Join us for Homecoming!

The annual UE-nation jubilation returns! Homecoming this year is November 2-4. Amidst the general uproar of the entire campus, the math and science departments will host several events listed below. Please join us! All are welcome!

**Friday, November 2**

- 3:00 - 4:00 p.m.
  - Student Poster Presentations in Science and Math, Atrium, Koch Center for Engineering and Science
- 4:00 - 7:00 p.m.
  - Alumni Fellowship Reception for Science and Math Alumni, faculty, and students. Fehn House, 519 Rotherwood Avenue

**Saturday, November 3**

- 8:00 - 8:30 a.m.
  - Reception for Science and Math alumni, faculty, and students. Eykamp Hall, Rooms 253-254, Ridgway University Center
- 8:30 - 10:00 a.m.
  - Science Advisory Council Annual Meeting, Eykamp Hall, Rooms 253-254, Ridgway University Center
- 10:00 a.m.
  - Fifth Annual Homecoming Lecture featuring alumnus Dr. Guy Banta,’73 “Aerospace Medicine: Science and History.”

Anyone with questions or who would like to register can call 812-488-2519. Registration is not required for attendance. Thanks to David and Jennifer Pollock, co-chairs of the Science Advisory Council and Cathy Renner, Assistant Director of Gift Planning, for their dedication to this event.
Interdisciplinary Collaborations

- Joyce Stamm, PhD (Biology) with Adam Salminen (Math) recently submitted a S-STEM grant to NSF to provide scholarships for low-income students majoring in mathematics or the sciences. If funded, the grant would provide over $520,000 of scholarships over five years.

- Don Batema, PhD (Chemistry), Cris Hochwender, PhD (Biology) and Arlen Kaufman, PhD (Chemistry) are working to develop a NSF-TUES (Transforming Undergraduate Education in Science) grant for the continuation of their work on the restoration of Vectren Conservation Park.

- Kaufman, Batema, and Hochwender are also developing an NSF Research Experiences for Undergraduates (REU) proposal.

- Kristy Miller, PhD (Chemistry), Todsapon Thananathamachon, PhD (Chemistry), Erin Davis, PhD (Math), and Elizabeth Powell, PhD (Biology) are leading the development of an NSF Science, Technology, Engineering, and Math Talent Expansion Program (STEP) grant proposal.

- Drs. John (Physics) and Joyce Stamm (Biology) welcome a new addition to their family. Joyce gave birth to Charlotte Li-En on August 17, 2012. At two months old, her favorite activities are exercising her lungs and (unlike her sisters at that same age) sleeping.

Chemistry

- After 38 years of teaching, William Morrison, PhD will be retiring. He plans to travel and work on projects concerning historic preservation. He will be greatly missed, but we wish him all the best for his retirement.

- Kristy Miller, PhD, associate professor and chair of the Department of Chemistry, has been selected as one of Evansville Business Journal’s “20 under 40.” Each year, Evansville Business Journal honors 20 professionals younger than 40 who are making a difference in their field and also in the community. Congratulations, Kristy!

- In the last five years, over 95 percent of UE chemistry graduates have found jobs in industry, teaching chemistry at the high school level, or are enrolled in a graduate or professional school. That’s a stat we can live with.
MATH AND SCIENCE ALUMNI NEWS

Math

- Recent UE graduate and basic chemistry major Cody Rausch accepted a position with Absorption Research Inc. in Dublin, Ohio, as a lab technician.
- Todapon Thananatthanachon, PhD has submitted an NSF Research in Undergraduate Institutions (RUI) proposal.

Physics

- We welcome Assistant Professor Angela Reisetter as the newest member of the physics department faculty. Her research focuses on dark matter and trying to build a detector sensitive enough to identify it here on earth.
- Recent UE graduate Ryan Darwish '12 has been offered a position in medical physics at the University of Buffalo.
- Physics students Jonas Araujo and Alex DiBendetto performed summer research with Jeffrey Braun, PhD that focused on the quantum behavior of correlated photons, which they are continuing this fall.
- Recent UE graduate Kent Bayens '12 is now attending graduate school at Ball State University where he is continuing his studies in physics.
- Student Wolfe Greene participated in a 10-week research project this past summer at Duke University that focused on designing a detector array for experiments dealing with a Vancouver accelerator complex. This was made possible with support from TRIUMF, Canada’s national laboratory for particle and nuclear physics.

