Andrews University
Seek Knowledge. Affirm Faith. Change the World.

Fall 2012
Volume 9, Issue 1
K. M. Johnson-McWilliams, Editor

MATH@ANDREWS

New Jobs for Alumni

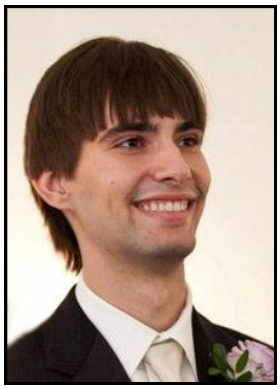
Kiana Binford (2010, BS Math Ed, Sec. cert., PME) returned from mission work in the Philippines and is the new principal and teacher for grades 7-10 at the Green Bay, WI, Adventist church school.

Amy (Wright) Floraday (2005, BS Math, BBA Econ, JN Andrews Honors Scholar, PME) is now an attorney at Honigman, Miller, Schwartz, and Cohn, LLP, in its Commercial Law, Bankruptcy, and Reorganization Department in Detroit. Amy earned a J.D. from the University of Michigan Law School. She formerly worked at Latham & Watkins, LLP, in Chicago.

Brianna Payne (2009, BS Biology [Beh. Neuroscience/ Math emphasis], BA Spanish Studies, JN Andrews Scholar, Beta Beta Beta, Sigma Xi, Phi Kappa Phi) completed her MS in Biology in the spring and has a one-year contract at Union College, teaching BIOL 107 (Human Biology Lab), MATH 017 (Elementary Algebra), and BIOL 151 (General Biology and lab). Her graduate research involved mathematical models of marine iguanas in the Galapagos Islands.

Stefan Smith (2010, BS Math) works as a Risk Analyst for the insurance/reinsurance company Ariel Re in Bermuda. His role in the analytics team is to model insurance submissions in various catastrophe models and to provide analysis on the results.

Chantel Blackburn (2006, BS Math, PME), will finish her dissertation January 2013 for a PhD in Mathematics at the University of Arizona. She will begin teaching for PUC's math department in January as an assistant professor, teaching the second quarter of Basic Algebra (096) and Elementary Differential Equations.



Kendall Hopkins (2011, BS Computer Science, Math Studies, PME) started working as a software engineer for *Facebook* in Menlo Park, CA, in early November. For his first six weeks he is going through an intensive Engineering Bootcamp to learn *Facebook*'s code base and learn what sorts of projects are available so that he can choose the team and project that match his passions. [To read more about the camp, go to https://www.facebook.com/note.php?note_id=177577963919) .]

Robert Wilson (2007, BS Chemistry, American Chemical Society Emphasis; Math Studies, JN Andrews Scholar, PME) finished his PhD in Chemistry at the University of Illinois Champaign/Urbana over the summer and started teaching chemistry as an assistant professor at PUC this fall.

2012 Graduates

Emily Adams (BS Math) is certified to substitute teach in San Diego County and is preparing for her actuarial certification.

Dejean Brown (BS Math) is working as a financial advisor for Mass Mutual while working his way through the actuarial examinations.

Dwight Byass (BSE Mechanical Engineering, Math Studies) lives in Maryland and plans to take classes at a local college to complete his BS Math degree before applying to graduate schools for engineering.

Theron Calkins (BS Math, BA English, JN Andrews Honors Scholar, PME) is teaching English at Saenggeuk Middle School, a rural middle school located in the center of South Korea.

Mary Cregan (BSE Electrical Engineering, Math Studies, PME) is an electrical engineer for General Dynamics Electric Boat, a division of General Dynamics Corp. in Quonset Point, RI.

Anabel Dominguez (BS Math Ed, Sec. cert, BA Spanish Ed, Sec. cert., PME) lives in Chicago and is waiting on her teaching certificate while applying for teaching positions.

Jan Peter Hutauruk (MS Math/ Science, PME) teaches five math classes and one physics class at Spring Valley Academy in Centerville, OH.

Tsung-han Lin (BA Economics, Math Studies, PME) finished his degree in Dec. 2011 and returned to Taiwan where he is completing his mandatory military service before pursuing a career as an actuary.

