

LISA (Laboratory for Interdisciplinary Statistical Analysis)



Collaboration



Walk-In Consulting

Statistical Short Courses



2014-15 LISA Annual Report

August 5, 2016

www.lisa.stat.vt.edu

Table of Contents [1]

Executive Summary.....	2
LISA Collaborators.....	3
Introduction and LISA Mission.....	4
Activities and Progress in 2014-15.....	5
LISA Services	
Collaboration Meetings.....	8
Walk-In Consulting.....	9
Short Courses.....	10
Total Clients and Hours.....	12
Feedback from Clients.....	13
Selected Client Quotes.....	14
Grants and Grant Proposals Involving LISA.....	15
Publications and Selected Presentations.....	17
Video Coaching and Feedback Sessions.....	22
2014 Outstanding LISA Collaborator of the Year.....	23
Future Plans.....	26
Contact.....	27

This annual report was prepared by Eric Vance and Tonya Pruitt. It can be cited as:

Vance, E. and Pruitt, T. LISA: Virginia Tech's Laboratory for Interdisciplinary Statistical Analysis Annual Report 2014-15. Submitted August 5, 2016, 28 pages.

[2] Executive Summary

The 2014-15 academic year was very successful for LISA, Virginia Tech's Laboratory for Interdisciplinary Statistical Analysis. LISA statistical collaborators helped 1349 researchers around Virginia Tech for the three main services of Collaboration Meetings, Walk-in Consulting, and educational Short Courses (Figure 1).

Highlights of 2014-15:

- Vigorous emphasis on collaborations and co-authorships resulted in **20 peer-reviewed publications**; 26 conference posters and presentations; and an additional 28 manuscript submissions.
- Five new statistical collaboration laboratories were created in developing countries (in Nigeria, Tanzania, Ethiopia, and Brazil) and joined the LISA 2020 network. Five LISA Fellows were trained at LISA and two LISA Ambassadors spent 6 months in Africa helping grow the new stat labs.
- Our short courses continued improving and we conducted 38 Video Coaching and Feedback Sessions to improve LISA's statistical collaboration skills.
- LISA collaborated with researchers from 65 departments and initiated new partnership with the Center for Open Science in Charlottesville, VA.
- For the fifth year in a row, LISA was featured in an invited session at the American Statistical Association's (ASA) Joint Statistical Meetings (JSM). This year's invited session was "Preparing Students to Work in Industry."

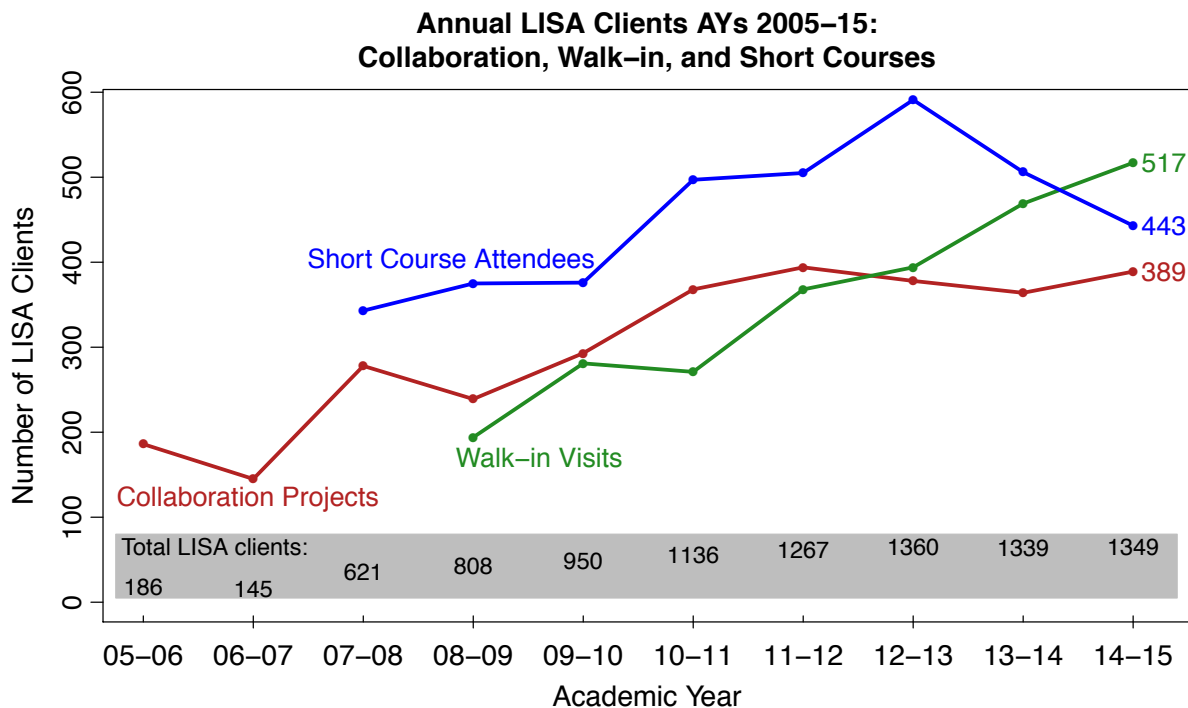


Figure 1. Total number of clients for Collaboration, Walk-In Consulting, and Short Courses

Dr. Eric Vance, Director

Dr. Christopher Franck, Assistant Director

Tonya Pruitt, Administrative Specialist

Celia Rose Eddy, Research Associate

Lead Collaborators

Zhe Bao
Ian Crandell
Ting Guan
Xinran Hu

Caleb King
Justin Loda
Ana Maria Ortega Villa
Yiming Peng

Liang (Sally) Shan
Yuhyun Song
Lin Zhang

Associate Collaborators

Dane Alabran
James Anderson
Christopher Casement
Chen Chen
Tianlei Chen
Gavin Corrall
William DeShong
Adam Edwards
Mohamed Elkhoully
J.T. Fry
Zhenguo Gao
Jiang Huang
Steven Hurwitt
Zhongnan (Mark) Jin
Xiaoning Kang

Matthew Keefe
Daniel Lee
I Chen Lee
Linjun Li
Ruijin Lu
Huiying (Maggie) Mao
Thomas Metzger
Kristopher Patton
Robert Paul Sabin
Sumin Shen
Matthew Slifko
Allison Steel
Jinhui Sun
Yizhi Sun
Xinyi Tan

Man Tang
Katie Thornton
Hong Tran
Ying Wang
James Wrenn
Weibin Xu
Zhibing (Alex) Xu
Yin Yuan
Angang Zhang
Man Zhang
Xiang Zhang
Yafei Zhang
Meng Zhao

LISA 2020 Fellows

Olawale Awe
Dr. Mohamed Djedour

Dr. Ayele Taye Goshu
Dr. Benedicto Kazuzuru

Richard Ngaya
Jingli Xing

Statistics Faculty Collaborators

Dr. Anne Driscoll
Dr. Marco Ferreira
Dr. Ina Hoeschele
Dr. Inyoung Kim

Dr. Scotland Leman
Dr. Jie Li
Dr. JP Morgan
Dr. Byron Smith

Dr. Eric Smith
Dr. Xiaowei Wu
Dr. Hongxiao Zhu

[4] Introduction and LISA Mission

LISA is the Laboratory for Interdisciplinary Statistical Analysis at Virginia Tech. It was originally founded in 1948 as the Statistical Laboratory, reorganized and renamed in 1973 as the Statistical Consulting Center, and then again reorganized and renamed as LISA in 2008. **LISA's mission is to train statisticians to become interdisciplinary collaborators, provide research infrastructure to enable and accelerate high impact research, and engage with the community in outreach activities to improve statistical skills and literacy.** LISA statistical collaborators are trained to help researchers design experiments; collect, analyze, and plot data; run statistical software; interpret results; and communicate statistical concepts. In the 2014-15 academic year, LISA collaborated on 389 projects from 65 departments at Virginia Tech, answered questions for 517 researchers in walk-in consulting, and taught 443 attendees at educational short courses how to apply statistics in their research.

The LISA collaborators are faculty and students in the Department of Statistics. LISA's full-time director, assistant director (mostly supported by funded projects), and research associate (primarily supported by funded projects) meet with clients and—together with the LISA Administrative Specialist—oversee a team of graduate and undergraduate student collaborators. In addition, the entire statistics faculty may be available for collaboration on a case-by-case basis.

Statistical assistance is free for Virginia Tech faculty, staff, and students. LISA is funded jointly by the Office of the Vice President of Research, the College of Science, the Graduate School, the Office of the Provost, and all seven other colleges (Agriculture and Life Sciences, Architecture and Urban Studies, Engineering, Liberal Arts and Human Sciences, Natural Resources and Environment, the Pamplin College of Business, and the Virginia-Maryland Regional College of Veterinary Medicine). The Department of Statistics also provides funding for many of the LISA statistical collaborators and provides other support for LISA's activities.

