Newsletter for the Wittenberg University Department of Mathematics and Computer Science

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VIEW FROM THE DEPARTMENT CHAIR

PMGFIELD

As we wrap up another year in the department, we have yet more personnel changes to reflect on. Congratulations first of all to Adam Parker on securing tenure and promotion to Associate Professor. Getting tenure is by far the biggest and most important personnel decision in the career of any faculty member. Way to go, Adam!

You might recall from the last issue that this year saw the departure of Eric Stahlberg, the amazing force behind the institution's way-cool, interdisciplinary Computational Science program for the past several years. We eagerly await the arrival of the new provost this summer, so that we can work with him to help chart a course for computational science at Witt for the future. In part to help cover some of the courses that Eric taught for our department, we got permission to hire a full-time visiting professor for the next two or three years. As in most other sectors, the academic job market is very tight right now. This worked to our advantage, as there were zillions of highly-qualified candidates in the pool. We picked the absolute best of the bunch for Wittenberg: Flavia Sancier, a fabulous applied math specialist from Brazil. I'm sure you'll read more about her in an upcoming issue. We're all tremendously excited about her addition to our departmental faculty.

Another huge personnel transition is upon us. After 17 years with the department and a quarter century at Wittenberg, our awesome administrative assistant, Sharon Shambaugh, is retiring. Everyone who has worked or studied in the department knows how thoroughly competent and incredibly efficient she is, and what a cheery and calming tone she helps set for the department. I think we all stand in fear of what we'll do without her, as she does so many things for the department, most of which we ourselves don't know how to do, and some of which we don't even realize she's doing for us all. But we're all happy for Sharon and celebrate her well-earned retirement. We truly love her and always will. And we wish her all the best, as she moves on to find meaning and fulfillment in the next phase of her life. Congratulations, Sharon! Meanwhile, a team of us has been hard at work reading resumes and conducting phone interviews and contacting references to find Sharon's replacement as our departmental goddess. Stay tuned for the result.

I write this the day before graduation. We'll be proud to see another crop of great math/comp department majors and minors walk across the stage and pick up their diplomas tomorrow. But plans are already in motion to greet the math/comp students for the class of 2015 this fall, with new courses and new faculty and a new administrative assistant. Bring 'em on....

Doug Andrews

DEPARTMENT SAYS GOODBYE TO SHARON

This May, the department will say goodbye to **Sharon Shambaugh** as she retires after 25 years of service to Wittenberg University. For the last 17 of those 25 years, Sharon has served as the administrative assistant for both the University Honors Program and the Department of Mathematics and Computer Science. There is no doubt that whoever replaces her will have big shoes to fill.

Prior to coming to Witt, Sharon worked for the Tecumseh Local School District. When she first arrived here she worked in the Thomas Library before transitioning into her current position with the Honors Program and Department of Mathematics and Computer

rable of Contents	
View From the Chair	1
Goodbye Sharon!	1,2
Colloquium Continues	2
Excellence at Competitions	3
Faculty Notes	4,5
Alumni Notes	6,7
Major News	7
New Majors & Minors	8

Continues on pg 2

DEPARTMENT SAYS GOODBY TO SHARON (Cont.)

Science. She's very happy with her decision to come to Wittenberg, saying, "I'm glad I came here. I love this place."

The favorite part of her job has been the people. One of the best aspects, she says, is the ability to see the maturation of students over the course of their four years here. "It's amazing to see students develop over the years. To see what they're like when they come in as freshmen and then to see what they become as seniors."

While Sharon has loved her experience here, she decided that after 25 years it is time to walk away. She and her husband want to travel and enjoy life. In addition to traveling with her husband, Sharon is looking forward to having a flexible schedule, and also hopes to do some volunteer work in the future.

Sharon is excited to move on to the next chapter of her life, but that isn't to say she won't miss Wittenberg. She says, "I love the people in this department, I enjoy the students. . . I still love my job. But it's time to move on." It is this passion for her work and those she works with that



The department is very sad to see Sharon Shambaugh retire. We will miss her greatly.

has made her such a vital part of Wittenberg's Department of Mathematics and Computer Science. Her terrific work for the department and her smiling face will be greatly missed. Good luck Sharon and enjoy your retirement!

