2018-19 Newsletter
Department of Mathematical Sciences
Chair’s Corner

Hello again from the chair of the Mathematical Sciences Department. It has been an eventful year, to say the least! NIU has a new provost, the former “acting” president, Lisa Freeman, has been made president, and the Division of Statistics is now its own separate department. The list of significant changes and decisions made at the institutional level goes on and on. In this newsletter we will concentrate on departmental activities and information, and as you will see, there is plenty to report on that regard.

It’s traditional to briefly run down some personnel changes in this column. I’m very pleased to report that Connie Spohn came on board last fall and we finally were able to hire an office administrator. Constance (Connie) Spohn came on board last fall and we’re delighted to have someone with lots of NIU experience in that job; Connie first came to NIU in the mid ’90s. Also new in the office is Melody Winter, secretary to the assistant chair. Other new hires (instructors and tenure-track faculty) joining the department this coming fall semester are mentioned in separate articles below. While we didn’t have any retirements per se, we did have three people leave for positions at other institutions. Paul Hawkins returns to his home state to teach at Texas State University. Michael McCabe is leaving for a permanent position at College of DuPage and Christopher Purdy is joining the full-time faculty at Waubonsie Community College.

We have much news to report to you this year. Please read below on important events, exciting developments and various accolades earned by our students, faculty and your fellow alumni.

We work to stay in touch with all our graduates and welcome your news and views. As always, please visit our Facebook page and feel free to post information on your doings.

Jeffrey Thunder

Department Welcomes New Faculty and Instructors

The department is pleased to welcome two new tenure-track faculty this coming academic year, both in mathematics education.

Rachel Rupnow received her Ph.D. in mathematics education from Virginia Polytechnic Institute and State College (“Virginia Tech”) this spring. She also holds an M.S. in mathematics from Michigan Technological University and a B.S. in secondary mathematics education from Martin Luther College. She focuses on Research on Undergraduate Mathematics Education (RUME), in particular, the teaching and learning of abstract algebra.

Ricela Feliciano-Semidei comes to us from the University of Puerto Rico, Mayaguez. She also holds a secondary teacher certification from the Department of Education of Puerto Rico. Her main research interest is teaching and learning of students from under-represented minorities, and also pre-service and in-service mathematics teachers.

The department welcomes new instructors: Young Huh and William O’Conner who will start this fall. O’Conner received his M.S. from the department this summer and Huh received his from Purdue University. Huh has extensive teaching experience and has also worked in the telecommunications industry (AT&T Laboratories, Lucent Technologies and Motorola). O’Conner is an Illinois native, receiving his B.S. in mathematics at Illinois Wesleyan University, and considers teaching a genuine calling: “My goal is to help students gain a better appreciation of mathematics with intuitive instruction.”

Department Hosts Annual Math Contest

As usual, the department was proud to host a regional ICTM math contest for high school students this past February. We have hosted these contests now for 39 years straight - from the time they first started, in fact! It was a rousing success once more, with more than 400 high schoolers from 17 different regional schools coming to campus to compete in written and oral events.

Many of you perhaps participated in the contest when you were in high school, and certainly quite a few of you helped with hosting the contest during your student years at NIU. Cindy Stecher was one of the original ICTM organizers and the reason we’ve been a host all these years. Professor Peter Waterman was the chair of the department committee responsible for running it for many years. Since his retirement, professor Anders Linner has taken on that mantel. Stecher and Waterman (and even son James, also an alumnus) still drop by to help out on contest Saturday.

This year we had a new twist: acting dean Judy Ledgeford from the College of Liberal Arts and Sciences was on hand to address the contestants (and potential future NIU undergraduates!) at the awards ceremony held that afternoon in Carl Sandburg Auditorium. Next year perhaps we can have the provost or even president say a few words. Next year’s contest will be a major milestone: 40 years!
Applications and Involvement Component (AIC) Activities

A unique and crucial component of our Ph.D. program is the Applications and Involvement Component (AIC). Doctoral students attend a weekly seminar where they are shown “real world” applications of mathematics in other academic disciplines, government laboratories, and industry. The AIC culminates in a semester internship where our students apply their knowledge and develop new skills in applying mathematics to today’s scientific, engineering and data-intensive questions. After the internship, the student produces a written report on their experience and delivers a presentation in the AIC seminar. This last year a whopping seven graduate students completed their AIC requirements, successfully reporting and presenting on their internships.