Users of LISA engaging in sponsored research can benefit from in-depth help and are encouraged to include statistical collaboration in grant proposals. This can take the form of a full or partial graduate research assistantship, partial funding of a faculty member's salary, or a direct-cost line item. LISA occasionally provides statistical consultation and collaboration on projects outside of Virginia Tech for a fee. Through StatCom (Statistics in the Community), students in the Department of Statistics also provide pro-bono statistical consultation and collaboration for researchers studying topics of local interest and for local community nonprofits, schools, and governmental organizations.

This report summarizes LISA's main activities for the 2014-15 academic year, highlights the activities and progress achieved over the past year, and outlines six goals for 2015-16. In addition, this report presents the numbers of clients served and reported hours worked for the past ten years to help place the past year's activities into context.

Demand for LISA statistical collaboration and expertise continues to grow. From all over Virginia Tech, **1349 faculty, staff, and students met with LISA statistical collaborators** for assistance in designing experiments and studies; collecting, cleaning, plotting, and analyzing data; interpreting results of statistical analyses; developing new theories from these results; writing grant proposals and scholarly papers; answering quick questions about statistics; and for learning new statistical methods.

During the 2014-15 academic year, the 59 statistical collaborators of LISA met with researchers from 65 Virginia Tech departments for individual statistical collaboration meetings on **389 projects**. During daily Walk-in Consulting hours, LISA met with 517 faculty, staff, and students to answer quick statistical questions on projects requiring less than 30 minutes of assistance. 23 LISA Short Courses were offered to teach 443 graduate students and other university members how to apply statistics in their research. Overall, LISA provided at least **7707 hours of statistical assistance and education** to members of the Virginia Tech community. Figure 2 shows a summary of the clients and reported hours for LISA's three main services. **This year LISA assisted 1349 total clients.**

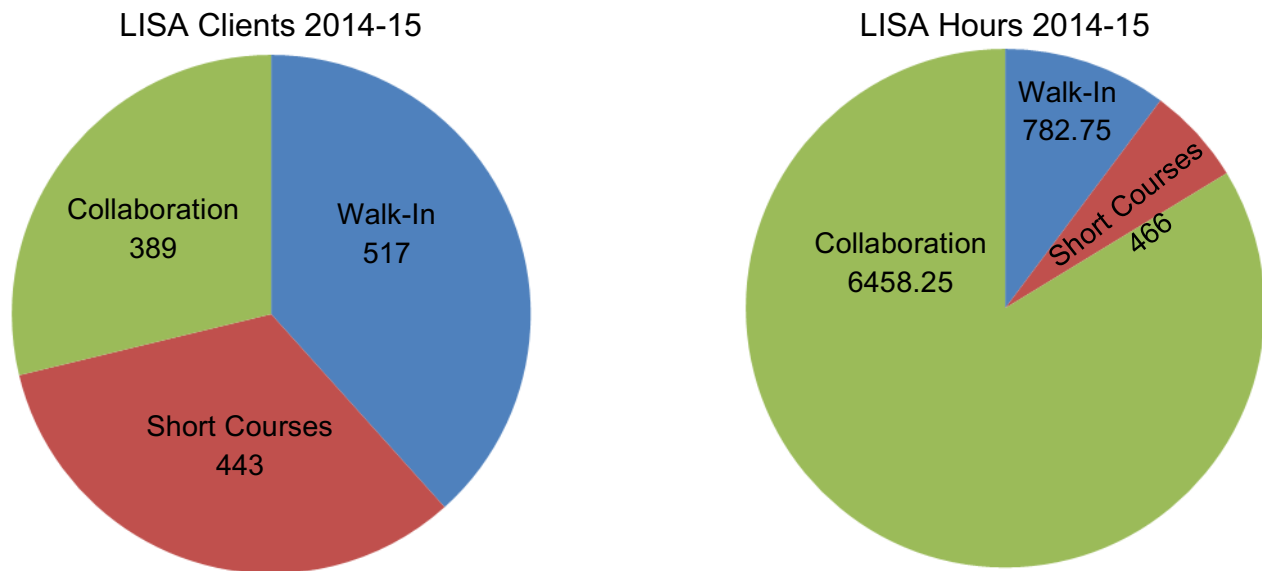


Figure 2. Number of clients and reported hours for LISA's three main services

[6] Activities and Progress in 2014-15

In past years, LISA's primary goal was to become the premier academic statistical collaboration laboratory. We feel we have accomplished this! In last year's annual report, we highlighted six goals we thought would help us become an even better and stronger model stat lab for others to emulate. Our top two goals were not met, but we met or exceeded the other four goals. Our progress is described briefly below and expanded upon in subsequent sections of this report. See page 26 for our six goals for 2015-16.

2014-15 Goals

1. *Stabilize LISA and ensure its continued success as research infrastructure for Virginia Tech by securing permanent and increased funding from Virginia Tech.*
 - Engage in at least one meeting between LISA, the newly appointed Head of the Department of Statistics, and the relevant Virginia Tech administrators about the next steps to secure permanent and increased funding for LISA.

Unfortunately, no joint meetings between LISA, the new department head, and Virginia Tech administrators were held and LISA was not able to state its case for permanent or increased funding.

2. *Fund LISA's research and discovery efforts to better understand how to train statisticians to become effective interdisciplinary collaborators.*
 - Submit at least one NSF proposal related to the training of statistics graduate students.

A relevant NSF proposal to fund enhanced training of statistics doctoral students was identified, but internal Virginia Tech deadlines had already passed to be able to compete for such funding.

3. *Grow the LISA 2020 network of statistical collaboration laboratories.*
 - Help establish at least two LISA 2020 stat labs in developing countries. Partner with at least three domestic universities or institutions to grow and strengthen the LISA 2020 domestic network.

Five new statistical collaboration laboratories were created (two in Nigeria, one in Tanzania, one in Ethiopia, and one in Brazil) and joined the LISA 2020 Network. The BECCA (Biostatistics * Evaluation * Collaboration * Consultation * Analysis) Lab at the University of Pennsylvania School of Nursing partnered with the LISA 2020 program to train LISA Fellow Olawale Awe on biostatistical methods.

4. *Recruit high quality students to the statistics graduate program because they want to gain experience in LISA applying statistics to help people solve real world problems.*
 - Interview all incoming students to see if LISA was a major deciding factor in choosing to attend Virginia Tech and whether they would have applied to Virginia Tech if not for LISA. Produce and disseminate a short recruiting video highlighting LISA's role in the graduate student experience at Virginia Tech.

Several new graduate students indicated that LISA was a major deciding factor in choosing to attend Virginia Tech. We produced and disseminated a short recruiting video highlighting LISA's role in the graduate student experience at Virginia Tech: https://www.youtube.com/watch?v=elfpYXV4K_g

5. *Quantify and qualitatively document LISA's impacts on student statistical collaborators, on LISA clients, and on LISA clients' research.*
 - Collect data on the impacts of involvement in LISA on statistical collaborators' technical and non-technical skills and their on-the-job performance. Continue to compile and present the numbers of LISA clients in the LISA Annual Report. Collect and disseminate at least 10 stories of LISA's impact on research at Virginia Tech and around the world.

LISA conducted a study of 173 former LISA statistical collaborators to determine the impact of LISA on their technical and non-technical statistics skills and their preparation for employment. The results were summarized in a poster and various presentations. A manuscript is in preparation for submission to a peer-reviewed journal.

6. *Build on our connections with VTC to increase the opportunities for statistical collaboration.*
 - Institute regular LISA Walk-in Consulting hours for visitors from VTC. Seek funding for LISA collaboration, walk-in, and short course services from VTC.

LISA instituted regular walk-in consulting sessions for visitors from VTC and collaborated with multiple VTCSOM medical students.

Please see our previous annual reports for progress on past LISA goals.

[8] Collaboration

As a *laboratory* for interdisciplinary statistical analysis, LISA creates new knowledge in at least four ways:

1. We help researchers answer questions they could not have answered without expert statistical advice.
2. Based on our understanding of the researchers' goals and their data, we may suggest novel questions their data can answer.
3. When we encounter new types of data for which standard statistical methods do not apply, we create new knowledge by developing novel statistical methods that enable researchers to extract useful information from their data.
4. We are researching the process of statistical collaboration itself, advancing knowledge in best practices for statistical collaboration and how to improve one's statistical collaboration skills.

