

# AUGUSTANA

## DEPARTMENT OF BIOLOGY

### FROM THE DEPARTMENT CHAIR...

**G**reetings from Augustana College! If you are looking for a good investment for these tough economic times, look no further than the Augustana Biology Department. I am happy to report that the "state of the department" is excellent. Despite concerns that Fall, 2009 enrollment might be lower, we have once again brought in a bumper crop of new 1st year Biology students. We began the year with 86 new biology majors and 249 total Biology majors (the highest in more than 10 years). I have to credit my colleagues for this recruiting

average acceptance rate into medical school continues to be around 90%. All in all, it's a great day to be a biologist!

The Department continues to change. In terms of personnel, Dr. Mark Larson successfully completed his 3rd year (pre-tenure) review; Dr. Paul Egland submitted his Tenure and Promotion to Associate Professor application; and Dr. Michael Wanous applied for promotion to full professor. This summer we welcomed our newest faculty member, Dr. Jenny Arens Gubbels. Dr. Gubbels will be offering a new 300 level



*Biology Department Members: L to R: (front) Val Olness, Libby King, Cheryl Holzapfel, Joan Ashton (back) Craig Spencer, Ann Vogelmann, Mike Chapman, Jennifer Arens-Gubbels, Paul Egland, Steve Matzner, Mark Larson, Amy Lewis, Mike Wanous*

success. They are the backbone of our strong academic program and they take the time to meet with prospective students. Our location in Sioux Falls and all the opportunities our students have (internships, shadowing, jobs) also makes it easy to sell Augustana as the place to be. Prospective students are impressed by the many research opportunities; this past summer, over 30 Augustana Biology majors were conducting a wide variety of research. Our emphasis on faculty and student research has resulted in 8 publications by Augustana Biology faculty so far in 2009! These publications include 23 student co-authors. Our graduate and medical school acceptance rates continue to be high. Our 5 year

Advanced Human Physiology class for Biology majors this coming Spring. This Fall, in collaboration with the Chemistry Department, we got a new Biochemistry major approved and look forward to recruiting students for this major. Dr. Gubbels and Dr. Ann Vogelmann worked together to order new physiology measuring equipment, software, and laptops to be used in our two physiology classes. This was a much needed update for our physiology labs. We are very excited about these additions to both our faculty and our curriculum!

I continue to be the advisor to Augie Green

[continue article on page 2](#)

#### NEWSLETTER



AUGUSTANA  
COLLEGE  
SIoux FALLS, SD  
57197  
[www.augie.edu](http://www.augie.edu)

## Check out the Faculty Home Pages on the website

[www.augie.edu/academics/biology](http://www.augie.edu/academics/biology)

## Additional Email Addresses in Biology

(Please note the faculty addresses are listed throughout this letter.)

Joan Ashton  
(Greenhouse/Animal Room)  
[joan.ashton@augie.edu](mailto:joan.ashton@augie.edu)

Mike Chapman (Research Associate)  
[michael.chapman@augie.edu](mailto:michael.chapman@augie.edu)

Cheryl Holzapfel (Office)  
[cheryl.holzapfel@augie.edu](mailto:cheryl.holzapfel@augie.edu)

### EMERITI

Gilbert Blankespoor  
[gil.blankespoor@augie.edu](mailto:gil.blankespoor@augie.edu)

Maureen Diggins  
[maureen.diggins@augie.edu](mailto:maureen.diggins@augie.edu)

Leland Johnson  
[leland.johnson@augie.edu](mailto:leland.johnson@augie.edu)

Lansing Prescott  
[lansing.prescott@augie.edu](mailto:lansing.prescott@augie.edu)

Larry Tieszen  
[larry.tieszen@augie.edu](mailto:larry.tieszen@augie.edu)

## DEPARTMENT CHAIR continued...

(student environmental awareness club) which has done an excellent job connecting with various organizations and groups in Sioux Falls. On the teaching front, besides my usual (Terrestrial Plant Ecology and Biology 121), I was a guest lecturer for "Is Globalization Sustainable" last Fall, and am looking forward to team teaching the course "Evolution: Darwin's Descent with modification" with Dr. Eglund this coming interim. On the research front, I was fortunate again to be part of a paper published in *Molecular Ecology* with Dr. David Siemens at BHSU titled "Plant chemical defense allocation constrains evolution of local range," which included some carbon isotope measures I made for him. Also, Craig Spencer and I had our paper published in the *American Midland Naturalist* on forest encroachment at Newton Hills State Park. I continue to work on my grant, "Long-term hydraulic acclimation," funded by the U.S. Department of Agriculture and began a collaboration with Dr. Wanous and Dr. Storlie looking at water-use traits in wheat and its progenitors.

