

SAMPLER

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from the CHAIR



JOSEPH B. LANG

Warmest greetings from the UI Statistics & Actuarial Science Department. In 2018-19, we continue to be enthusiastic about the four interrelated missions by which we serve the University, the state, and the world. These four missions are: (1) to provide both undergraduate and graduate students with strong degree programs and excellent instruction in probability, statistics, data science, and actuarial science; (2) to conduct and publish outstanding research in probability, statistics, data science, and actuarial science; (3) to promote the solid practice of actuarial science, statistics, and data science; and (4) to produce leaders in the insurance, pension, and actuarial consulting industry.

This past year has seen exciting developments in the department. With about 60 graduate students, the offices, halls, and classrooms are alive with cutting-edge research and excellent teaching. Just since May, five PhD students have graduated. The number of undergraduate majors in Statistics and Actuarial Science, which stands at over 200, continues to grow along with the regional and national demand for well-trained data scientists, statisticians, and actuaries.

We are very happy to report that the Iowa Board of Regents has formally approved our proposal for a new undergraduate degree in Data Science, which is a joint venture between our department and the Computer Science Department. This is an exciting development that has given rise to the recent addition of two new courses: Statistical Learning and Data Visualization/Technologies. Two Data Science capstone courses (a creative component and experiential practicum) will also be added to the mix. Students have already begun enrolling in the new Data Science major this fall.

On the faculty front (a sampling)...We welcome our newest tenure-track assistant professor, Boxiang Wang. Boxiang earned his PhD this past summer from the University of Minnesota. His research lies at the intersection of machine learning and statistical learning. Especially in light of our new Data Science major and our participation in the informatics initiative, Boxiang is a wonderful addition. Luke Tierney will receive the prestigious "Statistical Computing and Graphics Award" of the ASA Sections of Statistical Computing and Statistical Graphics; Kung-Sik Chan enjoyed his first year as the Hogg Professor; Qihe Tang was recently elected a member of the International Statistical Institute; Elias Shiu was awarded an honorary doctorate from the Université de Lausanne last year; Ambrose Lo's newest book, *Derivative Pricing: A Problem-Based Primer*, recently appeared in print; and Matt Bognar won a 2017-18 Collegiate Teaching Award and was promoted to Associate Professor of Instruction (indeed, Matt was further honored by the College by being awarded a Distinguished prefix to his title!). Congratulations to all!

Our Actuarial Science program continues to be designated by the Society of Actuaries as a Center of Actuarial Excellence; there are eight criteria for the designation, including curriculum, faculty composition, graduate quality, connection to industry, and research. Over \$300,000 of scholarships have been awarded to undergraduate students for 2018/2019. In Calendar Year 2017, 25 former students of the University of Iowa became Associates of the Society of Actuaries, 14 became Fellows of the Society of Actuaries, three became Associates of the Casualty Actuarial Society, and five became Fellows of the Casualty Actuarial Society. Last September we hosted the 5th Annual Midwest Actuarial Student Conference; over 200 students from all across the Midwest, as well as a few from the East and West coasts, signed up for the conference. On October 4th, 30 companies came to our Annual Actuarial Science, Insurance and Risk Management Job and Internship Fair.

Last year, the Society of Actuaries bestowed four Presidential Awards. Three of the four awardees are UI actuarial alumni: Andy Ferris (MS 1996), Jennie McGinnis (née Sternemann) (MS 2006), and Ling-Ling Wang (MS 1988). Also, David Dillon (MS 1996) received one of the 2017 SOA Outstanding Volunteer Awards. Andy and Jennie served on the SOA Board of Directors. Ling-Ling and David are now running to be members of the SOA Board. Currently, Mark Yu (MS 1999) serves on the SOA Board.

I hope you will enjoy reading the news about our department, students, faculty, and alumni on the following pages. As my colleagues and I look toward the future, one of our top priorities is to build closer relationships with alumni and to enhance our community of donors, volunteers, and ambassadors. Having observed our students blossom at Iowa, we know that relationships with our external networks can help them to realize and even exceed their highest ambitions.

Best regards,

A handwritten signature in black ink that reads "Joseph B. Lang". The signature is written in a cursive, flowing style.

Joseph B. Lang
Professor and Chair
Department of Statistics and Actuarial Science
University of Iowa
joseph-lang@uiowa.edu

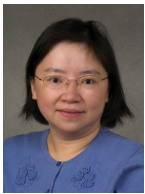
FACULTY & STAFF NEWS



Matthew Bogner was promoted to Distinguished Associate Professor of Instruction and was named one of six recipients of the Collegiate Teaching Award for 2017-18.



Joyee Ghosh gave a colloquium talk at the Department of Mathematics and Statistics, University of Maryland, Baltimore, in April 2018. She also gave invited talks titled "Robust Bayesian Model Averaging" at the Langenhop Lecture and SIU Probability and Statistics Conference, Southern Illinois University, Carbondale, in May 2018, and at the International Indian Statistical Association (IISA) Conference, Gainesville, Florida, in May 2018. She was a scientific program committee member for the 2018 International Indian Statistical Association (IISA) Conference, Gainesville, Florida. She is currently serving as the Chair of the International Society for Bayesian Analysis (ISBA) Prize Committee, for 2018.



Erning Li attended the Joint Statistical Meetings (JSM) in Vancouver this summer and gave a presentation titled "Generalized Linear Models with Multiple Longitudinal Covariate Processes".



Ambrose Lo has been heavily engaged in research and education activities over the past year. On the research front, he delivered multiple invited talks at different universities: Purdue University in February 2018; the University of Iowa (Applied Mathematical and Computational Mathematics seminar) and the University of Nebraska-Lincoln in March 2018; and the University of Illinois at Urbana-Champaign in April 2018. In July 2018, he was an invited speaker at the 2nd International Workshop on Optimal (Re) Insurance held at the Central University of Finance and Economics, Beijing, China. In the same month, he also contributed a presentation at the 22nd International Congress on Insurance: Mathematics and Economics in Sydney, Australia. His talk was titled "Universally Marketable Insurance in the Presence of Multiple Risks", which is a joint work with Qihe Tang and doctoral student Zhaofeng Tang. Since June 2018, he has been a Principal Investigator, along with Kung-Sik Chan, Yiqing Chen (Drake University), Elias Shiu, and Qihe Tang, of a \$228,000 Centers of Actuarial Excellence Research Grant (2018-2021) on *Modeling, Measuring, and Managing Catastrophe Risks* funded by the Society of Actuaries (SOA). On the education front, his textbook *Derivative Pricing: A Problem-Based Primer* has been published in the

Chapman & Hall/CRC Press Financial Mathematics Series. The book is now a required text of ACTS:4380 *Mathematics of Finance II*, which he regularly teaches for our actuarial program. He has also authored the *ACTEX Study Manual for CAS Exam MAS-I* (Fall 2018 Edition) and coauthored the *ACTEX Study Manual for SOA Exam SRM (Statistics for Risk Modeling)* (September 2018 Edition)



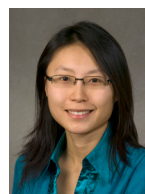
Elias Shiu attended the 7th International Gerber-Shiu Workshop that was held at the University of Melbourne, Australia, on July 10-11, 2018. See its Photo Gallery at: <https://fbe.unimelb.edu.au/conferences/the-7th-international-gerber-shiu-workshop#photo-gallery>. This international workshop has become an important platform for exchanging research ideas and disseminating recent advances in risk theory and related fields.