Math

- David Dwyer, PhD and Mark Gruenwald, PhD have received a $600,000, three-year grant from the National Science Foundation for Resequencing Calculus—Phase 2. This work is an important revision of the 3-semester calculus sequence required by students enrolled in many STEM courses. More information can be found at the UE Math Dept. web page and at resequencingcalculus.com.
- Clark Kimberling, PhD recently spoke at the 15th international conference meeting of the Fibonacci Association in Budapest, an organization of which he is also serving as vice president.
- Student Drew Reisinger conducted research at Indiana University this past summer. His project was Representing Tilings on Closed Surfaces by Quadrilaterals. He will be submitting his work for publication this fall.

Science Advisory Council

The Science Advisory Council is a forum for alumni and faculty to improve research and education opportunities at UE. They will have their annual meeting during homecoming this year, on November 2 from 3:00 - 7:00 p.m. and November 3 from 8:00 - 10:00 a.m. The Saturday meeting will be held in Eykamp Hall, Rooms 253 -254, Ridgway University Center. Saturday will also feature Guy Banta, PhD who will be discussing “Aerospace Medicine: Science and History.” Refreshments will be served. All are welcome. For questions or registration please call 812-488-2519 or e-mail mathscinews@evansville.edu.

A Note from the Editor

Welcome to our first edition of the University of Evansville Math and Science Alumni newsletter. Our communication intern (and Biology major) Chelsea Modglin and I, as well as all the department chairs, are excited to get the word out to you, the UE science and math community, about the great accomplishments of our alumni, faculty, and most importantly -- students. We'd love to hear from you as well. Please keep in touch and feel free to contact us with news and notes, both personal and professional.

Sincerely,
Noah Gordon, PhD
mathscinews@evansville.edu
Everyone struggles with something, but there are two things that sophomore Paige Shevlin can proudly say she doesn’t struggle with: diligence and commitment. A professional chemistry major and math minor, Shevlin became involved with research early on in her freshman year, and has worked tirelessly ever since.

“I wanted to get involved with something, but I just wasn’t sure what that something was,” she said. “After talking with all the professors, I decided I really liked the research Dr. (Bryan) Lynch was doing, and I’ve stuck with it.”

Her research of the last year and a half has focused on the excited electronic states of iodine, including the higher energy ion-pair states not usually studied at the undergraduate level. Her more recent studies of this subject have focused on energy transfer within and between these excited states. To perform these experiments, Shevlin and Lynch use a two-laser technique known as optical-optical double resonance.

“I was really excited to be the outstanding student my freshman year,” she said. “But I’m also really glad I got involved with research early. That’s probably been my most rewarding accomplishment.” Because of her experiences in research, Shevlin feels prepared not only for any future research she might undertake, whether in the private sector or graduate school, but also for her regular chemistry classes.

There is yet one more way that Shevlin has benefited from research: personal interaction with faculty. As far as she is concerned, its usefulness goes far beyond just being able to ask questions and get good grades.

“I’m sure you could just take classes, but it is so nice to get to know your professors and to have them know you. I love all my professors in the chemistry department. All are great teachers in the classroom and wonderful people outside of it. They’re always happy to see you and to help you whenever they can. I think that’s one of the coolest things about UE.”

She is also a member of the Honors Program and serves with the Honors Program Student Advisory Council (HPSAC). This year, Shevlin is the major coordinator of Nerd Wars, which is one of their most popular events and a fund-raising trivia night for both students and teachers.

“I’m really busy some weeks, really busy. Sometimes I think I’m not going to be able to do it all, but most weeks are not like that. Normally everything just falls into place.”