In August, I returned from an excellent Ecological Society of America

Conference in Albuquerque, New Mexico. Two of my students (Jonathan Hawkinson, Senior, St. Peter, MN and Natalie Ronning, Junior, Rapid City, SD) presented a poster of our research on how the hydraulic system of plants changes under different light levels. A highlight for me was the "Augustana Alumni Lunch" attended by myself, my research students, and three other ecologists (Dr. Steve Archer, U. of Arizona (Class of 1975), Dr. Paul Barnes, Loyolla (Class of 1978), and Dr. Joe Von Fischer, Colorado State University (Class of 1991). It was a great opportunity to visit with them and introduce my students to alums in field.

On the home front, Daniel turned 14 and just started at Lincoln High School. Joshua is in 7th grade at Patrick Henry and Luke is in 3rd grade at Mark Twain Elementary. With three kids in three different locations, mornings are a challenge! A highlight for our family this past summer was spending a week at Disney World and three days at the beach in St. Petersburg. We braved the daily thunderstorms at Disney World and thoroughly enjoyed evening strolls upon the beach in St. Petersburg.

Hope this finds you well. Best wishes.

**Steve Matzner**

[steven.matzner@augie.edu](mailto:steven.matzner@augie.edu)

## FROM THE FACULTY

## Augustana Now Offering A New Biochemistry Major

This rigorous, cross-disciplinary major is intended to provide graduates with the ability to readily integrate biology, chemistry, physics, and mathematics and to provide the tools necessary to break boundaries in scientific exploration.

Hello Bio Friends-

It has been busy and productive year here at Augustana! A teaching highlight for me this year was a new course that I taught with Dr. Michael Mullin from the History Department. The course, "Germs Gone Wild: The Influence of Disease on Civilizations," looked at several infectious diseases (e.g. small pox and the black plague) and how the diseases shaped society. The course was part of the Augustana honors program, Civitas, so it included many non-majors. It was nice to meet students from outside GSC.

A major research accomplishment was the publication of my research with five Augustana student authors in the *Journal of Bacteriology*. Two of the students, Eric Ransom (Wolsey, SD) and Ben Jensen (Rapid City, SD), were able to

present part of that work at the International Conference on Gram Positive Pathogens last fall. Ben Jensen, Marissa Kern (Porter, MN) and Blake Ridgway (West Des Moines, IA) joined me in the lab this summer to continue our work aimed at understanding the molecular biology of how one species of oral bacteria changes its gene expression when grown with another species.

My family has had a great year. My wife, Kristi, is busier than ever with her growing lab at Sanford Research. In the last year, she has served as the Honorary Survivor for the inaugural South Dakota Susan G. Komen Race for the Cure and has been the first recipient of a Koman breast cancer research grant in South

continues on page 3

# Biology Majors

## 2009 Admissions to Professional and Graduate Programs

(Seven students from other academic majors were also accepted into health related graduate and professional schools in 2009.)

### GRADUATE PROGRAMS

Katelin Ahlers (Assistantship) U of Iowa  
Ph.D. Program, Developmental Biol.

Joseph Ashmore ('08) Penn State  
Ph.D. Program, Nutritional Sciences

Daniel Day (NSF Graduate Fellowship) Harvard/MIT/  
Health Sciences & Technology  
Ph.D. Program, Medical Engineering & Medical  
Physics/Bioinformatics & Integrative Genomics

Nicholas Klein (Fellowship) U of Southern California  
Ph.D. Program, Geobiology

Braedan McCluskey (Fellowship) U of Oregon  
Ph.D. Prog., Dept. of Biol. & Inst. of Neuroscience

Jon Christensen Univ of South Dakota  
M.S. Program, Biomedical Sciences

### M.D./Ph.D. PROGRAM

Joseph Coppock (Sanford Research Fellowship)  
USD Sanford School of Medicine

### MEDICINE

Tyler Koedam ('08) USD Sanford School of Medicine  
Melissa St Aubin (Vines Litman Scholarship)  
U of Minnesota, Twin Cities