DEPARTMENT COLLOQUIUM SERIES REVITALIZED WITH 'SMACCM'

After a year or so of sporadic colloquia, the Departmental Colloquium series got a needed lift this year. Thanks to regular scheduling, attendance incentives, and a variety of interesting speakers, the series was an undoubted success this year. Working under the draft name "Math Mondays", the series was kicked off by **Dr. Brian Shelburne**, the one in charge of the series, on August 30, 2010. His talk, "A Mathematical Potpourri: Conundrums, Puzzles, Tricks and Other Trivia!" was so well-attended that it (and all subsequent talks) had to be moved from room 320 to room 319 in order to accommodate the large audience.

After the first couple of talks, a naming contest was held to make the series title more inclusive of the rest of the disciplines within the department. Winning the contest (and a free Department of Mathematics and Computer Science polo), was **Savannah Kiser**, with her submission "SMACCM (Statistics, Mathematics, And Computer/Computational Mondays)." The more inclusive name was certainly fitting as the talks spanned a variety of topics.

The colloquia were held on Monday afternoons, with snacks starting at 3:45 and the talk starting 4:10, usually lasting until about 5:00. With a few exceptions due to breaks and holidays, the colloquia were held every other week. In total, there were eleven colloquia held, with seven coming in the fall and four in the spring.

The talks were given by a blend of faculty and students. There were two student colloquia each semester, each of which allowed three students to give a fifteen minute presentation on their summer research or senior projects. The colloquia given by faculty members consisted of 50 minute talks on a subject that they found particularly interesting. The fall portion did feature one speaker from outside the Witt community, Dr. Rusty Baldwin from the Air Force Institute of Technology. Dr. Baldwin spoke on cybersecurity and AFIT's Cyber Corp program. For a complete list of talks—with abstracts—check out the "Colloquium" link on the department website.

All in all, SMACCM was a great success this year. It afforded students with a chance to practice their presentation skills by giving talks, and exposed them to new and interesting areas of statistics, mathematics, and computer science that they might not otherwise see in an undergraduate setting. It also allowed for people outside of mathematics and computer science to see what the department has to offer. SMACCM's large attendance and interesting talks make it an excellent model for departmental colloquium series going forward.

MORE STRONG PERFORMANCES AT STUDENT COMPETITIONS

Last fall, Wittenberg Computer Science students made news with their incredible showing at the ACM-ICPC (see last semester's Computational Times for the full story). This spring, students from across the department continued this success with a number of strong performances in regional and international math and computer science contests.

Wittenberg's Computer Science students picked up right where they left off last semester with their first place finish at the Denison Spring Programming Contest. The Denison Contest had 18 teams from 9 different schools in Ohio, each of which worked on six problems for four hours. The teams could program in one of three languages (C, C++, or Java), and the rankings were determined by the number of correct solutions and the total amount of time needed. Wittenberg's team, the "Tree Climbers," (consisting of **Peiqian Li, Brandon Nesiba,** and **Sven Isaacson**) was the lone team to correctly an-

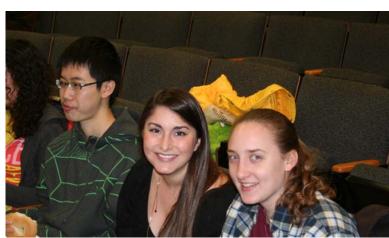
swer all six questions. No other teams correctly answered more than four, making their performance that much more impressive.

On the math side, things got started right before Christmas break with the William Lowell Putnam Mathematical Competition. The Putnam Competion is an international college contest in mathematics, established in 1938. On December 4, seven Wittenberg students (Alec Biehl, Alexandra Sitarik, Deanna Fink, Manas Mudbari,



Student Competing at the 2011 Four College Contest from L to R: Alec Biehl, Alaina Engdahl, Shelby Cummings, Susannah Engdahl, Trang Ha, and Arianna Hamilton.

Patrick Copeland, Peiqian Li, and **Savannah Kiser**), along with over 4200 other college students, worked on the contest's 12 problems for six hours. Each problem is worth ten points, and normally half of the students who take the test nationally fail to score a point. This year Wittenberg had 3 students score, the most in recent history. Peiqian scored 29



Also participating in the Four College Contest were Peiqian Li, Alex Sitarik and Savannah Kiser.

points to rank tied for 593rd out of 4296, while Alex and Savannah each scored 10 points, which ranked them tied for 1669th. This is by far Witt's best showing in recent years.

