



Computational Times

Newsletter for the Wittenberg University Department of Mathematics and Computer Science

<http://www.wittenberg.edu/mathematics/>
http://www.wittenberg.edu/computer_science/

Volume 4, Issue 2, Spring 2010

VIEW FROM THE NEWSLETTER EDITOR

As the Spring 2010 semester draws to a close, you can almost hear the collective *sigh* of relief escape from the Wittenberg University Department of Mathematics and Computer Science.

Certainly our students, especially our seniors, are relieved by the start of the summer. Our department had a particularly impressive group of 12 seniors graduating this year. Of them, 9 graduated either Summa Cum Laude, Magna Cum Laude, or Cum Laude! This was a higher percentage of honors students than any other department or program and speaks volumes about the quality of the students we have in our department.

Also of note are the wide variety of opportunities that our majors will pursue after graduation—more varied than any other class I can remember (sure, I’ve only been here for five years, but you get the idea.) You can read all about it in the article “What Can You Do With a Math or Computer Science Major?” at the bottom of this page or in the majors section on pg 6.

Our continuing students are also excited to take a break from classes to concentrate on some great summer programs as well. Our majors and minors will be doing research both on and off campus in mathematics, geology, chemistry, biology, statistics, etc. The list goes on!

The faculty is excited to take a breath as well. We welcome Doug Andrews back from his semester sabbatical, though he was certainly around most of the semester anyways. He’ll take back over chair duties from Brian Shelburne. The young faculty each had landmark years, with Kyle Burke completing his first year, Steve going through his 3rd year review, and myself starting the tenure process. Both Kyle and Steve have very exciting summers planned as well, and you can read about them in the faculty notes section on pg 5.

But it isn’t all rest this summer. We’ve already scheduled a department retreat to discuss several curricular issues. Hopefully we’ll be able to pass on news of some changes in our next issue.

We hope that everyone has a wonderful summer and enjoys reading about all of our great majors!

Adam Parker
Computational Times Editor

WHAT CAN YOU DO WITH A MATH OR CS MAJOR? by Kate Snead

“So, what are your plans after graduation?” Wittenberg seniors have been asked this question over and over again for the past year. In the beginning inquiries are met with optimistic responses and excitement. I’ve heard it before:

“Oh, I’m not sure yet...I’m just sifting through my options...just really excited for the my senior year.”

The answer to that simple question, “What do you want to do with your life?” changes many times during the course of your undergraduate career, especially during your senior year. You may find yourself wondering what major is going to land me with the best job or how can I get into the best graduate programs and widest variety of options?

My suggestion...Math. You can’t go wrong with a math major or minor. It can take you down any path, anywhere you want to go. Math is like Dorothy’s “ruby red slippers”; three clicks of the heels and her dreams came true. There is a great deal that one can do with a Math or Computer Science major. In fact most of the math and computer science majors in the 2010 graduating class will not be pursuing a Ph.D. in mathe-

Continues on pg 2

Table of Contents

View From the Editor	1
Being a Math Major	1,2
Math Students Recognized	3
Department Picnic	4
SI Instruction	4
Faculty Notes	5
Major News	6,7
Alumni Notes	7
New Majors & Minors	8

WHAT CAN YOU DO WITH A MATH OR CS MAJOR? by Kate Snead

matics or going to work crunching numbers for the rest of their lives. To prove my point, I offer up this year's math and computer science majors/minors post-graduation choices.

Next fall, senior **Brandon Bock (math '10)** will be attending North Carolina State University to pursue a doctorate in mathematics. Senior **Amanda Furness (math '10)** will also be in pursuit of a PhD in mathematics at Indiana University in Bloomington. But your masters or PhD is not limited to math. Senior **Kathleen Snead (math '10)** will be attending Virginia Tech to get her PhD in Industrial/Organizational Psychology and working as a teaching assistant. After heading home to Vietnam for the summer, senior **Nam Vu (math '10)** will be getting his PhD in economics. Senior **James Duff (math minor '10)** will be pursuing a PhD in Physics at the University of Wisconsin-Madison, and will have a research assistantship with the Madison Symmetric Taurus fusion experiment.