In collaboration meetings, we focus on points 1-3 above, contributing statistical expertise to research projects in many disciplines. Collaboration meetings typically last for one hour, with multiple follow-up meetings as necessary. LISA statistical collaborators meet with researchers to discuss their research goals, the nature of the data collected or to be collected, how the data can be analyzed to answer the researcher's specific questions, what the statistical results mean in terms of the research goals, and how the researcher can explain the results to his or her intended audiences. After and between meetings, LISA collaborators typically analyze the clients' data or conduct background research to determine the most appropriate statistical analysis for the client.

LISA met with researchers during the fall 2014 semester on 144 projects for a total of 1992.5 hours. In spring 2015, LISA met with researchers on 150 projects for 3112.75 hours. In the summer semester LISA met with researchers on 95 projects for 1353 hours. In total, LISA worked on 389 collaborative projects with researchers from 65 departments. Table 1 below summarizes these numbers.

Table 1. Collaboration clients and hours for the 2014-15 academic year

Collaboration	Fall 2014	Spring 2015	Summer 2015	Total
Clients	144	150	95	389
Hours	1992.5	3112.75	1353	6458.25

To offer assistance to Virginia Tech researchers who might not require the intense, personalized efforts of the collaboration meetings, **LISA provides walk-in consulting for answering quick questions and giving statistical advice** on smaller, simpler projects. Assistance is limited to less than 30 minutes when others are waiting.



Jonathan Stallings assists Bireswar Laha a computer science doctoral student during LISA Walk-In Consulting.

In 2014-15, LISA **Walk-in consultants were available for 782.75 hours**. Our standard time and location for Walk-in Consulting was Monday-Friday from 1-3PM in the Old Security Building. Additional times and locations were added to keep up with the heavy demand and new hours were added at VTC.

LISA Walk-in consultants met with 160 visitors during fall 2014, 253 during spring 2015, and 104 during the summer sessions. During the 2014-15 academic year, **LISA Walk-in consultants met with a total of 517 clients from 60 departments.**

Table 2. Walk-In Consulting times and locations during 2014-15

Semester	Day and Time	Location
Fall	Monday – Friday 1-3 pm (standard)	103 Old Security Building
Fall	Monday 3-5 pm (additional)	Port: Torg 3320
Fall	Monday 4-6 pm (additional)	VTC: Roanoke, VA
Fall	Tuesday, Thursday, Friday 10-12 pm (additional)	GLC Meeting Room A
Fall	Wednesday 10-12 pm (additional)	403-J Hutcheson Hall
Fall	Friday 10-12 pm (additional)	LISA Remote Consulting
Spring	Monday – Friday 1-3 pm (standard)	103 Old Security Building
Spring	Monday 3-5 pm (additional)	Port: Torg 3320
Spring	Tuesday, Thursday, Friday 10-12 pm (additional)	GLC Meeting Room A
Spring	Wednesday 10-12 pm (additional)	403-J Hutcheson Hall
Summer	Monday – Friday 1-3 pm (standard)	103 Old Security Building
Summer	Tuesday 10-12 pm (additional)	GLC Meeting Room A
Summer	Wednesday 10-12 pm (additional)	403-J Hutcheson Hall

Table 3. Walk-In Consulting clients and hours for 2014-15

Walk-In	Fall 2014	Spring 2015	Summer 2015	Total
Clients	160	253	104	517
Hours	285	303.5	194.25	782.75

[10] Short Courses

LISA teaches a series of evening short courses each semester to help graduate students apply statistics in their research. The focus of these two-hour courses is on learning practical statistical techniques for analyzing or collecting data. Taught by graduate students and faculty from LISA and the Department of Statistics, these short courses proved to be very popular, with 443 students, faculty, and staff attending. The tables below describe the course titles, instructors, dates, and attendance for the 23 short courses. Two of these courses were taught twice due to limited classroom size. In 2014-15, LISA taught a total of 25 short course sessions.

Table 4. LISA Short Course titles, instructors, and attendance for 2014-15

Fall 2014

Date	Title	Attendance
October 7, 2014	Design of Experiments	23
October 14, 2014	SQL in R	18
October 21, 2014	Survey Design and Analysis	10
October 28, 2014	Introduction to R	36
November 4, 2014	Generalized Linear Models and Categorical Data Analysis in R	15
November 11, 2014	Graphics in R	19
November 18, 2014	A tutorial for shiny in R	16
December 2, 2014	Data Analysis in SAS	18
		155

Spring 2015

Date	Title	Attendance
February 17, 2015	Basics of R	20
February 23 & 24, 2015	Graphics in R ²	21
March 3, 2015	Multivariate Analysis in R	15
March 17, 2015	Designing Experiments	3
March 23 & 24, 2015	Using ggplot2 to produce enhanced graphics in R ²	12
April 7, 2015	T-tests & ANOVA	14
April 14, 2015	Solutions for Broken Linear Models	13
April 21, 2015	Generalized Linear Models (GLMs) and Categorical Data Analysis (CDA)	6
		104

Summer 2015

Date	Title	Attendance
June 24, 2015	Designing Experiments	39
July 1, 2015	Basics of R	35
July 8, 2015	Generalized Linear Models (GLMs) and Categorical Data Analysis (CDA)	27
July 15, 2015	Graphics in R	26
July 22, 2015	Multivariate Clustering Analysis in R	23
July 29, 2015	Power Analyses & Sample Size Calculations for Research	17

August 5, 2015	Using Mixed Effects Models to Quantify Dependency Among Repeated Measures	17
		184

² Two sessions of these courses were taught because of limited classroom size.

LISA records each short course and posts them online for anyone looking to learn statistical techniques or software practices.

"I can't tell you how grateful I am to you for making your LASSO notes (from the LISA course, as attached) public. They have been the single greatest source to me in trying to learn the technique. "

- Shawn W. Ulrick, Federal Trade Commission

"My name is Matthew Cox, and I am a three time graduate of Virginia Tech (B.S., M.S., and Ph.D.). I am currently doing a lot of methods and statistics work in medical research and I can't tell you how helpful your online short courses are. When I was at VT, LISA was just starting. I didn't take advantage of LISA while I was there and now that the videos are online, I don't have to regret my mistake too much. In particular I enjoy videos utilizing R. Thanks so much for all your hard work."

- Matthew G. Cox, The University of Texas M. D. Anderson Cancer Center

[12] Total Clients and Reported Hours

The two plots below (Figure 3) show the total number of LISA clients and reported hours for our three main services of Collaboration, Walk-in Consulting, and Short Courses for the past eight academic years. LISA was created in spring 2008 to succeed the Statistical Consulting Center, which was created in 1973 (with roots going back to 1948). In summer 2008, LISA began offering short courses. In fall 2008, LISA began offering Walk-in Consulting.

