Greetings! It's been awhile since we've shared the news of our department, but now is the time. There have been some changes in personnel and programs in recent years, but we are still in the same place (the Robert Bell Building) and we are still engaged in the work of educating students and doing research.

We currently have 22 tenure-line faculty members—10 mathematicians, 5 mathematics educators, 4 statisticians, and 3 actuaries. We also have 12 full-time and 6 part-time contract faculty members and some additional adjuncts. To learn more about these outstanding faculty members and the work of the department, please check out our department website: http://cms.bsu.edu/Academics/CollegesandDepartments/Math.aspx

The 2011-12 academic year was busy and productive in the Department of Mathematical Sciences. We awarded 14 bachelor’s degrees in actuarial science, 5 in mathematical sciences, and 11 in mathematics teaching. We also awarded 14 master’s degrees in actuarial science, 1 in mathematics, 8 in mathematics education, and 7 in statistics. In addition, we offered more than 180 sections of core curriculum and service courses for other majors.

We are grateful for the generous donations from alumni, friends, and companies which allow us to attract and support excellent students.

During the 2011-12 academic year we spent approximately $34,600 on our students in the form of scholarships, actuarial exam fee reimbursements, and travel support. Thank you so much for helping to make this investment in our students!

I hope you will enjoy reading the news about the department, students, faculty, and alumni on the following pages. We would be happy to hear from you, too. If you have any news you would like to share in an upcoming newsletter, please send me an email. In the meantime, I wish you well.

Sincerely,
Sheryl Stump
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Professors Publish Book

Beth Bremigan, Ralph Bremigan and John Lorch have published *Mathematics for Secondary School Teachers* (MAA Textbooks, 2011). The textbook is intended for prospective secondary school mathematics teachers. It provides a balance of discovery learning and direct instruction. Activities and exercises address the range of learning objectives appropriate for future teachers: beyond the obvious goals of conceptual understanding and computational fluency, users are invited to devise mathematical explanations and arguments, create examples and visual representations, remediate typical student errors and misconceptions, and analyze student work. Introductory discussion questions encourage students to take stock of their knowledge of pre-college topics. A rich collection of exercises of widely varying degrees of difficulty is integrated with the text. Activities and exercises are easily adapted to the settings of individual assignments, group projects, and classroom discussions.

Here is a brief description of *Mathematics for Secondary School Teachers*:

- Prospective mathematics teachers need mathematics courses that develop a deep understanding of the mathematics they will teach.
- It discusses topics of central importance in the secondary school mathematics curriculum, including functions, polynomials, trigonometry, exponential and logarithmic functions, number and operation, and measurement.
- Acknowledging diversity in the mathematical backgrounds of pre-service teachers and in the goals of teacher preparation programs, the authors have written a flexible text, through which instructors can emphasize any of the following
  - Basics: exploration of key pre-college topics from intuitive and rigorous points of view.
  - Connections: exploration of relationships among topics, using tools from college-level mathematics.
  - Extensions: exploration of college-level mathematical topics that have a compelling relationship to pre-college mathematics.

*The Integral* is published by the Ball State University Department of Mathematical Sciences.

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Emeritus Faculty

Dr. Mir Masoom Ali is a George and Frances Ball Distinguished Professor of Statistics Emeritus and Professor Emeritus of Mathematical Sciences at Ball State University. Dr. Ali joined the math department in 1969 and retired in 2007 after working 38 years as a professor. While at Ball State, Dr. Ali founded the Graduate Degree Program in Statistics in 1971. He is the recipient of many awards including Ball State Outstanding Researcher Award, Sagamore of the Wabash (the highest award of the State of Indiana), Qazi Motahar Husan Gold Medal, Islamic Society of Statistical Sciences Gold Medal, and 4 time recipient of the Meritorious Service Award.

Since his retirement, Dr. Ali has published 25 papers. One paper is accepted for publication and two are under review. He has completed another 8 papers to be submitted for publication after revisions and finalizations.

He organizes the Midwest Biopharmaceutical Statistics Workshop as a co-founder and a local arrangement chair every year. This workshop has been held annually on the Ball State campus for the last 35 years and is cosponsored by the American Statistical Association. It is considered the best and longest running statistical conference dealing with health and biopharmaceutical research.

In his retirement, Dr. Ali enjoys serving with several local volunteer organizations. Practicing Bengali songs and music has been a hobby since childhood that he continues to enjoy today.

Dr. Ali and his wife, Leena, have 4 children and 8 grandchildren.

Dr. John Beekman is a Lincoln National Corporation Distinguished Professor of Actuarial Science Emeritus at Ball State University. In 1963 after acquiring his PhD at the University of Minnesota, Dr. Beekman joined the department at Ball State University. Over the next 33 years he taught mathematics students at Ball State, taught actuarial students and performed research at the University of Iowa, and helped start the master’s and bachelor’s programs in actuarial science at Ball State University.