You can go abroad like senior **Janelle Mahowald (cosc minor '10)** who will be teaching English to children in France. If you were thinking pre-med but the thought of too many chemistry classes makes you nervous, why not try math like senior **Kaitlyn Sherrock (math minor '10)** who will be going to medical school at OU-COM in the fall. She wants to become a pediatrician and her options are wide open. Why not live in D.C. like seniors **Rebecca Atkins (cosc minor '10)** and **Brian Morrow (comp '10)**. Rebecca is moving in August to attend the Uniformed Services University to pursue a PhD in Emerging Infectious Diseases and Brian is going to work at Datatel as an Associate Software Developer, straight out of college.

If you dream of being a teacher then follow senior **Paul Weber's (math '10)** path. He will be teaching 6th and 7th grade math in the Bed-Stuy neighborhood of Brooklyn, New York. In his spare time, he will be getting his masters in education at Hunter College, that's if he has any extra minutes in the day. Finally, why not work for a non-profit company like senior **Sarah Braden (math '10)** who is moving to beautiful Beaumont, Texas in June. Leaving in June, she will start up almost immediately working for Reasoning Mind (reasoningmind.org).



Some of our graduating seniors. Back Row: Brandon Bock, Aaron Dugger, Dr. Parker, Dr. Stickney, Jason Evans, Dr. Higgins. Front Row: Sarah Braden, Amanda Furness, Sarah Kendrick, Sandra Renz. Not pictured: Melisa Shock, Kate Snead, Nam Vu and Paul Weber.

I don't like to brag but I don't mind mentioning how great math is. During my interview process, I was told point blank that I was a great candidate because I had such a strong math background and I believe that if you speak to any one of the aforementioned seniors you would find similar scenarios.

If you are a freshman, consider taking a math class or two and if you are junior about to begin your senior year don't freak when you're not sure what your plans are **after** graduation because senior year is short, and just think...if you're a math major or good at math I guarantee there is job out there for you!

On a final note, you don't have to be great at math to excel at math. I won't lie, it does help to be able to add, subtract, multiply, divide...write a proof or two. Just slip on those ruby red slippers and head on up to the Science Center to see a math professor or two. Course options are limitless though you only have to take "Math 210—Fundamentals of Analysis" once!

MATH STUDENTS RECOGNIZED FOR ACADEMIC EXCELLENCE

The department of Mathematics and Computer Science is extremely proud of our many students recognized for their exceptional scholarship during the Honors Convocation and this Spring.

Each major department at Wittenberg recognizes the students that best represent academic excellence among their own students. The Mathematics and Computer Science department offers three awards to be split amongst several students. Established in memory of Paul Hessler, (Wittenberg faculty member from 1969 to 1978), the Paul Hessler Award, was given to **Amanda Furness (math '10)**, for outstanding achievement in mathematics or computer science.

Named in honor of the late Norman Dodson, the Norman E. Dodson Award was given to both **Brandon Bock (math '10)** and **Paul Weber (math '10)**, two graduating seniors who display excellence in their preparation to teach mathematics and computer science.

Dr. Richard A. Little, a graduate of Wittenberg established a fund in memory of his parents to provide awards to outstanding junior or senior mathematics or computer science majors. There were two recipients of the Richard A. Little Mathematics Fund this year: **Alexander Griffith (math '11)** and **Alexandra Sitarik (math '11)**.

Our students were also recognized by other departments. Mathematics minor, **Kaitlyn Sherrock ('10)** received the Faculty Award for Outstanding Achievement in Biology for her outstanding achievement and demonstration of strong potential in Biology. She will be attending The Ohio State University Medical School in the fall.

Math/econ major **Nam Vu ('10)** won the Economics Prize, awarded by the Economics department for high standards in coursework and research. He was also given the Stan Mickel Award, awarded by the Languages department, presented to outstanding senior students of East Asian languages. A student given the Stan Mickel Award must be completing a minor in Chinese or Japanese, have an overall GPA of no less than 3.5 and show promise of further engagement with East Asian language and culture.

