

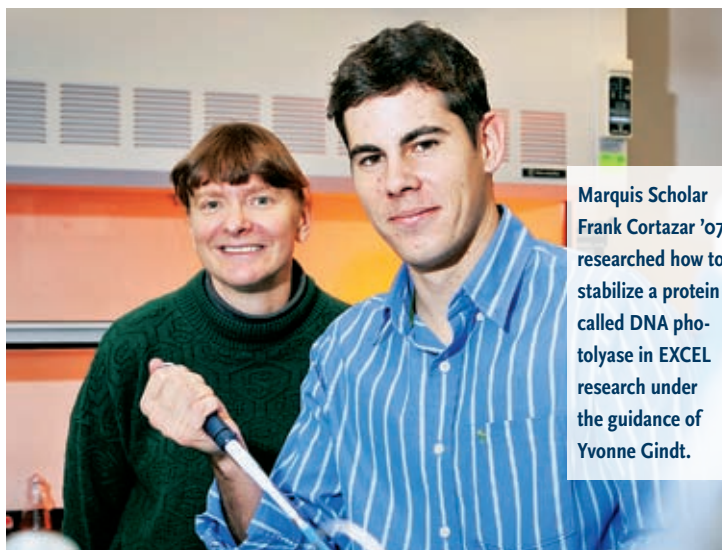
# Chemistry & Biochemistry

VOLUME 3 NUMBER 1

LAFAYETTE

FALL 2006

## Lafayette Tops Nation's Best Liberal Arts Colleges in Goldwater Scholars



Marquis Scholar Frank Cortazar '07 researched how to stabilize a protein called DNA photolyase in EXCEL research under the guidance of Yvonne Gindt.

Four students, Frank Cortazar '07, Matthew Coughlin '07, Michael Elzinga '07, and Jordan Tirrell '08, have achieved national distinction as recipients of Goldwater scholarships, the premier undergraduate award in mathematics, science, and engineering. The awards cover tuition, fees, and books, up to \$7,500 a year.

Cortazar, a Marquis Scholar majoring in biochemistry, plans to pursue an M.D. and Ph.D. in biochemistry. He hopes to conduct research on advancements in the understanding and treatment of cancer at the molecular level. He did research on the protein DNA photolyase as an EXCEL assistant to Yvonne Gindt, assistant professor of chemistry.

Coughlin, a Trustee Scholar majoring in chemistry, plans to pursue a doctorate in organic chemistry and do research in the development of biologically important molecules using enantioselective reactions. In a project related to nanobiotechnology, he has been looking at the effect of carbon nanotubes on the oligomeric structure of proteins as an EXCEL research assistant to Tina Huang, assistant professor of chemistry. He has also done research on the presence of glutamate, an amino acid, in enzymes.

Elzinga, a Marquis Scholar working on degrees in mechanical engineering and physics, plans to pursue a Ph.D. in biomechanics or biomedical engineering. Tirrell, a math major, plans to pursue a Ph.D. in mathematics.

The awards mark the second time in the last four years that all four of Lafayette's nominees won Goldwater scholarships. With 13, Lafayette has earned the most Goldwaters of any of the nation's top 100 liberal arts colleges in the last five years.

## Huang and Ferri Receive NSF Nanotechnology Grant

Tina Huang, assistant professor of chemistry, and James K. Ferri, assistant professor of chemical engineering, have received a National Science Foundation grant in nanotechnology.

The \$210,549 grant funded the purchase of equipment used in the study of nanoscale surface science.

Huang has been using an advanced microscope with atomic force, scanning tunneling, and electrochemical capabilities to study biologically and chemically modified surfaces at the liquid-solid and air-solid interfaces. Ferri uses an instrument called a tensiometer to examine ultrathin films at the air-liquid and liquid-liquid interfaces.

"Nanotechnology is an exciting and thriving research field that is multidisciplinary in nature," says Huang. "The advances in instrumentation such as atomic force microscopy have brought about a flurry of research activities in nanoscale sciences."

The new equipment, used in classroom and laboratory settings, offers students hands-on experience and training with state-of-the-art instrumentation. It also fosters interdisciplinary collaborations between engineering and chemical sciences, enabling chemistry and chemical engineering faculty to further their research while providing additional research opportunities for undergraduate students.

Huang has used the advanced microscope in research with chemistry majors William McNamara '06 and Matthew Coughlin '07. McNamara described the surfaces of self-assembled alkanethiols on gold using electrochemistry while Coughlin examined polymer-modified surfaces using atomic force microscopy. The students, EXCEL scholars, presented their research at the 229th American Chemical Society (ACS) national meeting in San Diego.

