguished Professorship in Clinical Research (2007–2011)

**Pradeep Ravikumar, Assistant Professor, Computer Science**



Dr. Ravikumar's main area of research is in statistical machine learning. The core problem here combines the statistical imperative of inferring reliable conclusions from limited observations or data with the computational imperative of doing so with limited computation. Of particular interest are modern settings where the dimensionality of data is high, and simultaneously achieving these twin objectives is difficult. His recent research has been on the foundations of such statistical machine learning, with particular emphasis on graphical models, high-dimensional statistical inference, and optimization.

Dr. Ravikumar received his BTech in Computer Science and Engineering from the Indian Institute of Technology, Bombay in India. He received his Ph.D. in Machine Learning from the School of Computer Science at Carnegie Mellon University, where he worked with John Lafferty. He was a postdoctoral scholar at the Department of Statistics, University of California, Berkeley from 2007–2009, where he worked with Martin Wainwright and Bin Yu.

**Honors:**

- Honorable Mention, ACM SIGKDD Dissertation Award, 2008.
- Honorable Mention, CMU School of Computer Science Distinguished Dissertation Award, 2007/08.
- Siebel Scholar, 2007.
- Indian National Talent Search Scholar.

**James G. Scott, Assistant Professor, IROM**



Dr. Scott is a Bayesian statistician, studying problems in model selection and multiple testing; connections between machine learning and Bayesian shrinkage estimation; variable selection and high-dimensional inference in non-linear, non-Gaussian models; and structured models for covariance matrices. He has been investigating how to make Bayesian-inspired approaches for sparse-signal detection scalable to enormous data sets, where many traditional Bayesian tools simply won't work. Some of his recent collaborations outside statistics include applied work in linguistics, neuroscience, clinical bio-informatics, and political science.

Dr. Scott received his Ph.D. is from Duke University, where he studied Bayesian model selection under Jim Berger. Before that he studied at Trinity College, Cambridge for two years. He was an undergraduate from 2000 to 2004 at UT-Austin in the Dean's Scholars and Plan II honors programs.

**Honors:**

- Savage Award, 2010 (awarded by the International Society of Bayesian Statistics for best thesis in Bayesian statistical theory)
- National Science Foundation Graduate Research Fellowship, 2006–2009
- Marshall Scholarship for study in Great Britain, 2004–2006

## Appendix C: SSC Seminar Series Speakers

Date	Speaker Name	Institution	Title of Talk
Sept. 16, 2011	Bobby Gramacy	U of Chicago	Dynamic Trees for Response Surface Learning & Optimization
Oct. 14, 2011	Erik Sudderth	Brown U	Improving the Flexibility and Reliability of Nonparametric Topic Models
Oct. 28, 2011	Kristen Grauman	UT-Austin	Capturing Human Insight for Large-scale Visual Category Learning
Nov. 4, 2011	Peter Hoff	U of Washington	Separable Models for Multiway Array Data
Nov. 11, 2011	Edo Airoldi	Harvard U	Statistical Analysis of Populations with Interacting and Interfering Units
Nov. 18, 2011	David Russell	Inst for Rsch in Bio-medicine, Barcelona	Non-local priors for high dimensional Bayesian model selection
Dec. 2, 2011	Stephen Jessee	UT-Austin	A Latent Traits Model of Survey Responses to Political Knowledge Questions
Jan. 11, 2012	Cosma Shalizi	Carnegie Mellon U	When Can We Learn Network Models from Samples?
Jan. 18, 2012	Paul Sheet	M.D. Anderson	Haplotype-based Discovery of Subtle Allelic Imbalance with SNP Arrays
Jan. 23, 2012	Jichun Xie	Temple U	Covariance Adjusted Precision Matrix Estimation
Feb. 6, 2012	Lauren Hannah	Duke U	Multivariate Convex Regression
Feb. 8, 2012	Jacob Bien	Stanford U	Sparse Hierarchical Interactions
Feb. 13, 2012	Anirban Bhattacharya	Duke U	Bayesian Latent Factor Modeling and Dimensionality Reduction
Feb. 15, 2012	Matt Hoffman	Columbia U	Making Bayesian Inference Faster and Easier
Feb. 20, 2012	Hedibert Lopes	U of Chicago	Examining the Effect of Early-life Conditions and Education on Health via Parsimonious Bayesian Factor Analysis when Number of Factors is Unknown
Feb. 22, 2012	Veera Baladandayuthanpani	M.D. Anderson	Bayesian Nonparametric Functional Models for High-dimensional Genomics Data
Feb. 29, 2012	Luis Nieto	ITAM (Mexico)	Bayesian Analysis of Functional Proteomics Profiles
Mar. 21, 2012	Roman Jandarov	Penn State	Inference with Implicit Likelihoods for Infectious Disease Models
Mar. 23, 2012	Larry Carin	Duke U	Inferring Latent Structure from Mixed Real and Categorical Relational Data
Mar. 30, 2012	David Blei	Princeton U	Scalable Topic Models and Stochastic Variational Inference
April 4, 2012	Nikos Karampatziakis	Cornell U	Large Scale Agnostic Active Learning
April 16, 2012	Abel Rodriguez	US Santa Cruz	Modeling and Analysis of Trading Networks
April 17, 2012	Piyush Rai	U of Utah	Nonparametric Bayesian Models: Learning Latent Features, Predictive Structures, and Efficient Inference
April 20, 2012	David Madigan	Columbia U	Statistical Methods for Drug Safety Surveillance
April 30, 2012	Raymond Carroll	Texas A&M	What Percentage of Children in the U.S. are Eating Healthy Diet? A Statistical Approach"
May 4, 2012	Jason Abrevaya	UT-Austin	Missing Data in Panel (Longitudinal) Data Models
May 8, 2012	Mike Daniels	U of Florida	Bayesian Inference for Incomplete Data with Applications to Infectious Diseases