Greetings from the Department of Mathematics at Olivet Nazarene University!

Exciting things are happening in the Department of Mathematics this year, and the Lord has certainly blessed us in many ways.

The department was able to hire a fifth full-time faculty member, Dr. Justin Brown, who started in August 2009. We have more information on Justin elsewhere in the newsletter, but we certainly want to welcome him to the department. The department is requesting another hire from the administration for next year, since one-third of mathematics courses are still being taught by adjuncts. A sixth full-time faculty member would finally fully staff the department, a place we have not been in since the tremendous growth that Olivet has experienced over the last 10-15 years. This newsletter will probably be printed before we find out whether or not our request is granted.

In other exciting news, the department had a record class of incoming freshman majors. We welcomed 24 new mathematics, mathematics education or actuarial science majors to Olivet. Most years result in 8-10 new majors, so we are extremely blessed this year. We actually have more freshman majors than sophomores, juniors and seniors combined! While this has helped push the calculus classes to larger sizes than we would prefer, we consider it to be a good problem.

Let me give you a brief update on faculty and more information is given on some of these topics later in the newsletter. Dr. Atkinson finished his sabbatical last semester and is back to teaching this year, while...
New faculty member: Dr. Justin Brown

The Department of Mathematics is pleased to welcome Dr. Justin Brown as a new assistant professor. Justin recently completed his Ph.D. from Northeastern University. His dissertation was titled, “Certain geometric properties of certain toric varieties and Schubert varieties.” He also has a master’s degree from Northeastern and received his undergraduate degree from Point Loma Nazarene University.

Justin has excellent academic credentials pertaining to both teaching and research. He received two Teaching Assistant of the Year awards from the Department of Mathematics at Northeastern. Justin also was recognized as the Outstanding Teacher of First Year Engineering Students in 2007. He has co-authored a graduate textbook with his dissertation adviser, Flag varieties – An interplay of geometry, combinatorics, and representation theory. Justin also has several other publications in professional mathematics journals.

As a student at Point Loma, Dr. Brown went on a three week mission trip to Rwanda. He was also involved in a weekly feeding program in downtown San Diego. In Boston, he volunteered with a poverty advocacy group, advocating on behalf of poor families facing difficult financial situations.

Justin is married to Jody, an Eastern Nazarene College graduate who has a degree in mathematics education. Owen, their son, will be 7 months old this Christmas. In his spare time, Dr. Brown enjoys watching football, kayaking, playing guitar and listening to Bob Dylan.

Greetings from the Department (continued)

Dr. Green is just getting started on his sabbatical this year. Dr. Stephen Brown is gearing up to work on the NCATE report for our mathematics education majors. I did my usual AP grading in June, with bike riding over the rest of the summer. We also have a new faculty member, Dr. Justin Brown, who is profiled above. Of course we are a colorful department with a Green and two Browns. But you are probably unaware that we actually have four people with the surname of Brown teaching for us this fall semester. Dr. Kelly Brown, from the Department of Education, is teaching a couple of our classes and Justin’s wife, Jody, who was a high school mathematics teacher, is also teaching a course. It gets real confusing when a student stops by and asks to see Dr. Brown!

We are very interested in hearing about your story since graduation — this is, after all, an alumni newsletter. We have an article on one of our graduates later in this newsletter. But we would love to hear from you and print your story in a future newsletter. Drop us a line, send an e-mail, or join our Facebook group. Even if you don’t want to be featured in a newsletter article, we would love to hear from you.

Take care and God bless,
Dale K. Hathaway
In the Field: Combat Analyst
Captain Brian Wilken ’01

Born and raised in Kankakee, I Ill., I started my college career at Kankakee Community College before transferring to Olivet Nazarene University and receiving a B.A. in mathematics education. As a commuter student, I attended class in the mornings and worked at Lowe’s Home Improvement during nights and weekends. I met my wife, Rachelle (Horner) Wilken (elementary education ’02), while working at Lowe’s.