Huang has published her research in scientific journals and collaborated with professors at institutions such as the Institute of Biology and Biochemistry at the University of Potsdam in Germany. She served as postdoctoral associate and research chemist at the National Institute of Standards and Technology from 1999 until joining the Lafayette faculty in fall 2003.

# From the Department Head

42 percent of our graduates have gained entry into Ph.D. programs in chemically related disciplines at excellent institutions including Drexel, Indiana, Michigan, Penn State, University of California-Berkeley, University of California-San Francisco, University of California-San Diego, University of Southern California, Wisconsin, Woods Hole/Massachusetts Institute of Technology, and Yale.

The chemistry department has enjoyed another outstanding year, and our faculty and students have been active and productive.

Nineteen students, a record number, received degrees in chemistry or biochemistry at Commencement in May.

Over the past year or two, it has become strikingly apparent that students are being attracted in unprecedented numbers to courses and majors in the department. A record 28 students have formally declared themselves chemistry or biochemistry majors in the Class of 2008. We believe that these highly positive trends validate our approach to undergraduate chemical education. They underscore the overall strength of our programs, facilities, and faculty, as well as the proven successes of our current majors and alumni. With the increasing interest in our courses and majors, we will be working even harder to develop our programs and acquire additional resources to ensure that we can continue, and further enhance, the excellent opportunities in chemistry and biochemistry we are able to offer all our students.

We are pleased with the successes of the students in the two graduating classes since our last newsletter. In the classes of 2005 and 2006, several students have entered medical degree programs at Jefferson Medical College, Robert Wood Johnson Medical School, Temple University, and the University of Massachusetts. Other alumni have gained employment at companies and organizations including Mallinckrodt Baker, Cephalon, Clean Harbors, National Starch, The National Institutes

of Health, and Sanofi-Pasteur. We congratulate our recent graduates on their accomplishments, and are confident that their future educational pursuits and careers will be rewarding, productive, and successful.

I am pleased to report that several faculty have earned promotions. William Miles was promoted to the position of full professor last fall, and Chip Nataro received tenure and was promoted to associate professor this fall.

Professor Miles becomes head of the department in fall 2006, after my having served in that position for nine very rewarding years. I am very confident Professor Miles will provide excellent leadership in the years to come, and that under his guidance the department will continue to grow and prosper.

As this newsletter can only emphasize some of the highlights of the past year's activities, and some of these stories are as much as 18 months old, I encourage you to regularly examine the "Departmental News" section of our web site to keep up to date with the exciting activities in the department.

Sincerely,

H. David Husic  
John D. and Frances H. Larkin Professor  
and outgoing Head of Chemistry

## Journal of Organic Chemistry Publishes Paper by Students and Professor

The *Journal of Organic Chemistry*, the premier scientific journal in its field, has published a research paper coauthored by William Miles, professor of chemistry, and Gozde Ulas '05, Elizabeth Dethoff '05, and Hannah Tuson '06.

The group investigated a study by Nikolai Kishner, one of the most famous Russian chemists of the 20th century. Along with German chemist Ludwig Wolff, Kishner discovered a fundamental reaction in organic chemistry, the reduction of carbonyls to hydrocarbons.

"Because of the quality of their work and their partial write-up of our results," Miles said, "I was able to write a paper in a very short period of time and submit it to the *Journal of Organic Chemistry*."



The students shared the responsibility of developing reactions of Kishner's furan with a wide range of compounds.

CHEMISTRY & BIOCHEMISTRY Newsletter is published annually by the Department of Chemistry for chemistry and biochemistry alumni and students, with the assistance of the Office of Public Information. Photography by David W. Coulter, H. David Husic, and Joe Edelman. Send news, comments, and letters to the address or numbers below.

Editor: Chip Nataro, Associate Professor  
nataroc@lafayette.edu

William H. Miles, Professor and Department Head  
mileswh@lafayette.edu

Deborah L. Bastinelli, Secretary  
bastined@lafayette.edu

## Lin '04 and Lonergan '04 Publish Work in Chemistry Journal

During their undergraduate career, **Myat Lin '04** and **Nathaniel Lonergan '04** co-authored an article with **Kenneth Haug**, associate professor of chemistry, based on EXCEL Scholars research that has been published in the *Journal of Physical Chemistry Section B*.

The article, "Kinetic Monte Carlo Study of Submonolayer Heteroepitaxial Growth Comparing Cu/Ni and Pt/Ni on Ni (100)," describes the findings of research they conducted with Haug.