Samuel Yoo (BS Math) is teaching English and Bible at Cheon-Ho English Language Institute, an affiliate of Samyook University in Seoul, South Korea.

2012 Awards for Excellence in Mathematics

At an award ceremony on April 27, 2012, the Department of Mathematics honored the students who had achieved excellence in mathematics.

Three of these received scholarships: **Bethany Conrad**, the Harold T. Jones Endowed Scholarship; **Samantha Easton**, the Louis Ulloth Endowed Scholarship; and **William Tritch**, the Edward J. Specht Endowed Scholarship.

Other awardees include: *Advanced Calculus*: **Danielle Burton**; *Calculus I*: **Sung Min Cho**, **Robert Polski**, and **Brian Shockey**; *Calculus for Biology*: **Michelle Imperio**, **Sheree Occenad**, **Danielle Martin**, and **Kyung je Sung**; *Calculus II*: **Sung Min Cho** and **Robert Polski**; *Calculus III*: **Andrew Roderick**; *Differential Equations*: **Bethany Conrad**, **Andrew Roderick**, and **Thomas Zirkle**; *Discrete Mathematics*: **Natasha Greenley**; *Elementary Statistics*: **Daniela Duvra**, **Dana Johnston**, **Aleksandra Kozlova-Harris**, **Jacob LeBlanc**, **Amy Nadane**, and **John Neumann**; *Geometry and Numbers*: **Bethany Conrad**; *Linear Algebra*: **Theron Calkins**; *Probability Theory*: **Bryan Bankhead**, **Brandon Baptist, Theron Calkins,** and **Larry Mendizabal**; and *Reasoning with Functions*: **Nathaniel Gibbs**, **Timothy Morse**, **Jordan Pierce**, and **Chelsea Powell**.

Missionary, Task Force, Peace Corps, and Foreign Service Workers

For the next newsletter, I would like to hear from past and present majors/minors who have worked as student or career missionaries or done some sort of foreign or Task Force service. Too often people highlight standard career and academic success, but the lessons learned and experience gained—not to mention the help rendered—through service is invaluable yet often underrated. Please share with me if you've had this sort of experience, and I'll send you a short questionnaire to fill out. Write me at karenj@andrews.edu.

Publications & Presentations

Publications:

Cushing, J. M., & **Henson, S. M.** (2012). Stable bifurcations in semelparous Leslie models. *Journal of Biological Dynamics*, 6(2), 80-102.

Scott, E. O. (2012). Bayes, paradigms, and intelligent design. *Social Epistemology Review and Reply Collective,* 1(7), 8-11.

2012-13 Grants:

Kang, Joon Hyuk—"Coexistence of species of animals residing in the same environment," Andrews University Faculty Grant.

Presentations:

Danielle Burton —(with Shandelle Henson and James Hayward)**—**Fourth Annual Celebration of Research, "Onset of Synchrony in Avian Ovulation Cycles," poster, Andrews University, Berrien Springs, MI, November 8, 2012.

Shandelle M. Henson—The Joint Mathematics Meetings, AMS Special Session on Mathematics in Natural Resource Modeling, "A Mathematical Model of Harbor Seal Haulout," invited talk, Boston, MA, January 5, 2012.

Shandelle M. Henson—Michigan Academy of Science, Arts & Letters Conference, Environmental Science and Ecology Section, "Dynamics of Harbor Seal Haulout," Alma College, Alma, MI, March 2, 2012.

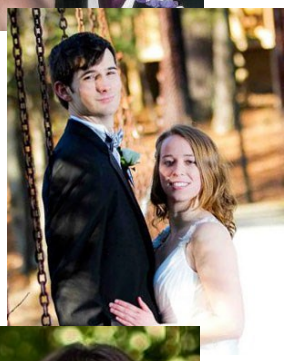
Joon H. Kang—(with Kami Lizarraga, Benjamin Chase, and Brian Ibenez)—Fourth Annual Celebration of Research, "Coexistent State of Species of Animals Residing in the Same Community," poster, Andrews University, Berrien Springs, MI, November 8, 2012.

