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Math Department Newsletter, 2011

University of Dayton. Department of Mathematics

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CHAIRPERSON'S MESSAGE

Greetings to you, once again, from the Department of Mathematics. We have more award news to share this year. Dr. Shannon Driskell was the recipient of the College of Arts and Sciences Outstanding Teaching Award for 2010. We are very proud of Dr. Driskell and appreciate her contributions to the Department. Dr. Driskell enjoyed a sabbatical during the second half of the year, but was in the area and was able to attend the award ceremony.

The next bit of news is not really about an award, but is similar in nature. Dr. Wiebke Diestelkamp was elected president-elect of the Ohio Section of the Mathematical Association of America. We congratulate her on this distinction. We are sure that she will make some significant contributions to our mathematical community and are pleased to see that the Ohio Section is also sure of this.

As usual we had a number of students take the Putnam Examination this year. But for the first time we had three students score double digits on the test. Chester Lian scored 20, and Josh Craven and David Longshore both scored 10.

You can find more details about these events in other sections of this newsletter.

Next year Dr. Kimberly Kendricks, currently at Central State University, will join us for a one year visiting associate professor position. Dr. Kendricks applies Gröbner bases to robotics and the analysis of motion and is currently doing research at Wright Patterson Air Force Base.

We began implementing our minor in actuarial science this year. During the spring term we taught two new classes: Theory of Interest and the Actuarial Probability Seminar. The numbers of students in those classes were not huge, but we plan on growth. The minor has created quite a bit of interest among the students. There were even three economics/finance majors who talked to me about the minor this year and are planning on taking it. We are looking for ways to improve this and other aspects of our program and appreciate any suggestions.

Joe Mashburn

THANKS!

Thank you again for your generous support. As you read through the undergraduate and graduate activities sections, you can read about the activities you have supported this past year. You have helped support Math Events, Integration Bee, the High School Mathematics Competition, and undergraduate and graduate student travel. Your support is appreciated, and we purposefully use it to support the educational experience at UD.

The University Development Office reports that the following people donated a total of \$12,045.00 to the Department of Mathematics during 2010:

Ronald Beisel (63)	Melvin Kuhbander (56)
Tom Bohman (91)	Patrick MacVeigh (79)
James Booth (83)	Charles Mott (61)
David Brown (65)	Jane Pendergast (74)
Gregory Campbell (70)	Timothy Rice (88)
Paul Campbell (67)	Richard Segers (50)
Joseph Chmiel (69)	Robert Springer (77)
Kennon Copeland (75)	Kevin Thomas (76)
Paul Eloë	Daniel Voss (79)
Marla Gross (90)	Christopher Wagner (71)
Aparna Higgins	James Wiggenhorn (70)

The above total includes employee matching gifts from the following corporations and foundations:

Eli Lilly and Company
Fidelity Charitable Gift Fund
IBM Foundation

The Abbott Fund
The Procter & Gamble Fund

THE KENNETH C. SCHRAUT MEMORIAL LECTURESHIP FUND

The market value for the Schraut Memorial Scholarship Fund (49108) as of 3/31/11 was \$49,080. Thank you also for your continued generous support of the Kenneth C. Schraut Memorial Lectureship Fund. This year's lecture is scheduled for Saturday November 5, 2011. The Lecture will be held in conjunction with *Undergraduate Mathematics Day*. **Dr. Jeffrey Diller** (88) has agreed to serve as this year's lecturer. See <http://academic.udayton.edu/MathEvents/> for continual updates with respect to this year's Lecture and Seminar. Information should begin to appear following Labor Day.

The following individuals donated to the lectureship endowment during 2010:

Eugene Bolzan (69)	Leslie Kirchmer Iannarino (72)
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THE KENNETH C. SCHRAUT MEMORIAL SCHOLARSHIP FUND

The market value of the Kenneth C. Schraut Memorial Scholarship Fund as of 3/31/2011 was \$138,238.00. The scholarship is handled by the Office of Scholarships and Financial Aid; currently the scholarship is offered to a third year math major.

The following individuals donated to the scholarship fund during 2010:

Richard Kelly (44)
Eugene Steurle (68)

William Scharf (68)
Larry Woerner (76)

MATH EVENTS AT UD

Through generous contributions to the Kenneth C. Schraut Memorial Lectureship fund and to the department's restricted funds, our alumni have enabled us to host the annual *Math Events* which features the Kenneth C. Schraut Memorial Lecture. Since 2002, the Schraut Lecture has anchored *Math Events* annually. In even-numbered years, we hold the Biennial Alumni Seminar, and in odd-numbered years, we organize Undergraduate Mathematics Day, a conference for undergraduate students.