N.D. Shyamalkumar gave a talk titled "On Tail Dependence Matrices" at the International Congress on Insurance: Mathematics and Economics (IME) Conference in Vienna, Austria, and at the Actuarial Research Conference (ARC), Atlanta, Georgia.



Sanvesh Srivastava received a three-year funding grant from the Office of Naval Research to pursue research in developing nonparametric methods for Bayesian analysis of massive spatiotemporal data using divide-and-conquer techniques. This is a joint work with colleague Professor Rajarshi Guhaniyogi at the University of California, Santa Cruz. Professor Srivastava also had two papers accepted for publication in the *Journal of Machine Learning Research* and one in the *Journal of Computational and Graphical Statistics*.



Aixin Tan presented invited talks at the Department of Mathematics, Washington University in St. Louis, Missouri, April 2017; and The Center for Statistical Science, Tsinghua University, Beijing, China, July 2017. The title of both talks was "Assessment of multiple-chain importance sampling estimators." Also, "My random walk in the field of statistics" was presented at the Summer Camp for Outstanding Undergraduates, The Center for Statistical Science, Tsinghua University, in July 2017.

FACULTY & STAFF NEWS CONTD.



Qihe Tang has just been elected a member of the prestigious International Statistical Institute (<http://www.isi-web.org/>). He attended the following international conferences: He delivered a plenary talk at the 4th International Workshop on Statistical Modeling of Heavy-Tail Phenomena with Applications, Xi'an Jiaotong-Liverpool University, Suzhou, China, June 1-4, 2018. In addition, he gave an invited talk to the International Workshop on Risks in Insurance and Finance, Northwest Normal University, Lanzhou, China, June 7-9, 2018. He gave a contributed talk at the 7th International Gerber-Shiu Workshop, University of Melbourne, Melbourne, Australia, July 10-11, 2018. He gave a plenary talk at the 22nd International Congress on Insurance: Mathematics and Economics (IME), UNSW Sydney, Sydney, Australia, July 16-18, 2018.



Luke Tierney Ralph E. Wareham Professor of Mathematical Sciences in the Department of Statistics and Actuarial Science, has won the "Statistical Computing and Graphics Award" of the ASA Sections of Statistical Computing and Statistical Graphics. He finds himself in some very good company: Past winners of this prestigious award include Bill Cleveland (2016) and Robert Gentleman and Ross Ihaka (2010). The award website (<http://stat-computing.org/awards/comp-graphics/>) states that the award "recognizes an individual or team for innovation in computing, software, or graphics that has had a significant impact on statistical practice or research." To qualify for this award, the prize-winning contributions of the awardee "will have had significant and lasting impacts on statistical computing, software, or graphics."



Blake Whitten provided consulting for and authored or co-authored two reports for University of Iowa Administration in April 2018. The report "Faculty Gender Equity: Data Analysis" (co-authored with Professor Emeritus Russ Lenth) compares UI faculty salaries across disciplines, departments, and colleges to enable administrators and DEOs to identify potential disparity, especially with regard to gender or race. The client is Associate Provost for Faculty Kevin Kregel. The analysis uses Dr. Lenth's emmeans (Estimated Marginal Means) R package. The report "SERU Analysis: High-Impact Activities and UI Student Satisfaction" uses survey data to identify educational activities at UI that drive student satisfaction, especially for disadvantaged students. The client is UI Director of Assessment Wayne Jacobsen.



Dale Zimmerman gave invited talks at the Department of Statistics, Florida State University; Conference on Predictive Inference and its Applications, Iowa State University; Western Division American Fisheries Society Meeting, Anchorage, Alaska; and JSM in Vancouver, BC. He also was quoted in the March 14, 2018, edition of *The Wall Street Journal*, in an article about the NCAA Men's Basketball Tournament called "A Plodding Pace Could Be Virginia's Downfall" by Andrew Beaton, where he predicted that because Virginia tended to have substantially fewer possessions per game throughout the 2017-18 season, it was 8.3% more vulnerable to a first-round upset than it would be if it had the NCAA-wide average number of possessions per game. As it turned out, Virginia was upset in the first round by University of Maryland - Baltimore County — the first time a 1-seed has ever lost to a 16-seed.

STAFF

selected PAPERS & GRANTS

SELECTED PAPERS

Hardy, J., Streeter, E.M., and **DeCook, R.** (2018). Plasma cholesterol levels in septic dogs and its association with morbidity and mortality: A retrospective study of 62 dogs (2005-2015). *JVECC* vol. 28/Issue 2, pp. 149-156.

Joyee Ghosh, Yingbo Li, and Robin Mitra (2018), "On the use of Cauchy prior distributions for Bayesian logistic regression", *Bayesian Analysis*, 13(2), 359-383.

Lo, A., 2018. Demystifying the integrated tail probability expectation formula. *The American Statistician*. Forthcoming.

Lo, A., Tang, Z., 2018. Pareto-optimal reinsurance policies in the presence of individual risk constraints. *Annals of Operations Research*. Forthcoming.

Minsker, S., **S. Srivastava**, L. Lin, and D. B. Dunson (2017). Robust and Scalable Bayes via a Median of Subset Posterior Measures. *The Journal of Machine Learning Research*, 18 (1), 4488-4527.

Savitsky, T. D. and **S. Srivastava** (2018). Scalable Bayes under informative sampling, *Scandinavian Journal of Statistics*, 45 (4), 534-556.

Srivastava, S., G.R. DePalma, and Chuanhai Liu (2018). An Asynchronous Distributed Expectation- Maximization Algorithm For Massive Data: The DEM Algorithm. *Journal of Computational and Graphical Statistics*, 18 (3).