Jessica Vogelaar U of Minnesota, Duluth

### OSTEOPATHIC MEDICINE

Nicholas Masyga ('07) Des Moines U of Osteopathic Medicine

### CHIROPRACTIC

Megan Thooft Northwestern College of Chiropractic

### AUDIOLOGY (DOCTORAL PROGRAM)

Alexander Helbig U of Nebraska, Lincoln

### PHYSICAL THERAPY (Ph.D. PROGRAM)

Rachel Koenig U of Minnesota

### OPTOMETRY (DOCTORAL PROGRAM)

Amanda Korth Pacific U (Oregon)  
Alexander Moses U of Penn. College of Optometry at Salus U

### NURSE MIDWIFERY (M.S. PROGRAM)

Annie (Dykstra) Gilbertson ('04) Philadelphia U

### OCCUPATIONAL THERAPY (M.S. PROGRAM)

Cassie Aspen Wash. U School of Medicine, St. Louis

### CLINICAL LABORATORY SCIENCE PROGRAM

Amanda Rasmussen Sanford Health

## FROM THE FACULTY CONTINUED

Dakota. My daughter, Claire, entered first grade this fall. Clark, my son, wishes he were going to kindergarten, although he's got a couple years to wait.

I've enjoyed seeing those of you that have visited the department this year. Please stop by when you are in the area. Have a great year.

**Paul Eglan**  
*paul.egland@augie.edu*

Hello everyone! My name is Dr. Jenny Gubbels, and I am the new physiology professor taking the place of Dr. Maureen Diggins, who recently retired from teaching. I am thrilled to be here at Augustana and am looking forward to meeting all of the past and present students in the biology department!

In April I finished my Ph.D. in Endocrinology-Reproductive Physiology

at the University of Wisconsin-Madison. My research there involved studying the molecular reasons behind the dysfunctionality of the immune system in ovarian cancer. We used novel treatment molecules *in vitro* called immunocytokines to help the immune cells attack the tumors more effectively. I hope to continue a branch of that research here at Augustana next summer with a few BRIN students. This fall, I'll be teaching Bio 120 and Physiology 225 with Dr. Vogelmann, and then in the spring I am offering a 300-level physiology class. Eventually, I'll also be offering a 300 level immunology class. It's going to be an exciting year full of new things to learn -- I'm really looking forward to it!

Our family has made our home in Brandon, since my husband, Michael, is an

agronomist in Valley Springs. We have a 2-year-old daughter, Samantha, who gets cuter by the day! We still can't figure out where her curly blonde hair came from, but I don't think she minds the attention it gets her. My husband and I are both from Randolph, Nebraska, which is in the northeast corner of the state. We were very happy to move here to get back closer to family.

I hope everyone has a great year-- please stop by and introduce yourself if you are around the GSC!

**Jennifer Gubbels**  
*jennifer.gubbels@augie.edu*

continues on page 4

## FROM THE FACULTY CONTINUED

Dear Ones,

This February, I will have been at Augie for 16 years. That simply does not seem possible. The school year is always busy with labs and lab reports--busy in a good sense as I so enjoy teaching you all, you know that--and the summer flies by all too quickly with microscope cleaning. Our 17 month-old grandson, Will, continues to delight us all. He knows about 20 animal sounds and movements. Being a microbiologist, I am going to teach him amoeboid movement of *Entamoeba histolytica* and helical motility of *Treponema pallidum*. Now, won't that give me something to brag about at the next ASM meeting? You all take care of

yourselves and please stop by to say hello whenever you are in the area.

**Libby King**

*libby.king@augie.edu*

Greetings friends and alumnae! This academic year will bring forth two important milestones for me. The first is that my inaugural students from 2006-07 will now be seniors, so I will have seen my first class from start to finish. The second (and quite a bit more important) will be a new member to the Larson and Twa household, as we are expecting our first child in mid-November. Needless to say, this year will be quite different than years prior! The transition into fatherhood will be made a bit simpler by not teaching any new courses this coming year, and I can continue to make refinements to all of the new teaching labs that have been introduced in the past two years.

