

Future events Homecoming "+/- 2 Breakfast"

Saturday, October 15, 2011

All 2010 and 2011 IMS Department graduates are invited to brunch at Brothers Restaurant from 9:00 to 11:00 AM on Homecoming Saturday. Department students in their 3rd and 4th years will also be invited. Email our administrative assistant, Jean McCauslin (JMcCausl@messiah.edu) before October 7 if you would like to attend.

Alumni Mathematics Teacher Dinner

Monday, November 14, 2011

Each fall, our MATH 407 class of current student teachers invites Messiah alumni who are middle or high school Mathematics teachers to join them for dinner. They are very interested in hearing your advice for new teachers, how to find a good job, and how to be an effective and sane teacher of adolescents. If you are a secondary Mathematics teacher and would like to reserve a place, please email Dr. Hare (AHare@messiah.edu) by November 7. The dinner will be held in the Private Dining Room from 6:00 to 7:00 PM. It is free, and the conversation is friendly and helpful.



School of Science, Engineering and Health –9th Annual Symposium

Friday, April 27, 2012

Relatively recent alumni are familiar with MEB Student Scholars' Expo (formerly MEB Scholarship Day) through attendance and participation as students. However, most of you have not had the opportunity to experience one of these events. This event is now called School of Science, Engineering, and Health Annual Symposium. If you live within driving distance of the College, we encourage you to visit this symposium. While it is a full-day event, the IMS Department portion runs from 1:00 to 6:00 PM. The symposium is always held on the last Friday of the spring term and features student (mostly) and faculty presentations. There is no registration fee and snack breaks are provided. For details including abstracts, check the SEH School website in Spring 2012 (messiah.edu/schools/science-engineering-health/index.html).



DEPARTMENT OF INFORMATION
AND MATHEMATICAL SCIENCES

P.O. Box 3041
One College Avenue
Grantham, PA 17027

Analytic Threads is the annual newsletter of the Department of Information and Mathematical Sciences at Messiah College. It is sent annually to alumni and is also available electronically at the Department's website, messiah.edu/departments/info-math-science.

Parting Thoughts

We hope things are going well for you and your families. We enjoy receiving updates and having you visit us at Messiah. However, we will generally not publish your updates. Since your circle of connections at Messiah College was bigger than the Department of Information and Mathematical Sciences, we encourage you to send the updates that you want to be published to the Class Notes section of *The Bridge*, the College's magazine for alumni, parents, and friends (messiah.edu/offices/alumni/news/send_news.html). To update your email address, please email our administrative assistant, Jean McCauslin (JMcCausl@messiah.edu).

Editor: Dr. Marlin Eby (eby@messiah.edu)

Another Opportunity

Adjunct Teaching at Messiah

Are you interested in teaching Mathematics, Computer Science, Information Science or Physics at Messiah College? Department alumni with at least a master's degree in a related field are encouraged to send their resume and application (www.messiah.edu/offices/hr/forms/Faculty_Empl_Appl.pdf) to Dr. Hare at P.O. Box 3041, Grantham, PA 17027. The Department often needs part-time adjunct instructors to teach general education courses, and we welcome applications from alumni and their friends and family.

Fall 2011 Newsletter

ANALYTIC THREADS



News from the department faculty



Angela Hare

Congratulations to Dr. Angela Hare on her receipt of the 2010 Barnabas Faculty Award! This honor

bestowed by Messiah's Agape Center is in recognition of her work as advisor to the Collaboratory Education Group. Under her direction, that group has been involved in numerous educational projects with disabled children in Burkina Faso, West Africa. For more details on her work and perspective, see http://www.nxtbook.com/nxtbooks/messiah/bridge_2010summer/#/20.

Dr. Hare continues to serve the IMS department well in her role as department chair. One of her significant accomplishments this year was her support of two of her protégés in their successful application for promotion to professor: Drs. Rohrbaugh and Eby.

Dr. Hare led six students on a project team to Burkina Faso in June and July 2011. See details in the Collaboratory Projects section.