THE 11th ANNUAL KENNETH C. SCHRAUT MEMORIAL LECTURE, 11/6/2010

Dr. Eugene Steuerle (68), Institute Fellow and Richard B. Fisher Chair of The Urban Institute, delivered the 11th annual Kenneth C. Schraut Memorial Lecture. **Courtney Castle** (11), Math Club Treasurer, provided introductory remarks and introduced Gene. Thank you, Courtney.

Gene spoke on "Every Time I Turn Around There's Dr. Schraut or You Can't Take Mathematics out of a U.D. Math Major." Actually there is a story behind this title. Gene had sent two possible titles; the seminar organizers failed to recognize that. Regardless, Gene presented many examples of mathematics and statistics impacting major public policy debate. On the preceding Friday, he served as an invited guest speaker in POL 350, Legislative Politics, a course that is taught by former Governor Robert Taft.

THE 24nd BIENNIAL ALUMNI SEMINAR ON CAREERS IN MATHEMATICS, 11/6/2010

The Biennial Alumni Seminar continues and thrives. The Career Panel followed Dr. Steuerle's lecture. **Megan Miller** (11), vice-president of Math Club, chaired the panel session introducing each panelist to the audience. Thank you, Megan.

The following careers were represented in the Break-Out sessions: Statistics, Actuarial Science, Business, Government, Engineering, High School Teaching and College Teaching. These careers were represented by the following Career Panelists:

Statistics:

Joanne Sklodowski (05), Statistician, Eastman Chemical Company
Marla Gross (90), Senior Statistician, P & G

Actuarial Science:

Steve Hodges (77), Nationwide

Business:

Robert A. Nero (68), President & CEO, Sircon Corporation

Government:

Robert Karkoska (73), National Security Agency

Eugene Steuerle (68), Institute Fellow and Richard B. Fisher Chair, The Urban Institute

Engineering:

Vincent Velten (82), Chief, Assessment & Integration Branch, Air Force Research Laboratory

High School Teaching:

Laura Elo (84), Religion and Mathematics teacher, Chaminade Julienne High School

College Teaching:

Anthony Ponder, Chair, Department of Mathematics, Sinclair Community College

Lynne Yengulalp, Department of Mathematics, University of Dayton

Thank you to all who participated in this year's Career Seminar. Moreover, thanks to all of you who continue to be interested in UD students and a continued thank you to Doc Schraut.

INVITATION TO MATH EVENTS 2011 ON SATURDAY, NOVEMBER 5, 2011

You are invited to participate in *Math Events 2011*, which will take place on Saturday, November 5, 2011. This year's program will consist of the *12th Annual Kenneth C. Schraut Lecture* and the *5th Undergraduate Mathematics Day*, an undergraduate mathematics conference. We are pleased to announce that **Jeffrey Diller** (88) a professor in the Department of Mathematics at Notre Dame will serve as this year's Schraut Memorial Lecturer. **Sara Miner More** (96), a faculty member in the Department of Computer science at McDaniel College has accepted our invitation to deliver an invited address. Planning is still quite premature, but you will be able to keep up with details at <http://academic.udayton.edu/MathEvents/>.

FACULTY UPDATE

Full Time Faculty

Atif Abueida, 2000

Art Busch, 2006

Wiebke Diestelkamp, 1998

Shannon Driskell, 2003

Paul Elo, 1980

Bob Gorton, 1969

William Harrison, 2009

Aparna Higgins, 1984

Peter Hovey, 2001

Muhammad Islam, 1985

Virginia Keen, 2007

Becky Krakowski, 2000

Ruihua Liu, 2004

Joe Mashburn, 1981

Shirley Ober, 1977

Maher Qumsiyeh, 2008

Youssef Raffoul, 1999

Paula Saintignon, 1983

Gerry Shaughnessy, 1967

Julie Simon, 2010

Les Steinlage, 1969

Muhammad Usman, 2007

Lynne Yengulalp, 2009

Part Time Faculty

Lisa Alexander, 2010
Karen Connair, 2010
Cheryl Edelmann, 1999
Robert Finnegan, 1985

Bob Flavin, 2008
Steve Fuchs, 2005
Susan Holloway, 2011
John Loomis, 2007

Scott Mitter, 2001
Rusty Rizzotte, 2007
Donovan Ross, 2008

Professors Emeriti

Stanley Back, 1998
Bill Friel, 1999
Tom Gantner, 2001
John Kauflin, 2006

Jack McCloskey, 2001
Harry Mushenheim, 2006
Jerry Neff, 1999
Richard Peterson, 1998