In 2002, we decided to join the United States Air Force, where my math background opened the door for me to become an analyst under the scientist career field (which also includes physicists, chemists and behavioral scientists). My military career started in Albuquerque, N.M., where I was involved with the operational testing of the next generation fighter jet, the F/A-22 Raptor. I was responsible for analyzing the jet’s performance and calculating the performance metrics that went into the final test report to congress. In 2005 I was selected to attend the Air Force Institute of Technology to get my master’s degree in operations research with an emphasis in applied statistics and decision analysis. Following graduation in 2007, I was assigned to the Studies and Analysis Division, Air Force Materiel Command in Dayton, Ohio. My duties include mathematically modeling complex issues affecting the command and providing objective, fact-based decision support to the commander.

During the summer of 2009, I was tasked to deploy to Southwest Asia as a member of the Operational Assessments Team supporting Operation Iraqi Freedom and Operation Enduring Freedom.

I’m amazed at the opportunities I’ve experienced during the last eight years. My math degree from ONU opened the door to a technical career field that has taken me across much of the U.S., as well as to other countries around the world.

Rachelle and I currently live in Dayton, Ohio, where we are active members of our church. We enjoy traveling, camping, and most of all, raising our 5-year-old daughter, Hannah, and 3-year-old son, Connor.

A graduate looking for a fascinating career in applied mathematics might consider the field of operations research. Operations research analysts not only work in the military, but also as “secret weapons” of most large corporations such as GE, Hewlett Packard, UPS, and Proctor and Gamble to name a few. To learn more about the exciting field of Operations Research, visit www.ScienceOfBetter.org.

To learn more about the scientist career field of the United States Air Force, visit www.airforce.com/opportunities/officer/careers/technical/scientist/

If you have further questions, Captain Wilken can be contacted through the ONU math department’s Facebook group.
**Math Club News**

**Pumpkin Pi Party**
The Math Club continues to be an active and popular group on campus, often with more in attendance from majors other than mathematics. While we did not have a Pi day party (it fell during our spring break), several other interesting events were held. On Halloween, the Math Club had a pumpkin Pi carving contest with some of the results shown on the following page.

**Mathematics Murder Mystery**
The Mathematics Murder Mystery was again a big hit. This past year Chaplin Michael Benson was the victim and Howie Van Dyke, a graduate assistant in the Department of Religion, was the culprit.

**The Math Club council members for 2009-10 are:**
Mark Lockwood
Staci Martens
Andrew Clark
Danielle Vander Schaaf
Matt Upshaw
Katrina Hurt

**Math Morsels**

1. Congratulations to Andrew Clark and Mark Lockwood, who both passed the Actuarial P exam on their first attempt this past summer. Both students have just finished their second year as actuarial science majors and are looking for internships for next summer. If you are in the actuarial field and your company hires interns, please let us know.

2. Congratulations to Sondra Lynn, the department’s Outstanding Graduate for 2009. Sondra, a mathematics education major from Odon, Ind., is working in the Odon School District.

3. The Department of Mathematics welcomes a record freshman class of majors. While most years provide 8-10 new majors, we are understandably excited about the 24 new majors this year! But, we are feeling the pinch somewhat with Calculus I and II classes ranging between 43 and 46 students.

4. Olivet teams placed 4th, 6th, and 13th out of 32 teams from 10 institutions that participated in the 2009 ACCA Calculus Contest. The top team consisted of Krissy Wininger (Sr), Mark Lockwood (Jr), and Terese Byrne (Fr).

5. Pi Mu Epsilon inducted three more members during the spring semester. These new members are Amy Catlett ’10, Matthew Lyle ’09 and Brandon Upchurch ’09, all of whom are engineering majors.
Pumpkin Pi Party Carvers

Our Inspiration

Solving the Mystery

Howie done it?
Alumni Speakers

For the past few years the department has hosted at least one alumni speaker a year. This enables our students to hear from a person actually out in the workplace and gain from their insight and experience. It helps students see that there is life after college and that mathematics professions involve more than just teaching.