In those moments of weakness we all know so well, Shevlin copes by grabbing a deck of notecards. She then assigns each of her tasks to a notecard and tacks them to the wall. When a task has been completed, she removes its notecard from the wall and throws it away. She says the most helpful part of this strategy is just having that visual, three-dimensional representation of her to-do list. It makes her feel empowered to take it head-on, because at times, that is exactly what she does.

“Sometimes you just have to do stuff non-stop until it’s all done.”

MESCON will be held Saturday, March 23, 2013, in the Koch Center Atrium. This event provides students with the opportunity to present their research papers and projects in a competitive environment. This popular event averaging 100-150 people is now in its eighth year. The 2013 Keynote Speaker will be Rice University Assistant Professor of Computer Science and former iRobot Lead Research Scientist: James McLurkin, PhD presenting: “The Future of Robotics is Swarms.” All members of the UE community are encouraged to attend. Anyone seeking further details can contact Dr. Dick Blandford at db64@evansville.edu or visit csserver.evansville.edu/mescon.
For most people, the gap between work and play is a wide one. But for junior math and cognitive science major Drew Reisinger, there is no difference between work and play.

“It helps that I enjoy most of the work,” he said. “A lot of this is stuff I would do in my free time anyway.”

It is this genuine love for what he does that is probably at the heart of his many accomplishments. In addition to being vice president of Kappa Mu Epsilon, he earned dean’s list in the fall semester of 2010, and has done many research projects both within and outside of UE.

Recently, he is the lead author of a paper titled “Exploring Wolfram’s Notion of Computational Irreducibility with a Two-Dimensional Cellular Automaton.” Although he shares the responsibility for this paper with several other classmates, Reisinger describes being the lead author as “kind of terrifying.”

“It was a free-form seminar,” he said. “We weren’t really sure what the class was going to be about, but we knew we would get a paper out of it. It was more representative of what being an academic would be like, and having my name on something with someone [who has] as many connections as Dr. Beavers will definitely be helpful.”

He hopes someday to go on to graduate school and to become a professor. He says that having the support and guidance of the UE math department has been of great importance to him. In fact, the faculty members were his reason for coming to UE in the first place.

“There was [scholarship] money in it, definitely, but early on I felt very comfortable interacting with faculty. I guess that’s the usual small-school spiel, but it’s totally true.”

Since the paper was published, Reisinger has been very active in other research programs as well. Last summer, Reisinger participated in a summer research program at Indiana University with students from all over the nation. The program presented him with the opportunity to write another paper, and also to present his findings at a research conference.

“It’s a real sense of ownership. When you finish research, you can point to something tangible. That’s satisfying in a way that more [students] need to experience.”

He said he was surprised to find that the professors at IU were uncomfortable with being informal towards their students, which at UE is an everyday aspect of life. His personal experience makes his advice to current and future UE students all the more relevant.

“Definitely take full advantage of how supportive and interconnected [your] department is. Be proactive in interacting with your professors.”

Reisinger also insists that enjoying what you’re learning is essential. At one time, Reisinger was much like many other students: feeling pressured to get all As and score a perfect 4.0 GPA. But now Reisinger confesses that he doesn’t put as much emphasis on grades and his GPA as he did in high school, preferring instead to focus on gaining as much knowledge and enjoyment as he can from his courses.

Reisinger will be submitting a paper this fall that will focus on tilings, which he explained are simply a collection of shapes that cover a plane.

“[It’s] a certain way of looking at tilings, specifically when tilings are parallelograms. We figured out a way to fold up these tilings, and then turn that folding into a list of numbers.”

Whatever his project, you can rest assured that Drew Reisinger will be earnestly dedicating his time and effort...and loving every minute of it.

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34th Annual Virginia Tech Regional Mathematics Competition

The Mathematics department will be hosting its 34th Annual Virginia Tech Regional Mathematics Contest on Saturday, Oct. 27 from 9:00 - 11:30 a.m. in Koch Center, Room 307. This contest provides students with the opportunity to build their curriculum vitae, and cash prizes amounting to $750 will be awarded to the top finishers within the nation. Anyone seeking further details should contact Dr. Adam Salminen at as341@evansville.edu.

