

In this issue of the Micelle we will take a little time to highlight new programs at Augsburg (Augsburg STEM Scholars) and Dixie Shafer of URGO, who undrewrites so much of the success Augsburg students have.

Thank You!



Students at teachers doing science.

## Bringing science teachers together with preservice students for STEM research

For over nearly 50 years Augsburg College has been offering undergraduates the opportunity to do summer research. Through the generosity of the Margaret A. Cargill Foundation, Augsburg offered six secondary STEM teachers the opportunity to engage in science research for the purpose of acquisition of science content knowledge and science content knowledge for teaching. Participating teachers partnered with Augsburg STEM faculty and a preservice science researcher on questions from physics, chemistry and biology.

During the two-week program, teachers reviewed concepts and research literature and designed and carried out laboratory experiences they could bring back to their high school classrooms. The teachers and preservice students came away with useful resources, effective teaching strategies, and curriculum planning for incorporating hands-on investigations connected ongoing scientific research questions.

The program will be offered again this year June 17-28, 2013. The program is funded by the Margaret A. Cargill Foundation and includes participant support in the form of a stipend for participation, CE credit, and academic year support for materials and/or professional development to implement research related activities into curriculum. If you are interested, please contact Professors Bibelnicks and Stottrup for more information for the summer 2013 program.

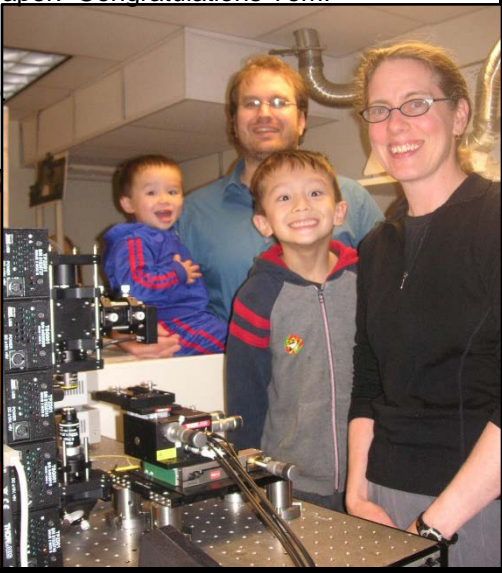


Summer 2012 BBQ

## RECENT NEWS

- Prof. Stottrup was awarded a grant from the National Science Foundation's division of Materials research to continue his studies of membrane phase behavior.
- Dr. Sarah Keller, membrane chix extrodairaire and great supporter of Augsburg Biophysics visits (see photo).
- Prof. Stottrup was also invited to give the Chemistry Colloquia at the University of Minnesota Duluth.
- Dr. Roy Black was a featured speaker on a lipid-world origins of life workshop between St. Olaf and Augsburg.
- Dr. Erkan Tuzel provided an introduction into computational physics techniques. Students from across the campus as well as Bill Titus's research lab at Carleton College attended.
- Promise Okeke, Luis Hernandez, and Andris Bibelnicks present at IPrime's Microscopy Across the Disciplines. Dereck Dasrath also presented results of his work on superhydrophobic surfaces.
- Luis Hernandez and Trevor Rodriguez-Sotelo attend the national meeting of Hispanic engineers (Thank you Professor Murr for providing funding.)
- Lab alumni earn S-STEM scholarships Ben, Eric, Gottlieb, Nathan Ly. Congratulations gentlemen!
- Tom Lopez, now at UC Riverside grad student came back to recruit. Tom also has passed his general exam and published his first paper. Congratulations Tom!

Photo captions: BL: Ben Grant shows off optical trap; M: Auggies at comp biophys workshop; BR: SLK visits the lab.







We sat down with Dixie Shafer, Director of the Office of Undergraduate Research and Graduate Opportunity (URGO) to ask her some questions about URGO and summer research in general.