Dr. Hare (with Katherine Patton, Brittany Williams, and Kristen Wilt—all 2009 IMS graduates) published "International Service-Learning for Preservice Teachers: Strengthening Mathematical Literacy in West Africa" in *Journal of Mathematics and Culture*, Volume 5, Number 2, November 2010 (<http://nasgem.rpi.edu/files/4091>).

In June, she presented "Culture and Service in the Mathematics Curriculum" at the Hawaii University International Conference in Science, Engineering and Mathematics in Honolulu.



Niklas Hellgren

Dr. Niklas Hellgren joined the IMS Department in Fall 2010 as Visiting Professor of Physics. He will continue in that

position through the 2011-2012 academic year. In May, he accepted Messiah's offer to join the IMS Department as a full-time tenure-track faculty member in Physics beginning in Fall 2012.

Dr. Hellgren (with Jörg Patscheider, Richard T. Haasch, Ivan Petrov, and J. E. Greene) published "Electronic Structure of the SiNX/TiN Interface: A Model System for Superhard Nanocomposites" in *Physical Review B*, Volume 83, Issue 12, 2011 (<http://prb.aps.org/abstract/PRB/v83/i12/e125124>).



Robert Kilmer

Dr. Bob Kilmer and Dr. Tara Jankouskas (Nursing) presented "College Kids Clicking in Class: Come Join Them!" in February

at the 2011 Pennsylvania Educational Technology Expo and Conference in Hershey. He also was invited to speak to the Taylor University Systems Program in March.

Dr. Kilmer and his wife, Sandra, welcomed a son-in-law into their family when Steven McCue married their daughter, Margaret.



Abaz Kryemadhi

Dr. Abaz Kryemadhi has been active in developing a Grantham-based Physics major and Physics-with-Certification major.

The Physics major was approved during the 2008-2009 academic year, and Physics majors who entered Messiah in Fall 2009 will be the first to complete it in Grantham. The Physics-with-Certification major was approved by Messiah during the 2009-2010 academic year. In May 2011, a site team from the Pennsylvania Department of Education visited Messiah. State approval of the Physics-with-Certification program is pending.

In February, Dr. Kryemadhi [with Jennifer Esbenshade (Mathematics / Chemistry '11)] presented "Cosmic Ray Detection in Undergraduate Curriculum" at the 2011 Winter Meeting of the American Association of Physics Teachers in Jacksonville, Florida.

In the May 2011 term, Dr. Kryemadhi, a native of Albania, and Dr. David Pettegrew (History) led a cross-cultural study course to Albania and Greece.



David Owen

Dr. David Owen received a Summer 2011 Messiah College Internal Grant to work on the transition from Java to Python

in CIS 181 (Computer Programming I).

News, continued from cover



Doug Phillippy
Dr. Doug Phillippy was on sabbatical during the Spring 2011 semester. During that time, he completed a third draft of his

text—*The Study of Mathematics: Developing a Mature Understanding of Mathematical Thought, with Consideration of Christian Faith and Vocation*. The text is currently used in *First-Year Mathematics Seminar*.

In June, Dr. Phillippy gave an overview of this textbook in his presentation, “A Text with a Christian Perspective,” at the 18th Biennial Conference of the Association of Christians in the Mathematical Sciences at Westmont College.

In January 2012, Dr. Phillippy and Dr. Hare, along with Department of Engineering Chair Dr. Randy Fish, will lead a cross-cultural study course to Burkina Faso. Students on the team will observe primary school classes in several regions of the country, deliver literacy materials, provide computer training, and work on several ongoing projects in engineering. Dr. Phillippy will serve as the instructor for the course.



Eugene Rohrbaugh
Congratulations to Dr. Gene Rohrbaugh on his promotion to professor! Dr. Rohrbaugh was appointed Computer and Information Science

Coordinator beginning with the Spring 2011 term. The role is designed to enable a strong transition over the next several years to a separate CIS department provided certain benchmarks are met.

In June, Dr. Rohrbaugh gave two talks, “The Moral Status of Intelligent Machines” and “The Place of Computing in the Liberal Arts,” at the 18th Biennial Conference of the Association of Christians in the Mathematical Sciences at Westmont College. He also was elected to the ACMS Board as a Computer Science representative for a four-year term.