Ben Rice, 1998
Carroll Schleppe, 2001
Ralph Steinlage, 2001
Jerry Strange, 1999

FACULTY ACTIVITIES

Atif Abueida co-authored (with **Art Busch** and **R. Sritharan** (CPS)) "A min-max property of chordal bipartite graphs with applications," *Graphs and Combinatorics*, 26 (2010), 301-313, (with **Mark Nielsen** (BIO) and Tin-Yau Tam) "Inverse spread limit of a nonnegative matrix," *Proyecciones Journal of Mathematics*, 29 (2010), No. 2, 109-122, (with **Christian Hampson** (05)) "Multidecomposition of K_n -F into Graph-Pairs of Order 5 where F is a Hamilton Cycle or (almost) 1-Factor" *Ars Combinatoria*, 97 (2010), 399-416, and (with Mike Ackerman and Sul-Young Choi) "Centrality and anticentrality" *Dimacs Educational Modules Series*, Module 08-3 (2010).

Arthur Busch co-authored (with **A. Abueida** and **R. Sritharan**) "A min-max theorem on a class of bipartite graphs and its applications," *Graphs and Combinatorics*, 26 (3), 301-313, (with D. Brown and G. Isaak) "Linear Time Recognition Algorithms and Structure Theorems for Bipartite Tolerance and Probe Interval Graphs" *Discrete Mathematics and Theoretical Computer Science* 12(5), 63-82, (with G. Chen and M.S. Jacobson) "Transitive Partitions in Realizations of Tournament Score Sequences" *Journal of Graph Theory* 64(1), 52-62, and (with F. Dragan and **R. Sritharan**) "New Min-Max Theorems for Weakly Chordal Graphs and Dually Chordal Graphs" (vol. 6509, pp. 207-218), Kailua-Kona, HI: *Proceedings of the 4th Annual International Conference on Combinatorial Optimization and Applications* (W. Wu and O. Daescu (Ed.)), *Lecture Notes in Computer Science*. This last article was based on a presentation of the same title at the 4th Annual International Conference on Combinatorial Optimization and Applications. Dr. Busch also presented "Potential Ramsey Numbers" at the 24th Midwestern Conference on Combinatorics, Cryptography, and Computing held at Illinois State University in September 2010.

Wiebke Diestelkamp continued her activities in the area of statistical consulting. She was the project statistician for two contracts funded by Ethicon Endo-Surgery, "Assessing the Feasibility of Intraluminal Ultrasonic Tissue Welder" and "Assessing the effect of device geometry and load curve on the efficacy of an experimental bipolar radio frequency (RF) surgical device;" PIs Carissa Krane (BIO) and Margaret Pinnell (MAE). She was a PI (with Carissa Krane and Margaret Pinnell) on the funded LEADER mini-grant "Assessing the viscoelastic properties of porcine arteries: an integrated approach."

The team of PIs consisting of Wiebke, John Prather (Ohio University Eastern) and Christopher Swanson (Ashland University) obtained a programming grant from the MAA titled "Expanding the participation of two-year college faculty in Ohio NExT." In March 2011, Wiebke was elected President-Elect of the Ohio Section of the Mathematical Association of America. She also continues her work as Equity Advisor for the LEADER Consortium (funded by NSF ADVANCE) to improve the recruitment, retention and advancement of women in STEM fields at the four consortium institutions.

Shannon Driskell, along with P.E. Doepker of Mechanical Engineering and several students at the University of Dayton, received a patent for a "Polygonal Device for Kinesthetic Learners". She also co-authored (with R.N. Ronau, C.R. Rakes, M.L. Niess, L. Wagener, D. Pugalee, C. Browning, and S. Matthews) "New directions in the research of technology-enhanced education", and chapter in "Technology leadership in teacher education: Integrated solutions and experiences (J. Yamamoto, C. Penny, J. Leight, and S. Winterton, eds.) published by IGI Global. She co-presented (with C. Johnston, C. Browning, S.R. Harper, S.A. Ozgun-Koca, S.M. Matthews, and O. Kosheleva) "Developing teachers' mathematics TPACK: Shocasing exemplary technology tools and their uses in mathematics education" in a workshop at the Association of Mathematics Teacher Educators 14th Annual Conference in January 2010.

Paul Eloe co-authored (with R.A. Khan) "Uniqueness conditions for a class of nonlocal boundary value problems," Pan American Mathematical Journal, 20 (2010), No. 1, 51-57, (with N. Asif and R.A. Khan) "Positive solutions for a system of singular second order nonlocal boundary value problems," Journal of the Korean Mathematical Society, 47 (2010), no. 5, 985—1000, and (with B. Ahmad) "A nonlocal boundary value problem for a nonlinear fractional differential equation with two indices (with Bashir Ahmad)," Communications on Applied Nonlinear Analysis, 17 (2010), No. 3, 69–80.