"We found some interesting differences in the patterns of atoms that self-organize on the surfaces during the growth process, which in turn governs the properties of the materials," says Haug. "The Cu/Ni system is of interest as microelectronic circuit interconnections for magnetic devices and sensor systems, while the Pt/Ni system is important as a catalyst in experimental and industrial chemistry."

Lonergan, a chemical engineering major and Marquis Scholar from Orwigsburg, Pa., worked with copper on nickel (Cu/Ni). Lin, who is from Yangon, Myanmar, worked with platinum on nickel (Pt/Ni).

A graduate student in biophysics and computational biology at University of Illinois at Urbana-Champaign, Lin says coauthoring a publication has been a key to success in graduate school.

"Lafayette provided me with excellent opportunities to do academic research as an undergraduate student," he says. "My research experience in the College, along with this publication,



Marquis Scholar Nathaniel Lonergan '04 served as an EXCEL research assistant to Kenneth Haug, associate professor of chemistry.

has been very useful after I joined the graduate program. I am sure that it will continue to help me in the future."

Before receiving a bachelor's degree in biochemistry, Lin presented his platinum research at the National Conference on Undergraduate Research and conducted research over three summers with **Robert Root**, associate professor of mathematics.

"They did the majority of the computational experiments," says Haug. "All I had to do was the final comparisons between the two different systems." "Lafayette provided me with excellent opportunities to do academic research as an undergraduate student," Lin says.

## Nataro Awarded ACS Research Grant



Sarah Martinak '08 served as an EXCEL scholar working with Chip Nataro, associate professor of chemistry.

The American Chemical Society has awarded **Chip Nataro**, associate professor of chemistry, a grant to continue research on catalytic compounds. Nataro's second Petroleum Research Fund grant will support research opportunities for Lafayette students.

Since coming to Lafayette in 1999, Nataro has produced more than 50 compounds with his corps of 20 student researchers. Scientists are studying the compounds for applications by the pharmaceutical industry.

Nataro gives his student collaborators—many of whom have published their research in scientific journals—much of the credit for the new compounds.

"They are critical to my success," he says. "I have been very fortunate to have some really good students working with me, and I would consider this latest grant to be attributable to the students who have worked with me in the past."

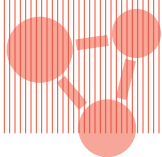
Nataro plans to have the students present their research at an academic conference, all part of an experience that he hopes will make them better scientists and researchers.

"I have brought students to conferences before; it's an invaluable part of the research project," he says. "It's important to show students that research isn't just working in the lab, but also going to talk to others in the field."

The goal of his research, Nataro says, is creating new compounds and testing their stability.

"A more effective catalyst can make creating molecules more time efficient, cost efficient, and energy efficient," Nataro says. "They make getting from point A to B shorter, so it has tremendous benefit to industry."





# Faculty Update

## **Yvonne Gindt** Assistant Professor

Gindt and her students are still pursuing research interests in protein structure and function. There are two main lines of research — understanding the fundamental process of protein oligomerization and understanding the mechanism of damage recognition used by the DNA repair enzyme, DNA photolyase. They are studying both processes using optical spectroscopy along with some basic biochemical techniques.

Five students have collaborated on the protein oligomerization studies through the EXCEL Scholars program in the last year—**Taylor Robinson '06**, **Katie Thoren '06**, **Hannah Tuson '06**, **David Shellhamer '07**, and **Margaret Tamarro '08**. The three Class of 2006 members continued their studies either through independent study (Robinson) or as a senior thesis (Thoren and Tuson). Shellhamer and Tamarro are continuing their work through the EXCEL Scholars program.

The students are making excellent progress on a difficult problem with a strong focus on the basic thermodynamics of the protein association/dissociation reactions. Thoren presented some of the results from the group at the American Chemical Society meeting in the spring. Shellhamer and Robinson presented results at the Consortium for Research Opportunities in Plant Sciences (CROPS) meeting at Lafayette last July.

**Ingrid DeVries '05**, **Frank Cortazar '07**, and **Nii Adjei '08** have contributed to work on DNA repair by DNA photolyase. DeVries, currently in a graduate program at University of California-San Diego, completed her senior thesis on the spectroscopic characterization of charge recombination in the enzyme upon absorption of light. Cortazar had a productive summer in developing the conditions to measure the redox properties of one form of the enzyme. Adjei started learning the spectroscopy and

biochemistry of the enzyme. Both Cortazar and Adjei are continuing this academic year as EXCEL scholars.