Rexford Akakpo worked with the NIU biology department on a project titled “Soil microbial chronosequence data correction.”
Fatmah Alnaser worked with the NIU biology department on the project “Metabolic scaling in two species of colonial cnidarians.”
Phèlicia Dovoedo worked with the biology departments of NIU and University of Nebraska, Lincoln on the project “Estimate pCT effect in NHA and HUVEC calls by measuring +H2AX foci.”
Sakeena Mirza also worked with the NIU biology department (they obviously had a plethora of projects for our students recently!) on the project “Soil microbial community composition.”
Dylan Rambow worked a Alu-Bra Foundry Inc. on the project “Working with databases and elementary critical path analysis.”
Brooke Randazzo worked at InteQ on “customer “love scores” and customer segmentation.”
The above projects utilized a broad range of mathematical, statistical, and modeling applications, and also specialized software (e.g., MATLAB, R, ImagePro).

Our Newest Ph.D.s

Jie Huang (August, 2019) wrote his dissertation, Bivariate Cure Rate Model Using Copula Function in Presence of Censored Data and Covariates, under the direction of professor Nadir Ebrahimi.
Suvo Chatterjee (August, 2019) wrote his dissertation, Bayesian Functional Data Analysis over Dependent Regions and its Applications for Identification of Differentially Methylated Regions, under the direction of professor Duchwan Ryu.
Phèlicia Dovoedo (August, 2019) wrote his dissertation, Heavy Tailed Distributions, under the direction of professor Alan Polansky.

The 34th Annual NIU Math Contest

The 2019 Northern Illinois University Mathematics Contest took place on February 27th. First place, with the prize of $150 went to Carl Beezhold, a freshmen Mathematical Sciences (General Mathematics) major. Zhaoyang Qin, a junior Mathematical Sciences (Probability and Statistics) major, placed second, and won $100. Third place, with the prize of $75, was won by Ying Ji, a junior Mathematical Science (Probability and Statistics) major. The winners were recognized at the Department of Mathematical Sciences’ Award Ceremony and Reception on April 28.

The annual Northern Illinois University Mathematics Contest has a format where freshmen and sophomores have a fair chance to compete with juniors and seniors. The underclassmen have fewer restrictions on their choice of problems to attempt. The contest is open to all full-time undergraduates at NIU. Each contestant turns in solutions to a choice of six out of 11 problems. Topics this year ranged from logic puzzles, algebra and geometry through calculus, differential equations, and linear algebra. Professors Michael Geline, Gleb Sirotnik, and Y.C. Kwong supervised the competition.

Math Club Wins MAA Contest

On March 29-30, three representatives of the NIU Math Club travelled to Carbondale to attend the Illinois MAA Section Meeting and compete in the undergraduate mathematics contest. The team of Cassie Mohr, Kevin McNeeley and Eli Brotman came in first in the contest. The group also got to hear a number of presentations of undergraduate research from other students from across the state. Pictured (left to right): conference organizer Peter Andrews of Eastern Illinois University; Brotman, Moh and McNeeley. Congratulations, Math Club!