Aparna Higgins began a five-year term as Director of Project NExT (New Experiences in Teaching), a professional development program of the MAA for new Ph.D.s in mathematics. Aparna is responsible for all aspects of the program, including policy, budget, programming, selecting the Fellows and heading the leadership team. She finds the work interesting and challenging. Aparna presented her annual workshop on undergraduate research to the Project NExT Fellows at Mathfest in Portland and again as an MAA minicourse with Joe Gallian at the Joint Mathematics Meetings in San Francisco. At Mathfest in August, Aparna presented "Directing Undergraduate Research - Issues Beyond Solving the Mathematical Problem" in an Invited Paper Session. Aparna was an invited speaker in November at the Conference on Undergraduate Research in Mathematics, Pennsylvania State University, in March at the Spring Research Conference, Center for Undergraduate Research in Mathematics, Brigham Young University, in April at the Undergraduate Conference, University of Tennessee, and in May at Kenyon College's Spring Mathematics Banquet which included their Pi Mu Epsilon initiation ceremonies. Aparna continues to serve on the Advisory Boards of the Young Mathematicians Conference series at Ohio State University and CURM (Center for Undergraduate Research in

Mathematics), located at Brigham Young University. At UD, Aparna served on the Natural Sciences Working Group for the Common Academic Program.

Peter Hovey enjoyed a year-long leave at the Air Force Academy. He also co-authored (with D. Eustace and V.G. Griffin) “Analyzing the Effects of L.E.D. Traffic Signals on Urban Intersection Safety” *ITE Journal* 80(4) 22-27, (with M. Chowdhury, Y. Zhou, and R. Fries) “Evaluating the safety performance of adding a two-way left-turn lane to an undivided cross-section” *Journal of Public Works & Infrastructure* 2(3) 360-373, and (with M. Li and W. Meeker) “Using a Bayesian Model to Jointly Estimate the Flaw Size Distribution and the Pod Function” *Review of Progress in Quantitative Nondestructive Evaluation*. He also presented “Are Some Vehicle Colors Safer than Others?” at the Joint Statistical Meetings in August 2010.

Muhammad Islam co-authored (with graduate students **Nasrin Sultana** (11) and **James Booth** (11)) “Periodic solutions of neutral delay integral equations of advanced type” *Electronic Journal of Differential Equations* 2010 (170), 1-8. He presented “Neutral delay equations of advanced type and periodic solutions” at the 7th International Conference on Differential Equations and Dynamic Systems in December 2010, “Periodic solutions of Volterra type equations with finite delay” at the 4th International Conference on Neural, Parallel & Scientific Computations in August 2010, “Periodic solutions of integral equations with delay” at the Izmir Economics University Colloquium Series in Izmir Turkey in July 2010, and “Almost linear Volterra integral equations and existence of bounded solutions” at the Southeastern Atlantic Regional Conference on Differential Equations in October 2010.

Virginia Keen published “Creating Children’s Books and Learning Mathematics” in the *Ohio Journal of School Mathematics* Spring 2010 (61) and “Using Digital Video to Strengthen Student Learning of Mathematics” *The Mathematics Education into the 21st Century Project* (A. Rogerson, editor, 10th Edition) pp. 620-625. She also presented “Meaningful Mathematics Teaching (and Learning) through Content-Video Creation” at *ALTC Leadership 2010: Sharing Mathematics and Statistics Resources Symposium* in February 2010.

Becky Krakowski was awarded an Improving Teacher Quality Grant by the Ohio Board of Regents for “Mathematics, Life and Physical Science Professional Development Program 4-12 Grade Teachers”.

Ruihua Liu published a review of the book “Hybrid Switching Diffusions: Properties and Applications” by G.G. Yin and C. Zhu in *IEEE Control Systems Magazine* 30 pp. 74-75. He also published “Regime-switching recombining tree for option pricing” in the *International Journal of Theoretical and Applied Finance* 13(3), 479-499.

Maher Qumsiyeh presented “Comparison Between the Bootstrap and the Empirical Edgeworth Expansion” at the Dayton Chapter of the American Statistical Association in April 2010.

Youssef Raffoul published “A note on Stability and periodicity in dynamic delay equations” in *Computer and Mathematics with Applications* 59(10), 3351-3354, “Asymptotic Behavior of Solutions of a Class of Nonlinear Difference Systems” in the *International Journal of Difference Equations* 5(1), 103-112, “Existence of resolvent for Volterra integral equations on time scales” in the *Bulletin of the Australian Mathematical Society* 82(1), 139-155, “Exponential stability in functional dynamic equations on time scales” in *Communications in Mathematical Analysis* 9(1), 93-108, “Positive Periodic Solutions in Neutral Delay Difference Equations” in *Advances in Dynamical Systems and Applications* 5(1), 123-130, and “Functional Differential Equations on Periodic Time Scales with Application to Population Models” in *Functional Differential Equations* 17(1-2)113-121. He also presented “Inequalities that lead to exponential and instability in delay difference equations” at the AMS Regional Meeting at Syracuse University in October 2010, “Inequalities and exponential stability and instability in finite delay Volterra integro-differential equations” at the 4th International Conference on Neural, Parallel and Scientific Computations in August 2010, and “Exponential stability and instability in finite delay nonlinear Volterra integro-differential equations” at the AMS Regional Meeting at Macalester College in April 2010.