In collaboration with **Tina Huang**, assistant professor of chemistry, Gindt completed the first redox measurements on the active form of the enzyme. They found that the reduction potential of the enzyme was regulated by substrate binding. Their work was published in *Journal of the American Chemical Society*. All the DNA repair studies were also done in collaboration with Hans Schelvis, professor of chemistry at New York University. Both DeVries and Gindt presented their findings at the ACS meeting.



## **Kenneth Haug** Associate Professor

Victor Fiore '08 carried out summer EXCEL work in Haug's group using computational chemistry programs to explore selected reactions of HCFC molecules on small Ni-metal clusters.

Previous research on the growth of metal surfaces, carried out by Myat Lin '04, a biochemistry graduate, and Nathaniel Lonergan '04, a chemical engineering graduate, was published in *Journal of Physical Chemistry Section B*.

## **Tina Huang**, Assistant Professor

Huang continues projects in the areas of surface chemistry, biosensing surfaces, and nanoscale sciences. She and her research students use electrochemical techniques and scanning probe microscopy methods to study modified surfaces. Huang's lab is now equipped with a research-grade atomic force and scanning tunneling microscope, funded by a major research instrumentation grant from the National Science Foundation. The new microscope has been used to image DNA modified gold surfaces and carbon nanotubes on gold.



Currently, Huang has two active research projects. The first one deals with immobilizing biological molecules such as DNA on ultra-flat gold surfaces. For the past year, **William McNamara '06** and EXCEL Scholar **Sandra Rodriguez '08** worked on this project. McNamara presented results from this project at the ACS meeting in March 2005 and completed an honors thesis entitled, "Deposition of Thiolated Single- and Double-Stranded DNA on Template Stripped Gold Surfaces."

The second project focuses on the effect of carbon nanotubes on the structure and function of biological systems. **Matthew Coughlin '07** has been studying the effect of carbon nanotubes on the structure of a model protein system, phycocyanin. This project is in collaboration with **Yvonne Gindt** and Balaji Panchapakesan, professor of electrical engineering at the University of Delaware. Coughlin presented his research at the ACS National Meeting in March 2005 and at the Pittsburgh Conference in March 2006. **Edious Kwaipa '06** also conducted an independent research project with Huang in which he used the atomic force microscope to image surface-modified carbon nanotubes on gold.

## **H. David Husic**, Larkin Professor

Over the past year, with funding from the National Science Foundation and the Dreyfus Foundation, Husic has continued to be involved with a consortium to enhance student research opportunities and multi-institutional research collaborations on chemical and molecular studies involving photosynthetic organisms.

In July 2005, CROPS had its first summer research symposium at Lafayette. Student and faculty participants from Lafayette, Colgate University, Juniata College, Lehigh University, Marist College, and Moravian College met to present and discuss mutual research endeavors, including collaborative efforts between several institutions in the group.

In the laboratory, Husic and his students continue research involving the mechanism for inorganic carbon acquisition by unicellular algae and the study and characterization of the enzyme carbonic anhydrase, an

important component of the system. Over the past summer, two Lafayette students, **Evgenia Nikolova '06** and **Michael Brown '07**, and a student from Northampton Community College, Elizabeth Hill, worked on aspects of carbonic anhydrase induction, processing, and the relationship between the polypeptide chain subunit structure and the catalytic properties of the enzyme.

#### **William Miles, Professor**

Several students were involved in the synthesis of Vitamin D analogues. **Gözde Ulas '05** successfully prepared a new furan analogue of Vitamin D3 as a part of her senior honors thesis. Two neuroscience majors, **Ashlee Snyder '05** and **Danielle Charych '05**, also made some significant contributions in synthesizing new furan analogues of Vitamin D3. **Ryan Evans '05** worked on two projects for his senior thesis, one involving a new approach to retiferol, a Vitamin D3 analogue, and the other involving diastereoselective additions to the esters of  $\gamma$ -hydroxybutenolides, a project **Nik Gorevski '07** also worked on. **Stacey Cromer '05** worked on an unrelated synthetic project for her senior thesis, making further progress on the synthesis of squalamine, an angiogenesis inhibitor.

During the past summer, three students worked on the nucleophilic addition to chiral  $\gamma$ -hydroxybutenolides. **Kristin Hamman '07**, **Brandon Selfridge '06**, and **Chiquita Palha De Sousa '08** made slow progress on a difficult project, but were rewarded at the end of the summer with some very nice synthetic results that will need to be further optimized. They also uncovered some very fundamental physical organic chemistry related to the chiral  $\gamma$ -hydroxybutenolides (the rate of epimerization) that also will be investigated further this academic year.