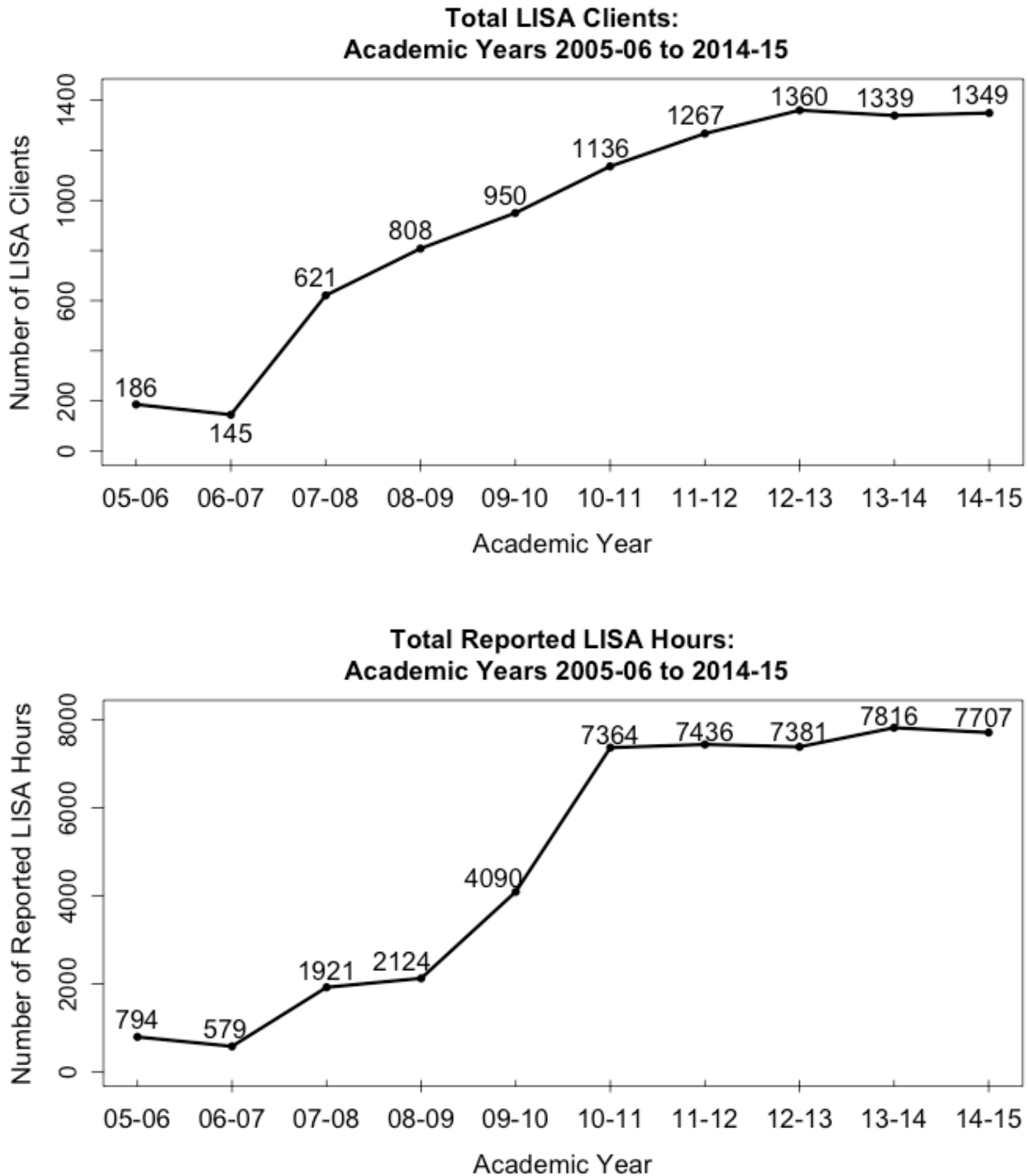
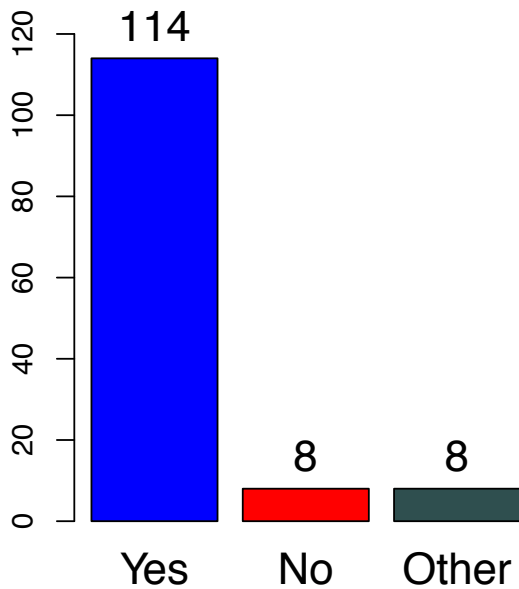


Figure 3. Total number of LISA clients and reported hours for Collaboration, Walk-In Consulting, and Short Courses

At the conclusion of each academic term, clients who requested statistical collaboration meetings are asked to fill out a feedback survey evaluating their experience with LISA. Below are the summaries of two of the survey questions (Figure 4) and a selection of comments (next page) from clients in each of the eight colleges at Virginia Tech. By counting “Other” responses as half “Yes” and half “No”, **91% of LISA clients considered LISA’s services “helpful”, and 90% were satisfied with their overall LISA experience.**

Q1: Was the service you received from LISA helpful?



Q2: Were you satisfied with your overall LISA experience?

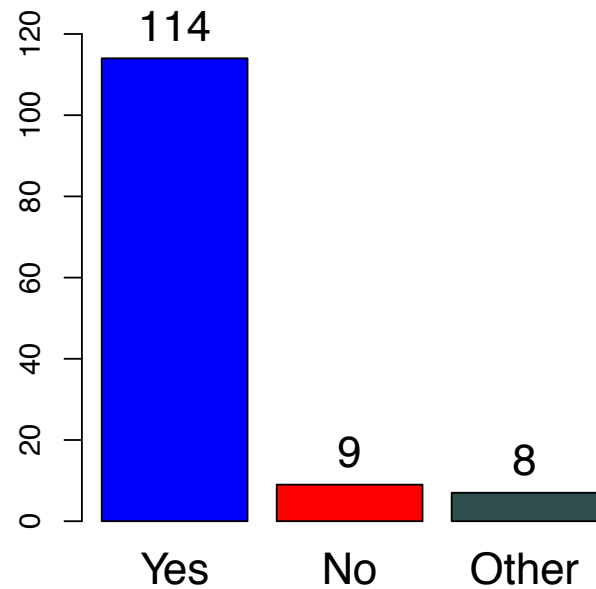


Figure 4. Summary of quantitative feedback on LISA collaboration meetings

[14] Selected Client Quotes

Angie Saadat, CALS

Excellent. Both of my student advisors were very professional, skilled in their field and willing to help. I was impressed that they fully understood my project and searched for the best statistical method. They also asked me which program I preferred to use.

Denise Simmons, COE

Working with Eric has been essential to helping me get a strong start to my NSF CAREER award. He is clear with his instructions, prompt with his responses, and meets all agreed upon commitments. I tell ALL of my colleagues about LISA. I am thankful to have this resource.

Brian Templeton, CVM

Chen Chen was very enthusiastic and very helpful! She had the drive to understand difficult questions tangential to her area that required additional thought. Thank you! Also, she went above and beyond by e-mailing an R script that investigated the effects of a SAS assumption.

Vicki Garcia, COS

I'm a big fan of LISA and often make use of walk-in services as well as this collaboration. It's very helpful to have a service to go to when I have quick questions about code or more in-depth questions about statistics, rather than rooting around for someone in my department who might be able to help. I'll hopefully be finishing soon and have used LISA over the years, and I think it has greatly improved since I first went 5 or so years ago.

Lijun Lei, PCOB

Weibin Xu is especially helpful. He was willing to listen to understand my project and problems I have. Then he offered several options and explained the pros and cons of each in detail. When I made decisions about the path I wanted to follow, he provided valuable tips of how to handle potential problems I might have. I was very impressed by Weibin.

Christopher Li, VTCSOM

Was excellent working with Angang and Liang - they were extremely helpful, accommodating, and easy to work with. Glad to have them on my team! Thank you!

David Daniel, CLAHS

I found Justin and Linjun both to be very helpful. They helped guide me in the right direction for my analysis. Justin's time as a K-12 teacher was helpful in his ability to explain information but also for his background in public school assessment issues.

Jeremy Withers, CNRE

They were professional in their ability to rapidly restructure complex information to acquire the needed statistical information. I am very grateful for the professional assistance and high level experience afforded me. ---Thank you

Additional letters of support available:

www.lisa.stat.vt.edu/?q=support

LISA provides statistical support for sponsored projects and collaborates with researchers across disciplines on grant proposals. In 2014-15, LISA was funded on 18 grants. LISA collaborators were co-PIs or key personnel on 2 grant proposals.

Funded Projects:

1. **Franck, C.T.**, NIH: “Delay Discounting as a Target for Self-Regulation in Prediabetes” UH2 DK109543 01. PI: Epstein, L.H., and Bickel, W.K., Role: Co-Investigator. \$2,155,293 total. (09/2015-08/2018)
2. **Franck, C.T.**, NIH/NIDA: “Self-Control Improvement Intervention (SCII): Improving Abstinence in Smokers” R01 DA034755 01A1. PI: Bickel, W.K., Role: Statistician. \$4,379,053 total. (07/2013-06/2018)
3. **Franck, C.T.**, NIH/NIAAA: “The Repair of Self-Control in Alcohol Dependence: Working Memory and Real Time fMRI” R01AA021529-01A1. PI: Bickel, W.K., and LaConte, S.M., Role: Statistician. \$3,414,145 total. (09/2013-05/2018)
4. **Franck, C.T.**, NIH/NCI: “The Social Interactome of Recovery: Social Media as Therapy Development” 1 R01 DA039456 01. PI: Bickel, W.K., Role: Co-Investigator. \$2,228,880 total. (09/2014-08/2017)
5. **Franck, C.T.**, NIH/NCI: “Models for Tobacco Product Evaluation” 1U19CA157345-01A1. PI: Hatsukami, D.K., and Shields, P.C., Role: Statistician. \$16,583,352 total. (09/2012-08/2017)
6. **Franck, C.T.**, NIH/NIMHD: “RITCh: Reducing Socioeconomic Disparities in Tobacco Dependence Treatment Outcomes” 1R01MD007054-01. PI: Sheffer, C.E., Role: Statistician. \$1,871,670 total. (07/2012-01/2017)
7. **Franck, C.T.**, NIH: “Enhancing Relapse Prevention for Smoking Cessation with rTMS” R21CA17881301A. PI: Sheffer, C.E., Role: Statistician. \$579,899 total. (09/2014-08/2016)
8. **Franck, C.T.**, NIH/NIDA: “Inter-Temporal Trade-offs in the Risky Decisions of Cocaine Addicts” R01 DA030241 01. PI: Bickel, W.K., Role: Statistician. \$3,617,360 total. (07/2010-03/2016)
9. **Vance, E.A.**, Principal Investigator – Building Statistics Capacity in Developing Countries by Educating and Training Statisticians to Communicate and Collaborate with Non-statisticians. *Google Faculty Research Awards*, \$40,000 (100% credit), 05/2013 – 12/2014.
10. **Vance, E.A.**, Co-Principal Investigator (PI: Mary Marchant; other co-PI: Eric Smith) – Improvement and Marketing of the Food and Agricultural Education Information System (FAIES). *USDA/NIFA*, \$220,000 (10% credit), 10/2013 – 09/2014.
11. **Vance, E.A.**, Principal Investigator – Growing Research Capacity at SUA by Creating a Statistical Collaboration Laboratory. *Innovative Agricultural Research Initiative, USAID*, \$72,094 (100% credit), 11/2013 – 09/2015. This grant supports Eric Vance, Benedicto Kazuzuru, and a future statistics graduate student related to the LISA 2020 program.
12. **Vance, E.A.**, Co-Principal Investigator (PI: Kathy Alexander) The Epidemiology of Mycobacterium Mungi—how can we control this emerging disease? *Morris Animal Foundation*, \$68,036 (20% credit), 05/2014 – 04/2016.
13. **Vance, E.A.**, Principal Investigator – LISA 2020 Year 2: Building Statistics Capacity in Developing Countries to Solve Real-World Problems. *Google Faculty Research Awards*, \$20,000 (100% credit), 09/2014 – 12/2015.
14. **Vance, E.A.**, Co-Principal Investigator (PI: Mary Marchant; other co-PI: Eric Smith) – Improvement and Marketing of the Food and Agricultural Education Information System (FAIES). *USDA/NIFA*, \$220,000 (10% credit), 10/2014 – 09/2015.

[16] Grants and Grant Proposals Involving LISA

15. **Vance, E.A.**, Principal Investigator – Growing Research Capacity at SUA by Creating a Statistical Collaboration Laboratory *Innovative Agricultural Research Initiative, USAID*, \$150,000 (100% credit), 10/2013 – 09/2016.
16. **Vance, E.A.**, Co-Principal Investigator (PI: Kathleen Alexander; other co-PIs: Jeffrey Walters, Stephen Eubank, Bryan Lewis) – EEID: Can group living and the influence of the Allee effects explain infectious disease vulnerability in social species? *National Science Foundation*, \$1,830,594 (5% credit), 06/2015– 05/2019.
17. **Vance, E.A.**, Co-Principal Investigator (PI: Kathleen Alexander; other co-PIs: Monica Ponder, Stephen Eubank, Bryan Lewis) – CNH: The Coupled Dynamics of Human-Dryland River Systems: Linkages and Feedbacks Between Human and Environmental Drivers of Water Quality and Human and Animal Health *National Science Foundation*, \$1,799,999 (5% credit), 07/2015– 06/2019.
18. **Vance, E.A.**, Principle Investigator – Building the LISA 2020 Team to Train Statisticians from Developing Countries to Create a Network of Statistical Collaboration Laboratories. *American Statistical Association*, \$9000 (100% credit), 04/2015 – 03/2016.

Proposals Submitted:

1. **Franck, C.T.**, Google: “The Laboratory for Online Bayesian Analysis and Education” PI: Franck, C.T. \$40,000 total. (02/2016-01/2017)
2. **Franck, C.T.**, Texas A&M University System: “Effects of Obesity and Age on Fall Risk – Implications for Interventions” PUT7FA2J. PI: Madigan, M.L., Role: Co-Investigator. \$827,259 total. (07/2016-06/2019)

One of LISA's missions is to **contribute statistical thinking to interdisciplinary research projects**. The natural result of such collaborative projects is a co-authored publication or a series of publications. In 2014-15, LISA collaborators were co-authors on 20 peer-reviewed publications and submitted 28 others. **LISA students were co-authors on 11 of these publications.**

Co-authored publications:

1. Parks, A., **Hoegh, A.**, Kuehl, D. (2015). Rural primary care access for semi-urgent medical concerns and the relationship of distance to an emergency department. *Western Journal of Emergency Medicine*, 16(4) 594-599.
2. Moredo, F.A., Piñeyro, P.E., **Márquez, G.C.**, Sanz, M., Colello, R., Etcheverría, A., Padola, N.L., Quiroga, M.A., Perfumo, C.J., Galli, L., and Leotta, G.A. (2015). Enterotoxigenic *Escherichia coli* subclinical infection in pigs: Bacteriological and genotypic characterization and antimicrobial resistance profiles. *Foodborne Pathogens and Disease*, 12(8):704-711.
3. Riebl, S., Estabrooks, P., Dunsomre, J., Savla, J., Frisard, M., Dietrich, A., **Peng, Y., Zhang, X.**, and Davy, B. (2015). A systematic literature review and meta-analysis: The Theory of Planned Behavior's application to understand and predict nutrition-related behaviors in youth. *Eating Behaviors*. 18: 160-178.
4. Koebel, C.T., McCoy, A.P., Sanderford, A.R., **Franck, C.T.**, and **Keefe M.J.** (2015). Diffusion of green building technologies in new housing construction. *Energy and Buildings*, 97, 175-185.
5. **Hoegh, A.** and Leman, S. (2015). A spatio-temporal model for assessing winter damage to east coast vineyards. *Journal of Applied Statistics*, 42(4): 834-845.
6. Jong, E.C., **Peng, Y., Bradley, W.T.**, Luxbacher, K.D., Agioutantis, Z., and McNaird, H.M. (2015). Development of a perfluoromethylcyclohexane (PMCH) permeation plug release vessel (PPRV) for tracer gas studies in underground mines. *Process Safety and Environmental Protection*, 95 (136-145).
7. Gazel, E., Hayes, J.L., Kaj Hoernle, Kelemen, P., Everson, E., Holbrook, W.S., Hauff, F., van den Bogaard, P., **Vance, E.A., Chu, S.**, Calvert, A.J., Carr, M.J., and Yogodzinski, G.M. (2015). Continental crust generated in oceanic arcs. *Nature Geoscience*, 8:321-327.
8. **Seiss, M., Vance, E.A.**, and Hall, R.P. (2014). The Importance of Cleaning Data During Fieldwork: Evidence from Mozambique. *Survey Practice*, 7(4).
9. Giese, G., Wolf, T.K., **Velasco-Cruz, C., Roberts, L.** and Heitman, J. (2014). Cover Crop and Root Pruning Impacts on Vegetative Growth, Crop Yield Components, and Grape Composition of Cabernet Sauvignon. *American Journal of Enology and Viticulture*, 66(2):212-226.
10. Rallos, L.E., **Johnson, N.G.**, Schmale III, D.G., Prussin II, A.J. and Baudoin, A.B. (2014). Fitness of *Erysiphe necator* with G143A-based resistance to quinone outside inhibitors. *Plant Disease*, 98(11): 1494-1502.
11. Simmons, D.R., Tendhar, C., Yu, R., **Vance, E.A.**, and Amelink, C. T. (2015) Developing the Postsecondary Student Engagement Survey (PosSES) to Measure Undergraduate Engineering Students' Out-of-Class Involvement. *2015 ASEE Annual Conference and Exposition, Seattle, Washington*. 10.18260/p.23845
12. **Vance, E.A.** (2015) Recent Developments and Their Implications for the Future of Academic Statistical Consulting Centers. *The American Statistician*, 69(2): 127-137.
13. Hall, R.P., Van Houweling, E.A., and **Vance, E.A.** (2014). The Productive Use of Rural Piped Water in Senegal. *Water Alternatives*, 7(3): 480-498.
14. **Franck, C.T.**, Koffarnus, M.N., House, L.L., and Bickel, W.K. (2015). Accurate characterization of delay discounting: A multiple model approach using approximate Bayesian model selection and a

[18] Publications and Selected Presentations

unified discounting measure. *Journal of the Experimental Analysis of Behavior*, 103(1), 218–233. <http://doi.org/10.1002/jeab.128>