Scott Weaver
Congratulations to Professor Scott Weaver on the receipt of his doctorate in December from Pace University! Dr. Weaver’s dissertation

is entitled “Prospective Students’ Reactions to the Presentation of the Computer Science Major.”



Lamarr Widmer
In January, Dr. Lamarr Widmer was featured in the podcast, “The Universal Language of Mathematics,” on Messiah’s home page.

Dr. Widmer talked about his experiences during his 2009-2010 sabbatical year at Daystar University in Kenya. The podcast can be accessed at blogs.messiah.edu/listenup/2011/01/03/the-universal-language-of-mathematics/.

In October at Messiah College, Dr. Widmer presented “Mau Mau, Mimah, Maggie and Mzee,” a partial report of his year at Daystar University. He spoke about the Kenyan independence struggle and how it affected the family of his wife Margaret.



Samuel Wilcock
Dr. Sam Wilcock spoke on “A Bayesian Secondary Analysis in an Asthma Study” at the 18th Biennial Conference of the Association of

Christians in the Mathematical Sciences at Westmont College in June. This paper describes some of his work during his Fall 2010 sabbatical in the Department of Public Health Sciences at Pennsylvania State University College of Medicine in Hershey.

In June, Dr. Wilcock spent another intense week grading Statistics AP exams. This was his fourth year.

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DEPARTMENT NEWS

NEW MATHEMATICS COURSE

MATH 270: *Advanced Mathematics for the Sciences*—This course will cover material in linear algebra, differential equations, Fourier series, and related topics in a scientific context. Students in Physics and Chemistry will be required to take this course rather than the MATH 261 (*Linear Algebra*) - MATH 308 (*Differential Equations*) sequence. Mathematics majors will continue with the traditional sequence that includes aspects of mathematical proof.

ALUMNI SPEAKER

In January, Dr. Jeffrey Morris (Mathematics-with-Certification 1993) spoke to a large group of students, faculty, and visitors in Alexander Auditorium (Frey 110). In his presentation, “Career Opportunities in Statistics and Biostatistics,” he spoke of the outstanding and diverse career opportunities in Statistics-related fields and described numerous research projects on which he has worked. Throughout his talk, he incorporated the concept of Christian vocation and told of the unique opportunities he has as a Christian who is scientist. Dr. Morris is Professor, Department of Biostatistics, Division of Quantitative Sciences, The University of Texas M.D. Anderson Cancer Center.

Collaboratory and Other Projects

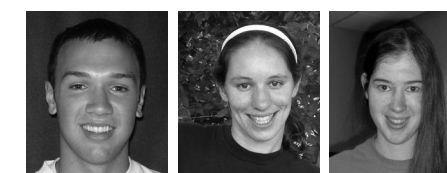
Department faculty and students have been heavily involved in three projects within the Collaboratory for Strategic Partnerships and Applied Research.

- The Mali Water Project, coordinated by SEH Dean Dr. Ray Norman, has involved IMS Department majors since its inception in 2007. Stephanie Knepper (Mathematics '11), Amanda Bonanni (Mathematics '09), and Kay See Tan (Mathematics/Economics '08) have done significant work on this project. The MWP will move into a new five-year phase in 2011-2012, providing leadership in several countries in North and West Africa through education and training for leaders in disability ministry.

- The Burkina Summer Enrichment Program, a three-year partnership with the Center for the Advancement of the Handicapped in Burkina Faso, West Africa, begins Year 3 of project work in 2011-2012. In Summer 2011, a team led by Dr. Hare and including Kimberly Frey (Mathematics-with-Certification '13), Rebecca Kharajian (Mathematics '13), and Pamela Kirkpatrick (Mathematics-with-Certification '13) traveled to Burkina Faso for one month to lead a multifaceted academic enrichment program for 30 Burkinabé children ages 10-14. The program included literacy, photography, and music instruction, all intended to increase abstract thought, as well as two mathematics curricula written by the group to meet the specific learning needs of the village children. One of these curricula was written by Bethany Blackwood (Mathematics-with-Certification '11) as the final product in her Mathematics Honors project.