Robert C. Moore—Fourth Annual Celebration of Research, "Mathematicians' Evaluation of Students' Proof," poster, Andrews University, Berrien Springs, MI, November 8, 2012.

Yun Myung Oh—Fourth Annual Celebration of Research, "Langrangian Submanifold and Riemannian Submersion," poster, Andrews University, Berrien Springs, MI, November 8, 2012.

Lynelle Weldon—Michigan Academy of Science, Arts & Letters Conference, "Effect of Nest Location, Timing, and Other Factors on Hatching Success in Glaucous-winged Gulls," invited talk, Alma College, Alma, MI, March 2, 2012.

Weddings



Emily Adams (2012, BS Math) married **Garret Catron** (2011, BSE Engineering [electrical & computer], Math Studies, PME) on August 12, 2012. The couple is living in San Diego, CA, where Garret is working full time and considering pursuing a master's degree in engineering, and Emily is a substitute teacher in the San Diego School District.

Samantha Snelling (BS Math, BS Physics) married **Brandon Easton** (BSE Engineering, math minor) in December 2011. Both are still attending Andrews.

Kendall Hopkins (2011, BS Computer Science, Math Studies, PME) married **Britney Bell** (2010, Speech-Language Pathology & Audiology) on July 31, 2011. The couple just moved from Bloomington, IN, to Menlo Park, CA, so that Kendall can be closer to his new job at *Facebook.*

Stefan Smith (2010, BS Math) married **Aashiqa Mehta** (2011, BS Nursing) on March 18, 2012, in Toronto. The couple now lives in Hamilton, Bermuda.

New *Facebook* Group for Andrews Mathematicians

Facebook and other social media such as *Twitter* and *LinkedIn* have done an amazingly good job of bringing people all over the world together in an extended community. Therefore, in an attempt to bring the scattered community of past and present Andrews mathematics majors and minors together, I've created a *Facebook* group appropriately called Andrews University Mathematicians. The group is closed to the public, but I'd like to have those of you who have *Facebook* accounts to join the group and to contact others you know who have ties to the department. I see this group as a forum in which to share information about mathematics and about job opportunities and possibilities. Graduating seniors need as much help as they can get to find the right jobs and graduate school opportunities—or even to know what job opportunities are available to mathematics majors. Sharing that sort of information is what I'm hoping the site will do. The group has about 70 members now, and I have sent out invitations to about 20 more people who have yet to respond. Please join us, not just by becoming a member of the group, but also by posting information that you feel is interesting and helpful. —KJM, ed.

Alumni News

Tyler Bodi (2011, BA Political Science, Math Studies, PME) finished his mission work in Ukraine in early July, then spent the rest of July and early August traveling in Europe from Madrid to Munich before coming back to attend law school at American University, Washington College of Law.

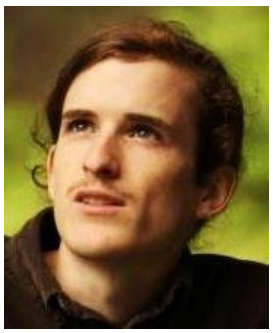
Libby Megna (2010, BS Biology, math minor, J. N. Andrews Scholar, PME, Beta Beta Beta, Sigma Xi, Phi Kappa Phi) completed her MS in Biology at Andrews University in May 2012 and spent the summer working as a crew supervisor for a group studying cuckoos in Arizona. She is now working with the Seabird Team while she applies to graduate schools.

Kami Lizarraga— (2005, BS Math, J. N. Andrews Scholar, PME) finished law school at Columbia in 2009 and works for Weil, Gotshal, & Manges, LLP, in New York City. In 2011 she and 10 others from Weil received the Legal Aid Society's 2011 Pro Bono Public award for the group's capital defense work for a inmate that had been on Alabama's death row since 1992.

Andrea Moore (2006, MS Math/Science, PME) passed her PhD qualifying exams at Oklahoma State in May 2012 where she is working on a degree in Environmental Education. She plans to finish her PhD by May 2013 and is applying for assistant professorships.