Muhammad Usman co-authored (with S. Haq, N. Bibi, and S.I.A. Tirmizi) “Meshless method of lines for the numerical solution of generalized Kuramoto-Shivashinsky equation” in *Applied Mathematics and Computation* 217(6), 2404-2413, (with M.M. Hosseini, S.T. Mohyud-Din, and H. Ghaneai) “Auxiliary Parameter in the Variational Iteration Method and its Optimal Determination” in the *International Journal of Nonlinear Sciences and Numerical Simulation* 11(7), 495-501, (with S.T. Mohyud-Din) “An iterative algorithm for nonlinear BVP’s using Pade approximations” in *World Applied Sciences Journal* 10(6), 637-644, (with S.T. Mohyud-Din, A. Yildirim, S.A. Sezer) “Modified Variational Iteration Method for free-convective boundary-layer equation using Pade approximation” in *Mathematical Problems in Engineering* 2010 (11). He presented “Development of interdisciplinary mathematical biology course curriculum and laboratory” at *Biomathematics and Ecology: Education and Research* at Illinois State University in September 2010.

Lynne Yengulalp authored "Coarser connected metrizable topologies", *Topology and its Applications* 157 (2010) 2172 –2179. She presented “Coarser connected topologies” at the Spring Topology and Dynamics Conference at Mississippi State University in March, 2010.

AWARD CITATION

We are very pleased to announce that **Dr. Shannon Driskell** has received the 2010 Faculty Award for Outstanding Teaching in the College of Arts and Sciences. The citation for the award follows.

**Citation for Shannon Driskell
2010 Faculty Award for Outstanding Teaching, College of Arts and Sciences
April 1, 2011**

The 2010 faculty award for outstanding teaching in the College of Arts and Sciences is granted to Shannon Driskell, Department of Mathematics.

Dr. Driskell is a specialist in mathematics education. Hired in 2003 she was recruited to teach a number of mathematics content courses for pre-service education students, participate in the development of new curriculum and degree programs at both the undergraduate and graduate levels, and distinguish herself as a scholar and colleague. Her accomplishments to date and the award she is receiving today clearly demonstrate that she has met all of these expectations and a few new ones.

We'll first focus on her teaching. To paraphrase one of my colleagues in math known for his understatement, "the mathematics courses can be some of the most challenging courses to teach. The audience often arrives in an unappreciative mood and can be highly critical of the approach taken by the instructor and the methods used to convey the material".

While that may be true, evaluations from her peers, her students, and her colleagues at other universities all agree that Shannon has created a rich learning environment in her classroom where students learn at all levels. In her time at UD she has taught MTH – 114, 204, 205, 214, 215, 266, 270, 295, 512, 514, 517, and 541. For her pre-service teacher education students they get a student's perspective of what works and doesn't work and that will aid them tremendously when they acquire their own classroom. At the graduate level, a student who is a product of the new graduate curriculum she helped develop along with her colleague Becky Krakowski - the Masters in Mathematics Education – indicated the following : "The courses were challenging and yet extremely practical for an educator. It was only after reflecting upon the whole experience that I fully appreciate all that I have learned and the support I have received. After each of Dr. Driskell's courses I returned to my own classroom ready to apply much of the knowledge I gained from her classes. She strongly reinforced many of my pedagogical beliefs about learning and provided new insights into my classroom. "

Now on to her scholarship. One of her mentors and external reviewers sums it up, "She demonstrates clearly how teaching and scholarship need not be separate tasks of the professorate but rather should complement each other". Shannon's scholarship and teaching are expertly blended. She is a frequent author in her discipline's premier journal - *Mathematics Teacher* and her publications play the enormously important role of interpreting research findings in a manner that influences the practice of teaching mathematics. Finally, additionally (amazingly), Shannon has also entered the classroom technology arena. She worked with Phil Doepker from the School of Engineering and several groups of his students, and then again with Dr. Han in the School of Law and a group of law students to develop and patent a manipulative for the math classroom (a manipulative in a math classroom is a concrete object that allow students to explore an

idea in an active, hands-on approach – these can be blocks, shapes, spinners or even cut or folded paper) She now has a patent on a *polygonal device for kinesthetic learners* – the commercial name for this product is still I hope SHAPE SHIFTERS.