Srivastava, S., C. Li, and D. B. Dunson (2018). Scalable Bayes via Barycenter in Wasserstein Space. *The Journal of Machine Learning Research*, 19 (1).

Zidek, J. and **Zimmerman, D.L.** (2018). Network design. Chapter 22 in *Handbook of Environmental and Ecological Statistics*, A.E. Gelfand, M. Fuentes, J. Hoeting, and R. Smith (eds.), Chapman and Hall.

Zimmerman, D.L. and Buckland, S.T. (2018). Environmental sampling design. Chapter 9 in *Handbook of Environmental and Ecological Statistics*, A.E. Gelfand, M. Fuentes, J. Hoeting, and R. Smith (eds.), Chapman and Hall.

Ayalew, T.B., Krajewski, W.F., Mantilla, R., and **Zimmerman, D.L.** (2018). Can floods in large river basins be predicted from floods observed in small subbasins? *Journal of Flood Risk Management*, 11, 331-338.

ElSaadani, M., Krajewski, W.F., and **Zimmerman, D.L.** (2018). River network based characterization of errors in remotely sensed rainfall products in hydrological applications. *Remote Sensing Letters*, 9, 743-752.

Malanson, G.P., Fagre, D.B., and **Zimmerman, D.L.** (2018). Scale dependence of diversity in alpine tundra, Rocky Mountains, USA. *Plant Ecology*, 219,999-1008.

SELECTED GRANTS

Ambrose Lo is the co-PI of a \$228,000 Society of Actuaries Centers of Actuarial Excellence Research Grant (2018-2012), "Modeling, Measuring, and Managing Catastrophe Risks". Others PI's are Kung-Sik Chan, Yiqing Chen (Drake University), Elias Shiu and Qihe Tang.

Joyee Ghosh has been continuing work on the NSF grant DMS-1612763 "Scaling up Bayesian Variable Selection for High Dimensions", as sole PI. Currently this is one of the three active NSF DMS Statistics awards in the state of Iowa.

student NEWS

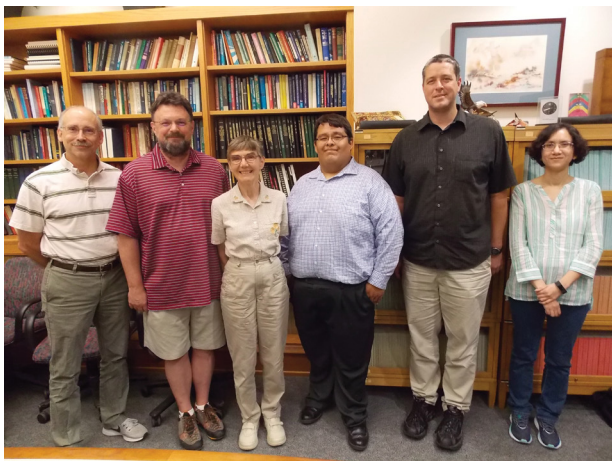
Congratulations to the following undergraduate students who were admitted into Actuarial Science in 2018.

JANUARY 2018

Yilin Bu, Bradley Calkins, Nick Culver, Cody Krause, Yuxin Chang, Daniel Folchert, Angela Fiore, Nicole Gonner, Nicholas Greati, Alexander Newberg, Morgan Novak, Quynh Le, Abu Sallehuddin, Yilin Ye and Jingyi Yang

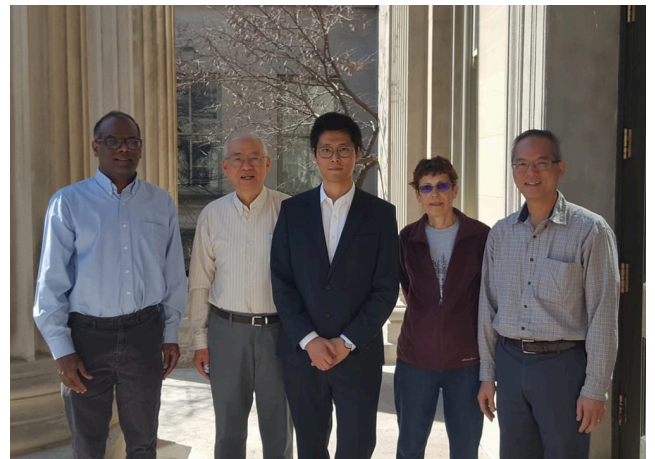
AUGUST 2018

Muhammad Ariff Abdul Malik, Alec Ciaccio, Colin Duffy, Emily Fishel, Daniel Folchert, Lisa Frishcosy, Anis Ilyana Hairol Azizi, Emily Hay, Justin Kelana, Gabrielle Kennedy, Wei Hong Lam, Xavier Loomer, Mason Newhard, Hung Nguyen, Jacob Nixt, Andrew Sherwin, Han Zhe Sim, Chengpeng Sun and Maxwell Unmacht



JUAN CERVANTES

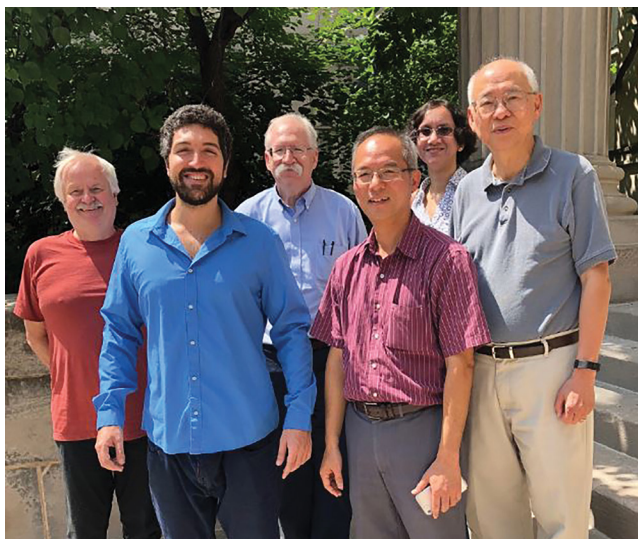
Juan Cervantes received his Ph.D. in August 2018. His thesis is titled: "Tempering Spatial Autocorrelation in the Residuals of Linear and Generalized Models by Incorporating Selected Eigenvectors" and his advisor was Kate Cowles.