Abimael Santana (2005, BS Math, BET Mechatronics Engineering Tech, PME) received his MS in Mathematics from Miami University in Oxford, Ohio, in 2007 and has since been working as an assistant engineer for ISO-New England, Inc., the not-for-profit corporation responsible for the operation of the bulk electric system and administration of the wholesale markets in New England. He currently lives in Springfield, MA, and is enrolled in an MS program in Power Systems. Although he doesn't have as much time for math as he'd like, he keeps in touch with the subject by reading AMS articles whenever he can.

Sandra Prieto—(2011 BSE Engineering [Electrical and Computer], math minor, PME) in September completed a 10-month contract at the SDA Language Institute in Korea as an English teacher. While there she has discovered what she wants to do for the rest of her life—teach. She writes: "Each term break I have a few days to rest ... and panic about having a new classroom full of new faces. And then I begin teaching, and all my fears melt away again. The look on a student's face when they 'get it' is just priceless! I'm still sure that I want to teach adults, but I've also gone from wanting to choke my elementary school students to loving them."



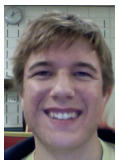
Eric "Siggy" Scott—(2011, BS Computer Science; BS Mathematics, J. N. Andrews Scholar, PME) is a GRA at the Krasnow Institute for Advanced Study, working on his PhD in computer science at George Mason University. He has put his math degree to good use in his research on computational simulations of social systems and finds that it has given him an edge in some of his theoretical computing courses.

Basil Williams—(2008, BS Physics, Math Studies) is currently enrolled in an education program in Manitoba that is doing a project on the dynamics of ecosystems including "detailing the history of the dynamics of particular ecosystems and how it connects with the nature of science."

Check out our pictures and postings on the Andrews University Department of Mathematics *Facebook* page. Like us and send pictures and updates so that people can keep in touch more often than just once a year through the newsletter.

Use this link if you can't find the page by searching: http://www.facebook.com/pages/Andrews-University-Department-of-Mathematics/135554453219757

Alumni Focus: English/Math Double Majors



*Currently 21 of our 38 math majors are double majors (9 taking Math Studies), and the rest have second majors in chemistry, economics, engineering, or physics since the fields have considerable overlap. However, a few recent graduates—**Erik Brown** (2007), **Danielle Burton** (2008), **Theron Calkins** (2012), and **Erin McLean** (2011)—have opted to take Math and English majors even though the subject areas don't have overlapping classes. Others have a minor in the other subject—**Kami Lizzaraga** (2005), for example, took a BS Math major and an English minor, and current student **Jacina Shultz** has a BA English major and math minor. Here are some reflections from two students who took math and English majors—**Danielle Burton** (D) and **Theron Calkins** (T)—about why they chose their majors.*

What prompted you to pursue a major in English?

D—"I've always enjoyed reading, but didn't consider majoring in English until I took two honors courses which showed me that literature classes allowed me to explore not only writing and reading, but also history, art, critical theory, and philosophy. I loved the class discussions in which we looked at the meaning of being human and examined many of the questions that we love to ponder as sentient beings, aware of our own extraordinary existence."

T—"I chose to pursue a major in English because my scholarship lasted four years and I was nearly done with my math major in two, so I needed something else to do. I've always enjoyed reading and writing, and since my English Honors classes were really interesting, I decided that English would be a good route for me to help me diversify my skill set."

Why mathematics as a major?

D—"I started taking advanced placement classes in math when I was 12, but calculus was the first college course I took, at the age of 16. Calculus opened my mind to wonderful ideas and was probably the first class I ever took that exceeded my expectations, and it whetted my appetite for more. Specifically I wanted more of that moment when a complicated idea suddenly becomes clear in my mind and many of its implications start flooding in. Some of the problems, especially proofs, in upper division classes generate a feeling akin to euphoria. Math is like a really, really fun toy or game or puzzle."

T—"I needed to major in something for college, and since I'd always enjoyed (and been good at) mathematics, I figured that was a safe bet."

What advantages do you think the double major gave you over pursuing just one major?

