

# Saint Louis University

## Department of Mathematics and Statistics

July 2019



Recipients of the 2019 Mathematics Awards. From left to right: Susan Albarcha, Alex Fagan, Ifeanyi Ekpunobi, Conor Honan, Aidan Latham, Nigam Gaurav, Abby Jones, Francesco Rambaldi, Lauren Schmiedeler.

## Message from the chair

With ubiquitous connectivity, more and more human activity is recorded with data. This gives rise to a corresponding demand for talented people who can organize, present, and draw conclusions from the enormous troves of information generated constantly. Our department is excited to announce a new Data Science major, in collaboration with computer science, which will begin in Fall 2019. With advanced courses in statistics, machine learning, and computer programming, these students will be leaders in the analysis of information.

Over the last few years, our department has moved all our statistics courses to the powerful, open source data analysis package “R”. Next summer, Saint Louis University is organizing useR!, the premier international conference for R users. We expect more than a thousand of the world’s top data scientists to join us in Saint Louis, July 7-10, 2020.



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Continuing the theme of data, probability, and statistics, our departmental award ceremony this year featured Dr. Liberty Vittert presenting the Case Lecture, “How to win the lottery and get away with murder”. Seniors Nolan Michniewicz and Peter Reiker won the Garneau Award, in recognition of their outstanding undergraduate careers at SLU. Shown above are some of the recipients of the Mathematics award, given each year to sophomores with exceptional mathematical promise.

Under the supervision of Dr. Ashish Srivastava, Jimmy Mixco received his doctoral degree this May. Dr. Mixco’s thesis, titled “Supersymmetric Cluster Algebras and Their Quantum Deformations”, concerns commutative rings generated by variables obtained by an iterative combinatorial process called mutation, which has applications to several branches of mathematics and physics. Dr. Mixco is now working for U.S. Bank on problems involving statistical modeling and machine learning. Congratulations, Dr. Mixco and all of our 2018-19 SLU graduates!

Bryan Clair  
Chairperson, Department of Mathematics and Statistics

## Stacey Harris wins SLU’s Slosar Award

Dr. Stacey Harris was the 2018-19 recipient of SLU’s John A. Slosar Award, which honors and recognizes a faculty member who has provided outstanding contributions to the advancement of shared governance at Saint Louis University. Dr. Harris was recognized for her founding role in the SLU chapter of the American Association of University Professors and her tireless work on key Faculty Senate committees.

## Students in action



### **Sadita Salihovic, BA’18**

At The Women’s Commission luncheon on April 24, graduate student Sadita Salihovic was honored as a SLU Woman of the Year. The honor specifically called out her work as a tutor in the Student Success Center, her leading role in the McNair Scholars Program, and that she co-founded SLU’s Bosnia and Herzegovina Student Association. Sadita received her undergraduate degree from SLU in 2018, with a double major in mathematics and education. She is currently pursuing her master’s degree in mathematics at SLU.

### **Hannah Patterson, BA’19**

In the Spring, senior math major Hannah Patterson worked with ArchCity Defenders, a non-profit organization dedicated to providing the best possible legal counsel to the homeless and the poor facing prosecution. Hannah’s internship involved processing copious quantities of data generated by the Saint Louis city workhouse, and producing an analysis that may be used in future legal arguments. Hannah presented her work at the SLU Senior Legacy Symposium in May. Her internship was guided by Dr. Darrin Speegle.



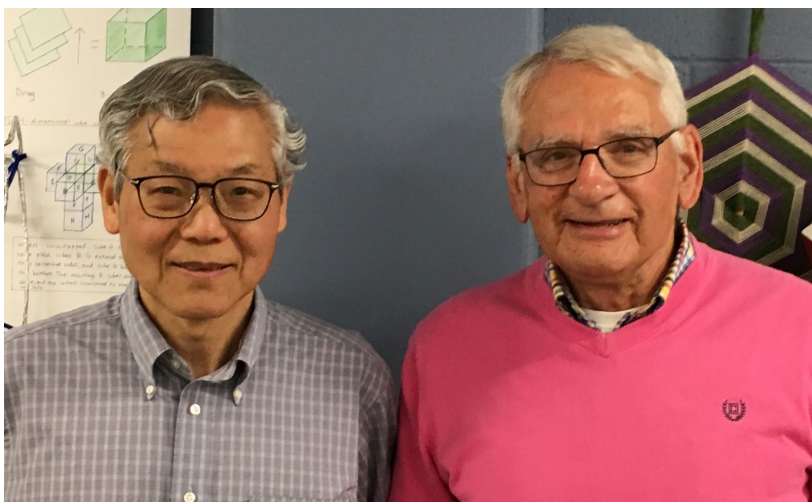
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## Longtime faculty Dr. Tsau and Dr. Wacker retire

Distinguished professors Dr. C. Michael Tsau and Dr. Dennis Wacker both retired in the Spring of 2019, after a combined 85 years of service to Saint Louis University.