XIAO WANG

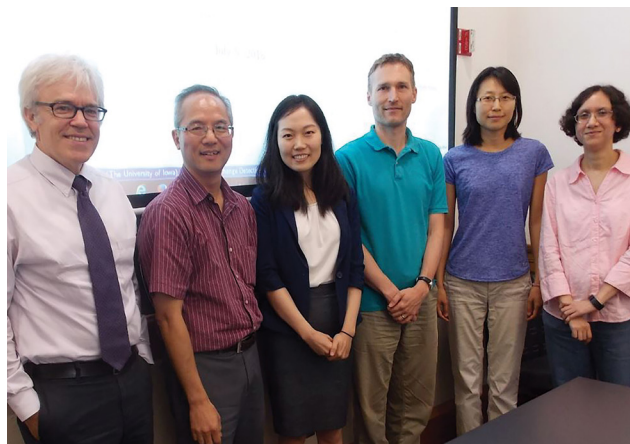
Xiao Wang received his Ph.D. in May 2018. His thesis is titled: "On Pricing Barrier Options and Exotic Variations" and his advisor was Elias Shiu. He is now working with Synchrony Financial, Chicago, IL.

student GRADUATES



RIAD JARJOUR

Riad Jarjour received his Ph.D. in August 2018. His thesis is titled: "Clustering Financial Time Series for Volatility Modeling" and his advisor was Chun-Sik Chan.



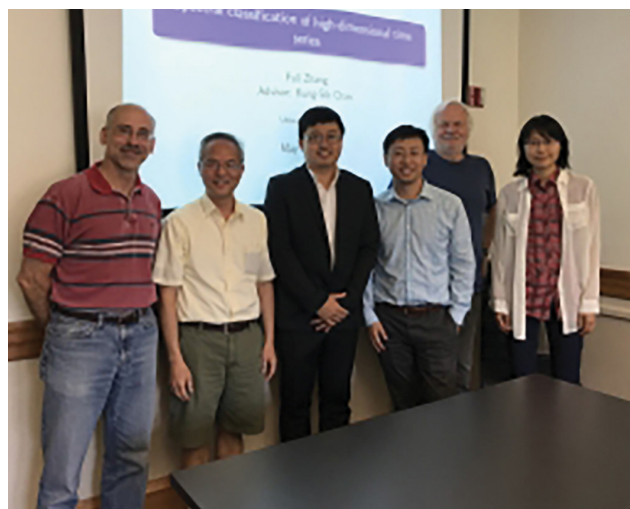
BO WANG

Bo Wang received her Ph.D. in August 2018. Her thesis is titled: "Structural Change Detection Via Penalized Regression" and her advisor was Kung Sik-Chan. Bo is now a Data Scientist at Liberty Mutual Insurance.



YINGYING LIU

Yingying Liu received her Ph.D. in December 2018. Her thesis is titled: "Bayesian Hierarchical Normal Intrinsic Conditional Auto regressive Model for Stream Networks" and her co-advisors were Kate Cowles and Dale Zimmerman. Yingying is now employed by Biogen as a Senior Biostatistician in Cambridge, MA.



FULI ZHANG

Fuli Zhang received his Ph.D. in May 2017. His thesis is titled: "Spectral Classification of High Dimensional Time Series" and his advisor was Kung-Sik Chan. He is now working as a Senior Quant Analyst for Fifth Third Bank, in Cincinnati, OH.

student GRADUATES CONTD.

MAY 2018 GRADUATES

Lily Alvey

Mathematics and Statistics (Minor)

Timothy Ambrose

MS in Statistics

Michelle Bahou

** Accounting and Statistics (Minor)

Lauren Braun

MS in Actuarial Science

Luiz Atonio Brena Henostroza

MS in Actuarial Science

Guangyu Chen

Statistics

Zhenrong Chen

MS in Actuarial Science

Clarisse Chia

Actuarial Science and Mathematics

Michelle Croghan

Actuarial Science, Mathematics, Statistics, Business Administration (Minor)

Justin Dickinson

Ancient Civilization (Minor), (H) Actuarial Science, Mathematics and Statistics

Jiashuo Du

Actuarial Science and Mathematics (Minor)

Ahmed Elmahboub

Statistics and Philosophy (Minor)

Leon Grund

*Computer Science and Statistics (Minor)

Nathan Halko

Actuarial Science and Mathematics

Carter Huggins

MS in Statistics

Ben Jacobs

** Statistics and Large Data Analysis (Certificate)

Tianxia (Tyler) Jia

MS in Statistics

Stephanie Johnston

MS in Actuarial Science

Sungjoon Kang

MS in Actuarial Science

Breanna Kellogg

Sport and Recreation Mangement and Statistics (Minor)

Seung Wook Kim

MS in Statistics

Leah Klejch

Actuarial Science, Mathematics, and Business Administration (Minor)

Ke Li

MS in Actuarial Science

Siyuan Li

Statistics

Hong Beng (Ben) Lim

MS in Statistics

Ziyan Lin

** Mathematics, ** Statistics and Computer Science (Minor)

Jason McDowell

Actuarial Science and Computer Science

Mohamad Abdulliah Mohd Kamal

Mathematics, Statistics and Economics (Minor)

Guangda Ouyang

Computer Science and Statistics

Xu Pam

Mathematics and Statistics

Max Peterson

(H) *** Actuarial Science, *** Mathematics and Risk Management and Insurance (Certificate)

Meng Qi

Actuarial Science, Mathematics, and Statistics

Rebecca Rachan

MS in Statistics

Kendall Rassmussen

Statistics

Damon Mehrl

** (H) Actuarial Science, **Mathematics, and **Statistics

Stephanie Milefchik

Statistics

Kendall Moore

Mathematics, Risk Management & Insurance (Certificate), and Statistics

Jonathan Reinhart

(H) Actuarial Science, Computer Science and Mathematics (Minor)

Indah Puspita Dewi Rukin

Mathematics and Statistics (Minor)

Jacob Schmitt

(H) Actuarial Science, and Mathematics

Yaodong Shen

Actuarial Science and Mathematics

Neevetha Malar Sivagurunathan

*** Psychology, *** Statistics, Large Data Analysis (Certificate) and Computer Science (Minor)

Felipe Su Li

MS in Statistics

Ruida Song

MS in Statistics

Jingyi Tang

Asian Languages and Literature and Statistics

Zhiwei Tong

MS in Actuarial Science

Connor Vandersnick

Actuarial Science and Mathematics (Minor)

Seth Wagner

Statistics

Jiacheng Wang

MS in Actuarial Science

Yuqing Wang

Statistics and Geography

Ziqi Xiao

Actuarial Science and Mathematics

Weicheng Xu

Mathematics and Statistics

Haoran Yan

Statistics

Daniel Yancey

MS in Actuarial Science

Jiangting Yue

Mathematics, Computer Science, Statistics (Minor) and Large Data Analysis (Certificate)