One of the projects that Ulas, **Liz Dethoff '05**, and **Hannah Tuson '06** worked on in the summer of 2004 appeared in the *Journal of Organic Chemistry (JOC)*. The other project they worked on along with **Katelyn Connell '04**, **Varun Mehta '06**, and **April Thrall '04** is currently being written for submission to *Journal of Organic Chemistry*.

#### **Chip Nataro, Associate Professor**

Nataro continues to focus on bidentate phosphines with metallocene backbones. The main area of research has investigated symmetric systems in which there is one phosphorus atom bonded to each Cp ring of ferrocene. Most of the work has focused on the electrochemistry of these compounds as well as preparing new complexes containing these ligands. A recent development is the electrochemistry of the phosphine selenide complexes, in which there are selenium atoms bonded to the phosphorus. Research has determined that oxidation of these complexes results in the formation of a Se-Se bond. Nataro hopes to use this process to develop interesting new compounds. In addition, he will start examining the catalytic properties of these compounds.

A new area of research has involved examining asymmetric phosphines with a metallocene backbone. These compounds are used as ligands in asymmetric

catalysis. While many such ligands are known, very little has been done to understand the fundamental properties of these compounds. The electrochemistry and reactivity of several classes of these asymmetric ligands has been investigated.

#### **Charles F. Nutaitis Associate Professor**

Nutaitis' research is in the area of organic synthesis, focusing on the development of new synthetic methodologies utilizing sodium borohydride/carboxylic acid reagent combinations, the preparation of new heterocyclic ring systems, and the total synthesis of natural products.

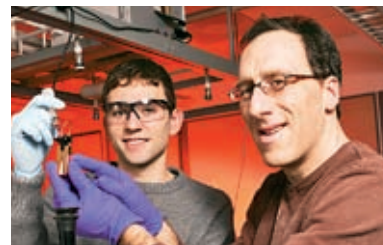
Three seniors conducted research in the Nutaitis group during the 2004-05 academic year. **Kimberly Smith '05** graduated with honors in chemistry after successfully defending her thesis, "Synthesis of New Aza-Polycyclic Aromatic Hydrocarbons Via an Intramolecular Pyridyne Cyclization Strategy." **Katrin Przyuski '05** examined the regioselectivity associated with the nucleophilic addition of aryllithium reagents to the benzo[c][2,7]naphthyridine ring system. **Kyle Dailey '05** investigated synthesis routes aimed at the preparation of new paracyclophanes.

Research projects based on the work of previous graduates have come to completion. **Megan Brennan '02** co-authored the manuscript "Preparation of Triaza-phenanthrenes," which was published in the journal *Organic Preparations and Procedures, International* in 2004, and a paper entitled "Reduction of  $\gamma$ -Deficient Heterocyclic Secondary Carbinols with Sodium Borohydride/Trifluoroacetic Acid," co-authored by **Brett Swartz '04**, has been accepted for publication and will appear in print shortly in the same journal.

#### **Joseph Sherma, Larkin Professor Emeritus of Chemistry**

Sherma continues an active research program working with students on analytical method development and interdisciplinary research in analytical chemistry and invertebrate biology. He and his students develop and validate new and improved quantitative high performance thin layer chromatography (HPTLC) methods for analysis of pharmaceuticals, food and beverage ingredients and additives, cosmetics, and dietary supplements.

His second research area involves collaboration with **Bernard Fried**, Kreider Professor Emeritus of Biology.

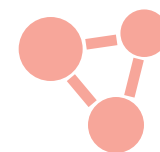


#### **Steven Mylon Assistant Professor**

The unifying theme of Mylon's research is the chemistry and reactivity of naturally occurring organic matter in aquatic systems. He is investigating its role in the fate, transport, and bioavailability of trace metals in freshwater environments.

Another project attempts to understand how naturally occurring organic matter affects processes involving environmental nanomaterials. Specifically, research examines how organic matter affects both dissolution and aggregation kinetics of emerging nanoparticles in aquatic systems.

Mylon is part of a National Science Foundation-funded collaborative project with faculty from biology, and chemical and civil engineering. The collaboration is developing a novel treatment for perchlorate contaminated waters. Future research will include the photochemistry of naturally occurring organic matter.