**Do you feel it's important for students to have summer research experience and if so, why?**

I think it's critical that they have summer research experience. It helps them apply what they've learned in the classroom to "real world" problems and it helps them get acclimated to the discipline. They learn what they are capable of and they gain the clarity of "Do I want to pursue research in graduate study or not?" Graduate schools expect students to have research experience. It's hard to get admitted to graduate school without any research experience. And it's fun that you're being paid to do academic work and that there's an opportunity to contribute to the body of knowledge in their field. It helps students gain confidence, they start to think, "Oh, maybe I can apply for that fellowship." They start to see more options for their future when they do research.

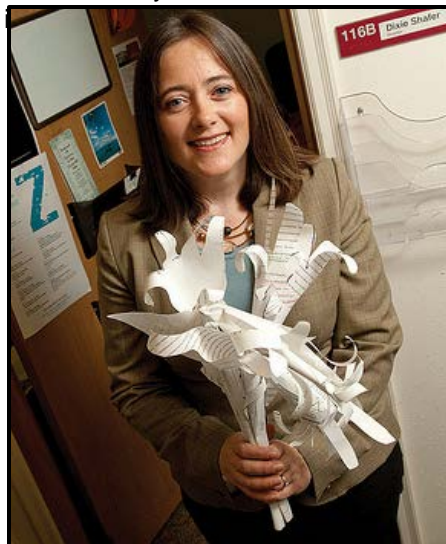
**What do you feel students get out of summer research that they can't get from classes?** With summer research, here or off-campus, the students have the luxury of thinking about only one thing. Normally they have to balance three or four classes, but with summer research there's an opportunity to really dig into a subject and think about it more deeply than they can in classes. With research there's often daily troubleshooting that won't happen in classes and that's an important skill to learn for graduate school and beyond.

**How do you think undergraduate research affects students' choices of graduate school or career?**

It gives students more choices because it makes them more competitive and attractive to schools and employers. It helps them narrow their choices, gives them a better idea of what they might want to specialize in going forward. If you go off-campus you have an opportunity to talk to so many people, and you can talk to them about their educational experiences. Where did they go to school, what worked for them and what didn't, what they might do differently. Students can find a better match after graduation because they learn that they are capable of *producing* knowledge.

**What do you look for in students pursuing summer research?** Students who are passionate about learning and discovery, who are responsible and have a strong work ethic. You have to be self-motivated so that a faculty member doesn't have to lead you through every step. Not that you won't receive guidance or mentoring, but that there's a level of independence. Persistence is important, too. They have to be able to come in the next day knowing that things have gone wrong and they have to start all over again. Also- because students here work in a group- there has to be, not only a desire to succeed, but a desire to help others succeed.

**What advice would you give to students?** Spend your summers wisely, consider them an extra semester. While making money is important, you have to take on some responsibilities that help you decide what you want to do in the long term. Maybe you have to work during the summer, but find a way to spend 10 hours a week doing something that will help you say, "I love this thing," or, "I don't love this at all." Could you volunteer with a faculty member while working another job? That's another thing, know your faculty well. You can learn so much more deeply about your field and they can recommend programs to you that you haven't even heard of. And read your e-mail, there are a lot of events and opportunities advertised there. And try to be an interesting person. There are so many ways to enrich yourself. Travel, read, go out into the community; all those things help you decide what you want to do. And ultimately, life is just more used.



**What do you like best about your job?**

I love hearing students' stories; I feel that it's a privilege to hear their stories. I like that I get to help them articulate and sometimes discover their own stories. Like when students leave my office feeling that they have their own story. **And I love alums, I love when students come back**

**or send an e-mail to say, "This is what I'm doing now."** It's so fun to know what students are doing and it can make your day or week. I talk to alums every week, and that's a nice feeling. I also love working closely with faculty. It's almost like being a student, I get to learn about their field and get excited about what they're excited about. And overall, it's exciting to take a student from lacking confidence to a place of confidence and awareness of what they want to do next.

**Special Thanks To:** Anonymous Donors, Augsburg College and URGO; Dean and Amy Sundquist; Ken Rosenblum; and the NSF DUE 0837182; CHE 1040126 & DMR 1207544

**GET INVOLVED!** We have many great projects for students in the lab. If you're interested in becoming involved, please contact:

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