Wittenberg had another strong showing in a competition at the Five College Contest on February 19. This contest, which features teams of three people from four schools (Wittenberg, Ohio Wesleyan, Denison, and Kenyon—Antioch was the fifth before it closed), was held at Ohio Wesleyan University this year. Wittenberg sent three teams to the competition this year. One of those three teams, consisting of **Arianna Hamilton, Trang Ha,** and **Peiqian Li**, brought home a second place finish in the 14 team field. Other participants in this competition from Wittenberg were: **Alec Biehl, Alexandra Sitarik, Savan**

nah Kiser, Alaina Engdahl, Susannah Engdahl, and Shelby Cummings.

Finally, Wittenberg had one team in the 2011 Leo Schneider Student Mathematics Competition at this year's spring meeting of the Ohio MAA, held at Youngstown State University on March 25. The competition consisted of ten questions to be answered within one hour, and featured teams from schools across Ohio, including some much larger than Wittenberg. The team, which consisted of **Alec Biehl, Alex Griffith,** and **Savannah Kiser**, placed 9th out of 24 teams, receiving at least partial credit on every problem they attempted.

All in all, this semester wraps up a strong year for the department in undergraduate competitions. Congratulations to all who participated and keep up the good work!

FACULTY NOTES

Doug Andrews: Between the new math hire and replacing Sharon and personnel reviews for three tenure-track colleagues and all the other usual chair duties, I haven't made as much time for my own professional development this past semester. And going to the big stat meetings in Vancouver last summer busted my travel funds for the year, so for the first time ever I won't make it to the biannual US Conference on Teaching Statistics, nor to the annual Joint Statistics Meetings this year. But I've been invited by Project NExT to lead workshops for new math faculty members who are assigned to teach statistics courses, and that will be at MathFest in Lexington in August. Also over the summer I'll take another week-long bike trip with friends, this year in Wisconsin. And hopefully I'll have some time to write up the department's four-year assessment report, and to spend some time overhauling our non-majors intro stat course. And taking care of the bees and my prairie, and hiking with my partner's family in the mountains of North Carolina, of course. Should be fun....

Steve Bogaerts: I am happy to report that Brian Shelburne, Kyle Burke, and I were officially named "early adopters" of the NSF/TCPP Curriculum Initiative on Parallel and Distributed Computing. This honor fits perfectly with our ongoing work in the NSF-sponsored Accelerators to Applications (A2A) project, in which we are developing modules on parallel and distributed computing (PDC) for integration throughout our curriculum. To date, we have already used such modules in a variety of courses, from upper-level required courses even down to Comp 121: Computing in the Arts and Sciences! It is very exciting to examine PDC concepts in level-appropriate ways throughout the curriculum.

As early adopters, we have earned a role in the development of the NSF/TCPP core curriculum for PDC, to be integrated throughout the undergraduate computer science curriculum. This is an ongoing effort involving representatives from about 30 institutions nationwide. Our first face-to-face interaction with our colleagues will be in mid-May, at which time I will attend the First NSF/TCPP Workshop on Parallel and Distributed Computing Education as part of the 25th IEEE International Parallel & Distributed Processing Symposium. At the workshop I will present our efforts in PDC integration, and discuss how they align with the proposed core curriculum. There will also be a roundtable discussion to improve the proposed curriculum. This is excellent publicity for Wittenberg as a leader in cutting-edge computer science education.



Doug Andrews, Sharon Shambaugh, Brian Shelburne, Steve Bogaerts, and Adam Parker at the department baby shower for Kyle and Olivia (and Thea) Burke.

Bill Higgins: In January, I attended the Joint Mathematics Meetings in New Orleans. While there I served as a judge for the undergraduate student poster session and assisted with its administration. The poster session is organized by the MAA Committee on Undergraduate Student Activities and Chapters, on which I have served for about a year. As part of the duties for that committee, I coordinated the MAA Diversity Initiative program to help departments, via travel grants, send students from underrepresented groups to the joint mathematics meetings. In New Orleans, I also attended a meeting of the editorial board of the MAA Text book series on which I continue to serve.