At the 2003 annual meeting of the Society of Actuaries, he was one of six long-time actuarial professors to receive a Presidential Award.

Last summer Dr. Beekman and his family spent a week in Yellowstone National Park. Pictured here are Ralph Kallman, retired BSU Math Professor; Karen Beekman Eden, B.S. in Math from BSU in 1983 and now associate professor at Oregon Health and Science University; Erika Eden and Matt Eden, Karen’s children; and John and Jane Beekman.

During his retirement Dr. Beekman has been studying the variability in the Indiana Statewide Testing for Education Progress (ISTEP) exams in Mathematics. He has worked alongside Dr. Dave Ober, physics department, Ball State University; Dr. Dale Umbach, math department, Ball State University; and Dr. Dave Grissmer, Rand Corporation and University of Virginia.

It was a pleasure to have Dr. Beekman back on campus this spring when he spoke to Bart Frye’s honors class about actuarial projections for Social Security.
Linda Barton retired at the end of the spring 2012 semester. She joined the department as an instructor in 1984, completed an EdD in educational administration in 2001, and was granted the title of Assistant Professor in 2009. Her new title is Instructor Emeritus. She plans to spend a lot of time with her beautiful new granddaughter who lives in New York.

Gary Dean was recently appointed chairperson of the Publications Management Board for the *Casually Actuarial Society*. In February and June 2011, he presented two webinars, “Copulas and Their Applications: Parts I & II” for the CAS. For six years he has helped facilitate a Travelers Insurance research assistantship. Each year, Gary works with a graduate student on applied proprietary research for Travelers.

Hanspeter Fischer presented “Word Calculus in the Fundamental Group of the Menger Curve” at Waseda University, Japan in June 2012. He presented “Generalized Cayley Graphs for Fundamental Groups of One-dimensional Spaces” at the *Geometric Topology Conference* in Dubrovnik, Croatia, and at the *Workshop on Topology of Wild Spaces and Fractals* in Strobl, Austria in July 2011.

Rich Stankewitz gave a plenary address, “Mobius Semigroup Dynamics and the Fibonacci Sequence,” at the 19th *International Conference on Finite or Infinite Dimensional Complex Analysis and Applications* in Hiroshima, Japan, in December 2011.

Michael Karls presented “Does the Wave Equation Really Work” at the *AMS-MAA Joint Mathematics Meetings* in Boston in January 2012. He also presented “Modeling a Diving Board” at the *MAA Math Fest* in Lexington, Kentucky, in August 2011.

Ann Leitze and 17 graduate students presented “Raise your Students’ Problem-Solving Skills” at the *Annual Meeting of the Indiana Council of Teachers of Mathematics* conference in Indianapolis in November 2011. Ann and former graduate student, Paula Keesling, also presented “Steers Need Hay for Winter” at the conference.

John Lorch, with Crystal Lorch, recently organized and facilitated the Yorktown Middle School Math Circle. John was recently appointed to the editorial board for the Mathematical Association of America Textbook Series. Also, he presented “Minimal Complete Groups for Magidoku” at James Madison University on May 16, 2012.

Kathryn Shafer and Mark Augustyn, a former BSU undergraduate student, presented “3-D Modeling with Google SketchUp” at the *Annual Meeting of the National Council of Teachers of Mathematics* in Philadelphia in April. Kathryn and Angela Greene, one of our graduate students, presented “Virtual Technology Training” at the same conference.

Amy Ward joined the department as administrative coordinator in February 2011. Our two new administrative assistants are Joel Bozell and Carol Deiwert. Susan Bourne, our administrative coordinator for many years, is now the graduation coordinator for the Graduate School. Trenda Whiteman, who served as our administrative assistant, has become the new administrative coordinator for the Office of Educational Excellence.

John Emert, department chair from 2005 to 2008, is now the associate dean of the Honors College. Dale Umbach, chair from 1997 to 2005, continues to be a professor and serves as the advisor for graduate students in statistics. Don Whitaker, chair from 1983 to 1997, retired from the university after serving as the director of the Office of Academic Assessment and Institutional Research from 2001 to 2010.

Whit Garnett, who retired from BSU as an Associate Professor Emerita in 1993, passed away on May 12, 2012.
Recent Publications


(Continued on Page 6)
In fall 2010, Sheryl Stump, department chair, and Rebecca Pierce, associate professor of Statistics as well as director of undergraduate programs, decided to rejuvenate the old “Undergraduate Colloquium” series by making it more “desirable” for undergraduate and graduate students. The series was renamed “Mathematical Pursuits: A Colloquium Series for Students.” The idea was to have the colloquium be “by students” and “for students.” For the past 3 semesters, the department has been working to accomplish this goal.