Jiangting Yue

Mathematics, Computer Science, Statistics (Minor) and Large Data Analysis (Certificate)

Abylay Zhexembay

MS in Actuarial Science

Jeremy Ziemer

MS in Actuarial Science

DECEMBER 2017 GRADUATES

Cody Borst

Actuarial Science and Mathematics

Erich Byers

Actuarial Science

Xuan Yun Chan

Actuarial Science, Mathematics and a Minor in Computer Science

Bo-Yuan Chen

Mathematics and Statistics

Yue Gu

Mathematics and Statistics

Haeryun Kim

Finance, Statistics, Mathematics, and Certificate in Risk Management and Insurance

Yiheng Liu

MS in Statistics

Huan Qin

MS in Statistics

Andrew Sherer

Actuarial Science and Certificate in Risk Management and Insurance

Zahid Imran Mohd Zahid

Statistics

** With High Distinction

*** With Highest Distinction

(H) Honors in the Major

GRADUATES

2018 ACTUARIAL SCIENCE CLUB



2018 ACTUARIAL SCIENCE CLUB

President: Sam Werner
VP of Finance: Mitch Tamashunas
VP of Media: Rachel Rinehart
VP of Social Programming: Ailin Zhang
VP of Alumni Relations: Morgan Zuidema
International Ambassador: Yilin Bu

If you're a student (undergraduate or graduate student) who is majoring in Actuarial Science and/or Actuarial Science Interest you are automatically a member of the Actuarial Science Club! The department has a mailing list that the department sends out important information. You will also receive information from the club officers from time to time via email.

Stay Connected with the club:

To receive text message reminders about club events, text actsci to the number 84483 (Reply STOP to unsubscribe at any time).

[Follow Iowa Act Sci Club on Twitter.](#)
[@IowaActSciClub](#)

[Join the UI Actuarial Science Club Facebook group.](#)
[Ui Actuarial Science Club](#)

SCIENCE

new ASSOCIATES & FELLOWS

Congratulations to Iowa alumni who became Associates or Fellows in the Society of Actuaries and the Casualty Actuarial Society!

SOCIETY OF ACTUARIES

Fellows (FSA)

August 2018 - Han Chen (BS 2010)
August 2018 - Rachel Lynn Gallagher (BS 2009)
August 2018 - Kelly Ross Gamlin (MBA 2011)
August 2018 - Ryan Helms (BBA, BS Math 2010)
August 2018 - Andrew Rietgraf (BS 2014)
August 2018 - Junga Seo (MS 2015)
June 2018 - Bingwei Deng (MS 2012)
June 2018 - Ruofei Huang (BS 2012, MS 2013)
June 2018 - Tarun Maniktala (MS 2011)
June 2018 - David Ross (BA English & Spanish 2005)
March 2018 - Rui Luan (MS 2014)
March 2018 - Ling Du Savala (MS 2013)
March 2018 - Myles Tague (BA Mathematics 2009)
December 2017 - Yebai Guo (MS 2011)
December 2017 - Kyle T Johnson (MS 2014)
December 2017 - Jayakrishnan S Kurup (MS 2007)
December 2017 - Reilly R Peterson (BS 2006)
December 2017 - Yichao Ren (MS 2013)

SOCIETY OF ACTUARIES

Chartered Enterprise Risk Analysts (CERA)

October 2018 - Ashley Mahe (MS 2014)
August 2018 - Jie Qiu (MS 2013)
July 2018 - Lu Chen (MS 2014)
July 2018 - John Timothy Crowley (BS 2017)
July 2018 - Cong Ren (MS 2014)
July 2018 - Trent Ivan Stastny-Perez (BS 2017)
May 2018 - Jodi Cahill (BA Computer Science, 2009)
January 2018 - Kathleen Thomas Baustian (BS 2011)
January 2018 - Junga Seo (MS 2015)

SOCIETY OF ACTUARIES

Associates (ASA)

June 2018 - Zhaofeng Tang (Ph.D. candidate)
May 2018 - Nathan Howard Benya (BS 2017)
May 2018 - Michael James Hackbarth (BS 2017)
April 2018 - Chenjing Cui (BS 2015)
April 2018 - Kyun Hoon Moon (BS 2015)

April 2018 - Xiaoyi Xiong (MS 2017)
April 2018 - Zhongyun Yang (MS 2014)
April 2018 - Xiping Yuan (MS 2017)
March 2018 - John Timothy Crowley (BS 2017)
March 2018 - Linh Pham (MS 2017)
March 2018 - Min Sup Song (MS 2014)
March 2018 - Lu Yang (MS 2010)
March 2018 - Huan Zhang (MS 2013)
March 2018 - Qin Zhi (MS 2017)
February 2018 - Luke Gude (MS 2016)
February 2018 - Arpit Mehta (MS 2015)
February 2018 - Damon Merhl (BS 2017)
February 2018 - Xinxin Ren (MS 2016)
February 2018 - Justin Serebro (2017)
February 2018 - Trent Ivan Stastny-Perez (BS 2017)
February 2018 - Haotong Wu (MS 2005)
February 2018 - Yidai Yao (BS 2016)
February 2018 - Wen Zhang (MS 2015)
January 2018 - Yanhao Hu (BS 2014)
January 2018 - Guannan Zha (MS 2012)
December 2017 - Jaye Nauman (BBA 2015)
November 2017 - Jiamin He (MS 2014)

CASUALTY ACTUARIAL SOCIETY

Associates (ACAS)

2018 - Justin David Ewald (BS 2013)
2018 - Xinyue Li (BS 2010)
2018 - Zhiwei Wang (MS 2007 Biostatistics)

CASUALTY ACTUARIAL SOCIETY

Fellows (FCAS)

2018 - Lin Ju (MS 2009)
2018 - Lulu Ji (MS 2011)

invited SPEAKERS

2017 - 2018

Vali Asimit Reader in Actuarial Science, Cass Business School, City, University of London. "Optimal reinsurance and robust optimisation."

Nedret Billor Professor, Department of Mathematics and Statistics, Auburn University. "Robust simultaneous inference for the mean function of functional data."

Hyunkeun Ryan Cho Assistant Professor, Department of Biostatistics, College of Public Health, University of Iowa. "Statistical inference in a growth curve quantile regression model for longitudinal data."

Joseph Cavanaugh Professor and Head of the Department of Biostatistics, University of Iowa. "Models for overdispersed count time series with excess zeros."