## Recent Faculty Publications

**Joseph Sherma and Caitlin Sullivan '05**, "Determination of Salicylamide in Pharmaceutical Tablets by High-Performance Thin-layer Chromatography with Ultraviolet Absorption Densitometry," *Acta Chromatographica* (2006) 16, 153.  
**Sherma, Jamie A. Jarusiewicz '06**, and **Bernard Fried**, "High Performance Thin Layer Chromatographic Analysis of Neutral Lipids and Phospholipids in the Apple Snail *Pomacea bridgesii*," *Journal of Planar Chromatography-Modern TLC* (2005) 17, 454-458.

**William Miles, Elizabeth A. Dethoff '05, Hannah H. Tuson '06**, and **Goetze Ulas '05**, "Kishner's Reduction of 2-Furylhydrazone Gives 2-Methylene-2,3-dihydrofuran a Highly Reactive Ene in the Ene Reaction," *Journal of Organic Chemistry* (2005) 70, 2862.

**Ken Haug, Myat Lin '04**, and **Nathaniel J. Lonergan '04**, "Kinetic Monte Carlo Study of Submonolayer Heteroepitaxial Growth Comparing Cu/Ni and Pt/Ni on Ni (100)," *Journal of Physical Chemistry Section B* (2005) 109, 14557.

**Charles Nutaitis and Brett D. Swartz '04**, "Reduction of  $\pi$ -deficient Heterocyclic Secondary Carbinols with Sodium Borohydride/trifluoroacetic Acid," *Organic Preparations and Procedures International* (2005) 37, 507.

**Yvonne Gindt, Tina H. Huang, Katie L. Thoren '06**, and Johannes P. M. Schelvis, "Substrate Binding Modulates the Reduction Potential of DNA Photolyase," *Journal of the American Chemical Society* (2005) 127, 10472.

**Tina Huang, Yvonne M. Gindt, Katie L. Thoren '06**, and Johannes P.M. Schelvis, "Substrate Binding Modulates the Reduction Potential of DNA Photolyase" *Journal of the American Chemical Society* (2005) 127, 10472.

**Steven E. Mylon, Kai Loon Chen, and Menachem Elimelech**, "Aggregation Kinetics of Alginate-Coated Hematite Nanoparticles in Monovalent and Divalent Electrolytes" *Environmental Science and Technology* (2006) 40, 1516.

**Chip Nataro, Brenna L. Ghent '05, Lauren A. Sites '08**, and Arnold L. Rheingold, "BoPhoz Ligands: Anodic Electrochemistry and Complexes," *Organometallics* (2005) 24, 4788.

## Buettner '07 Among 16 in Nation to Receive EPA Fellowship

Buettner has been conducting EXCEL Scholars research related to water pollution with **Steven Mylon**, assistant professor of chemistry. She hopes the research will lead to a better understanding of trace metal chemistry in aquatic systems.

"Kate has come a long way over the past year," Mylon says. "She spent a great deal of time working out a method for studying copper complexation in natural systems and is now trying to study copper sulfide clusters."

Buettner says her research combines environmental study with her love of chemistry. "My research is an opportunity to apply the fundamentals learned in my chemistry courses to



Marquis Scholar Katherine Buettner '07 worked with Steven Mylon, assistant professor of chemistry.

real situations," she says.

Buettner is president of the student chapter of the American Chemistry Society. She volunteers at the Third Street Alliance in Easton and Kids in the Community, a Lafayette after-school program for children.

## Class of 2005

### Kevin P. Barry

B.S. Chemistry  
Honors in Chemistry  
Sigma Xi

### Stacey M. Cromer

B.S. Chemistry  
Magna Cum Laude  
Honors in Chemistry  
Sigma Xi  
Phi Lambda Upsilon  
Pi Mu Epsilon  
American Institute of Chemists Award

### Kyle M. Dailey

B.S. Biochemistry

### Elizabeth A. Dethoff

A.B. Chemistry  
Magna Cum Laude  
Phi Lambda Upsilon  
Carl J. Staska Prize

### Ingrid L. DeVries

B.S. Biochemistry  
Cum Laude  
Honors in Chemistry  
Phi Beta Kappa  
Sigma Xi  
Phi Lambda Upsilon

### Ryan T. Evans

B.S. Biochemistry  
Summa Cum Laude  
Honors in Chemistry  
Sigma Xi  
Phi Lambda Upsilon  
American Chemical Society  
Division of Polymer Chemistry Award  
American Chemical Society Prize  
William Forris Hart '27 Chemistry Prize  
J. Hunt Wilson 1905 Prize in Analytical Chemistry

