We hope this edition of the Department of Statistics Newsletter finds you well, and that you will enjoy hearing about some of our activities of the last year.

You may know that Steven Leath, Iowa State’s 15th president, left the university last year to take an administrative position at another institution. A national search for his replacement resulted in the naming of Dr. Wendy Wintersteen, former Dean of ISU’s College of Agricultural and Life Science, as his replacement. Dr. Wintersteen’s term began late last fall. She is a seasoned administrator and a long-time member of the ISU faculty; I am confident that she will be an excellent president.

The faculty of the department were pleased to welcome two new assistant professors to its ranks in August. Dr. Xiongtao Dai recently completed his Ph.D. in statistics at the University of California at Davis, and Dr. Yumou Qiu completed his degree here at ISU a few years ago and has moved back to Ames after having served on the faculty of the University of Nebraska for the past few years. Both of these individuals have active research programs, as well as collaboration interests, in high-dimensional data analysis. Other personnel changes in the past year include the retirement of professors Kenneth Koehler and Bob Stephenson from our ranks after long and distinguished careers at ISU; we will miss them both greatly, but wish them the very best in the next phase of their lives.

Statistics faculty members hosted two highly successful conferences in Ames during May of 2018. The first was the Conference on Predictive Inference and Its Applications organized and chaired by Dan Nettleton, with support and encouragement from Professor Emeritus David Harville. This was immediately followed by the First Midwest Statistical Machine Learning Colloquium, organized and chaired by Steve Vardeman with support from Kingland Corporation and the Principal Financial Group.

At its annual meeting in Vancouver, the American Statistical Association presented ISU Professor Alicia Carriquiry with its Founders Award, recognizing her long and dedicated service at the national level, including leadership through the National Academies and
the Environmental Protection Agency, as well as numerous statistical organizations. Closer to home, several statistics faculty members received College of Liberal Arts and Sciences awards for excellence this year, including Kevin Kasper (Early Achievement in Teaching), Peng Liu (Mid-Career Achievement in Research), Jarad Niemi (Institutional Service), and Dan Nordman (Outstanding Teaching).

These and other highlights from the 2017-18 year are reported in more depth elsewhere in this newsletter. If you have news you would like to share with us, please do! You can reach us at 515-294-3440, or through email at statistics@iastate.edu. And if you find yourself in Ames, drop by Snedecor Hall for a visit.

Sincerely,

Max Morris

Send Us Your News!

We want to keep in touch with you. As alumni of the Iowa State University Department of Statistics, you are an important part of our statistical community. We are interested in hearing news of both your professional and personal accomplishments. Stories of our alumni help us promote the department and the discipline of statistics to potential students. Our success as a department is demonstrated in YOU!

In addition to news, if you have memories of the department or of professors who have had an impact on your life and career that you would like to share, please send them! Photos are also welcome!

Please email your news and photos to Kati Smith at ksmith@iastate.edu
Wendy Wintersteen Named ISU President

Wendy Wintersteen took office on November 20, 2017 as the 16th president of Iowa State University. Wintersteen follows Benjamin Allen, who served as interim president since May 2017, and Steven Leath, the university’s 15th president, who assumed the presidency at Auburn University in spring of 2017. Wintersteen’s appointment concluded a nearly six-month national search after a unanimous vote of the Board of Regents, State of Iowa.

Wintersteen was the endowed dean of Iowa State’s College of Agriculture and Life Sciences since 2006. During her 11 years as dean, she helped raise more than $247 million in donor support for students, faculty and staff. Undergraduate enrollment in the college has grown by 90 percent, and the college’s placement rate for recent graduates has consistently been 97 percent or higher.

Before she became dean of the Agriculture and Life Sciences, Wintersteen served as the college’s senior associate dean and associate director of the Experiment Station. In her career at Iowa State, she also has served as professor of entomology, director of Extension to Agriculture and Natural Resources, and coordinator of pesticide management and pesticide applicator training programs. She serves on the board of trustees of the Farm Foundation and the board of directors of the U.S.-Israel Binational Agricultural Research and Development Fund. She is president of the board of directors for the Charles Valentine Riley Memorial Foundation. Wintersteen has been with Iowa State University since 1979.
Alicia Carriquiry recently received the American Statistical Association Founders Award. The American Statistical Association (ASA) Founders Award is given to members whose contributions have made significant impact on the association. Recipients of this award have served the association for an extended period of time and have had a variety of leadership roles.

Carriquiry received the award for leadership of the profession at the national level through the National Academies of Science, Engineering, and Medicine; National Institutes of Health; and Environmental Protection Agency; for service to many other statistical organizations; for two decades of enthusiastic participation in ASA activities, including serving as president of the Iowa Chapter and vice president of the ASA Board of Directors; and for serving as an officer of the Biometrics Section, as chair of the Section on Bayesian Statistical Science, as chair of the 1999 JSM Program Committee, and as chair of the JSM Task Force on Graduate Education in Statistics in Vietnam.