This past summer saw Jillian Tholen ('10, Tracy, MN) continue my research with Dr. Bill Harris at Sanford Health on the effects of omega-3 fatty acids on platelet function. With her findings building on the work by many other students, we hope to submit our findings for publication at the end of the fall semester. My research took a significant turn in another direction this summer as well -- specifically, 1,500 miles to Boston! I took two students -- Matt Braithwaite ('11, Sioux Falls, SD) and Jordan Anderson-Daniels ('10, Brandon, SD) to work in the lab of Dr. Joe Italiano, Jr., a world-renowned researcher at the Brigham and Women's Hospital in the field of platelet biogenesis. Along with Dr. Italiano's postdoctoral fellow, Dr. Jonathan Thon, we discovered that cues from the bone marrow matrix help induce the body to make more platelets. We believe that this novel discovery brings clarity to the decades-old question about how cells in the bone marrow make platelets. In addition to our generous Boston hosts, I must give thanks to the South Dakota BRIN grant which made all of this research possible.

Finally, thanks to all of you for your continued support of our department!

**Mark Larson**

*mark.larson@augie.edu*

*Science Education,*

Stay tuned for coming attractions...

**Val Olness**

*val.olness@augie.edu*

Greetings,

I just witnessed an amazing mayfly hatch on Lewis and Clark Reservoir on the Missouri River. The air was filled with adults, the water surface was covered with larval exuvia, and the fish and swallows were gorging themselves. Cycles of life. All signs of a pretty healthy body of water, but I'm not sure the average lake visitor viewed it this way!

While my roots are in aquatic ecology, I find myself drawn more and more each year to prairies of South Dakota. Since coming to Augie in 1991, students in my Ecology classes have been documenting a gradual loss of natural habitat in nearby Newton Hills State Park. This year, I wanted to try to move beyond just *documenting* the changes, to see if we might try *doing* something about it. Working with Mark Steck and his staff at Newton Hills we informally "adopted" a small oak-savanna located on a ridge top in heart of the Newton Hills. This area contains some big beautiful bur oak trees interspersed with small patches of native prairie; however, the habitat is rapidly being overgrown with shrubs and other tree species. Beginning this Fall I am including a service learning component to my Ecology Class and students will help clear invading plants from our adopted site. *BBB* will also likely get involved.

One of the biggest challenges is invasion by smooth sumac. Once established, it is very difficult to control. As part of our work we also have set up a series of 45 experimental plots in which we are testing various sumac control methods (ex. burning, cutting, herbicides, grazing), in hopes of identifying the most effective strategy for Newton Hills. Jacob Anderson (class of 2011) is helping with the sumac research this summer. It's the start of a long-term restoration effort, but I dream some day of being able to take hike at Newton Hills, through a carpet of native grasses and forbs amidst a

### New Faculty Profile

**Dr. Jenny Arens Gubbels**

Start Date: Summer, 2009

Research Interest: Mechanisms of metastasis and immune escape in epithelial ovarian cancer.

Teaching: Introductory Biology, Human Physiology, Advanced Human Physiology, Immunology.

Education: Ph.D., University of Wisconsin, Madison.

**Dr. Daniel Howard**

Start Date: Summer, 2010

Research Interest: Evolution and diversity of acoustic and vibrational repertoires in insect reproductive behavior.

Teaching: Introductory Biology, Evolution, as well as other classes yet to be finalized.

Education: Ph.D., University of Tulsa. Currently Dr. Howard is finishing a postdoctoral position at the University of Toronto.

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## FROM THE FACULTY CONTINUED

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scattered canopy of beautiful spreading bur oaks, maintained simply with a prescribed burn every few years.

On the home-front, our youngest daughter Louise is fledging the nest this Fall, heading to Germany as an exchange student and then college. Cycles of life. I wish you all a healthy and fulfilling year.

**Craig Spencer**  
*craig.spencer@augie.edu*

Hi,

This past year was a challenging one for me as I taught Human Physiology and

its six labs by myself. It was a wonderful experience! During interim I taught Biology & Human Concerns with Dr. Amy Lewis, and during the spring semester I again taught Human Anatomy. For the third summer in a row I offered Human Anatomy during the first summer session and had my largest enrollment ever! I look forward to the upcoming fall semester when I will be sharing the Human Physiology teaching duties with our new physiologist, Dr. Jenny Gubbels. We are excited to begin using new physiology lab equipment that replaces

the old unigraphs that many of you likely remember. Thanks to all the students, faculty, and staff, who make Augie such a wonderful community. Best wishes to all!