### Brenna L. Ghent

A.B. Chemistry and French  
Honors in Chemistry  
Sigma Xi

### Peggy A. Johnson

A.B. Biochemistry and French  
Pi Delta Phi  
James Alexander Petrie Prize in French

### Amy A. Kalista

A.B. Biochemistry

### Heidi L. Olichwier

B.S. Biochemistry

### Steven M. Presciutti

B.S. Biochemistry  
Magna Cum Laude  
Honors in Chemistry  
Phi Lambda Upsilon  
Dr. and Mrs. David Schwimmer '35 Prize in Honor of Theodore A. Distler

### Katrin A. Przyuski

B.S. Chemistry

### Maura E. Scolere

A.B. Biochemistry  
Summa Cum Laude  
Phi Beta Kappa  
Phi Lambda Upsilon  
Merck Index Award

### Kimberly A. Smith

B.S. Biochemistry  
Magna Cum Laude  
Honors in Chemistry  
Phi Lambda Upsilon  
Eugene P. Chase Phi Beta Kappa Prize

### Caitlin Sullivan

B.S. Chemistry  
American Chemical Society Undergraduate Award in Analytical Chemistry



## Arthur '07 Discovers Information About Snail Pigments

The findings that biochemistry major **Benjamin Arthur '07** of Accra, Ghana, uncovered from his study on lipophilic pigments in snails will provide new information to biochemists throughout the world.

He worked as an EXCEL research assistant to **Joseph Sherma**, Larkin Professor Emeritus of Chemistry, and **Bernard Fried**, Kreider Professor Emeritus of Biology. The researchers' results have been accepted for publication in *Journal of Liquid Chromatography & Related Technologies*.

Arthur worked with *Helisoma trivolvis* and *Biomphalaria galabrata* snails, primary hosts for various parasites that infect humans. He studied the difference estivation has on beta carotene and lutein, two pigments important in electron transfer in snails' metabolism. Estivation is a type of hibernation snails assume during drought and when there are shortages of food and water.

"Since [the snails'] life cycle and activities affect humans, it is important to know as much about them as possible including their survival skills," he says. "The statistical results showed that the snails maintained their level of lutein and beta carotene when they underwent estivation, showing that estivation could not adversely affect their



**Benjamin Arthur '07 (center)** studied pigments in estivating snails as an EXCEL research assistant to **Joseph Sherma (right)**, Larkin Professor Emeritus of Chemistry, and **Bernard Fried**, Kreider Professor Emeritus of Biology.

metabolic activity in terms of lutein and beta carotene content."

Arthur's work with Sherma and Fried not only confirmed his decision to major in biochemistry, it also brought together his classroom learning experiences with laboratory application.

"This project really helped me in many ways, not just acquiring skills, but also in setting personal goals and being disciplined," he says.

### Gozde Ulas

B.S. Biochemistry A.B. French  
Magna Cum Laude  
Honors in Chemistry  
Phi Beta Kappa  
Sigma Xi  
Phi Lambda Upsilon  
Pi Delta Phi  
James Alexander Petrie Prize  
in French

Chemical Rubber Company  
Freshman Achievement Award

### Jamie Jarusiewicz

B.S. Biochemistry  
Magna Cum Laude  
Honors in Chemistry  
Phi Beta Kappa  
Sigma Xi  
Phi Lambda Upsilon

### Sarah Kahn

B.S. Chemistry

### Edious Kwaipa

B.S. Chemistry

### Stephen Maida

A.B. Chemistry

### Danielle Martin

B.S. Biochemistry  
Cum Laude  
Sigma Xi  
Phi Lambda Upsilon

### William McNamara

B.S. Chemistry  
Magna Cum Laude  
Honors in Chemistry  
Sigma Xi  
Phi Lambda Upsilon  
J. Hunt Wilson 1905 Prize in  
Analytical Chemistry

### Danièle Ménard

B.S. Chemistry

### Anh Nguyen

B.S. Biochemistry  
Cum Laude

### Evgenia Nikolova

B.S. Biochemistry  
Magna Cum Laude  
Honors in Chemistry  
Phi Lambda Upsilon  
Merck Index Award

### Taylor Robinson

B.S. Biochemistry  
Magna Cum Laude  
Phi Lambda Upsilon  
Carl J. Staska Prize

### Jessica Ryan

A.B. Chemistry  
Magna Cum Laude  
Phi Lambda Upsilon

### Matthew Saybolt

A.B. Chemistry  
Magna Cum Laude  
Phi Beta Kappa  
Dr. and Mrs. David Schwimmer  
'35 Prize in Honor of  
Theodore A. Distler