Leo Duan Faculty Candidate for Assistant Professor in Computational Statistics; Post-Doctoral Associate, Department of Statistical Science, Duke University. "Probabilistic modeling of structure in complex data."

Ole Forsberg Assistant Professor of Mathematics-Statistics, Knox College. "The generalized Benford distribution."

Pierre-Olivier Goffard Visiting Assistant Professor, Department of Statistics and Applied Probability, University of California-Santa Barbara. "Boundary crossing problems with applications to risk management."

Simone Giannerini Associate Professor, Department of Statistical Sciences, University of Bologna, Bologna, Italy. "Small sample asymptotics for multinomial goodness-of-fit tests."

Tim Hesterberg Senior Statistician at Google. "Statistics and big data at Google."

Yuan Huang Assistant Professor, Department of Biostatistics, College of Public Health, University of Iowa. "A joint learning of multiple precision matrices with sign consistency."

Zheng (Tracy) Ke Assistant Professor, Department of Statistics, University of Chicago. "A spectral approach to mixed-membership estimate."

Bo Li Associate Professor, Department of Statistics, University of Illinois at Urbana-Champaign. "Spatially varying autoregressive models for prediction of new HIV diagnoses."

Han Li Senior Research Associate, Australia-China Population Ageing Research Hub, ARC Centre of Excellence in Population Ageing Research (CEPAR), University of New South Wales Business School, Sydney, Australia. "All about mortality modeling."

Po-Ling Loh Assistant Professor, Department of Electrical and Computer Engineering, with secondary appointments in the Departments of Statistics, Computer Sciences, and Industrial & Systems Engineering, University of Wisconsin-Madison. "Statistical inference for infectious disease modeling."

Sharif Mahmood Visiting Assistant Professor, Department of Statistics and Actuarial Science, University of Iowa "Finding common support through largest connected components."

Peng Shi Associate Professor, Risk and Insurance Department, Wisconsin School of Business, and Charles & Laura Albright Professor of Business and Finance, University of Wisconsin-Madison, "Multivariate longitudinal modeling of insurance claims using pair copula construction."

Sanvesh Srivastava Assistant Professor, Department of Statistics and Actuarial Science, University of Iowa. "Wasserstein bary center and its application in distributed Bayesian inference."

Ya Su Faculty Candidate for Assistant Professor in Computational Statistics; Post-Doctoral Research Assistant, Department of Statistics, Texas A&M University, "Nonparametric Bayesian deconvolution of a symmetric unimodal density."

Hyungsuk Tak Faculty Candidate for Assistant Professor in Computational Statistics; Post-Doctoral Fellow, Statistical and Applied Mathematical Sciences Institute. "Astronomical time delay estimation via a repelling-attracting Metropolis algorithm."

Boxiang Wang, Faculty Candidate for Assistant Professor in Computational Statistics; PhD Candidate, School of Statistics, University of Minnesota. "Modern classification with big data."

Tong Wang Assistant Professor of Management Sciences, Henry B. Tippie College of Business, and Member, Iowa Informatics Initiative, University of Iowa. "Learning to detect patterns of crime."

Dale Zimmerman Professor of Statistics and Director of Graduate Studies, Department of Statistics and Actuarial Science, University of Iowa. "An outline of the called strike zone in Major League Baseball."

student AWARDS & SCHOLARSHIPS

STUDENT AWARDS

Our annual student awards were presented on April 28, 2018. The Allen T. Craig Award for outstanding teaching assistant was presented to Rebecca Rachan. Honorable Mention for outstanding teaching assistant(s) awarded to Ben Lim, Christopher Penney and Yunju Im.

The Allen T. Craig Scholarship was presented to Rui Huang and Jun Tang. It included a 25%-time RA appointments and \$1000 scholarship.

The Henry L. Rietz Award was presented to a Ph.D. student based upon their excellent performance on the Comprehensive Exam. This year's award winner was Rui Huang.

Lloyd A. Knowler Award for Outstanding Achievement in Actuarial Science.

2017-18 (Undergraduate) JMax Peterson
2017-18 (Graduate) Zhiwei Tong, Abylay Zhexembay

We also presented several Robert H. Taylor Awards for academic achievement in Actuarial Science. This year's recipients are:

Robert H. Taylor Award in Actuarial Stochastics

2016-17 Xiao Wang

Taylor-Craig Award for outstanding performance in ACTS:4130

2017-18 (Undergraduate) Ailin Zhang
2017-18 (Graduate) Kyumok Lee

Taylor-Cosby Award for outstanding performance in ACTS:3080

2017-18 (Undergraduate) Ailin Zhang
2017-18 (Graduate) Yomi Kang

Taylor-Knowler Award for outstanding performance in ACTS:4280

2017-18 (Undergraduate) Max Peterson
2017-18 (Graduate) Abylay Zhexembay

STUDENT SCHOLARSHIPS

Scholarships totaling \$347,445 awarded to several students in the 2017-18 academic year. Included among these were several named scholarships:

Lloyd A. Knowler Scholarship

2018-19 Carter Burns
2017-18 Ben Jacobs

Northwestern Mutual Scholarship

2018-19 Funds were utilized for awards for passing SOA Exams

Richard D. Pearson Scholarship

2018-19 Natalie Avercamp, Emily Fishel, McKenna Heitpas, Xavier Loomer and Maxwell Unmacht
2017-18 Alec Ciaccio and Megan Svava

Robert A. Patterson Scholarship

2018-19 Nicholas Culver
2017-18 Nicholas Culver

Principal Financial Group Scholarship

2018-19 Nicholas Culver
2017-18 Tina Liu and Morgan Zuidema

D.W. Simpson & Company Scholarship

2017-18 Jason McDowell
2016-17 Michael Hackbarth

Harold W. Schloss Scholarship

2018: Gaston "Ivan" Morales
2017: Carter Burns

Transamerica (AEGON) Scholarship

2018-19 Cody Krause and Mason Newhard
2017-18 Max Peterson

D.W. Simpson & Company Scholarship

2018-19 Sean Godkin
2017-18 Jason McDowell

Charles E. and Eleanore G. Wilson Scholarship

2018-19: Natalie Averkamp, Collin Abeln, Carter Burns, Alec Ciaccio, Nicholas Cinnamon, Austin Enderson-Ohrt, Angela Fiore, Emily Fishel, Daniel Folchert, Lisa Frishcosy, Nicholas Geati, Emily Hay, Drew Hoeger, Hung Nguyen, Jace Johnson, Cody Krause, Quynh Le, Xavier Loomer, Yuji Lopez, Isaiah Martin, Colin Maseman, Carolina Matuk, Mason Newhard, Morgan Novak, Nicholis Odegaard, Levi Paterson, Nathan Promes, Rachel Rinehart, Kyle Scales, Andrew Sherwin, Megan Svava, Mitchell, Tamashunas, Maxwell Unmacht, Tyler Witthoft, and Morgan Zuidema.