“I was surprised, honored, and delighted, in that order,” said Carriquiry. “Professional societies like ASA are so important to build community and it has been my pleasure to participate in ASA activities over the years. I hope that our young colleagues and our students will continue to get involved so that the professional associations in statistics remain vital and relevant.”
Workshops

Last May, the Department of Statistics held two back-to-back workshops—one on Predictive Inference and its Applications, and one on Machine Learning.

The Predictive Inference and its Applications Conference was hosted on May 7 and 8, 2018 by Distinguished Professor Dan Nettleton. This conference featured research by many emerging leaders in the field from all over the country. The purpose of this two-day conference was to encourage collaborations and interactions among a diverse collection of scientists with complementary skills and abilities, and to raise awareness about the importance of predictive inference and its application.

Included in the conference was a session in honor of Charles Roy Henderson. Henderson graduated from Iowa State University and was also a member of the United States Academy of Sciences. He was one of the first to develop prediction methodology used in animal breeding, as well as many other application areas.

This conference was made possible by the C.R. Henderson Fund for Excellence in Predictive Inference and its Applications. The fund was established by David Harville. Other sponsors include The National Science Foundation, the American Statistical Association Section on Statistical Learning and Data Science, Kingland Data Analytics Faculty Fellows Program, The Baker Center for Bioinformatics and Biological Statistics, and Laurence H. Baker Endowed Chair, The Plant Sciences Institute Scholars Program, and the Iowa State University Department of Statistics.

The next conference, The Statistical Machine Learning Colloquium, was held on May 9, 2018. This workshop was a one-day meeting of statisticians, engineers, computer scientists, mathematicians, and practitioners interested in the theory and applications of Statistical Machine Learning.

The Statistical Machine Learning Colloquium was made possible by Principal Financial, the presented sponsor of this event. Other sponsors include the Kingland Analytics Faculty Fellowship, the Iowa State University...
Department of Statistics and of Industrial and Manufacturing Systems Engineering, and the Iowa State University Liberal Arts and Sciences and Engineering Colleges.

**New Faculty**

The Iowa State University Department of Statistics would like to introduce two new tenure-track faculty members: Xiongtao Dai and Yumou Qiu.

**Xiongtao Dai**

I obtained my PhD degree from the University of California, Davis and my undergraduate degree in the University of Hong Kong. In my spare time, I enjoy traveling, exercising, and cooking. My current research interests lie in functional and longitudinal data analysis, object data analysis, and statistical applications in plant genomics and neuroimaging data.

The reason I have chosen to come to the Department of Statistics at ISU is that the department has a strong standing both nationally and internationally. The collegial environment and rich history of the Department are other reasons for my choice.

**Yumou Qiu**

I was born and raised in Chongqing, a city in southern west of China. I attended colleges in Beijing. After obtaining a masters degree from Peking University, I came to ISU to continue my study in Statistics. I spent 4 happy years at our department from 2010 to 2014 as a graduate student. I learned a lot from our faculty, and felt our department as a warm family. I am very glad to rejoin and contribute to this big family. Beside “playing” with data, I like to play badminton in spare time.
The individuals named below completed PhD requirements in the Department of Statistics between August 2017 and August 2018. Their dissertation titles and names of their major or co-major professors are also listed. We are proud of all our graduates, and look forward to hearing of their future accomplishments.

**CLARK NICHOLAS**, Self-exciting spatio-temporal statistical models for count data with applications to modeling the spread of violence, Dixon

**CURLEY BRENNA JILLIAN**, Nonlinear models with measurement error: Application to vitamin D, Carriquiry

**DEMUTH GABRIEL OAK**, State space models for partially observed biological and agricultural data, Berg/Dixon

**DOWNEY JILLIAN DAWN**, Accounting for structure in education assessment data using hierarchical models, Genschel/Kaiser