15. Garman, C.R., **Franck, C.T.**, Nussbaum, M.A., and Madigan, M.L. (2015). A bootstrapping method to assess the influence of age, obesity, gender, and gait speed on probability of tripping as a function of obstacle height. *Journal of Biomechanics*, 48(6), 1229–1232.
16. McCoy, A.P., Koebel, C.T., Sanderford, A.R., **Franck, C.T.**, and **Keefe, M.J.** (2015). Adoption of high-performance housing technologies among U.S. homebuilding firms, 2000 through 2010. *Cityscape: A Journal of Policy Development and Research*, 17(2), 167–187.
17. Wilson, A.G., **Franck, C.T.**, Koffarnus, M.N., and Bickel, W.K. (2015). Behavioral economics of cigarette purchase tasks: Within-subject comparison of real, potentially real, and hypothetical cigarettes. *Nicotine & Tobacco Research*, ntv154.
18. Wilson, A.G., **Franck, C.T.**, Koffarnus, M.N., Reese, R.C., Bixel, K.D., and Bickel, W.K. (2015). An internet-acquired recovery sample: Initial findings from the international quit and recovery registry. *Drug and Alcohol Dependence*, 146, e24.
19. Wilson, A.G., **Franck, C.T.**, Mueller, E.T., Landes, R.D., Kowal, B.P., Yi, R., and Bickel, W.K. (2015). Predictors of delay discounting among smokers: Education level and a utility measure of cigarette reinforcement efficacy are better predictors than demographics, smoking characteristics, executive functioning, impulsivity, or time perception. *Addictive Behaviors*, 45, 124–133.
20. Anderson, D.E., **Franck, C.T.**, and Madigan, M.L. (2014). Age differences in the required coefficient of friction during level walking do not exist when experimentally-controlling speed and step length. *Journal of Applied Biomechanics*, 30(4), 542–546.

Publications Submitted:

1. Giese, G., Wolf, T.K., **Velasco-Cruz, C.**, and **Roberts, L.** Cover Crop and Root Pruning Effects on the Rooting Pattern of SO4 Rootstock Grafted to Cabernet Sauvignon. (Submitted in 2015 to *American Journal of Enology and Viticulture*.)
2. Mogollon, B., Frimpong, E., **Hoegh, A.**, and Angermeier, P. An empirical assessment of which inland floods can be managed? (Submitted in 2015 to *Journal of Environmental Management*.)
3. Sanderford, A.R., **Keefe, M.J.**, Koebel, C.T., and McCoy, A.P. Factors influencing U.S. homebuilders' adoption of green homebuilding products. (Submitted in 2015 to *Journal of Sustainable Real Estate*.)
4. Bukvic, A., Smith, A. and **Zhang, A.** Evaluating drivers of relocation in Hurricane Sandy affected coastal communities. (Submitted in 2015 to *International Journal of Disaster Risk Reduction*.)
5. Reed, C., Ferguson, R., Collier, B., Bradburn, E., **Peng Y.**, **Toms, A.**, Fogel, S., Baker, C., and Hamill, M. Contact isolation is a risk factor for venous thromboembolism in trauma patients. (Submitted in 2015 to *The Journal of Trauma and Acute Care*.)
6. Cook, N.A., Krometis, L.H., Sarver, E.A., and **Huang, J.** Inorganic constituents of conductivity in five central Appalachian watersheds with mixed source-driven pollutants. (Submitted in 2015 to *Ecological Engineering*.)
7. Liu, Y., Zhang, X., **Tran, H.**, **Shan, L.**, Kim, J., Childs, K., Ervin, E., Frazier, T., and Zhao, B. Assessment of drought tolerance of 49 switchgrass (*Panicum virgatum*) genotypes using physiological and morphological parameters. (Submitted in 2015 to *Biotechnology for Biofuels*.)
8. Henley, W.F., **Johnson, N.G.**, Ciparis, S., Hanlon, S.D., and Heffinger, D.G. Effects of Coal in Substrate on Organ Tissues of Rainbow Mussels, *Villosa iris* (Unionoida: Unionidae). (Submitted in 2015 to *Journal of Shellfish Research*.)

9. McAvoy, T.J., Kok, L.T., and **Johnson, N.G.** A multiyear year study of three plant communities with purple loosestrife and biological control agents in Virginia. (Submitted in 2015 to *Biological Control*.)
10. Dart, N.L., Hong, C., Craig, C.A., **Fry, J.T.**, and **Hu, X.** Soil inoculum production, survival and infectivity of the boxwood blight pathogen, *Calonectria pseudonaviculata*. (Submitted in 2015 to *Plant Disease*.)
11. Hall, R.P., **Vance, E.A.**, Van Houweling, E.A., and Huang, W. Willingness to Pay for VIP Latrines in Rural Senegal. (Submitted in 2015 to *Journal of Water, Sanitation and Hygiene for Development*.)
12. Hall, R.P., **Vance, E.A.**, and Van Houweling, E. Upgrading domestic-plus systems in rural Senegal: An incremental Income-Cost (I-C) analysis. (Submitted in 2015 to *Water Alternatives*.)
13. **Seiss, M.** and **Vance, E.A.** Improved Matrix Sampling Designs Using A Bayesian Variable Selection Approach. (Submitted in 2015 to *Survey Methodology*.)
14. Simmons, D.R., Young, G., Adams, A., Martin, J.P., Cheng, J., **Vance, E.A.** Non-curricular Involvement Promotes Development of Engineer of 2020 Traits for African American Engineers. (Submitted in 2015 to the *Journal of Women and Minorities in Science and Engineering*.)
15. Van Houweling, E.A., **Carzolio, M.**, **Vance, E.A.**, and Hall, R.P. 'My Neighbor Drinks Clean Water, While I Continue to Suffer,' an analysis of the intra-community impacts of a rural water supply project in Mozambique. (Submitted in 2015 to *Environment and Planning D: Society and Space*.)
16. **Vance, E.A.** The LISA 2020 Program to Build Statistics Capacity and Research Infrastructure in Developing Countries. *Proceedings of the 60th International Statistical Institute's World Statistics Congress*, Rio de Janeiro, Brazil, 2015. (Submitted in 2015.)
17. **Msemo, E.** and **Vance, E.A.** LISA 2020: Impacting Agricultural Productivity in Tanzania Through the Wheels of Statistics. *Proceedings of the 60th International Statistical Institute's World Statistics Congress*, Rio de Janeiro, Brazil, 2015. (Submitted in 2015.)
18. **Awe, O.O.**, **Crandell, I.**, and **Vance, E.A.** Building Statistics Capacity in Nigeria Through the LISA 2020 Program. *Proceedings of the 60th International Statistical Institute's World Statistics Congress*, Rio de Janeiro, Brazil, 2015. (Submitted in 2015.)
19. Heitz, C., Prusakowski, M.K., Willis, G., and **Franck, C.T.** Does the concept of the "flipped classroom" extend to the emergency medicine clinical clerkship? (Submitted in 2015 to the *Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health*.)
20. Koffarnus, M.N., **Franck, C.T.**, Stein, J.S., and Bickel, W.K. A modified exponential behavioral economic demand model to better describe consumption data. (Submitted in 2015 to *Experimental and Clinical Psychopharmacology*.)
21. Sorrentino, D.R. and **Franck, C.T.** Utility of fecal markers to diagnose and monitor inflammatory bowel diseases. (Submitted in 2015 to the *American Journal of Gastroenterology*.)
22. Bickel, W. K., **Franck, C.T.**, Koffarnus, M.N., Wilson, A.G., Reese, R.C., Carter, A.E., Gatchalian, K.M., and Quisenberry, A.J. An Internet-acquired recovery sample: A descriptive study from the International Quit & Recovery Registry. (Submitted in 2015.)
23. Bickel, W.K., Wilson, A.G., Chen, C., Koffarnus, M.N., and **Franck, C.T.** Stuck in time: negative income shock constricts the temporal window of valuation spanning the future and the past. (Submitted in 2015.)
24. **Keefe, M.J.**, **Franck, C.T.**, and Woodall, W.H. Monitoring foreclosure rates with a risk-adjusted Bernoulli CUSUM chart for concurrent observations. (Submitted in 2015 to the *Journal of Applied Statistics*.)
25. Moody, L., **Franck, C.T.**, and Bickel, W.K. Comorbid depression, antisocial personality, & substance dependence: relationship with delay discounting. (Submitted in 2015 to *Drug and Alcohol Dependence*.)

