

# The Science Initiative Newsletter

## March 2009



### Mohler-Thompson Research Teams Named for Summer '09

Biology: Dr. Tom Bahl and James Carrow  
 Biology: Dr. Jen Hess and Rebecca Hyatt  
 Geography: Dr. Rich McCluskey and Nicole Caswell  
 Math: Dr. Mike McDaniel and Jillian Russo  
 Math: Dr. Joe Spencer and Ember Clark  
 Chemistry: Dr. Katrina Hartman and Caylee Fias

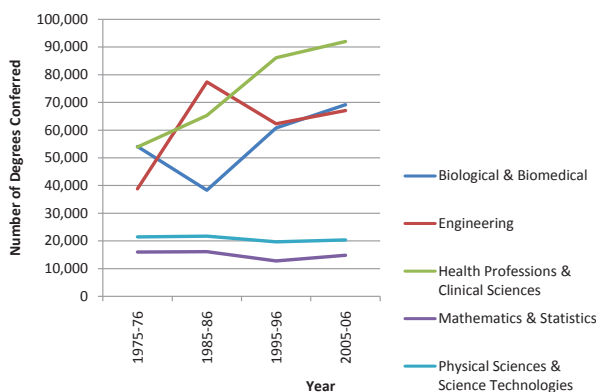
### Science Initiative (SI) Planning Process

The chairpersons of the departments located in Albertus Hall (AH) met in late February to complete an assessment of their laboratory and classroom facilities. Little has been done to the building since its last major renovation in 1989.

The department chairs recommended a number of projects for consideration. These include improving room ventilation, adding air-conditioning to laboratory areas that are in use throughout the summer, upgrading the much-used AH auditorium, installing a back-up electrical generating capability, as well as remodeling and reconfiguring several laboratory and classroom spaces.

These individual items are in the process of being woven together into a coherent building-wide plan for upgrading AH. When the preliminary design and pricing portions of the process have been completed in the coming weeks, the Science Initiative Advisory Committee will be asked to review the overall AH Renewal Plan. The Advancement Office will then design a strategy to present the plan to SI supporters and donors.

**Interesting information.** Number of B.S. degrees conferred by discipline during selected years 1975-76 through 2005-06. Table 261 (at right) from National Center for Educational Statistics: <http://nces.ed.gov>.



### SAVE THE DATE

- Chemistry Senior Seminars -  
 Mondays, 12:15-1:15 p.m., AH111

March 23: Jon Wierzbicki  
 "The Extraction and Purification of the Yellow Compound Found in Oregon Grape Holly"

March 30: James Wahmhoff  
 "Synthesis and Characterization of Dichlorobis(5-decyloxy-2-dodecyliminomethylphenol)dinickel(II)

April 6: Adrian Morales  
 "The Synthesis and Characterization of Eugenyl Cinematic"

April 20: Tien Ho  
 "The Effects of Anti-oxidants in Red Wine on the Level of Acrylamide Formed in Heated Foodstuff"

- General Chemistry (CY112)  
 Poster Session -  
 April 29, 3:00-5:00 p.m.  
 2nd floor of AH

- Taste of Undergraduate Research -  
 April 15, 5:30-7:30 p.m.  
 2nd floor of AB (that's AB not AH)  
 Student research across the departments will be featured.

### Spotlight on . . .

DR. JENNIFER HESS, ASSISTANT PROFESSOR OF BIOLOGY, for the third consecutive summer in her four years at Aquinas College, will mentor a Mohler/Thompson fellow.

Dr. Hess and her student researchers have investigated the protein structure of the streptococcal enzyme IdeZ by altering its structure in order to see if such changes correlate with a change in the enzyme's function. A practical application for Hess's research might be possible because a similar streptococcal enzyme has recently been used by other researchers to lessen the effects of rheumatoid arthritis in a mouse model.

Her previous work with these enzymes has resulted in a first-authored publication in the *Journal of Microbiological Methods*; she looks forward to producing collaborative publications and conference presentations with present and future Aquinas students.



JANE KRAEMER ('10) has been involved since the summer of 2008 with a research topic titled "All chord diagrams from the wheel are self-invertible." Read about Kraemer's research on page two and her paper at <http://www.aquinas.edu/research/current.html>.



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## Jane Kraemer Research (cont.)

Jane's research advisor and chairperson of the mathematics department, Dr. Mike McDaniel, described her work as follows:

"Jane Kraemer has been doing some excellent research at Aquinas. She has a paper under consideration at Pi Mu Epsilon (our math honor society journal.) We also have a paper under revision at the Journal of Knot Theory and Its Ramifications.