This spring, my wife Aparna (who teaches math at the Univ. of Dayton) and I took three Wittenberg students - Savannah Kiser, Alec Biehl, and Alex Griffith - to the Ohio Section MAA Meeting at Youngstown State University. Alex gave a talk during the contributed paper session related to some of the work he has been doing under the direction of Dr. Parker. Savannah, Alec and Alex took part in the Leo Schneider Student Mathematical Competition and placed 9th among 24 teams from around Ohio - a result they can be proud of.

This fall at Wittenberg, part of my teaching load will be teaching two sections of Calculus 1. In one of those sections, Patricia Bergstrom will be serving as a Supplemental Instruction Leader. (Students from the other Calc 1 section will be encouraged to take part in the sessions she holds as well.) The SI Leader program encourages collaborative learning among students. It has been active on campus for about 6 years and was used in a few courses in our department over

FACULTY NOTES (CONTINUED)

the last couple of years. SI Leaders have been used on other campuses since the 1970's and the program has had a great track record at improving student learning. I hope we have similar success at Wittenberg this fall.

Al Stickney: I'm writing this the day before 2011 Commencement. Once again, we have a great group of seniors graduating. This has been a very good year for the department. I imagine you'll read about it elsewhere in this Newsletter, but we've had an unusually successful year in 3 separate student math competitions: The Four College Contest, the Putnam Exam, and the Leo Schneider Competition at the Spring Meeting of the Ohio Math Association. Also, in case the editor (Adam Parker) forgets to mention it, he was just recently granted tenure along with promotion to Associate Professor. We're all very happy about that, and it was well-deserved. If you have a chance, be sure to congratulate him. Lastly, we've had a number of senior majors involved in very interesting research projects which have been presented and/or published to significant audiences.

I started out spring semester by traveling to New Orleans in January as Governor of the Ohio Section of the MAA. It was an enjoyable and worthwhile trip. Meanwhile, back here at Wittenberg, I had a wonderful semester teaching both Calculus II and Multivariable Calculus. The Multivariable class was probably the best class I've ever had in that course. It was both fun and challenging. My Calculus II classes started out a bit slowly, but after a rocky start, most of the students started putting in a great deal of effort and managed to "turn things around". It was especially rewarding to work with the 5-8 student "study group" that wound up meeting with me regularly every MWF morning during my 10:20 office hour. We had a great time, and several students were able to improve their grade. My favorite comment during one of the sessions was "Hey, math is fun once you understand it!"

My summer plans include helping with 4 pre-orientation sessions at Witt, a vacation to northern lower Michigan, and a trip to Lexington, KY for another national MAA meeting. We're all looking forward to next fall when we will be joined by our newest faculty member, Flavia Sancier-Barbosa. She is an applied mathematician who just completed her PhD and we're eager to have her expertise as part of our department.

Kyle Burke: Just four days before writing this, my wife and I had our first baby, Thea! She is a bundle of awesome and any day will be playing board games with me, I'm sure.

On the academic side, I managed to sneak in some research this winter while in Banff for a workshop. Hooray! I also put together a contraption with wire-hangers to take video recordings of games on my phone. I've posted a few of them to YouTube (search for user 'paithanq', that's me).

Okay, can't stop paying attention to the baby for very long.



Thea, Liv, and Kyle.

Adam Parker: Well, as Doug and Al mentioned, the big news in my life is that I found out officially that I've been granted tenure and promotion to associate professor. It was a long process which started back in October and concluded with the Board of Directors meeting in May. I know that many of you wrote very kind letters that absolutely helped my case. I want to sincerely thank you all for your feedback and kind words. Looks like I'm going to be here for a while!

This spring I had two main projects that I worked on with students. The first was the publication of "Peano on Wronski-ans— A Translation" with math minor **Susannah Engdahl**. This project was started last fall, and we submitted at the end of last semester. After a few months, we got word that the paper was accepted. After another month or so of revisions, the paper has been published. You can read it at the Convergence: Loci journal. Just google us.

I also enjoyed working with graduating math major **Alex Griffith** on his honors thesis. We examined how tap configurations contributed to the security of stream ciphers. He did excellent work and will publish in the proceedings of a conference being held in Canada this summer. This will be a joint paper with the leaders of his summer REU last year.