[20] Publications and Selected Presentations

26. Sharp, J. L., **Wrenn, J.**, & Gerard, P. D. Identifying the Perceived Value of Statistical Consulting in a University Setting. (Submitted in 2015 to *Journal of Statistical Theory and Practice*.)
27. Misra, S., Stokols, D., and **Cheng, L.** The Transdisciplinary Orientation Scale: Factor Structure and Relation to the Integrative Quality and Scope of Scientific Publications. (Submitted in 2015 to *Journal of Translational Medicine & Epidemiology*.)
28. Varghese, R. T., Liang, Y., **Guan, T.**, **Franck, C. T.**, Kelly, D. F., & Sheng, Z. Survival kinase genes present prognostic significance in glioblastoma. (Submitted in 2015 to *Oncotarget*).

Selected Other (non peer-reviewed) Publications:

1. **Vance, E.A.** (2015). Chair's Column—Goals for 2015, *The Statistical Consultant*, 31(1): 4-5.
2. **Vance, E.A.** (2014). An interview with W.J. Dixon Award Winner Dallas Johnson, *The Statistical Consultant*, 30(3): 7-12.

Selected Posters and Presentations:

LISA collaborators are often invited to talk about statistics and/or LISA and to present work stemming from statistical collaborations and their own research on improving the process of statistical collaboration. The following are a selection of 26 posters and presentations by LISA collaborators in 2014-15:

1. **Hurwitt, S.** "Beyond the Classroom: Defining my Role in Statistical Collaboration Through LISA". Talk given in October, 2014 at the Virginia Tech Statistics Department Corporate Partners Conference.
2. Ferguson, R. and **Peng, Y.**, "Contact Isolation is Associated with Venous Thromboembolism in Trauma Patients." Poster presented January 13-17, 2015 at the Eastern Association for the Surgery of Trauma 28th Annual Scientific Assembly Lake Buena Vista, FL.
3. Hamill, M. and **Peng, Y.**, "Respiratory Complications in Trauma Patients Strongly Associated with Contact Isolation Precautions." Poster presented January 17-21, 2015 at the Society for Critical Care Medicine 44th Annual Congress Phoenix, AZ.
4. **Vance, E.A.** "LISA 2020: Growing a Network of Statistical Collaboration Laboratories to Impact the World." International Indian Statistical Association conference, Pune, India, 2015.(Invited paper presentation)
5. **Vance, E.A.** "Preparing Students to Become Collaborative Statisticians." Joint Statistical Meetings (JSM), Seattle, WA, 2015.(Invited paper presentation)
6. **Vance, E.A.** "The LISA 2020 Program to Build Statistics Capacity and Research Infrastructure in Developing Countries." 60th International Statistical Institute's World Statistics Congress, Rio de Janeiro, Brazil, 2015.(Invited paper presentation)
7. **Msemo, E.** and **Vance, E.A.** "LISA 2020: Impacting Agricultural Productivity in Tanzania Through the Wheels of Statistics." 60th International Statistical Institute's World Statistics Congress, Rio de Janeiro, Brazil, 2015.(Invited paper presentation)
8. **Awe, O.O.**, **Crandell, I.**, and **Vance, E.A.** "Building Statistics Capacity in Nigeria Through the LISA 2020 Program." 60th International Statistical Institute's World Statistics Congress, Rio de Janeiro, Brazil, 2015.(Invited paper presentation)
9. **Vance, E.A.** "LISA 2020: How Stat Labs Can Make an Impact Now and in the Future." Joint Statistical Meetings (JSM), Boston, MA, 2014.(Invited paper presentation)

10. Love-Myers, K. (organizer), **Vance, E.A.** (chair), Zahn, D., Johnson, D., Kutner, M., Snee, R., and Harrell, F. "Stepping Stones from Consulting to Collaboration to Leadership: Increasing the Impact of Statistical Practice." JSM, Seattle, WA, 2015. (Invited panel discussion)
11. **Vance, E.A.** "LISA 2020: Building Statistical Collaboration Capacity in Developing Countries." Part of a panel discussion on "Statistical Capacity Building: Recent Experiences, Needs, and Challenges" at the 60th International Statistical Institute's World Statistics Congress, Rio de Janeiro, Brazil, 2015. (Invited panel discussion)
12. **Vance, E.A.**, Smith, H., and Zahn, D. "Non-technical Skills to Become a More Effective Collaborator." Continuing Education Personal Skills Development Workshop, JSM, Seattle, WA, 2015. (Workshop)
13. **Vance, E.A.**, Smith, H., and Zahn, D. "Learning and Improving Skills to Become a More Effective Collaborator." Continuing Education Personal Skills Development Workshop, JSM, Boston, MA, 2014. (Workshop)
14. **Vance, E.A.** "Learning and improving skills to become an effective statistical collaborator." Tutorial, ASA Conference on Statistical Practice, Tampa, FL, 2014. (Workshop)
15. **Crandell, I.**, **Awe, O.O.**, and **Vance, E.A.** "LISA 2020: Developing Statistical Collaboration Capacity in Nigeria." Joint Statistical Meetings, Seattle, WA, 2015. (Paper presentation)
16. **Vance, E.A.** and Smith, H. "Structuring Effective Statistical Collaborations and Consultations." ASA Conference on Statistical Practice, New Orleans, LA, 2015. (Paper presentation)
17. Smith, H. and **Vance, E.A.** "Communicating Effectively in Statistical Collaborations and Consultations." ASA Conference on Statistical Practice, New Orleans, LA, 2015. (Paper presentation)
18. **Vance, E.A.** "Training Statistical Consultants to Become Collaborative Statisticians." International Conference on Advances in Interdisciplinary Statistics and Combinatorics, Greensboro, NC, 2014. (Paper presentation)
19. **Kazuzuru, B.** and Vance, E.A. "The Challenges of Statistical Collaboration For Developing Countries." International Conference on Advances in Interdisciplinary Statistics and Combinatorics, Greensboro, NC, 2014. (Paper presentation)
20. Hanlon, A.L. and **Vance, E.A.** "Writing a Scientific Paper for Peer Reviewed Publication." ASA Conference on Statistical Practice, New Orleans, LA, 2015. (Poster presentation)
21. **Vance, E.A.**, **Casement, C.**, and **Pruitt, T.R.** "Using Survey Feedback to Improve the Effectiveness of Statistical Collaborators, Walk-in Consultants, and Short Course Instructors." 7th Annual Conference on Higher Education Pedagogy, Blacksburg, VA, 2015. (Poster presentation)
22. **Awe, O.O.** and **Vance, E.A.** "LISA 2020: Improving Global Research Quality Through Creation of Statistical Collaboration Laboratories." 2014 Annual International Conference of the Faculty of Science, Obafemi Awolowo Univeristy, Ile-Ife, Nigeria, 2014. (Poster presentation)
23. Hall, R.P., Davis, J., Van Houweling, E., **Vance, E.A.**, **Carzolio, M.**, **Seiss, M.**, and Russel, K. "Impact Evaluation of the MCC-Funded Rural Water Supply Activity in Nampula, Mozambique." Experience Virginia Tech: Learn, Explore, Engage, Blacksburg, VA, 2014. (Poster presentation)
24. **Vance, E.A.** (host) "Creating Research Infrastructure in Developing Countries." Roundtable discussion at JSM, Seattle, WA, 2015. (Panel and Roundtable discussion)
25. Rutherford, J. (chair), Kim, M., Adams, J., and **Vance, E.A.** "Closing General Session." Panel discussion at the ASA Conference on Statistical Practice, New Orleans, LA, 2015. (Panel and Roundtable discussion)
26. **Vance, E.A.** (chair), Kaur, A., Kalicin, S., Stork, L., Kline, D., and Morganstein, D. "How Mentoring Can Help with the Practice of Statistics: A Panel Discussion." Panel discussion at the ASA Conference on Statistical Practice, New Orleans, LA, 2015. (Panel and Roundtable discussion)

[22] Video Coaching and Feedback Sessions

LISA's main activity is interacting with clients during collaboration meetings to help them advance their research through the collection, modeling, analysis, and interpretation of data. In fall 2010, **LISA began collecting and analyzing data on itself to improve collaboration meetings by video recording meetings, watching the videos, and then analyzing them** in a small group setting of typically 5-7 participants, including 1 faculty member, 1 note taker, 1-2 "stars" of the video, and 1 or more additional students.



Collaborators review a recorded meeting during a Video Coaching and Feedback Session.

Of the 54 LISA statistical collaborators who regularly met with clients in 2014-15, 48 had at least one collaboration meeting videoed and reviewed each semester they were active in LISA. Coaching and feedback in **these review sessions focused on how to improve collaboration skills**. Participants focused on three aspects of the meeting:

1. Interpersonal relationships between the client and collaborators
2. Intrapersonal attitudes and emotions
3. Technical aspects of the meeting, including whether the client understood the statistical advice.