Other math students were acknowledged by various Honor Societies at the honors convocation. First year math major **Shelby Cummings ('13)** and math minor **Elizabeth Scruton ('13)** were inducted into Alpha Lambda Delta. Math major **Lauren Henry ('12)** was inducted into Ivy Ring, a junior women's service honorary.

Lauren Henry was also inducted into Pick and Pen, (junior honorary emphasizing leadership, service and scholarship) along with five other math and computer science students: Computational Science minor, **Brian Hedges ('12)**, math major **Savannah Kiser ('11)**, and math minors, **Melanie Muszelik ('12)** and **Jacob Weide ('12)**, and computer science major **Jordan Hildebrandt ('12)**. Mortar Board recognized math major **Alexander Griffith ('11)** and statistics minor **Julianne Lininger ('11)** for their exceptional scholarship, leadership and service.

Omicron Delta Kappa, a national senior leadership honor society recognizing leadership in scholarship, athletics, university publications, cultural life and student affairs awarded **Melanie Muszelik** the Sophomore Involvement Award and inducted **Julianne Lininger** and math minor **Christa Snyder**.

Phi Beta Kappa is the oldest and most prestigious of all national honors societies. Math and computer science students were well represented. Senior math majors, **Sarah Braden**, **Jason Evans**, **Sandra Renz** and **Nam Vu** were inducted as well as computational science minor **Jessica Brewer** and math minors **James Duff**, **Kaitlyn Sherrock** and **Timothy Uher**. Junior math major **Alex Griffith** was also inducted.

Congratulations to all of our majors for their hard work and dedication in mathematics and computer science. We are happy that you were recognized campus-wide for your accomplishments!

FIRST DEPARTMENT PICNIC A SUCCESS

April 2010 saw the first annual spring picnic sponsored by MAAWUC (Mathematical Association of America, Wittenberg University Chapter), and it was a huge success.

Wittenberg has long held a Spring banquet to honor graduating seniors, but current math and computer science underclassmen wanted to have a get together that allowed all majors and minors (and faculty) to hang out before finals. **Courtney Dollinger (math '12)** and **Kim Mowrey (math '11)** stepped up and planned the first of what everyone hopes will be many spring picnics.

Originally planned to be held outside, weather forced the picnic to be moved inside to the math workshop. The rain outside did little to dampen the spirits of the 20 faculty and students in attendance—except for **Jordan Hildebrandt (comp '12)**, who didn't read the memo on the change of location—and rode his bike in the rain to the outdoor site, before arriving wet and tired at the math workshop. Attendees enjoyed a picnic-style lunch of coldcuts, chips, potato salad, beans, as well as the great conversation of their peers. Students appreciated the opportunity to relax and eat non CDR food before the stressful end of the semester.

In the future, MAAWUC hopes to have area alumni attend the picnic to meet and relax with all our students, so keep an eye on your mailboxes for an invitation next year. We'd love to see you there!



Math and Computer Science student and faculty relax before a busy end of the year.

SUPPLEMENTAL INSTRUCTION (SI) CONTINUING IN DEPARTMENT

In Doug Andrews' "View From the Chair" last issue, he mentioned the department's participation in the SI program. This program assigns SI instructors to courses who then "attend class, consult with the faculty instructor, and then plan and lead a couple optional supplementary sessions each week."

This spring, the department had four SI sections—two Math 201s, Math 131, and COMP 150, and they were a big success. Enrollments were low at the beginning, but when students started saw that peers attending the SI sessions were doing better on exams, attendance improved. By the end of the year, sessions averaged around 8 students.

Dr. Parker asked his Math 201 students to give advice to next semester's students and many mentioned the benefits of the SI sessions saying things like, "I would definitely recommend going to the SI sessions." Other students regretted not taking advantage of the opportunities, writing "I've also heard that attending the SI sessions are a good idea...although I never did."

The instructors also enjoyed the program. The three instructors for the spring were math majors **David Rea ('12)**, **Savannah Kiser ('12)**, and **Cal Wessels ('11)**. Savannah Kiser notes, "SI was a great experience for me as a future teacher. It not only gave students an opportunity to get more practice and earn better grades, but it also helped me to develop skills that I will need in my future."