D—"I would have been bored with just one major, but, with two, each semester offered me a schedule with enlivening variety. I was also exposed to greater variety in classmates, worldviews, instructors. Some people in the humanities couldn't understand why I was spending some of my time over in the science complex, and some in the sciences couldn't understand why I was wasting my time with humanities. Some people have the notion that intelligent people go into the sciences, and those less intelligent go into the humanities. I gained something from being the intersection of two supposedly diametrically opposite worlds. Noam Chomsky's notion of interdisciplinarism is on to something. I see in literary theory the principles of Einstein and Gödel. I see in analysis literary theory's pushback against the reductionism of New Criticism. I like to think that I am at the progressive edge of this movement."

T—"Pursuing a double major kept my education broad and forced me to focus on the really important aspects of both majors. While I did miss the chance to learn about more specialized areas of each field, I learned the most important parts of each and can use those to expand my understanding as needed. Actually, I think that breadth of education is the greatest advantage of a double major, allowing me to make many interconnections between the two fields that I've studied and use that knowledge in other fields as well. In the case of the English/math double major, one major advantage was the joint development of my argumentative skills. To me, making a successful English argument and a successful math proof are analogous processes, each requiring careful management of the presented information, my own logical assumptions and arguments, and the united presentation of all these elements. Further, because I got so much practice at these skills in two different contexts, I can more easily apply them in a new context when necessary. Most people react with surprise when I tell them I was a math/English double major, assuming that the two disciplines require completely different skill sets or use two different sides of the brain. I disagree. During my time at Andrews, I found much satisfaction in diversifying the way I exercised my analytical skills by taking a double major. I was not so much working to exercise two different bodies at the same time as I was training one body in two different ways to increase its overall strength. Logic and communication are a powerful combination with which I feel I can take on any job I choose and ultimately be successful."

Would you take a double major in these two areas if you were to start college over again? Why or why not?

D—"If I were starting over again, I'd probably major in English and Math. And I'd still want to add Physics and Spanish. And History. I have so many interests! But math and English were really good choices because, of all subjects, I think English and math span the greatest breadth. Like two vectors that define a plane of higher knowledge, they are both very abstract at times and at times palpably concrete. And both demonstrate how the simplest of things can generate great complexity."

T—"I definitely would pursue a double major in these areas if I had to start college all over again. Though my interests span many other areas from physics and psychology to art and theology, I think those two majors gave me a firm liberal arts foundation on which to build my knowledge of other areas."

Andrews University
Department of Mathematics

Programs

BS in Mathematics
BS in Mathematics Education
Mathematical Studies Major
Mathematics Minor
Mathematics Education Minor
Minor in Mathematics of Economics and Finance
Behavioral Neuroscience Mathematics Track
Masters in Mathematics and Science (Interdisciplinary)

PME Michigan Gamma Chapter

*Luis Garibay, President
*Samantha Easton, Vice President
*Bryan Bankhead, Sec.-Treas.
*Prof. Joon Hyuk Kang, Advisor

Eigen* Math and Physics Club

*Jonathan Wheeler, Math President
*Chris Greenley, Physics President
*Belinda Cheeseboro, Secretary
*Michael McMearty, Secretary
*Mateja Plantak, Secretary

Mission Statement

Through teaching, research, and service, the Department of Mathematics seeks to provide leadership in the mathematical sciences by:

*Preparing students with the mathematical understanding, problem-solving skills, and dispositions that enable them to excel in their chosen careers;

*Increasing mathematical and scientific knowledge through publication and presentation;

*Supporting the broader mathematics education community and mentoring others for generous service through a committed Christian life.

www.math.andrews.edu
Department of Mathematics
Andrews University
Berrien Springs, MI 49104-0350
math@andrews.edu

From left to right: Bryan Bankhead, Michael McMearty, Lathan Bidwell, Mary Cregan, Sam Easton, Andrew Kutzner, Bethany Conrad, Brandon Baptist, and William Tritch.

2012 Pi Mu Epsilon Induction

The Pi Mu Epsilon 2012 induction took place on April 5, with nine new members joining the club: **Bryan Bankhead, Brandon Baptist, Lathan Bidwell, Bethany Conrad, Mary Cregan, Samantha Easton (Snelling), Andrew Kutzner, Michael McMearty**, and **William Tritch**.