In the words of yet one more of her external academic fans, “Dr. Driskell is among what I would consider an elite group of young scholars who provides great leadership in the uses of technology for teaching mathematics and is among the most accomplished young authors and thinkers writing about technology and mathematics.”

For these accomplishments, the College of Arts and Sciences is pleased to present the 2010 Outstanding Teaching Award to Shannon Driskell.

SERVICE TO MATHEMATICS COMMUNITY

Wiebke Diestelkamp was elected President-Elect of the Ohio Section of the mathematical Association of Ohio. She joins **J. William Friel**, **Thomas Gantner**, and **Aparna Higgins** as the fourth UD faculty member to serve in that role. Information published at the time of her nomination can be found in the Ohio Focus, the newsletter of the Ohio Section of the MAA (page 14). The newsletter is online at <http://www.jcu.edu/math/OhioFocus/FocusSpring2011.pdf>

ACTIVITIES OF UNDERGRADUATE STUDENTS

The **Math Club and Pi Mu Epsilon Chapter** of the University of Dayton (<http://academic.udayton.edu/mathclub/>) was very active this year. The officers were **Joshua Cain** (Math Club President), **Josh Craven** (PME President), **Megan Miller** (Vice-President), **Katie Esselstein** (Secretary) and **Courtney Castle** (Treasurer). **Maher Qumsiyeh** served as the faculty advisor for Math Club and **Lynne Yengulalp** served as faculty advisor for Pi Mu Epsilon. As usual, the Math Club and Pi Mu Epsilon met together and regularly this year. This year the traditional Math Club picnic was held at Art Street, an innovative learning and living arts complex located in the heart of the South Student Neighborhood at the University of Dayton.

Elections for officers for 2011-12 resulted in **Alyssa Lesko** being elected President of the Math Club, **Danielle Bott** elected as PME President, **Lydia Kindelin** elected as Vice-President, **Sara Jordan** elected as Secretary, and **Christina Haas** elected as Treasurer.

Remarkably, Math Club organized and hosted the **15th annual High School Mathematics Contest**. This tradition was initiated by **Andrew Hetzel** (98) when he served as Math Club President. The key feature has been that Math Club administers this contest with minimal faculty involvement. This year, 29 teams representing 6 different schools participated. The winners were:

1st Place: Team 5, Walnut Hills High School, Cincinnati, Ohio

2nd Place: Alpha Omega, Carroll High School, Beavercreek, Ohio

3rd Place: S^3 , Walnut Hills High School.

Paula Saintignon gave a presentation to the participants during lunch and she spoke on Fractals.

The sixty-ninth annual **William Lowell Putnam Competition** was held on the first Saturday of December. Seven students, **Andres Calvo, Josh Craven, Joshua Galecki, Chester Lian, David Longshore, Zi Ouyang,** and **Erik Vasilauskas** participated. We congratulate Chester who scored 20 and Josh Craven and David Longshore, who each scored 10.

We conducted formal induction ceremony for Pi Mu Epsilon, the national mathematics honorary society on Wednesday April 27th. The ceremony was quite nice this year. It included a banquet dinner and a presentation by **Aparna Higgins** on Applications of the Pebbling Problem. This year's inductees are:

Brian Bradley, Sara Jordan, Lydia Kindelin, Alyssa Lesko, Chester Lian, Brandon Strohminger, and Brandon Williams.

THE STANDER SYMPOSIUM

The **Stander Symposium** is a very special event at UD. We can't really even characterize the dates this year. It was advertised as a two week event. The Integration Bee and the posters sessions were held on Wednesday April 13. Student presenters included:

- **Joshua Cain**, Coarser Pathwise-Connected Topologies of Metric Spaces
- **Giacomo Flora**, A Numerical Study of In Vitro Inhibition of Mutation of Cancer Cells Using Two Different Methods
- **Kraig Kirchner**, Estimation Methods for Missing Data Points in 2^k Factorial Designs.
- **Chester Lian**, The Decompositions of Complete Graphs into Cycles and Stars
- **Nasrin Sultana**, Periodic Solutions of Neutral Delay Integral Equations of Advanced Type
- **Yi Zhao**, Maximizing Social Welfare in a Stackelberg Duopoly Game

Integration Bee has become a popular event during the Stander Symposium. **Art Busch** again organized this year's Bee and served as host for the event that was held in Chudd Auditorium. More than 45 teams consisting of more than 120 students participated this year. First place went to the team, "we got the smart kid"; this team contained math majors. Second place went to the team, "ID", which also contained a math major.