Student news



Ausel Blackwood Esbenshade



Hayes Kirkpatrick Gelbaugh



Sell Stout Woolford

Honors

Patrick Ausel (Mathematics-with-Certification '12) earned the ETS (Educational Testing Service) *Recognition of Excellence Award* for his score on the Praxis Series™ Test, “Mathematics: Content Knowledge.”

Bethany Blackwood (Mathematics-with-Certification / French '11) earned department honors in Mathematics. Her project, *Math Across Cultures: A Resource for Burkinabé Children*, was directed by Dr. Hare.

Jennifer Esbenshade (Mathematics/Chemistry '11) earned departmental honors in Chemistry. Her project, *A Quantitative Analysis of the Uptake of Heavy Metals into Common Garden Vegetables from Contaminated Soils*, was directed by Dr. Richard Schaeffer. Jen, also a Statistics minor, used statistical techniques extensively to analyze data generated by her research.

Timothy Hayes (Mathematics / Philosophy '11) presented “On Induced Planar Graphs” at the EPADEL-MAA Meeting at Harrisburg Area Community College in April. This paper was based on his Summer 2010 REU work at Rutgers University. His sponsoring professor from Rutgers attended this presentation.

Pamela Kirkpatrick (Mathematics-with-Certification '13) received a Paul and Elaine Wengert Endowment for Humanitarian Service Award to partially support her Summer 2011 work in Burkina Faso.

Three 2011 Department graduates have received fully-funded assistantships or fellowships for graduate study starting in Fall 2011. **Jennifer Esbenshade** (Mathematics/Chemistry '11) was awarded a NSF Graduate Research Fellowship to study Materials Chemistry at the University of Illinois. **Corey Gelbaugh** will study Statistics at the Ohio State University. Corey’s situation is a first for our department. He graduated from Wofford College (Mathematics '11) having minored in Statistics at Messiah College. **Timothy Hayes** (Mathematics/Philosophy '11) will study Mathematics at Drexel University.

Summer Activities: Research Experiences for Undergraduates (REU’s) and Internships

Timothy Hayes (Mathematics/Philosophy '11) was awarded an REU at the Center for Discrete Mathematics and Theoretical Computer Science (DIMACS) at Rutgers University in Summer 2010 (an oversight in last year’s newsletter). His research project was entitled *Induced Planar Graphs*.

Shannon Sell (Biology '13) attended the Summer Institute for Training in Biostatistics (SIBS) at the University of Pittsburgh.

Julie Stout (Mathematics '12) obtained an internship at Oak Ridge National Laboratory, working in the Nuclear Engineering Science Laboratory Synthesis Program.

Scott Woolford (Mathematics '12) was accepted into the *Junior Fellows* Program of the Joint Program in Survey Methodology, a partnership between the University of Maryland and federal statistical agencies.

SUPPORT OPPORTUNITIES

Your continuing support of Messiah College in all ways is greatly appreciated. With respect to financial support, some of you may wish to target donations to specific projects related to the Department. Of course, your gift is doubled when your employer has a matching gift program. Consider a gift to the College that is earmarked as described below. Send

your tax-deductible gifts to Office of Development, Messiah College, Box 3013, One College Avenue, Grantham, PA 17027-9989.

- To make a donation to the Department of Information and Mathematical Sciences, put ‘Info/Math Science Dept.’ on the memo line of your check written to ‘Messiah College.’

- To support the Collaboratory Education-in-Burkina Faso projects, put ‘Collab. Education Group: BSEP’ on the memo line of your check.

RETIRED FACULTY NEWS



Robert Barrett

In June, Professor Bob Barrett was part of a team from his church that went to Port-au-Prince, Haiti to construct the foundation of a church that was destroyed by the 2010 earthquake. This was his second post-earthquake trip to Haiti.



Gene Chase

In November, Dr. Gene Chase led a team evaluating the Mathematics and Computer Science program at Gordon College.