Statistics Departmental Scholarship

2018 (Fall): Melissa Adrian, Baekjun Kim, Yujing Lu, Justin Sheldon, Kelly Yuson

2017 (Fall): Benjamin Jacobs, Yujing Lu, Mohd Airman Zulkifly, Bo-Yuan Chen, Yue Gu, Matthew Kulczak and Jiongqi Zhao.

In addition to scholarships, the department refunded a total of \$22,415 to students passing CAS/SOA exams in 2017-18.

In addition to scholarships, the department allocated special awards, which totaled \$7,500 to students who performed at a high level in the classroom.

undergraduate SPOTLIGHT



SAMUEL WERNER

SAMUEL "SAM" WERNER, 2018 ACTUARIAL SCIENCE CLUB PRESIDENT WAS NAMED THE ACTUARY OF TOMORROW – STUART A. ROBERTSON MEMORIAL SCHOLARSHIP WINNER FOR 2018!

Stuart A. Robertson, FSA, MAAA (1918-2005) was a distinguished actuary who, along with Wendell Milliman, co-founded the actuarial and consulting firm Milliman & Robertson (now Milliman, Inc.). The Actuary of Tomorrow – Stuart A. Robertson Memorial Scholarship was established to honor his dedication to excellence

and recognize his tremendously positive influence on the professional lives of many colleagues. The scholarship of up to \$9,000 recognizes and encourages the academic achievements of undergraduate students pursuing a career in actuarial science.

Sam will graduate with honors in May 2019 with a BS in Actuarial Science, BS in Statistics, BA in Mathematics and the Certificate in Risk Management and Insurance. He will begin working the Denver office for CIGNA in the summer of 2019 after internships with Principal (2017) and CIGNA (2018).

Here is some information about Sam, from his nomination letter, written by Sam:

September 30th holds a special place in my heart. Over the past few years, two of my biggest milestones have coincidentally happened on September 30th in seemingly unrelated ways.

Throughout high school, I was in love with running. I ran cross country and track all four years, but I didn't really view them as team sports at first, more as opportunities for me to reach my own personal goals. The performance of my team didn't really matter to me, since I didn't think I could make much of a difference. With plenty of people faster than me, my performance didn't really seem important. But on September

30th of my senior year, after countless miles over the summer and pushing through a grueling race, I obliterated my personal best and finished third on my team. From that day on, I wasn't just running for myself, I was helping push the team to our full potential.

Three years after that day, I had a similar culmination moment. After months of contacting employers, speakers, hotel staff, and students, I had the privilege of serving as MC and Co-Chair of the 5th Annual Midwest Actuarial Student Conference. Why did I want to do this? I had learned my lesson back in high school about helping the team move forward, and giving my peers the chance to dive into the actuarial profession in the conference was one of the best ways to do that. Putting that conference together was a beneficial experience to my younger peers and me alike; the attendees of the conference got a chance to meet employers, get advice on their careers, and find out what's changing in the industry, while I got to drastically improve my speaking, planning, and organizational skills.

Besides MASC, I've worked with our Actuarial Science Club extensively to help our students enrich their academic, professional, and social lives. After talking to many recruiters and students, I've led the Club as President to help address some of the weaknesses of our club members. To help people know about the different facets of the actuarial world, we've

invited speakers from all kinds of organizations. From CFOs of Fortune 500 companies, to former SOA presidents, to recent graduates sharing their new experience, all have brought something unique and beneficial to our Club. To supplement our largely theoretical and academic program, we've held events to help students with their resumes, interviews, classes, and internships. We provided monthly Excel workshops to bring younger students up to speed on their technical abilities, then gave everyone the opportunity to use their newfound knowledge on our 3rd Annual Excel Competition.

Much like my time preparing for cross country, I've put in the work to get my path set in the actuarial world. These miles take the form of study manuals, exams, and interviews, but the concept remains the same. What can truly help you develop the most is helping the rest of your team, your colleagues, your friends. That's why I'm extremely grateful for the chances I've been given to help make our Actuarial Science Club the best it can be for all our students.

graduate

faculty SPOTLIGHT

A BRIEF CONVERSATION ABOUT DATA SCIENCE



DR. BOXIANG WANG



DR. SANVESH SRIVASTAVA

faculty

Our newest faculty, **Sanvesh Srivastava** and **Boxiang Wang**, will be teaching courses directly related to our new major in Data Science. These two have complementary research expertise and both are involved with research at the forefront of Data Science. We sat down with them to learn more about their teaching and research activities.

Sanvesh: I teach two classes related to data science, one focuses on the mathematical foundations of statistical models used in data science and the other focuses on applications of statistical methods to large and complex data, which are ubiquitous in the modern setting. Our students learn the basic theoretical principles for understanding any statistical method in the former class and develop their toolbox for analyzing real-world data sets in the latter class. With this background, our students are well-prepared to start their careers in Data Science. My research is currently focused on developing divide-and-conquer based approaches to analyze massive data sets. The idea is motivated from an old approach, where one solves a bigger intractable problem into three steps: the bigger problem is split into smaller subproblems that are easy to solve, the subproblems are solved in parallel, and finally the results from all the subproblems are combined into a final result, which is close to the solution of the bigger intractable problem. My research has focused on applying these ideas to solve big data problems.

Boxiang: My research is motivated from the recent developments in machine learning, especially using techniques that deal with vast data to derive actionable insights and the one way to solve real-world problems. Therefore, we are talking about some more modern methodologies, and how they can be utilized to analyze this modern type of new data. Modern data are very different from the data collected just 20 years ago or so in terms of complexity and size. Back then, data set with 1000 observations and 20 features was considered big, but nowadays individuals active on the social media generate data with millions of observations and millions of features on a daily basis. A fundamental question, which is also

central to statistics, is that how can we analyze this data in an efficient manner so that we extract most of the information contained in the data? Sanvesh's research provides one answer to this question, where we break massive data into small parts so we can get some equally good results from each parts; however, we know little in those cases where the results from all the subsets are not equally reliable. This is a promising new direction, whether in research or in practice.