After the success of the program, the math department will continue offering SI sessions. In the fall there will be sessions for Math 120, Math 201, and Comp 150. We hope this will help retention and success in these courses.

WHAT IS SI?

"The First-Year Experience (FYE) at Wittenberg is offering supplemental instruction (SI) for certain sections of first-year courses. Supplemental instruction provides academic support by offering a collaborative learning environment outside of the class room through weekly review sessions. The weekly review sessions are facilitated by trained student SI leaders who have previously taken the course and demonstrated academic competency. The SI leaders engage students in discussion of course material and dialogue focused on course content that will broaden and deepen their knowledge and sharpen their skills. SI offers the students a chance to get together with people in their class to compare notes, to discuss important concepts and to develop strategies for studying the subject. Appropriate study strategies regarding note taking, text or primary source reading, test preparation and paper writing are emphasized." - (From the FYE website.)

FACULTY NOTES

Doug Andrews I've been on sabbatical leave this semester, so I'm catching up on all sorts of projects that I've been putting off for eons. Among other things, I finished off some work on another stat consulting job - very similar to the work described in the on-line story linked to my ugly mug on the back cover of last fall's Witt Today magazine. Right now I'm working on a presentation on undergraduate stat consulting capstone courses, for the Stat Ed section at the huge international stat meetings in August, held this year in beautiful Vancouver. And I'm always working on revising my courses. On a fun note, my partner and I will spend a few weeks hiking and camping and kayaking and studying ecology in Alaska this summer, and we'll also join the usual friends on a week-long bike trip, this year in Minnesota.

Kyle Burke This semester, I got busy learning two new languages (and reviewing two others) for teaching. Python is an excellent language for Comp 150, and I am having a blast teaching it. For Comp 265 (Programming Languages) I had the chance to learn Chapel, a new language designed to aid programming for high-performance computing. This is a great tool and I look forward to using it in future classes. My fiancée and I also got a new dog, so I now have family pack walks back and forth to school!

Bill Higgins In January, I attended the Joint Mathematics Meetings in San Francisco. While there I served as a judge for the student poster session and was able to see (but not judge, of course) Paul Weber and his project partner make a poster presentation on their work done at an REU at the University of Nebraska on differential equations on time scales applied to logistic population models. They did a great job! The student poster session is organized by the MAA Committee on Undergraduate Student Activities and Chapters, on which I recently began to serve. As part of the duties for that committee at the joint meetings, I introduced Clifford Stoll's MAA Special Presentation for Students on "Low Dimensional Topology for Fun and Profit" in which he described how he makes and sells "Klein bottles". Cliff is an astronomer, author and quite a character. Though true Klein bottles (made by "sewing together two Mobius strips") only exist in four dimensional space, Cliff's models are a good approximations. See his website kleinbottle.com for more information.

The highlight of the Spring Ohio Section MAA meeting which I attended at Kent State in April was seeing Professor Richard Little, a Wittenberg alum, receive the Section Award for Distinguished Teaching. Dick Little has been generous in his support of mathematics students at Wittenberg by establishing endowed funds for student activities and awards. It was wonderful to see him recognized for years of outstanding teaching throughout his career at Baldwin Wallace.

Steve Bogaerts This spring, I have been supervising the research of Brian Morrow and Thomas DeBell in the preparation of the paper "A Genetic Algorithm to Optimize a Connect Four Minimax Player." I have also been supervising Dang Mai in research for his paper, "Plagiarism in Computer Science Classes". All three students presented their work at the Butler Undergraduate Research Conference on 4/16. I was invited by the leadership of the "COSI Expert Series" at the Center of Science and Industry in Columbus to give a talk for high school students, which took place on 4/15. The talk was entitled "Artificial Intelligence in Game Playing", in which I led discussions with classrooms from four schools via teleconference on the basic concepts of turn-based machine game playing. In mid-May I will be attending the International Florida Artificial Intelligence Research Society conference, where I will also serve as co-chair for the special track on case-based reasoning. This will be the culmination of several months of intermittent planning for the track, so I'm looking forward to seeing everything finally come together. My wife Angie and I are also making final preparations for the arrival of our first child, a boy, future computer scientist, and barbershop singer. He is due on July 3rd, so I think I will have a busy summer as well!