**Ann Vogelmann**  
*ann.vogelmann@augie.edu*

It has been another great year in the Biology department and Gilbert Science

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## BIOLOGY DEPARTMENT PUBLICATIONS

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The year 2009 turned out to be a great one for publications in the Biology Department. Many Augustana students are co-authors on these papers. There are also several collaborators from other institutions. Papers accepted for publication or already published include the following:

**Steve Matzner** and David Siemens (BHSU) published a paper in *Molecular Ecology* on plant chemical defense in a wild mustard species.

**Maureen Diggins** published a paper with John Brannian (SSOM of USD) and former Augustana students **Mandi Greenway, Cody Henriksen** and **Kim TeSlaa** in the *Journal of Ovarian Research*. The paper topic was on how progressive obesity leads to altered ovarian gene expression in the Lethal Yellow Mouse.

**Paul Eglund** published a paper with Kristi Eglund (SSOM of USD) and former Augustana students **Bart Johnson, Ben Jensen, Eric Ransom, Kim Heinemann,** and **Kelly Vannatta**. The paper on interspecies signaling between two oral bacteria was published in the *Journal of Bacteriology*.

**Mike Wanous** and **Eric Storlie** published a paper with a host of Augustana students including **Rob Ihry, Leslie Baehr, Karissa Tieszen, Jon Engbers,**

**Jordan Anderson-Daniels, Elizabeth Davis, Annie Gilbertson, Niels Harden, Tina Harris, Amanda Johnson, Amy Kerkvleit, Matt Moldan,** and friend of Augustana, **Megan Bell**. This paper on the genomic regions influencing gene expression of HMW glutenins in wheat was published in *Theoretical and Applied Genetics*.

**Craig Spencer, Michael Chapman** and **Steve Matzner** published a paper with Mark Steck (Newton Hills State Park) and Augustana students **Jason Smalley, Matt Bukrey** and **Jenny Onberg**. The paper on Forest Expansion and Soil Carbon Changes at Newton Hills State Park was published in the *American Midland Naturalist*.

**Mark Larson** and several collaborators published a paper describing factors mediating platelet activation in the *Journal of Thrombosis and Haemostasis*.

**Jenny Gubbels** and several collaborators published a paper on describing the cytotoxic effects of several drugs on ovarian cancer cells in *Gynecological Oncology*.

**Jenny Gubbels** and several collaborators published a paper characterizing an ovarian cancer tumor marker in the *Journal of Ovarian Research*.

## Our Faculty Associates

**Libby King**, faculty associate and the laboratory coordinator for the Biology Department. She teaches labs for Introduction to Biology Principles I, Genetics, Cell Biology, Introductory Microbiology, and General Microbiology. She received her bachelor's degree in medical technology from Southwest Missouri State and her master's degree from the University of Missouri at Kansas City. She has been certified in medical technology by the American Society of Clinical Pathologists.

*libby.king@augie.edu*

**Amy Lewis**, Ph.D. in Biological Sciences from South Dakota State University. Amy first joined the Biology Department as an Assistant Professor for the 2004 and 2005 academic years. She rejoined the Department in the spring semester of 2008 and continues teaching through this next academic year. Courses taught include Biology and Human Concerns, Biological Principles I, Principles of Ecology, Ornithology, and Introduction to Environmental Science.

*amy.lewis@augie.edu*

## FROM THE FACULTY CONTINUED

Center! We continue to attract excellent students and provide them with an outstanding liberal arts and biology education. It is so exciting to see our students graduate and progress to grad school, med school, teaching, and other important endeavors.

We continue to work on the planning for an expansion and renovation of the Gilbert Science Center. The recession over the last year slowed down our fundraising efforts but momentum is again building for this project. In early summer, a dedicated team worked on a grant proposal to the NIH Recovery Act Extramural Research Facilities Improvement Program in order to support the GSC expansion project. We submitted this \$13.6 million proposal in June. I am sure the competition will be fierce, but whatever the outcome I am confident we put together an excellent proposal. I anticipate being able to report good news about the GSC project in next year's newsletter article!