ALUMNI NOTES

Susan (Rose) Finster (comp major '85) left Max Detweiler Corp recently and is now working for Pallas Systems, a start-up company in the NextEdge technology park outside Springfield. Pallas makes a crazy-sounding high-tech multifunction analysis tool that can be used to test electronics used in radar, communications, radio, navigation systems and vehicles. Here's how Susan describes it: "Essentially they have a sealed box with a computer inside and a lot of attachments on the top. You plug in some sensors, tell the computer what you want it to be, and it uses software to process the input signals to be, for example, an oscilloscope. The idea is to replace all the instruments needed to test all the systems on an airplane with this one box. I will be working on debugging the C++ library that makes up the bulk of the software. I will probably brush up on my Java to work on the user interface, too." The work hours are flexible, so Susan still gets to volunteer at the local elementary school.

David Reed (comp major '91) is still a Full Professor at Capital University in Columbus. He was featured in a recent article in The Chronicle of Higher Education for a neat app he wrote for the iPad and iPhone, and which sells on the iTunes store. The app, simply called Attendance, keeps class attendance records and so much more. As of the time the article hit print, more than 7500 had bought it, and Dave had made about \$20,000 on it.

Holly (Brenstuhl) Moore (math major, '95) has returned to teaching after staying at home for several years to raise two boys, born in 2001 and 2004. She taught at Granville H.S. for six years before starting her family, then tutored privately from home while the kids were growing up. She has returned part-time to the (easier!) world of paid work, and now at the college level at Muskingum University, in her second year. "Being part time is a good mix for me and my family right now, but I hope to eventually become full time. Working on a college campus sure does make me think of Wittenberg often. This semester I am teaching statistics for the first time!"

Beth (Michelfelder) Stelz (math major, '97) manages overall operations of Bank of the San Juans, a community bank in Southwest Colorado. She's responsible for customer and employee relations, parent company (Glacier Bancorp) projects, senior management decisions and regulatory/marketing initiatives. She and her husband enjoy their 4 legged kids: Hunter (German Wire Haired Pointer) and Emitt (Australian Shepherd Mix).

Lisa (Cook) **Jordan** (math major, '99): "I teach 8th grade math for Ohio Virtual Academy. I love working for an online school. I am able to teach math to some awesome 8th graders and still be home with my own small children: Daughter, DeLaney age 7, and two sons, Julian, age 4 and Landon, age 1."

Amy Cull (math major, '03) teaches 8th grade math in a small school near Norwalk, Ohio, and also coaches and helps with lots of extracurriculars.

Ellen Peterson (math major, '06) is just now through with her first year of a sweet three-year postdoc at Carnegie Mellon. "I am however still keeping my eye on the job market and extremely selectively putting in job applications. Over break I got engaged to my boyfriend of 4 years! He is currently an assistant professor at University of Kentucky. So I am looking to move to the Lexington area when I leave CMU."

Geri Woessner (math major, '06) works with the Colorado Springs Sky Sox, the top minor league affiliate for the Colorado Rockies. "There are two main parts of my job; first sell tickets and hospitality events to groups of 20+. Then after the sale, I work as the event planner to ensure each event is successful." She's also really getting into bicycling and mountain climbing recently.

Gina Flocken (math major, '06) is an Inventory Control Supervisor, for which she manages inventory at warehouses across the country to ensure National Chain Restaurants have product to service customers.

Steve Dennett (math major, '07) now works for NetJets, a private aviation company headquartered in Columbus. "We are the market leader (by far) in fractional jet ownership, jet cards, jet charter & jet management. Our main business is fractional jet ownership. Think timeshares, but instead of a vacation property it's with a private business jet. I work in the Operational Analysis group as an analyst. My job is mainly focused on performance analysis. I, along with two

ALUMNI NEWS (CONTINUED)

other analysts on my team, are responsible for tracking major business metrics for pretty much all areas of the company (e.g., Scheduling, Maintenance, Sales, Crew Support). It's a position that actually had a Masters in Math listed as a 'Desired Qualification', and although it's more along the lines of logic, critical thinking, stats and sub-calculus math, there are some occasions that I get the opportunity to apply some more advanced topics; one of the managers in my group tried to get me to apply the Stable Marriage Problem (which my Masters thesis was on) to a scheduling problem we were having. It's an interesting, very intense job, but it's nice to be in a position where I'm applying a lot of the skills I learned in college and grad school."