... Her paper uses the Fibonacci numbers to establish that most chord diagrams from the closed wheel Jacobi diagram are null. Our paper shows that all chord diagrams from

the open Jacobi wheel are self-invertible. Both results, though new, fit in with known results in knot theory. They contribute to an open problem concerning knot invariants of finite type by showing a large class of chord diagrams are self-invertible, implying that the search for a non-self-invertible chord diagram is even more difficult than previously known.

Now, imprecisely, Jane has a surprising connection between knots and the Fibonacci numbers. Together, we have shown that a tool which has the potential to tell all knots apart might not be such a good tool. So, we don't have a conviction of this tool. But we do have some evidence against its potency."

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Web site: [www.aquinas.edu/research](http://www.aquinas.edu/research)

## West Michigan Regional Undergraduate Science Research Conference

The second annual West Michigan Regional Undergraduate Science Research Conference (WMRUSRC), hosted by Steven J. Triezenberg, Ph.D., dean of the Van Andel Institute (VAI) Graduate School, along with Aquinas College, Calvin College, Grand Valley State University, and Hope

College, was held on Saturday, November 1, 2008, at the VAI.

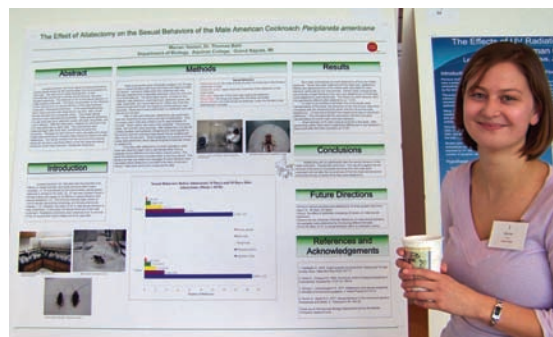
More than 250 students and faculty attended the event at which approximately 100 students from a wide array of disciplines in the natural sciences presented posters describing their research experiences.

Participating at the WMRUSRC from Aquinas College were the following Mohler-Thompson scholars along with their faculty mentors:

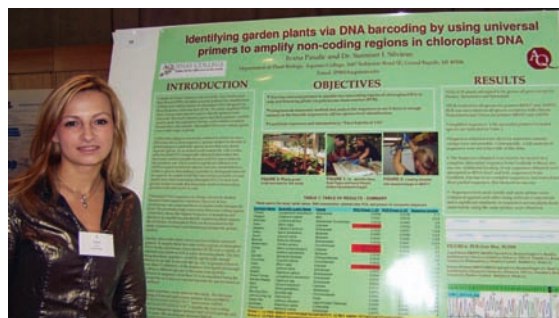
Kyle Flippo (Dr. Jen Hess),  
Molly Soper (Dr. Beth Jensen),  
Marian Testori (Dr. Tom Bahl),  
Katie Brandt/Jackie Plough (Dr. Robb Bajema)  
Ivana Pasalic (Dr. Summer Silvius)

The goal of the event is to present an opportunity for student researchers to participate in a science conference as well as developing relationships between these students and the regional scientific community.

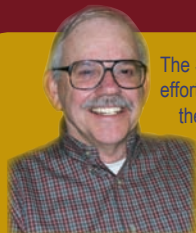
The keynote address was delivered by National Science Foundation Deputy Director Kathie Olsen, Ph.D.



Marian Testori displaying her research project "The effect of allatectomy on the sexual behaviors of the male American cockroach *Periplaneta americana*."



Ivana Pasalic presenting her work "Identifying garden plants via DNA barcoding by using universal primers to amplify non-coding regions in chloroplast DNA."



The Science Initiative Newsletter is produced electronically three times a year as a joint effort of the College's Natural Science, Nursing and Mathematics (NSNM) Division and the Advancement Department at Aquinas College ([www.aquinas.edu](http://www.aquinas.edu)) in Grand Rapids, Michigan. It is distributed to NSNM faculty, advisory committee members, donors and supporters of the Science Initiative (S.I.). Send inquiries, e-mail address changes and comments to the editor, Chuck Frydrych '63, Director of S.I., (616) 632-2173, [frydrcha@aquinas.edu](mailto:frydrcha@aquinas.edu).

To find out how you can help the S.I. by making a donation, contact Greg Meyer, associate vice president for advancement, (616) 632-2802, [greg.meyer@aquinas.edu](mailto:greg.meyer@aquinas.edu).