This summer saw another wonderful season of research on wheat genetics. Four students joined my postdoctoral fellow, Dr. Eric Storlie, and me. Heidi Senst (Aberdeen, SD), Tonya Olson (New London, MN), Meredith Reynolds (Sioux Falls), and Austin Vande Berg (Sioux Falls) worked to expand our understanding of the regulation of the genes in the starch biosynthesis pathway in wheat. Austin and Tonya also worked on a joint project with Dr. Steve Matzner looking at drought resistance characteristics of wheat and its progenitors. This year we also celebrated the publication of a paper on our work in the journal *Theoretical and Applied Genetics*. This paper describes the work we did from about 2002-2008, and includes

13 student co-authors! You can check it out at: <http://www.springerlink.com/content/vj66507n405840h6/>.

This fall the Biology and Chemistry departments are working on the development of a possible biochemistry major. As we get input from these two departments, plus Physics, we will see how this new major could provide an

exciting new option for students at Augustana College. With the arrival of a talented new biochemist in the Chemistry department this fall, Dr. Jared Mays, and the addition of Dr. Mark Larson to the biology department a few years ago, we feel this is the right time to move on this initiative.

This August I read a book that has had a profound effect on how I see the world. In *The Hole in Our Gospel*, Richard Stearns, CEO of World Vision, U.S., relays the story of suffering and death from poverty and disease that a large proportion of the world's population endures, and wonders why Christians show very little awareness, interest, and action in alleviating the suffering of our "neighbor." This fall I want to try to expose my students to the poverty of the world's poor and show them that they can make a difference. I am setting up teams for my four Genetics lab sections on Kiva.org for a competition to see who can invest the most. "Kiva's mission is to connect people through lending for the sake of alleviating poverty." It is a person-to-person micro-lending website, empowering individuals to view project portfolios and lend directly to entrepreneurs around the globe and help raise them out of poverty. The prize for the lab section that invests the most is the privilege of doing whatever they want to Dr. Wanous' hair on the last day of lab. I definitely encourage you to read Stearns' book and also check out [www.kiva.org](http://www.kiva.org). Maybe even choose a lab section and help them out! Soli Deo Gloria!

**Mike Wanous**

*mike.wanous@augie.edu*

### Congratulations 2009-2010 Scholarship Recipients

#### Sven G. Froiland Scholarship in Biology

Casey Ortbahn	Pierre, SD
Benjamin Parsley	Flandreau, SD
Meredith Reynolds	Sioux Falls, SD
Kristina Roth	Sioux Falls, SD
Jared Soundy	Sioux Falls, SD

#### Will Rosine Memorial Scholarship

Matthew Moldan	Lamberton, MN
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#### Dilwyn Rogers Ecology Scholarship

Megan Overlander	Circle Pines, MN
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#### Stalheim-Smith Biology Teaching Scholarship

Jenni Simmons	Sioux Falls, SD
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#### Ora Runestad Biology Scholarship

Natalie Ronning	Rapid City, SD
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#### Y.T. Johnson Pre-Medical School Scholarship

Alexandria Barrett	Whitewood, SD
MacKenzie Beukelman	Sioux Falls, SD
Matthew Braithwaite	Sioux Falls, SD
Kayla Graber	Hurley, SD
Derek Harmon	Lake Mills, IA
Jonathan Hawkinson	St. Peter, MN
John Hokanson	Cottonwood, MN
Rachel Hurley	Canton, SD
Benjamin Jensen	Rapid City, SD
Brian Juber	Worthington, MN
Matthew Moldan	Lamberton, MN
Aubry Monnier	Omaha, NE
Maricia Pick	Edgerton, MN
Miriam Rollason	Isabel, SD
Rebecca Schieffer	Parkston, SD
Kyle Tamminga	Rochester, MN
Emily Thornton	Sioux Falls, SD
Austin Vande Berg	Sioux Falls, SD
Bethany Zogg	Albert Lea, MN



Meredith Reynolds, Heidi Senst, Austin Vande Berg, and Tonya Olson at the BRIN summer research poster presentation.

## Biology Seminar Series

Each semester we host several research seminars covering a broad range of current biological topics. Our series is designed to provide opportunities for students and faculty to interact with scientists from other institutions. These seminars are open to the public. Check the Biology Department home page for periodic updates.