During spring 2011, five graduate students gave presentations based primarily on projects completed in Dr. Begum’s MATHS 689 class the previous semester. Each presentation was well received and attendance ranged from 7 to 16 undergraduate and graduate students.

This past academic year undergraduates have taken the lead in making presentations. Natalie Olivo, a junior actuarial science major, gave a presentation about her summer internship at CNA in Chicago. The title of her presentation was “The Best Summer Ever: What You Can Do with an Actuarial Science Education.”

Three senior mathematics education majors, Jennifer Frey, Kevin Grieshop, and Dan Riddell, gave a presentation about their experiences attending the Mathematics Education National Conference sponsored by the National Council of Teachers of Mathematics. The conference opened their eyes to the unlimited possibilities in teaching mathematics while also providing them the opportunity to know the professors on a more personal level.

Nicole Swallow and Ellen Weld, both completing majors in mathematics, attended a student conference held at Purdue University. Students were able to learn more about potential graduate opportunities. Nicole and Ellen shared what they learned about finding the graduate school that best fits you, creating a strong application, determining what qualities admissions panels want, and financing for one’s continued education.

During the spring semester, Ellen Weld gave a second presentation titled “Getting Involved: Undergraduate Mathematics.” Ellen discussed opportunities for undergraduate to become more involved in the Mathematics Department at Ball State. In particular, she offered some suggestions for how to work with professors directly on mathematical projects.

Grace Perdew and Angela Zeiger made the final presentation for the year, “The European Debt Crisis.” It was based on their honors thesis project with advisor Gary Dean.

We are very pleased with the initial interest and success from putting a new face on an old favorite! We look forward to updating you about presentations made in the future.
Ellen Weld, a Ball State University student, is among more than 280 students nationwide to receive a prestigious Goldwater Scholarship. She was selected on the basis of academic merit from a field of 1,123 mathematics, science and engineering students nominated by the faculties of colleges and universities around the country.

Weld is a senior in the Honors College, majoring in mathematics with a minor in Spanish. She plans to earn her doctorate in mathematics and wants to teach at the university level and conduct research in the branch of mathematics known as combinatorics. She is one of six Indiana college students receiving Goldwater Scholarships.

“It was truly an honor to be named a Goldwater Scholar,” Weld said. “I feel grateful to all the professors who helped me, and I am excited for the future.”

BSCTM

The Ball State Council of Teachers of Mathematics (BSCTM) is an organization consisting of mathematics teaching majors and elementary school math concentration students. BSCTM is a college affiliate of National Council for Teachers of Mathematics (NCTM). The group has 15-20 members each year and holds monthly meetings on a variety of topics related to the teaching and learning of mathematics.

In the fall semester, BSCTM organized a math game night for elementary students and their parents at a local school. This event was a first for BSCTM, and was thoroughly enjoyed by all who attended.

BSCTM’s annual student teacher panel was also a great success. Pre-service teachers are invited to speak about their student teaching experience, and former alumni talk about their first year as a classroom teacher. Members of BSCTM appreciate hearing about these experiences and thank all of those who have taken the time to speak with them.

If you are interested in learning more about the organization or would like to participate in future meetings, please contact us at BSCTM@bsu.edu.
Making a Difference

Your contribution is invaluable to the support of this department. The gift you make may benefit one or several of the accounts listed below. Thank you for your support of Ball State University’s Department of Mathematical Sciences.

- Funding for mathematical sciences programs - #5501
- Funding for actuarial sciences graduate programs - #5502
- Funding for the actuarial science program - #5506
- Steven D. & Debra L. Myers’ Actuarial Science Scholarship in Honor of John A. & Jane K. Beekman - #5516
- L. Harper Whitcraft Fund - #5517
- Dr. Mir Masoom Ali Scholarship - #5518
- Mathematical Sciences Scholarships - #5550
- Levi Shively Memorial Scholarship - #5551
- Higgins/Nelson/Robold/Kappes Mathematics Scholarship - #5552
- Edwards Memorial Scholarship - #5553
- Mr. & Mrs. Herman V. Hallett Memorial Scholarship - #5554
- Undergraduate Actuarial Science Scholarship - #5555
- Emma Whitlock Garnett Scholarship - #5556
- Harold J. Gale Scholarship - #5557
- D. W. Simpson & Co. Actuarial Science Scholarship - #5558
- Ramon L. and Vivian E Avila Scholarship - #5559
- John & Jane Beekman Actuarial Science Scholarship - #5560
- Steven & Debra Myers Actuarial Science Scholarship - #5561
- Otto W. Beebe Memorial Scholarship - #5563
- Swiss Re Actuarial Science Scholarship - #5564
- AEGON Actuarial Science Scholarship - #5565
- Ram Lal Seekri Endowed Scholarship - #5566
- CNA Foundation Exam Scholarship - #5568