Adam Parker This spring has been one of my most rewarding semesters in terms of professional activity yet. I had a great time collaborating with Amanda Furness on her honors thesis. I think we made significant progress on the problem, and we hope to publish the results this summer. I wrote another paper with Mike Mattison of the Wittenberg Writing Center about how to include writing projects in math courses. That paper will appear this summer.

There were many talks as well. I was invited to give a talk at Sinclair College's Spring Mathematics Colloquium in April which was very well received, and at MathFest this summer in Pittsburgh. My students were also busy giving talks, with both Amanda Furness and Alex Griffith speaking at the Spring MAA meeting at Kent State University.

This summer should be a bit quieter (especially when compared with Kyle and Steve!) I'm going to concentrate on writing the talk for MathFest, tuning-up some of my classes, and putting together my tenure file, as I go up for tenure and promotion this fall. I simply can't believe that I've been here for 5 years already.

MAJOR NEWS

GRADUATING STUDENTS

Rebecca Atkins (math minor '10) is moving on to bigger and better things. In August she will be moving to Washington D.C. to start work on her Ph.D. in Emerging Infectious Diseases at the Uniformed Services University.

Brandon Bock (math '10) will attend the mathematics Ph.D. program at North Carolina State University in Raleigh. He will join math alumni **Alyssa Armstrong (math '09)** and **Ellen Petersen (math '06)** already there. Ellen anticipates completing her doctorate this year.

Sarah Braden (math '10) will be graduating with a mathematics (focus in statistics) major and Spanish minor. She played soccer this past fall and won the conference and went to the NCAA tournament for the fourth year in a row. The tournament was held at Calvin, in Michigan. She was also recently inducted into Phi Beta Kappa, the University's most prestigious academic honor society and completed the whole Witt Tri again. In June she is moving to Houston and starting a job working with schools in low-income communities.

Paul Weber (math '10) has been working with the Department of Job and Family Services and the Center for Civic and Urban Engagement running statistical analyses on the success of family art programs in Springfield. He was looking at Youth Summit data and Project Jericho's After School Arts Program (ASAP). He has been able to run reliability analyses and t-tests to see if youth significantly benefited from their participation in each respective program. He will be teaching Mathematics in Brooklyn, NY this coming fall.

Nam Vu (math '10) is pursuing a Ph.D. program in Economics at Vanderbilt upon graduation. Following the ceremony, he and his family will travel extensively through the Midwest and Northeast before traveling back to his hometown in Vietnam for the remainder of the summer. He completed an honors thesis in Economics entitled "An Examination of the Exchange Rate Policy—Evidence from China."

Melisa Shock (math '10) had a busy spring presenting two talks. One was at the Spring meeting of the Ohio MAA at Kent State in April and the second was at Wittenberg's Colloquium. Both centered around her dual interests of mathematics and softball. The MAA talk presented a statistical analysis of pitch counts, and the Wittenberg talk discussed progress towards a mathematical model of a pitching motion.

Amanda Furness (math '10) will attend the mathematics Ph.D. program at Indiana University in Bloomington, IN (the alma mater of our very own Dr. Steve Bogaerts). During the year, she worked on an honors thesis with Dr. Parker where they tried to answer a conjecture of Dirichlet. She gave a talk on her results at the Spring Meeting of the Ohio MAA at Kent State University in April and they hope to publish their results this summer.

Kate Snead (math '10) worked on her honors thesis through the psych department and will be heading to Virginia Tech in the fall to pursue a Ph.D. in I/O (Organizational Behavior, Leadership, Teamwork). She is the maid of honor in her brother's wedding and will be home during the summer.

James Duff (math minor '10) will be pursuing a Ph.D. in Physics at the University of Wisconsin-Madison, and will be doing a research assistantship on the Madison Symmetric Taurus fusion experiment.

CURRENT STUDENTS

Kim Mowry (math '11) has been working with the Center for Civic and Urban Engagement in conjunction with Project Jericho collecting and analyzing data at the Juvenile Detention Center. During the summer she will be doing an internship with the Columbus Crew.