If you would like to receive notification of the seminar schedule, please send your email address to Cheryl at [cheryl.holzapfel@augie.edu](mailto:cheryl.holzapfel@augie.edu)

## RESEARCH PROJECTS IN BIOLOGY 2008-2009

**Paul Egland:** "Induction of *S. gordonii* AmyB Results in Hydrolysis of Intracellular Stored Glycogen," and "GFP Codon Optimization for Expression in *Streptococcus gordonii*."

**Funding:** NIH-INBRE

**Students:** Ben Jensen ('10); Marissa Kern ('11); Blake Ridgway ('11)

**Mark Larson:** "Mechanisms of Platelet Release and Proplatelet Formation From Mature Megakaryocytes." (at Brigham & Women's Hospital/Harvard Medical School with Dr. Joseph E. Italiano)

**Funding:** NIH-INBRE

**Students:** Jordan Anderson-Daniels ('10); Matthew Braithwaite ('11)

"Effects of omega-3 fatty acids on collagen-induced platelet signaling." (with Dr. Bill Harris, Sanford Research)

**Funding:** NIH-INBRE and Sanford Research

**Student:** Jillian Tholen ('10)

**Steve Matzner:** "Hydraulic Acclimation and Contrasting Water Use Strategies in Two Cultivars of *Phaseolus vulgaris*."

**Funding:** USDA

**Students:** Jonathan Hawkinson ('10); Natalie Ronning ('11)

"Polyploidy, Domestication and Abiotic Stress in Wheat." (with **Drs. Mike Wanous and Eric Storlie**)

**Funding:** NIH-INBRE

**Student:** Austin Vande Berg ('10)

**Craig Spencer:** "Prairie Restoration: Sumac Control at Newton Hills State Park."

**Funding:** Augustana Research and Artist Fund

**Student:** Jacob Anderson ('10)

**Mike Wanous:** "Regulation of the Starch Biosynthesis Pathway in Wheat." (with **Dr. Eric Storlie**)

**Funding:** NIH-INBRE

**Students:** Heidi Senst ('11); Meredith Reynolds ('12)

"Polyploidy, Domestication and Abiotic Stress in Wheat." (with **Drs. Eric Storlie and Steve Matzner**)

**Funding:** NIH-INBRE

**Student:** Tonya Olson ('11)

### Nineteen additional Biology majors participated in Summer Research at the following institutions:

University of Wisconsin, Madison  
 Sanford Research/USD (Sioux Falls, SD)  
 Avera Research Institute/USDSSM/V.A.  
 Augustana College, Chemistry Department

USD Sanford School of Medicine, Vermillion, SD  
 Hematech



2001 SOUTH SUMMIT AVENUE  
SIOUX FALLS, SOUTH DAKOTA 57197

DEPARTMENT OF BIOLOGY

NON-PROFIT ORGANIZATION  
U.S. POSTAGE PAID  
SIOUX FALLS SOUTH DAKOTA  
PERMIT NO. 5

## Thanks To Our Contributors

As we reviewed the Department's restricted spending accounts at the end of 2009 we were happy to see that some of our endowed accounts had recovered from the economic downturn and that our Gift Account had a very healthy balance thanks to the generosity of many of you. This summer we plan to fund two summer research students and send at least one of these students to a National Meeting using the Gift Account and some endowment money. Thank you to all who made contributions to the Department. We are truly blessed to have your support for our program.

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## 2009 BIOLOGY ALUMNI FILE UPDATE

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If you have accomplishments and/or changes in your life, we would like to know! Help us keep our alumni file up-to-date and take a minute to fill out the form below.

Name: \_\_\_\_\_  
                    FIRST                    MAIDEN                    MARRIED

Year Graduated: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Email: \_\_\_\_\_

Occupation/Place of Employment: \_\_\_\_\_  
\_\_\_\_\_

Graduate/Professional School Preparation in Progress or Completed: \_\_\_\_\_  
\_\_\_\_\_

Personal News/Professional News you want us to know: \_\_\_\_\_  
\_\_\_\_\_

If you know of potential students for Augustana College, please provide us with their name, address and phone number so that we may contact them.

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Mail to: **Department of Biology**  
**Augustana College**  
**2001 S. Summit Ave.**  
**Sioux Falls, SD 57197**

Or email information to: [cheryl.holzapfel@augie.edu](mailto:cheryl.holzapfel@augie.edu)