Dennis Wacker has been a faculty member at Saint Louis University for fifty years. He grew up in South St. Louis City, attended Washington University and earned his Ph.D. in Applied Mathematics and Computer Science in 1971. He started his career with SLU in 1968 by teaching Mathematics at Parks College in Cahokia, Illinois. In 1996, both Parks College and Dr. Wacker made the move to St. Louis City. Dr. Wacker has always been respected by both colleagues and students. He won the Faculty Excellence Award from SLU's student government in 2001, he won the Governor of Missouri's Award for Excellence in teaching in 1998, and was Outstanding Faculty of the Year at Parks College in 1989, 1997, and 1998.

Dr. Wacker lives in St. Louis with Betsy, his wife of forty-six years, who he met in Colorado on a ski trip. They have two sons, Dan and Mark. Between them, Dr. Wacker and his wife, have four grandchildren and four



granddogs. Talking about his time at Saint Louis University, he said, “The students I have met along the way are the highlights of my time at SLU. Another highlight was the opportunity I had to work with Dr. Cel Johnson in the area of student retention, and I have also enjoyed working with the members of our department.” Dr. Wacker has a wonderful sense of humor, brightens the day with his brightly colored sweaters, and has always treated everyone with respect.

C. Michael Tsau joined the department in 1983, immediately after receiving his doctorate from the University of Iowa. His research is in Topology, specifically knot theory, and he has remained productive from his early publication “Non-algebraic killers of knot groups” to his most recent paper in 2017, “A combinatorial formulas for higher order linking numbers”.

Dr. Tsau was particularly involved in graduate education, serving as director of the graduate committee for many years. He advised three graduate students on their doctoral degrees: Ryan Landvoy in 1996, Larry Granda in 2007, and Darren Garbuz in 2015. Granda, now a faculty member at Webster University, says that “working with Tsau was awesome. He was supportive and friendly, and I really enjoyed spending time with him. As a human being, he is a wonderful guy.”

During his career, Dr. Tsau was recognized as an outstanding teacher. Dr. Hebda called him the “gold standard” for teaching, and Reinert Hall students nominated him as best professor in 2007. Dr. Tsau

keeps a smile on his face and has always had a great rapport with his students. Dr. Tsau recalls: “One class when I held a review session for an exam scheduled two days later, a student jokingly asked if they could take the exam as a group, and I jokingly replied, ‘In your dreams’”.

Dr. Tsau was born in Taiwan and grew up in a small city named Hsin-Chu, which he translates as “New Bamboo.” In 1983, a friend invited him to New York to meet a young woman. He married Shiou-Wie “Sunny”, and they settled in St. Louis. Their daughter Jennifer Shing Tsau is an immunization biologist.

Dr. Tsau and Dr. Wacker were such prominent and important members of the department that it is hard to say farewell. Both were awarded Professor Emeritus status and will maintain their connection to the university. Dr. Wacker plans to continue teaching courses for the department, and Dr. Tsau will work on mathematics research both on campus and in Taiwan.

## The Billiken challenge

111

A *palindrome* is a number that reads the same backwards and forwards, such as 150323051.

Prove or disprove:

$(111\dots111)^2$  is always a palindrome, no matter how many 1’s there are.

Show that some multiple of 2019 is a number whose digits are all ones.

For solutions, see our department website at <http://mathstat.slu.edu/about/newsletter>

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*The Department of Mathematics and Statistics is people, creating and discovering the structures that underlie science and nature. Our faculty attract funding for research as concrete as medical statistical inference and as abstract as the geometry of infinite dimensional space. We are continually at the forefront of educational methodology, with award winning instructors, integrated instructional technology, and courses customized to meet the needs of all students. Our graduates take their skills to government and to industry, and we train the next generation of teachers. From the ratio studiorum to the internet age, Mathematics and Statistics plays a central role in a Saint Louis University education.*

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