### Brandon Selfridge

B.S. Chemistry  
Magna Cum Laude  
Phi Lambda Upsilon

### Katie Thoren

B.S. Chemistry  
Summa Cum Laude  
Honors in Chemistry  
Phi Lambda Upsilon  
American Chemical Society  
Prize  
Goldwater Scholarship

### Hannah Tuson

B.S. Biochemistry  
Summa Cum Laude  
Honors in Chemistry  
Phi Beta Kappa  
Sigma Xi  
Phi Lambda Upsilon  
Pi Mu Epsilon  
William Forris Hart '27  
Chemistry Prize

### Meredith White

B.S. Biochemistry  
Magna Cum Laude  
Phi Beta Kappa  
Sigma Xi  
Phi Lambda Upsilon  
American Chemical Society  
Undergraduate Award in  
Analytical Chemistry

Class of  
2006

### Sharon Bandstra

B.S. Biochemistry  
Sigma Xi

### William Dietz

A.B. Biochemistry

### Laura Hagopian

A.B. Chemistry  
Summa Cum Laude  
Phi Beta Kappa  
Phi Lambda Upsilon  
American Chemical Society  
Division of Polymer  
Chemistry Award  
American Institute of Chemists  
Award  
Sanfurd G. Bluestein '42 Award  
Eugene P. Chase Phi Beta  
Kappa Prize

## Alumni Update

**Christine M. Thomas '01** received a Ph.D. in inorganic chemistry from California Institute of Technology. Chris did research under the guidance of Professor Jonas Peters. She has co-authored four papers during her studies. Her most recent paper in the *Journal of the American Chemical Society* details the first reported iron (IV) imides. She will be conducting post-doctoral research with Marcetta Darensbourg at Texas A&M University beginning this fall.

**Holly M. (Baseski) Shackman '00** completed her Ph.D. in analytical chemistry at the University of Michigan under the guidance of Professor Bob Kennedy. Holly is currently an applications chemist with Shimadzu Scientific Instruments.

**Kevin Johnston '96** received his M.S. in chemistry at Northwestern University. He is associate director of pharmaceutical development and analytical technology at Praecis Pharmaceuticals Inc. Kevin is living in Franklin, Mass.

**Caitlin Sullivan '05** is putting her Lafayette education to use as a personal care chemist at National Starch Chemical Co. in Bridgewater, N.J.

"Personal care is something everyone can relate to, from the lotion you put on your skin to the shampoo you use in the shower," says Sullivan, who also is enrolled part-time in the MBA program at Lehigh University. "Being able to develop new products that are seen in the market is very fulfilling."

The strong research experience she received at Lafayette, Sullivan adds, set her apart in the chemical industry. She had two articles published in scientific journals based on EXCEL Scholar research with **Joseph Sherma**, Larkin Professor Emeritus



of Chemistry, and presented the findings to the American Chemical Society meeting in Philadelphia. She conducted research with the Center for Emeritus Scientists in Academic Research, a program affiliated with Merck & Co., and was a recipient of Lafayette's American Chemical Society Undergraduate Award in Analytical Chemistry.

## Professor William F. Hart '27 Dies at 100

Professor Emeritus William F. Hart '27, one of two alumni centenarians, died April 12 in Kirkland Village, Bethlehem. Hart, who headed the chemistry department from 1957-69, taught at Lafayette for 35 years.

When Hart turned 100 on Jan. 8, President Dan Weiss reflected on the professor's impact on generations of students. "Lafayette has benefited immeasurably from the talent and devotion Professor Hart has demonstrated as a student, alumnus, and teacher," the president said.

Hart shared his centenarian status with classmate Robert E. Tinsman Sr. '27 of Bethlehem, who turned 100 in October.

After graduating from Lafayette, Hart earned his M.A. from Princeton University in 1928. He returned to Lafayette as a chemistry instructor in 1928-29. He left Easton to pursue a doctorate at New York University, completing the work in 1936. He became a permanent member of the faculty the following year and taught until retiring in 1971, when he was elected professor emeritus.

He is survived by a daughter, Caryl E. VonNeida, and her husband, Allyn, of Summit, N.J.; three grandchildren; and five great-grandchildren.

## THE LAFAYETTE Experience

- Student-focused teaching and mentoring by an exceptionally qualified faculty, committed to each student's success.
- A challenging, broad-based academic curriculum that offers strong programs in the liberal arts, sciences, and engineering.
- A small college environment with large college resources.
- A friendly residential community offering an exciting social life with a broad spectrum of extracurricular activities.