Department Hosts Fulbright Scholars

This academic year the department hosted Fulbright research visitor, Mauricio Medina. He received his doctorate from Universidad Nacional Autónoma Mexico in Mexico City in 2016, and then had a postdoctoral position at Chungnam National University in Korea. He was awarded his Fulbright scholarship to work with Distinguished Emeritus Teaching Professor John Beachy on ring theory (universal localization) and module theory (the subcategory determined by a module).
While at NIU, Medina gave a colloquium talk and gave weekly seminar talks on the book “Lectures on Algebraic Quantum Groups” by Brown and Goodearl. In April the department enjoyed a weeklong visit of two of his fellow Fulbright colleagues, Lizbeth Sandoval-Miranda of Universidad Autónoma Metropolitana and Angel Zaldívar-Corích of Universidad de Guadalajara. They each gave a seminar talk, and collaborated on several research projects. The department would like to thank professor Medina for an enjoyable and productive visit. We wish him well in his future academic career. Pictured, from left to right: Medina, Zaldívar-Corích and Sandoval-Miranda.
The 41st annual Award ceremony was held April 28, 2019, in the Barsema Alumni and Visitors Center Pollock Ballroom. At the reception, Department Chair professor Jeff Thunder and professor Paul Dawkins presented the following awards and scholarships.

### 2019 Mathematical Sciences Awards

#### Incoming Freshman Scholarship
- Andrew Farnsworth
- Benjamin Jenkins
- Katie Kochendorfer
- Kaitlin Sienier
- Brandon Thompson

#### Clarence Ethel Hardgrove Scholarship
- Brandon Ahne
- Carl Beethoven
- Eli Bottman
- Jackie Chavez
- Jordan Lung
- Laura Ndialeloc
- Bianca Spalla

#### Joseph C. and Marion E. Huber Memorial Scholarship
- Kyle Seabach
- Bianca Spalla

#### Michael J. Krowka Scholarship
- Kathryn Ekwall

#### Gail Masters Gallagher Memorial Scholarship
- Caroline Magnunson
- Alyssa Mohr
- Isabel Stone
- Matthew Swed

#### Tatsuiji and Mami Kambayashi Memorial Scholarship
- Kristie Kaminski
- Emma Wills

#### Dale G. Jungst Memorial Scholarship
- Pamela Hollingshead
- Clayton Morrison
- Jonathan Regnery

### 2019 Mathematical Sciences Awards (continued)

#### Dorothy and Glenn Erickson Scholarship
- Allyson Hansen
- Isabel Stone

#### Norma K. Stellford Memorial Scholarship
- Zachariah Dick
- Michael Hollander
- Cassandra Mohr
- Sean Smart
- Siyu Tao
- Guangting Zhou

#### Carol J. Feltz Scholarship
- Andrea Jackson-Sagredo

#### Peter Nicholls Graduate Scholarship
- Scott Rexford

#### Altstate Actuarial Scholarship
- Kimberly Simms

#### NIU Math Contest
- Carl Beethoven, first place
- Zhaoyang Qin, second place
- Ying Ji, third place

#### M.M. Wheeler Scholarship
- Patty Alvarez
- Allyson Hansen
- Caroline Magnunson
- Clayton Morrison
- McKayla Snedeker
- Isabel Stone

#### Chaitan and Sarita Gupta Scholarship
- Patty Alvarez

#### M.M. Wheeler Teaching Award
- Rebekah Gale
- Megan Martinez
- Kevin Jiang
- Ian Sugrue
- Evelyn Youel

#### Donald R. Ostberg Award
- Brook Randaizzo

#### Certificate of Teaching Excellence
- Jared Brady
- Amanda Mutake

#### Outstanding Graduate Student Award
- Jared Brady
- Philippe Dovoedo
- Torin Quinivan
- Scott Rexford
- Thomas Vantimiglia

#### M.M. Wheeler Teaching Award
- Rebekah Gale
- Megan Martinez
- Kevin Jiang
- Ian Sugrue
- Evelyn Youel

#### Donald R. Ostberg Award
- Brook Randaizzo

#### Certificate of Teaching Excellence
- Jared Brady
- Amanda Mutake

#### Outstanding Graduate Student Award
- Jared Brady
- Philippe Dovoedo
- Torin Quinivan
- Scott Rexford
- Thomas Vantimiglia

#### Honorable Mention Undergraduates
- Ryan Habben
- Andrea Jackson-Sagredo
- Ryan Johnson
- Kevin Kang
- Lucia Torres
- Evelyn Youel