THE HONORS STUDENTS SYMPOSIUM

In recent years, the University Honors Program has been hosting the Honors Students Symposium. This year it was held on Friday afternoon, March 11, 2011. In the Stander Symposium, the vast majority of the students present their work in the form of a poster.

In the Honors Students Symposium, students present their work in the form of fifteen minute talks. This year four math majors participated.

James A. Benze, *Robotic Dancing: Exploring Agents with a stratified Perceive-Decide-Act Cycle*

Joshua Cain, *Coarser Pathwise-Connected Topologies of Metric Spaces*

Courney Castle, *Advance Spatial Audio Cuing for Large-Screen Displays*

Yi Zhao, *Using Game Theory to Maximize Social Welfare*

AWARDS

The co-recipients of the 2011 Faculty Award for Excellence are **Joshua Cain** and **Yi Zhao**.

The recipient of the 2011 Award of Excellence in Support of Mathematics is **Josh Craven**.

The recipient of the 2010 Pi Mu Epsilon Award is **Lydia Kindelin**. This is an award for excellence among second year students in mathematics.

The 2010 Brother Joseph W. Stander, S.M., Award of Excellence in Mathematics Education recipient is **Erica Beebe**. This award for excellence goes to a graduating senior in the teacher licensure program with a principal teaching field in mathematics.

Double majors, winning awards in their other majors include:

Courtney Castle, recipient of the Charles E. Kimble Research Award for research excellence in psychology;

Kara Wurzelbacher, recipient of the Brother Louis J. Faerber, S.M., Award of Excellence to the Outstanding Student in Adolescence to Young Adult Education;

James Benze, co-recipient of the Chair's Award for Excellence in Computer Science.

PLANS OF RECENT GRADUATES

Josh Cain will enter a Ph.D. program in mathematics at Purdue University.

Courtney Castle will enter a Ph.D. program in Educational Research, Measurement and Evaluation at Boston College.

Josh Craven will enter the M.S. program in applied mathematics at the University of Dayton.

Phil Erford is participating in an ETHOS project in Togo in West Africa through the School of Engineering. Ethos stands for Engineers in Technical and Humanitarian Opportunities of Service Learning; more information can be found at <http://ethos.udayton.edu/>. He will be helping to build a school and tutoring mathematics and English. Upon returning to the states he will be employed by Beta Theta Pi.

Nick Haynes (Physics) will enter the M.S. program in applied mathematics at the University of Dayton.

Megan Miller is employed as a civilian at Wright Patterson Air Force Base. She intends to continue studying in a graduate program in operations research at AFIT.

Yi Zhao will enter a Ph.D. program in Environmental Earth Systems Science at Stanford University.

PLANS OF CURRENT STUDENTS

Lydia Kindelin, recipient of the 2010 Pi Mu Epsilon Award, will participate in a Research for Undergraduates (REU) program at Miami University this summer.

ACTIVITIES OF GRADUATE STUDENTS

Abdelmalik Al Twaty (Aug 11) earned the MAS degree. He worked with **Paul Eloe** and wrote a math clinic project entitled “Applications of Leggett-Williams type fixed point theorems.”

Craig Birkemeier (May 11) earned the MAS degree. He worked with **Jack Kanet** of the Department of MIS, Operations Management & Decision Sciences and wrote a math clinic project entitled “Effect of Dominance Theorems on the Single-Machine Weighted tardiness Problem.”

James Booth (Dec 10) earned the MAS degree. He worked with **Muhammad Islam** and wrote a math clinic project on “Periodic solutions of neutral delay integral equations of advanced type.” This work has been published (with co-authors **Muhammad Islam** and **Nasrin Sultana**) in the Electronic Journal of Differential Equations, Vol. 2010 (2010), No. 170, pp. 1-8.

Kraig Kirchner (May 11) earned the MAS degree. He worked with **Maher Qumsiyeh** and wrote a math clinic project entitled “Estimation Methods for Missing Observations in Unreplicated 2^k Factorial Designs and 2^{k-p} Fractional Factorial Designs. Kraig is employed as a Research and Development Analyst for Progressive Insurance in Cleveland.

Weidong Li (May 11) earned the MFM degree. He worked with **Ruihua Liu** and wrote a math clinic project on “How to Use Upper and Lower Solutions to Solve the Double

Barriers Option Problem.” Weidong will return to his hometown where he will resume working for a company from which he took a leave to earn this master’s degree.

Schautan Reed (May 11) earned the MFM degree. She worked with **Paul Eloe** and wrote a math clinic project entitled “Crystal Ball.” Schautan is employed as an Investment Cost Analyst at Wright Patterson Air Force Base.