Our past alumni speakers include:

2004-05: Brian Wilkin ’02 (B.A. Mathematics Education), United States Air Force

2005-06: Jason Culp ’02 (B.S. Mathematics), Actuary

2006-07: Kent Dinius ’00 (B.S. Mathematics), Actuary

2006-07: Mark Pollock* ’75 (B.A. Mathematics), Kraft Foods

2007-08: Keith Barnes ’89 (B.A. Mathematics), Actuary

2008-09: Jackie Smith Hayden ’05 (B.S. Mathematics), Business Analyst

*Centennial alumni speaker

If you are going to be in the area and think you might be interested in speaking to students, please e-mail me at hathaway@olivet.edu.

Mark Pollock, Kraft Foods

Sabatticals

Dan Green

I am on a full year half-time sabbatical for the 2009-2010 academic year. While teaching half time, I will be taking finance courses and preparing to teach Math 340 Financial Mathematics for actuarial science majors in the spring of 2010. I will also be gathering study resources for the Society of Actuaries Exam FM in financial mathematics, and I’m planning to take the exam myself in the spring. I plan to investigate internship opportunities for our actuarial science majors and try to develop relationships with companies that could offer such internships. In addition, I will be developing new resources to enhance the teaching of Math 357 Differential Equations.
Pence-Boyce Summer Research

This past summer, Mark Lockwood ’11 was able to participate in the Pence-Boyce Undergraduate Summer Research Program, funded anonymously by an Olivet alumni. Mark investigated polyform probabilities and was supervised by Dale Hathaway.

Polyforms are shapes constructed recursively by attaching, edge to edge, regular polygons to simpler polyforms. Pentominoes, the set of all possible shapes created by connecting five squares, is one of the best known polyominoes. Typically, squares, equilateral triangles and hexagons are the only shapes used to construct polyforms since they are the only shapes that tile the plane.

Mark considered the probability of various shapes being constructed by making the attachment of the polygons to the previous level random. Once these probabilities were determined, he considered factors related to the polyform to try and determine relationships between the polyform and its probability. One major result featuring the connection between the probabilities on free and one-sided polyforms was proven using mathematical induction.

'Sabbaticals' continued

Dave Atkinson

My sabbatical for the spring 2009 semester consisted of some independent study in mathematics and two overseas trips, one to Argentina and Antarctica (16 days) and one to Panama (14 days).

The independent study was primarily in two areas of mathematics in which my background was minimal: number theory and graph theory. I read texts in each of these areas, working out many exercises from each text. I also did reading in group theory plus a book dealing with the impact of grade inflation in American universities.

The trip to Antarctica was from February 3-18 and began with a flight to Buenos Aires. We spent two nights there and did some sightseeing that included a tango show. From there we flew to Ushuaia, Argentina, the world’s southernmost city. We spent one night there (some sightseeing included) before embarking on our ship, the Antarctic Dream. We spent two days crossing the Drake Passage (very rough ocean), a day in the South Shetland Islands, four days along the Antarctic coast, then another day in the South Shetlands, and finally two more days crossing the Drake Passage.
‘Dave Atkinson’ continued

back to Ushuaia. Altogether, we were on the ship ten nights, made seven landings (using zodiacs) on the Antarctic continent or on islands, and also had two zodiac excursions through a sea of icebergs.

Our trip to Panama was from March 8-21 and was primarily for birding. We stayed in three areas: Panama City, Cana in the Darien province, and in the village of El Valle. We had a wonderful guide and with his help were able to see 261 species of birds. We also visited the canal and spent a day at an Embera Indian village.

The sabbatical was a tremendous experience, both for the travel and for the opportunity to learn mathematics that I can use in my teaching. The trip to Antarctica completed my quest (along with my wife) to travel to all seven continents.

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