#### Certificate of Merit Undergraduates
- Killian Anderson
- Cody Ferencz
- Chuan Gao
- Alexandre Hill
- Wenhao Tang

#### Certificate of Merit Graduates
- Ahmed Al-Jilawi
- Stephan Brooks
- William Mackelfresh
- Paramahansa Pramanik
- Hao Shen
- Qijing Yu

#### Dean’s Award
- Kyle Hanning (Math)
- Michael Hollander (Stats)

#### Director’s Award
- Wenhao Tang (Stats)

#### Chair’s Award
- Cassandra Mohr

#### Honorable Mention Graduates
- Allison Abels
- Anthony Barman
- Yu-Fang
- Heather Flynn
- David Garrison
- Brock Hutchinson
- Amanda Mutake
- Justin Neely
- Peter Sassman
- Nan Shen
Abel Prize News

The Abel Prize was established in 2002 by the Niels Henrik Abel Memorial Fund to recognize "contributions of extraordinary depth and influence in the mathematical sciences." (Abel is the name behind the term "abelian," which you may remember from your abstract algebra class.) Unlike the Fields Medal which has an (unwritten) rule of being awarded only to those under the age of 40, the Abel Prize is more analogous to the Nobel Prize. This year's award is especially noteworthy in that it was awarded to a woman mathematician for the first time: Karen Uhlenbeck. Her award cites “her pioneering achievements in geometric partial differential equations, gauge theory and integrable systems, and for the fundamental impact of her work on analysis, geometry and mathematical physics.”

More News

The department is pleased to announce that professor Yunier Bello-Cruz has been promoted to associate professor with tenure, effective this August. Yunier came to the department in 2006 from the Federal University of Goiás in Brazil. He received his Ph.D. from IMPA in Brazil and had a post-doctoral position at UBC in Canada. Professor Bello-Cruz is an expert in convex analysis and optimization and enjoys a worldwide reputation. This university promotion is a testament to his scholarship and promise for the future. Congratulations, Yunier!

Professor Bello-Cruz has had lots of good news this year. In addition to his successful tenure case, he also is a principal investigator on a three year research grant from the Illinois State Board of Education. Under the grant, dozens of primary and secondary educators from “high-need LEAs” will receive training in the instruction of mathematics. This grant and training also involves Distinguished Emeritus Teaching Professor Harvey Lau and Emeritus Professor Richard Blocksmith. In addition to two of our mathematics education graduate students, Peter Sassman and Kevin Shrock, Distinguished Emeritus Research Professor Anton Zettl has written a book, “Ordinary Differential Operators,” with coauthor A. Wang which is to be published by the American Mathematical Society.

William Speer, B.S. 1968, is the latest recipient of the Lifetime Achievement Award from the National Council of Teachers of Mathematics (NCTM). The prize citation states that Speer “has spent most of his life working to improve mathematics education,” including such work as being a member of the 1991 writing team that created the NCTM’s Professional Standards for Teaching Mathematics. James Waterman, B.S. 1976, was the winner of the Early Career Prize this year. Professor Bello-Cruz provided the keynote address at the Resonances of Complex Dynamics Workshop in Edinburgh last July. Rita Patel, Ph.D. 2013 won the Early Career Teaching award from the Illinois Section of the Mathematical Association of America. She received her award at the ISMAA meeting this last March in Carbondale.

25th Anniversary Alumni

Congratulations on the 25th anniversary of the class of 1994. Here is a listing of the class and their current hometowns. If you can update any information, we would appreciate your help.