Todd Schneck (Dec 10) earned the MFM degree. He worked with Leslie McNew of the Department of Economics & Finance and wrote a math clinic project on “Natural Gas Transportation: The Real Option.”

Nasrin Sultana (Dec 10) earned the MAS degree. She worked with **Muhammad Islam** and wrote a math clinic project on “Periodic solutions of neutral delay integral equations of advanced type.” This work has been published (with co-authors **James Booth** and **Muhammad Islam**) in the Electronic Journal of Differential Equations, Vol. 2010 (2010), No. 170, pp. 1-8.

Chuanjie Zhang (May 11) earned the MFM degree. He worked with **Carl Chen** of the Department of Economics & Finance and wrote a math clinic project entitled “Idiosyncratic Risk and the Cross Section of Stock Returns – A Quantile regression Approach.” Chuanjie has returned to his hometown; he intends to continue his academic study in finance.

Jialin Zhao (Aug 11) earned the MFM degree. She worked with **Ruihua Liu** and wrote a math clinic project on “A Lattice Method for Option Pricing with Two Underlying Assets in a Regime-Switching Model.”

Shandi Zhao (Aug 11) earned the MFM degree. She worked with **Carl Chen** of the Department of Economics & Finance and wrote a math clinic project on “Mutual Fund Governance and performance: Logistic and ordinary Least Squares Regression Analysis on Morningstar’s Sharpe Ratio.”

Wenyi Zhao (Aug 11) earned the MFM degree. He worked with **Carl Chen** and **Ti Zhang** of the Department of Economics & Finance and wrote a math clinic project on “Political Connection and Stock return.”

ALUMNI NEWS

Larry Woerner (76) was honored by the University of Dayton on Friday May 6, 2011. The baseball facility along I 75 is now called Woerner Field at Time Warner Cable Stadium. In addition to going through the rigors as a math major at UD, Larry pitched for the Flyers.

Matt Davison (89) lives in Springboro is employed by Elsevier Publishers. Although Elsevier is headquartered in Amsterdam, Matt works with a group near the Dayton Mall where they work to put Elsevier journals and book holdings on-line. We have comics posted on the office bulletin board; it appears that Matt is a source for some of these.

Steve Goodman (95) lives in Northbrook Illinois with his wife, Loren, and three kids (who all like math!). For the past nine years, Steve has been teaching at Glenbrook North

High School. Steve worked as an actuary and earned a masters degree in statistics before deciding to commit to education. He also holds a masters degree in education.

Geoff Dietz (00) is currently at Gannon University in Erie, PA, where he earned tenure and promotion to Associate Professor. He and Amber (00, BS CHM) and the three kids are doing well, with his 5-year-old showing signs of becoming a mathematician. Geoff can be reached at <dietz005@gannon.edu>

Gayatri Gunda (04) earned a DMD degree from the Harvard School of Dental Medicine (HSDM) in 2009. She received the inaugural Shklar Award during the HSDM commencement reception. Sue Shklar initiated the award in honor of her husband. It is presented to a graduating student who has excelled in academics and demonstrated talents in humanitarian fields such as literature, art, music, and/or public service and volunteerism during predoctoral academic years. Gunda received this award for her deep concern, compassion, and care for the plight of underserved children.

Suzanne Dietz Quinter (04) received her MD from the Medical College of Ohio in 2008 and is currently half way through her dermatology residency at the Medical College of Wisconsin in Milwaukee, Wisconsin.

George Eckerd (07) is currently working in civil service as an international economist with the Treasury Department in Washington, D.C.

Jeff Neugebauer (06, 08) has earned a Ph.D in mathematics from Baylor University and he has accepted a tenure track position at Eastern Kentucky University beginning in the fall term, 2011. He has already accepted an invitation to deliver a colloquium at UD next fall.

Lu Ee Peh (10) and **Cheuk Wai (10)** sent us photos of their wedding last fall. They are both employed by Zurich Insurance and work in Schaumburg Illinois.

Charlie Suer (10) just dropped us a note announcing his upcoming wedding to his fiancée, Erin. Erin and Charlie are both graduate students at the University of Louisville where Charlie continues his study of mathematics.

OBITUARY

Darrell (Dick) Horwath (62) passed away on February 21, 2011 in Cleveland Ohio. Upon graduating from the University of Dayton, Dick began graduate study at the University of Wisconsin, where he specialized in group theory. After beginning his teaching career at the University of Wisconsin-Whitewater, Dick joined the faculty of John Carroll University in 1970, retiring in 2007 with the honorary title of Assistant Professor Emeritus. While at JCU, Dick taught many different mathematics courses, but most enjoyed teaching calculus, statistics, abstract algebra and linear algebra. In addition, Dick was an avid problem poser and problem solver, and served on the Advisory Panel for the American Mathematics Competitions.