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There are several qualifications one must have to be a scientist. For starters, he or she must have MacGyver-level ingenuity and an acute sense of curiosity. But even with these attributes, a scientist will still be lacking if he or she does not possess a deep love for learning.

Fortunately for senior biology major Ashley Rich, loving to learn has always been one of her strong suits.

As a high school student, Rich kept busy by achieving a straight-A transcript in addition to participating in three different sports. But Rich insists that while her motivation and self-discipline have carried over into maintaining her excellent undergraduate GPA, she says that her focus has found a new target.

“I’m still motivated to do my best,” she said. “But what has changed the most is the way I think about education. I always loved learning, but now I appreciate it. UE has challenged me to think of education in that way. I’ve become a lot more passionate about biology. I loved it in high school, but it is not at all what I thought it was, and I love it even more now. It’s the science of asking questions, how you should ask questions, and getting the answers to those questions. The deeper I got into class the more I learned, the more I realized what I didn’t know and the more motivated I was to find out what I didn’t know.”

It is this motivation that has inspired Rich’s outstanding work in research. Her sophomore and junior years, she was involved in summer research here at UE with Drs. Brian Ernsting and Dale Edwards. This work focused on the co-evolutionary relationship between *Unionicola* water mites and their host freshwater mussels.

In the spring of this year she presented her undergraduate research at MESCON with fellow UE student Lauren Bernier, where they took first prize for their paper and presentation.

“For a campus this size, MESCON is an excellent opportunity to practice presenting your research,” she said. “If you never present, you’ll never get people to care about what you’ve done.”

This past summer, she performed research on an optogenetic protein-protein interaction system at the University of Chicago and optimized it for use in yeast. This particular system has a fascinating ability to auto-inactivate with the removal of its original stimulus, which in this case is always light, a phenomenon that is relatively new to optogenetics.

The more intensive research environment gave her the opportunity to work alongside scientists at different stages in their careers. So, aside from working with the principle investigator, Dr. Glotzer, she also worked with two post-doctorates, three graduate students, and a lab technician. Of all her accomplishments, she looks upon this research as being her greatest.

“There was a totally new level of research. I learned techniques and skills that I wouldn’t have been able to learn here because we are a small school. It challenged me to think in a completely different way. And as a scientist, it’s important to be able to think outside the box.”

She will be presenting her research at this year’s MESCON. She also presented her *Unionicola* water mite research at the National Council of Undergraduate Research (NCUR), a prestigious meeting attended by students from all over the nation. She plans to present her research on the optogenetic protein-protein interaction system at the 2013 convention.

“It’s like a massive MESCON,” she said. “I liked it especially because I got to see what other students were studying. It was like, ‘Whoa! I didn’t even know people were working on that!’”

Although Rich has certainly enjoyed these experiences, she is very excited about her next big adventure: graduate school. She feels that doing research as a UE undergraduate has fully prepared her not only for this next step, but for achieving her ultimate goal of becoming a professor and running her own lab one day.

Wherever she goes and whatever she does, there is no doubt that Rich will continue to enjoy studying molecular and cellular biology, and reaping the rewards of sharing her enjoyment with other students.

“I love it when other people realize, ‘Oh, this isn’t a completely evil subject. It’s really cool when you can finally make something click for someone else, especially non-biology majors. You can see them gain an appreciation for biology.’

### 73rd Annual William Lowell Putnam Mathematical Competition

The Mathematics department will be hosting its 73rd annual William Lowell Putnam Mathematical Competition on Saturday, December 1 from 9:00 a.m. to noon, and also from 2:00 - 5:00 p.m. This event gives students the chance to build their curriculum vitae, and prizes will be given to the highest placing individuals, teams, and departments. Refreshments and a lunch will be provided. Anyone seeking further details or students who wish to participate should contact Dr. Adam Salminen at as341@evansville.edu.