Amanda Furness (math major, comp minor, '10): is a first-year grad student in the math PhD program at Indiana University, so far taking classes and studying for her qualifying exams. After this year, she will have a few TA duties and will begin to do research in her third year.

MAJOR NEWS

Kim Mowrey (math major '11) will be moving to Houston TX for a job as a marketing analyst for Reynolds and Reynolds after graduation.

Kelly Foley (cosc minor '11) will be attending graduate school at Oregon State University. She will be working towards a masters in Water Resources Policy and Management.

This summer, **Alaina Engdahl** (**cosc minor '13**) will be doing bioinformatics research for the University of Michigan College of Pharmacy. She will be helping expand and improve the Binding MOAD, which is a database of high quality protein-ligand structures.

This summer **Shelby Cummings** (math major, cosc minor '13) will be participating in the RUSIS summer research project at Rice university. For the first few weeks she will be taking courses in Probability, Stochastic Processes, and Statistical Inferences. For the remainder of the program, she will work on a more independent research project with the help of a professor at Rice.

After graduation, **Alex Sitarik** (**math major '11**) will be entering the Masters Program in Biostatistics at the University of Michigan with full funding. This year she completed her honors project "Evaluating the Consistency of Gene Set Sources for Use in Pathway Analysis" under the direction of Dr. Andrews. This was a continuation of work started at her summer REU at Hope College. Two of her papers will appear in the proceedings of the 17th Genetic Analysis Workshop held last year in Boston.



Alex Griffith presenting his research at the Ohio MAA conference at Youngstown State University.

Christa Snyder (math minor '11) had her poster "Analyzing Methylated Arginines Using Capillary Electrophoresis and Laser Induced Fluorescence Detection" win a national Young Scientist Award from the Analytical Sciences Digital Library.

Alex Griffith (math major, cosc minor '11) will take a position with Northrop Grumman in Baltimore, MD after graduation. This spring he completed his honors thesis, "The Effect of Register Taps in the SAT-based Cryptanalysis of Stream Ciphers" under the direction of Dr. Parker. This was a continuation of work started at a joint REU between Northern Kentucky University and the University of Cincinnati. He's submitted a paper based on his research to the Selected Areas in Cryptography (SAC) Workshop series in Toronto, Canada.

Susannah Engdahl (math minor, cosc minor '13) published "Peano on Wronskians—A Translation" in the MAA Journal Loci:Convergence this spring. This was joint work with Dr. Parker and was an extension of the new Culture and Languages Across the Curriculum (CLAC) initiative at Wittenberg.

Considering a Donation?

If you would like to make a donation to the math department, you can make a donation to the "MATH DEPARTMENT GIFT FUND" at

The Wittenberg Fund Wittenberg University PO Box 720 Springfield, Ohio 45504-0720

Make sure to designate your donation to the math department. Your gifts help support undergraduate research, travel, and the general mission of the department. We appreciate all of your help.



WELCOME!

The department would like to welcome all of our new majors and minors that have declared during the spring. We're happy to have you in the department!

Mathematics Majors:

Nathan Abbott '13— Loveland, OH Patricia Bergstrom '14— Hilliard, OH Alec Biehl '14— Medina, OH Austin Bragg '13— Hilliard, OH Ian Chadd '13— Xenia, OH Joshua Criss '13— Blanchester, OH

Mathematics Minors:

Kaitlyn Bondy '13— Westerville, OH Susannah Engdahl '13— Columbus, OH Nicole George '12— Independence, OH Brittany Rickards '13— Springfield, OH

Computer Science Majors:

Colin Clayton '13— Gordonsville, VA
Patrick Copeland '12—Indianapolis, IN
Martin Droge '13— Akron, OH
Logan Jackson '14— Pataskala, OH
Tyler Radley '13—Westerville, OH
Brittany Rickards '13— Springfield, OH

Statistics Minors:

Wade Stacy '12—Fairfield, OH

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