Ms. Alma A. Contreras McHenry, IL
Ms. Denise Shaughnessy Cumming, GA
Ms. Alixa A. Schuenneman Columbus, OH
Ms. Matthew A. Harman Algonquin, IL
Ms. Martha M. Wenzel Schaumburg, IL
Ms. Qiping Shen Lake Mary, FL
Ms. Thomas G. Warren Tinley Park, IL
Professor Steven J. Kifowit Oswego, IL
Mr. Daniel P. Foster Fulton, IL
Mr. Daniel J. Hawkins Round Lake, IL
Ms. Ishitta Majumdar Fremont, CA
Professor Karthik Devaranjan Glendale, PA
Ms. Luanne Coble Depue, IL
Mrs. Luanam Harbaugh Saint Charles, IL
Mr. Scott J. Schlinger Oswego, IL
Professor Wenge Hao Pano, TX
Ms. Jennifer J. Anderson New Lenox, IL
Mr. Daniel J. Bahn Rockton, IL
Mr. Dave Black Austin, TX
Mr. Kevin R. Walz Phoenix, AZ
Mr. Daniel A. Gahan Chicago, IL
Mr. Stacy L. Ambrozich Oak Park, IL
Ms. Lauren S. Farn Statenisville, MT
Ms. Felicia B. Posner Des Plaines, IL
Mr. James J. Pardon Lake Zurich, IL
Mr. Jeffery J. Duckworth Sugar Grove, IL
Mr. Chad G. Johnson Rockford, IL
Ms. Stephanie A. Pederson Chicago, IL
Mr. Matthew A. Harman Algonquin, IL
Ms. Martha M. Wenzel Schaumburg, IL
Mr. Qiping Shen Lake Mary, FL
Ms. Ela Patel Laguna Hills, CA
Mr. Roger J. Steffen San Mateo, CA
Mr. Philip L. Hallstrom Phoenix, AZ
Ms. Mifumi C. Kim Libertyville, IL
Mrs. Jinghua Chen Buffalo Grove, IL
Ms. Kathryn Chavez Humden, CT
Ms. Koren M. Figura Waverly, IA
Mrs. Jennifer M. Pruyin Hurdley, NE
Mr. William T. Villalta Lombard, IL
Mr. Eden E. Carpenter Kanosha, WI
Mr. John D. Pyle Hanover, NH
Professor John R. Boardman Franklin, IN
Mr. Dale A. Pilut Lake Zurich, IL
Ms. Jennifer E. Rabig Plainfield, IL
Professor Sammar Choudary Cary, NC
Mr. Alex J. Wawnink Siberia Heights, IL
Mrs. Julie M. Ludwig Muscat, IL
Ms. Sharon Stewart Geneva, IL
Professor Sheryl L. Willis Platteville, WI
Ms. Christine M. Brown Dixon, IL
Mr. Mark A. Bussone Antioch, IL
Mr. Gregory R. Held Hinsdale, IL
Mrs. Carol A. Dyslin Tinley Park, IL
Mrs. Tammy L. Daugherty Plainfield, IL
Mr. H. Keith Dunnigan Collinsville, IL
Ms. Julie A. Matz Lockport, IL
Mrs. Laurie J. DeHerrera Colorado Springs, CO
Professor Elaine S. Rosenbloom Chicago, IL
Ms. April E. Risko Phoenix, AZ
Mrs. Lora DeWall Poplar Grove, IL
Mr. Gregg D. Kosleniak Woodridge, IL
Mr. Gregg F. Locher Graydale, IL
Mrs. Candy S. Burch Plano, TX
Mrs. Kyra A. Rider Sycamore, IL
Mr. David G. Burner Elgin, IL
Mr. Jeffrey H. Carnes Crystal Lake, IL
Mr. John R. Yetter Fishers, IN
Professor Craig A. Campbell Winlock, WA
Ms. Carrie L. Donnell La Salle, IL
Mrs. Lorri L. Orczykowski Aurora, IL
Mr. Hoi H. Jeong Northvale, NJ
Professor Haskiz Cinemre Bayburt, Turkey
Mr. Matthew J. Hayat Atlanta, GA
Mr. Daniel R. Hollowell Bourbonnais, IL
Mrs. Lindsay D. Buckle Prescott Valley, AZ
Ms. Netti Herawati Bandar Lampung, Indonesia
Professor Svetlana V. Butler Santa Barbara, CA
Professor Ayin T. Molefe Naperville, IL
Mrs. Gina S. Kahl Naperville, IL

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