Sanvesh: Twenty years ago, if you opened a textbook in Statistics, then most of the examples would include 50 to 100 data points. One would rarely find discussions about computational efficiency of statistical methods; however, the size of modern massive data sets has changed that. In my data science classes, I emphasize the importance of computational efficiency and discuss various options that are available in choosing a flexible statistical model for analyzing modern data sets. Data also comes in various forms, which may not fit in an excel file. For example, we are using our cellphones, posting images and text on Facebook, Instagram, and Twitter, chatting with friends on Whatsapp or SnapChat, etc. All these activities produce data that reveal so much about our personality, our beliefs, who we love, who we support, etc. Since this data is nonstandard and only tip of the "iceberg of modern data", who knows what can be done with this data. Searching for techniques that extracting information from such non-standard data may give birth to the Google of this century. Creative people are going to do unexpected things with data, and this is what excites me about data science. This is what is great about data science: If you were to ask even one of our department veterans like the late Bob Hogg, a legend in Statistics, what he thought would or could happen in the next 20 years, I would be very surprised if he would have been able to predict this.

Boxiang: When Statistics started over 100 years ago, people did experiments by changing one variable at a time. Fisher, the father of statistics, changed this view by developing the theory of experimental design. This was a landmark not only in statistics but in experimental sciences. The data science era

will produce modern Fishers, who will change the way to think about analyzing and understanding large and complex data.

Sanvesh: When I was a graduate student at Purdue University in 2010-11, I remember when people started talking about the new field called Data Science. I learned that one of my PhD committee members, Bill Cleveland (PhD Yale), wrote a paper on it in 2001 called "Data Science: An Action Plan to Expand the Technical Areas in the Field of Statistics." It was quietly published in a lesser-known journal and suggested that we should have a new curriculum that emphasized 70 percent real data analysis, and it went unnoticed for about 15 years. Now people have realized that the cloud had cleared and that both Statistics and Computer Science give the rigorous foundation required for Data Science. Now tell us more about your recent grant from the Office of Naval Research.

Sanvesh: This grant is about doing Data Science but from a rigorous statistical perspective using divide-and-conquer techniques that I mentioned earlier. Our motivating example came from the idea that we have collected enormous data sets from the sea surface temperature data (SST). The sensors collect data at all the oceans' longitudes and latitudes, and the premise is that the sea temperature directly affects the movement of the currents, which then affect our weather (for example, El Niño and La Niña impact precipitation and winter temperatures). Water current dictates the impact on the wind movement and that affects the precipitation

patterns, which influences the number of floods, hurricanes and significant droughts. Therefore, it is important to develop models for understanding the data while accounting for uncertainties due to measurement errors and environmental factors. All of these factors have enormous impact on what we see discussed politically every day. More broadly, there is a debate about global warming – the only way to decide that is through a rigorous scientific analysis data. Until now the data was so big that even traditional statistics models could not be applied to it. Motivated from data sets like SST, we have proposed to develop general statistical models and computational algorithms that are tuned for massive data applications. We don't claim to solve the global warming problem through our research, but developing methods like ours would help us analyze massive data sets and be a part of the Data Science revolution. Who knows in the next decade a team of data scientists can give a conclusive answer to the global warming debate.

Boxiang: It is an exciting time for Data Science. This area is really growing, and we are excited to have this new major, but also it is at a time when the Statistics field is still growing. It is like a second birth of Statistics or a new branch because we have new powerful computers, and we can analyze so many new data sets with the modern technologies.

Sanvesh: We also know what is very important is that the future progress in this field will come from the young people that we are training today. They will have fresh ideas and they will be part of the dynamic future.

MASTER OF SCIENCE GRADUATES IN 2016-17:

MS in Statistics: Shiyang Chen, Andrea Leigh Harlan, Baosheng He, Elizabeth Lori Held, Rui Huang, Rui Jin, Samuel Justice, Xun Li, Tyler William Olson, Sangjun Park, Jun Tang, Siyang Tao, Alexander Zajichuk, Hongda Zhang, Qiansheng Zhu.

MS in Actuarial Science: Jiao Lei, Junyan Liu, Liyun Ma, Xiaocen Meng, Linh Thuy Pham, Xiaoyi Xiong, Jun Yang, Menglei Yu, Xinping Yuan, Ronghui Zhao, Yunlu Zhao, Qin Zhi, Yue Zhou, Xiaofan Zhuang.

in MEMORIUM

Class of 1942

Eleanor Pearson Northrup
Bryn Mawr, Pennsylvania, (BA 1942) died in July, 2018

Class of 1945

Constance Howell
Cincinnati, Ohio, (BA 1945) died in October, 2017

Class of 1948

Morton Kent
Lookout Mountain, Georgia, (BA 1947, MS 1948) died in September,
2018

Class of 1950

Nancy Shuttleworth Rust
Seattle, Washington, (MS 1950) died in June, 2018

Class of 1952

George E. Collins
Madison, Wisconsin, (BA 1951, MS 1952) died in November, 2017
D. Ruth Greenwald
Grinnell, Iowa, (MS Mathematics) died in April, 2018

Class of 1953

Thomas Brown
Des Moines, Washington, (BA 1953) died in May, 2018

Class of 1955

John McAreavy
Muscatine, Iowa, (BA 1951, MS 1955, PhD 1969)
died in November, 2018
Monsignor Stanley Hayek
Dubuque, Iowa, (BA 1955, MS 1964) died in November, 2017
James Green
Stanfordville, New York, (BA 1955) died in November, 2017

Class of 1956

Donald Hickman
Middleton, Wisconsin, (BA 1956) died in November 2018

Class of 1960

Richard Driskell
Sellersburg, Indiana, (MS 1960) died in December 2017

Class of 1962

Richard Vandervelde
Holland, Michigan, (MS 1962) died in November 2018

Class of 1973

Richard Richard Sawyer
Iowa City, IA (PhD 1973) died in May, 2018

SAMPLER

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241 Schaeffer Hall
Iowa City, IA 52242-1409

HOW YOU CAN HELP...

Many of you have been very generous in the past by supporting our students with your charitable donations. We are very appreciative of your support as it allows us to help many gifted and talented students to achieve their academic goals. Your gift to the Department of Statistics and Actuarial Science benefits education and research!

To make a contribution, go to the Department's online gift website at:

<http://givetoiova.org/2018AS99>

Thank you – your gifts to the Department of Statistics and Actuarial Science are greatly appreciated!

REMINDERS:

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You can become a member of the College of Liberal Arts and Sciences Dean's Club with gift support of \$1,000 or more during the fiscal year July 1-June 20 to the Department of Statistics and Actuarial Science Development Fund or any other area of the College. Gift support totaling \$2,500 or more will qualify you for membership in the Patrons Circle of Dean's Club, designated to recognize the College's most generous benefactors.