After reviewing 38 collaboration meetings in 2014-15, we were pleased to discover that these **video coaching and feedback sessions still yield immediate benefits for the participants**, who learn what to stop doing (e.g., speaking before thinking, excess fidgeting, being disengaged) and what to start doing (e.g., ask the client what she wants from the meeting, paraphrase the overall research goals). Repeated video sessions offer **opportunities for LISA statistical collaborators to practice new techniques** and to verify if they actually work in practice **to improve statistical collaboration**.

Table 5. Video Coaching and Feedback Session totals for 2014-15

	Fall 2014	Spring 2015	Summer 2015	Total
Videos Watched	12	14	12	38
Collaborators Reviewed	22	21	16	76 (48)
Video Coaching and Feedback Sessions	12	14	11	37

2014 Outstanding LISA Collaborator of the Year [23]

LISA, Virginia Tech's Laboratory for Interdisciplinary Statistical Analysis, is pleased to announce that the 2014 Outstanding LISA Collaborator of the Year is **Ian Crandell**, a third year statistics Ph.D. student from Valley Center, California.

LISA provides research infrastructure for Virginia Tech faculty, staff, and students to use statistics and data science in their research. LISA's statistical collaborators are trained to help researchers design experiments; collect, analyze, and plot data; run statistical software; interpret results; and communicate statistical concepts to non-statisticians.

At the end of a collaboration project, clients are asked to complete a feedback survey about the quality of service they received and if they were satisfied. This survey provides clients the opportunity to nominate a statistical collaborator for the award as well as to provide feedback for the improvement of the collaboration service as a whole and for individual collaborators.



Ian Crandell receiving the award from Dr. Eric Vance at Obafemi Awolowo University in Nigeria in June 2015.

During 2014, LISA received 52 nominations for the Outstanding LISA Collaborator of the Year award.

Since joining LISA in fall 2012 as a volunteer during his first semester of graduate school, Ian has worked on 56 collaboration projects. Clients find Ian easily relatable and compliment his ability to quickly understand their research. He has a knack for helping clients understand his statistical reasoning and work through the best options for their research questions. Jonathan Nielson, a medical student at the Virginia Tech Carilion School of Medicine, appreciated that Ian was “easy to communicate with, put the statistical language in terms I better understood, and walked me through his thought process.” Jonathan and Ian are now collaborating on a publication together.

Alex Sumadijaya, a Fulbright Scholar in biological sciences, was initially very worried about his research. Ian helped to assuage those fears. “Ian & James are just a perfect combination. They were creatively collaborating to solve my problem. They really understand my pain and quickly performed a beautiful orchestra of solution above my expectations. After the last meeting, I felt LISA had knocked out all of my emotional baggage.”

In addition to his work on collaboration projects Ian has presented 5 short courses for the LISA Short Course series and has hosted Walk-In Consulting for 6 semesters. As a volunteer in fall 2014, Ian hosted LISA's first ever walk-in hours at the Virginia Tech Carilion School of Medicine as well as offering the first LISA Remote Consulting for off-campus researchers.

Ian served as a LISA Ambassador at Obafemi Awolowo University (OAU) in Nigeria as part of the LISA 2020 program from January to July 2015. LISA 2020 is a program to educate and train

[24] 2014 Outstanding LISA Collaborator of the Year

statisticians and data scientists from developing countries to communicate and collaborate with non-statisticians and become collaborative statisticians who will build a network of at least 20 statistical collaboration laboratories in developing countries by the year 2020. Ian assisted with growing and sustaining the Laboratory for Interdisciplinary Statistical Analysis and Collaboration (LISAC) at OAU with the first LISA Fellow Olawale Awe. Ian helped to train the next generation of collaborative statisticians to communicate with non-statisticians, structure effective meetings, and provide statistical guidance to researchers at OAU and several surrounding universities in Nigeria. He also helped to teach statistical topics the statisticians might not learn in class. In addition to training the collaborators, he built key connections for the LISA 2020 program both within OAU and with surrounding universities. Ian has accomplished much during his six month stay in Nigeria. Read his blog to learn more about his experiences (<https://icrandell.wordpress.com/>).

“Ian loves helping researchers answer their research questions,” says Dr. Eric Vance, Director of LISA. “This desire to serve others is just one reason he is so effective as a LISA statistical collaborator.”

There were three other finalists for the Outstanding LISA Collaborator of the Year award: **Zhe Bao**, **Yiming Peng**, and **Angang Zhang**. Below are a few quotes received from clients for each of these honorees.

Dr. Zhe Bao received her Ph.D. in biological sciences in May 2015 and her M.S. in statistics in Fall 2014. Zhe started her career in LISA as a client in spring 2012. Discovering her passion for statistics, Zhe became an associate collaborator in LISA in 2013 and a lead collaborator in 2014. Zhe’s strong critical thinking skills allow her to make quick connections and gain a deeper understanding of the research. Nicholas Cook, an engineering graduate student, found that “Zhe Bao was flawless - energetic, quick to understand, asked all of the right questions to clarify things I was saying.” Dr. Bao is currently a Senior Statistician for Capital One.

Dr. Yiming Peng was the 2013 Outstanding Collaborator of the Year. In 2014 he continued to impress clients with his strong work ethic and willingness to go above and beyond. Chris Reed, a medical student, shared that “Both Yiming and Alice were professional and friendly, and were able to rapidly identify my scientific needs and concerns as well as elaborate their own questions or clarifications in a way that was easy for me to understand. They also should both be commended for how hard they have worked on this project, as well as their timeliness...” Dr. Peng is currently a Senior Statistician for Novartis in Boston, Massachusetts.

Clients are impressed with the meticulous nature of Angang Zhang. He has a very approachable professional attitude and is very responsible. Anamaria Bukvic, a visiting assistant professor in urban affairs and planning, commented that working with Angang was a “great experience, very responsible, responsive, answered all the questions, provided clarification - immediately picked up on problem and was able to discuss and deliver everything in a timely manner.” Angang plans to graduate in 2016 with his Ph.D. in statistics.

2014 Outstanding LISA Collaborator of the Year [25]

Honorable mentions in alphabetical order include **James Anderson, Jon Atwood, Chen Chen, Tianlei Chen, J.T. Fry, Xinran Hu, Jian Huang, Steven Hurwitt, Matthew Keefe, Justin Loda, Wei Ma, Hamdy Mahmoud, Emanuel Msemo, Paul Sabin, Liang (Sally) Shan, Matt Slifko, Alice Toms, Jingli Xing, and Xiang Zhang.**

[26] Future Plans

Statistical collaboration is a very powerful, effective, and impactful approach to solving research problems big and small. We believe we have created a model statistical collaboration laboratory at Virginia Tech that is both extraordinary and unique. One of our strengths is our efforts toward continual improvement. LISA will continue its efforts to provide high quality training for its students and faculty and high quality research, service, and education for clients at Virginia Tech. In 2015-16, LISA will focus on six points that will make LISA even *more* extraordinary and hopefully *less* unique.

2015-16 Goals

1. *Secure adequate and stable funding for LISA.*
2. *Build multilateral support for LISA and LISA 2020.*
3. *Celebrate World Statistics Day—10/20/2015.*
4. *Continue LISA's focus on training students.*
5. *Write papers for peer-reviewed publications about LISA and statistical collaboration to elevate statistical practice.*
6. *Implement LISA Tutorial Office Hours to improve statistical skills and literacy around campus.*

Webpage: www.lisa.stat.vt.edu

Email: LISA@vt.edu

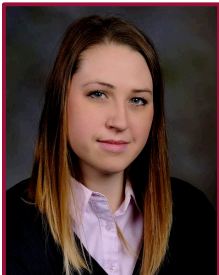
Facebook: www.facebook.com/Statistical.collaboration

Twitter: [@LISA_VT](https://twitter.com/LISA_VT)



Tonya Pruitt, LISA Administrative Specialist

Department of Statistics (MC0439)
Hutcheson Hall, RM 405-C, Virginia Tech
Blacksburg, VA 24061
trpruitt@vt.edu
540-231-8354



Celia Rose Eddy, Research Associate

Department of Statistics (MC0439)
Hutcheson Hall, RM 413-A, Virginia Tech
Blacksburg, VA 24061
ceddy3@vt.edu
540-231-5657



Chris Franck, Assistant Director of LISA

Department of Statistics (MC0439)
Hutcheson Hall, RM 403-E, Virginia Tech
Blacksburg, VA 24061
chfranck@vt.edu
540-231-4375



Eric Vance, Director of LISA

Department of Statistics (MC0439)
Hutcheson Hall, RM 403-G, Virginia Tech
Blacksburg, VA 24061
ervance@vt.edu
540-231-4597