Dr. Keith Calkins gave the address, and his son, **Theron Calkins**, turned his office of president over to **Luis Garibay**, the 2011 vice president. The new VP is **Samantha Easton**, and the secretary/treasurer is **Bryan Bankhead**.

PME graduates in 2012 included mathematics majors **Theron Calkins**—BS Math, BA English; and **Anabel Dominguez**—BS Math Education, BS Spanish. PME graduates with other majors were **Ebenezer Akyiano**—BSE Engineering [Mechanical]; **Lathan Bidwell**—BS Computing; **Mary Cregan**—BSE Engineering [Electrical & Computing], Math Studies; **Cecilia Dias**—BSE Engineering [Mechanical]; **Joseph Kenneth Fluence**—BS Computing; **Tsunghan Lin**—BA Economics, Math Studies; and **Adam Shull**—BSE Engineering [Mechanical], BS Chemistry [Am. Chem. Soc.].

2012 MASAL Conference

Fifty students and faculty from Andrews University attended the Michigan Academy of Science, Arts & Letters (MASAL) Conference on March 2, 2012, at Alma College in Alma, MI. The conference gives students and professors a chance to present their papers, listen to others' research, and have an abstract of their paper published in the *Michigan Academician*, a quarterly academic journal. Students from the Department of Mathematics who attended this year's conference were **Theron Calkins**, who presented a paper for his literature major, and **Luis Garibay**, whose paper utilized both math and chemistry. In addition to the students' presentations, Dr. Lynelle Weldon and Dr. Shandelle Henson presented talks.

Who's Who Nominations

Andrews University recognized 31 2011-12 seniors for their academic and extra-curricular excellence by nominating them for *Who's Who Among Students in American Universities and Colleges*. PME members nominated include **Lathan Bidwell** (BS Computer Science, math minor), **Theron Calkins** (BA English, BS Math), and **Adam Shull** (BS Chemistry, BSE Engineering, math minor).

Andrews University

05 December 2012

Dear Alumni and Friends,

Thanksgiving is my favorite holiday. Cultivation of a grateful spirit enhances one's capacity to enjoy life deeply and be mindful of its blessings. Thankfulness brings joy and happiness.

As chair, I am particularly grateful for the faculty of this department. Their high level of professional skill, commitment to students, and cheerful teamwork make chairing a delight. Here is a short update.

Joon Hyuk Kang was awarded a Faculty Research Grant to pursue his ongoing work in nonlinear partial differential equations. His students greatly enjoy his upper division analysis classes. **Bob Moore** has resumed his research career after chairing from 2006 to 2011. Bob's research area is proofs: how students learn to do proofs and how professors teach proofs. He continues to be a stellar teacher. Assessment has become a significant part of academic life, and **Yun Myung Oh** runs the assessment program for our department. She maintains an active research program and currently is mentoring undergraduate Janna DeWind in differential geometry research.

We are indeed fortunate to have **Marian Prince** and **Amanda Umlauf** teaching our remedial courses, which provide individualized, self-paced review for college-level mathematics. Marian also teaches statistics and general education mathematics in our department. Amanda teaches half time in our department and half time in the Berrien County Math & Science Center at Andrews University, the high school program located in Smith Hall, where she teaches calculus. **Abdy Vence** teaches full time in the Math & Science Center. He also will be teaching precalculus in our department this spring. Abdy and Mandy are beloved by the high schoolers.

Lynelle Weldon continues to serve as advising coordinator and *de facto* associate chair. Although trained as an algebraist, Lynelle currently is using advanced information theoretic and model-averaging techniques to analyze ecological data. She and her husband, Jerry, helped collect data at Protection Island, WA, for a few days this summer!

Karen Johnson-McWilliams, our office manager, makes everything happen. Her office is the social and problem-solving hub of the department. Karen is also an English professor, who contract teaches evening composition classes at Andrews and local community colleges.

These people make me smile. They are all cheerful, kind, and excellent.

I hope you had a happy Thanksgiving and are looking forward to a merry Christmas!

Peace and goodwill,

Shandelle M. Henson

Shandelle M. Henson
Professor and Chair

Department of Mathematics
Berrien Springs, Michigan 49104-0350 • (269) 471-3424 • math@andrews.edu • www.andrews.edu/math