Alex Griffith (math '11) will be participating in a join REU program at Northern Kentucky University and the University of Cincinnati, where he will be studying problems in algebraic cryptography and cryptanalysis.

Xiao Shou (math '12) will be working on a funded computational chemistry summer research project with Dr. Housek-

MAJOR NEWS (cont.)

necht. He is leaving for China at the end of July and returning to Wittenberg in the Fall. On another note, he doesn't think it is a good idea to take Analytical and Organic Chemistry II in the same semester as it results in way too much lab time!

Courtney Dollinger (math '12) will be working for NASA in Huntsville, Alabama this summer, doing 3-D modeling of the cost of reflecting telescope lenses vs. refracting telescope lenses.

Arianna Hamilton (math '12) has been trying to finish up her general education requirements the past two semesters while deciding on a major. Math won! She will be working at the HPER Center over the summer and may take a course while here.

David James Rea '12 is an applied math and economics double major. He plays soccer for the men's soccer team. He will be working with the Center for Civic and Urban Engagement and staying on campus over the summer. His work involves directly working with an after-school program and running a survey with students in hopes to improve and strengthen the after-school programs in general.

Recently declared geology/computer science major and math minor **Jordan Hildebrandt ('12)** will be consuming plenty of New York Cheesecake while working on geomagnetic polarity time scales for an internship at the Lamont-Doherty Earth Observatory of Columbia University this upcoming summer.

Alex Sitarik (math '11) will be participating at a summer REU at Hope College in Holland, Michigan. She will be working on statistical genetics research. This past semester, Alex spent a semester abroad in Greece. Expect a lengthy article on her experience abroad at this very eventful time for that country.

ALUMNI NOTES

Brianne Gilbert (stat minor '04) is now married and she and her husband are officially home owners. Seemingly the latter has nothing to do with math, however while because of her background in numbers she is also the treasurer of their condo's HOA board. Brianne still runs a research center at Loyola Marymount University called the Thomas and Dorothy Leavey Center for the Study of Los Angeles - and she loves it.

Kristin Spiegelberg (math '93) was hired as a tenure-track instructor of mathematics at Cuyahoga Community College, Western Campus, this past fall.

Jason Waltman (comp '01) has been at DreamWorks Animation in Redwood City, California for 7 years. I'm currently an Effects Lead on our November 2010 feature release, 'Megamind' and previously worked on Shrek 2, Shrek the Third, and Madagascar 2. You can find the Website of photography at www.jasonwaltman.com

Katherine Westlund (stat minor '05) recently started a new position at The San Diego Foundation as a Manager, Organizational Success Program, working with local nonprofits and a new nonprofit database.

John Schipfer (comp '94) is now Vice President, IT Governance PMO Manager for PNC Financial Services.

Emily (math '07) and **Steve Dennet (math '07)** will be moving from Massachusetts to Columbus, Ohio. Steve has a job working for Ohio State. The department looks forward to seeing much more of them since they'll be so close now!

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:

- Trang Ha '12—Hanoi, Vietnam
- David Rea '12—Rocky River, OH
- Xiao Shou '12—Shanghai, PRChina
- Arianna Hamilton '12—Springfield, OH
- Lilli Fishman '13—Chagrin Falls, OH
- Joseph Rosen '13—Takoma Park, MD

Mathematics Minors:

- Karyn Lesinski '10—Ottawa Hills, OH
- Regan Rundio '11—Springfield, OH
- Jordan Hildebrandt '12—Kenosha, WI
- John Meszaros '12—Hartville, OH
- Elizabeth Scruton '13—Highland Heights, OH

Computer Science Majors:

- Jordan Hildebrandt '12—Kenosha, WI
- Brandon Nesiba '13—Sioux Falls, SD
- Nathan Rutter '13—Fairborn, OH

Computer Science Minors:

- Dang Mai '11—Springfield, OH
- Patrick Copeland '12—Indianapolis, IN

Computational Science Minor:

- Alex Griffith '11—Greenwick, OH
- Shelby Cummings '13—Cincinnati, OH

Department of Mathematics and Computer Science
Wittenberg University
P.O. Box 720
Springfield, OH, 45501

Postage