**HELLAMS LUVENIA NICOLE**, Leveraging genetic time series data to improve detection of natural selection, Dorman

**LI XINYI**, Non/semi-parametric learning from data with complex features, Wang, Lily

**LI YIHUA**, Investment decision-making in clean energy under uncertainties: a real options approach, Vardeman/Hu

**LIU CHENHUI**, Three essays on crash frequency analysis, Wang, Lily/Sharma

**MAO XIAOJUN**, Topics in matrix completion and genomic prediction, Chen/Nettleton/Wong

**MITTMAN ERIC THOMAS** Application of Bayesian hierarchical models in gene expression and product reliability, Niemi

**NGUYEN YET TIEN**, Multiple hypothesis testing and RNA-seq differential expression analysis accounting for dependence and relevant covariates, Nettleton
PAN LANFENG, Mixture model and subgroup analysis in nationwide kidney transplant center evaluation, Li
PARK SEHO, Survey data integration using mass imputation, Kim
PARK SOYOUNG, Learning algorithms for forensic science applications, Carriquiry/Ommen
PRICE MICHAEL JOSEPH, Penalized B-splines and their application with an in depth look at the bivariate tensor product penalized B-spline, Yu
RIES DANIEL CHARLES, Measurement error modeling of physical activity data, Carriquiry
SAGE ANDREW, Random forest robustness, variable importance, and tree aggregation, Genschel/Nettleton
SANG HEJIAN, Approximate Bayesian approaches and semiparametric methods for handling missing data, Kim
SEO YEON-JUNG, Selection and assessment of bivariate Markov random field models, Caragea/Kaiser
SUN YAXUAN Statistical methods in modeling disease surveillance data with misclassification, Wang, Chong
TYNER SAMANTHA CARROLL, Graphical discovery in stochastic actor-oriented models for social network analysis, Hofmann
WAKELAND KENNETH WILLIAM, Exploring dependence in binary Markov random field models, Kaiser
WANG XIN, Topics in generalized linear mixed models and spatial subgroup analysis, Roy/Zhu
WANG ZHONGLEI, Topics in bootstrap methods for survey sampling and spatially balanced design, Kim/Zhu
ZHU WEICHENG, Topics in sparse functional data analysis, Li/Zhu
The math and statistics learning community (MSLC) is a social and academic support system that was started in 2015 to help new statistics and math majors have an easier transition to college. To help reach the goal of an easy transition, MSLC allows first-year students to take their first math and statistics classes together in smaller groups of 20-30, and also has scheduled study sessions to help prepare for exams. Students involved in the learning community also attend career fairs together, take the calculus sequence as a team, and take a careers course to ease them into the working world.

MSLC also organizes social events in order to help new math and statistics students meet each other and socialize. These events include Campanile tours, lunch at the Tea Room, and a trip to Reiman Gardens. There is also a welcome event at the beginning of the school year where faculty provide advice and guidance on how to start the semester strong.

Fifteen upper classmen help to run the learning community by volunteering 5-10 hours a week to help these new students. These mentors get together with their mentees about once a week for coffee to keep in touch and create a strong support system. In addition to the academic and social events, the MSLC also hosts eight community outreach events throughout the year for middle school and high school students. These events help young students experience math and statistics in a more active and fun way.

Dawn Walker-Chalmers, academic adviser for mathematics and statistics undergraduates, has made great efforts in establishing the learning community. “The learning community is to help students develop a statistics family—one that will support and care for them during their college years,” said Walker-Chalmers.
New Data Science Major at Iowa State

On June 27, 2018, the College of Liberal Arts and Sciences was given final approval to offer a new undergraduate major program in data science. Students enrolling in the program will take new and existing courses offered by the faculty of the departments of Statistics, Computer Science, and Mathematics. From the program website, the aim of the data science major is to offer students training in “how to apply data science concepts, tools and methods to data analysis pipelines,” leading to an ability to “visualize, interpret, and communicate data output, and leverage the analysis of data to make informed decisions and projections.”

Statistics faculty Heike Hofmann and Kris De Brabanter have taught courses in the data science program, and our newest faculty members, Xongtao Dai and Yumou Qiu, will teach data sciences courses during the current academic year. In addition, the Statistics Department is currently conducting a search for another new faculty member who we expect to be heavily involved in the data science program.

In addition to existing courses, new required courses in the data science curriculum include “Introduction to Data Science,” “Data Acquisition and Exploratory Data Analysis,” and “Applied Data Modeling and Predictive Analysis.” LAS also offers related data science minor and certificate programs for students majoring in other disciplines from across the university. More information about Iowa State’s new program in data science can be found at https://www.datascience.iastate.edu/.
The C.R. Henderson Fund for Excellence in Predictive Inference and Its Applications is a fund that honors Dr. Charles Roy Henderson. Henderson was a leading developer of statistical prediction methodology used in animal breeding and elsewhere. Henderson received his B.S., M.S., and Ph.D. degrees in animal science from Iowa State University.

This fund was established to enrich the state of predictive inference within the Department of Statistics and the statistical community. It will greatly help sponsor activities and outside visits from researchers involved in predictive inference. One recent workshop this fund helped sponsor was the Predictive Inference and Its Applications Conference, which took place this past May at Iowa State.

David Harville, an emeritus faculty member of the Department of Statistics, was heavily and generously involved in setting up the The C.R. Henderson Fund for Excellence in Predictive Inference and Its Applications.
Dear reader,

The Department of Statistics newsletter is published for the alumni, friends, students, and faculty of the Department of Statistics, an academic department in the College of Liberal Arts and Sciences, and the College of Agricultural and Life Sciences at Iowa State University. It provides the latest news and achievements of the department and we are thrilled to share it.

Kind regards,

IOWA STATE UNIVERSITY

Department of Statistics