

Lower Left: Clockwise from left, Meghan Frear '08, Robert Guenette '09, David Hall, associate professor of chemistry, and Kimberly Dickson, assistant professor of chemistry.

21ST CENTURY CURRICULUM

by Rick Peterson

When Kurt Krebsbach '85 matriculated to Lawrence in 1981, he hadn't planned on becoming a footnote in the college's history book. But midway through his college career, the emerging field of computer science was incorporated into Lawrence's mathematics curriculum and an interdisciplinary major in mathematics-computer science was added to the college's list of fields of study. Two years later, he became the first Lawrence student to earn a degree in the newly minted major.

"They were crafting the requirements as I was taking them," recalled Krebsbach, who returned to his alma mater in 2002 as a computer science professor in the department of mathematics.

Robert Guenette '09 and Casey Sautter '09 are planning to add a similar distinction to their résumés next June as Lawrence's first biochemistry graduates.

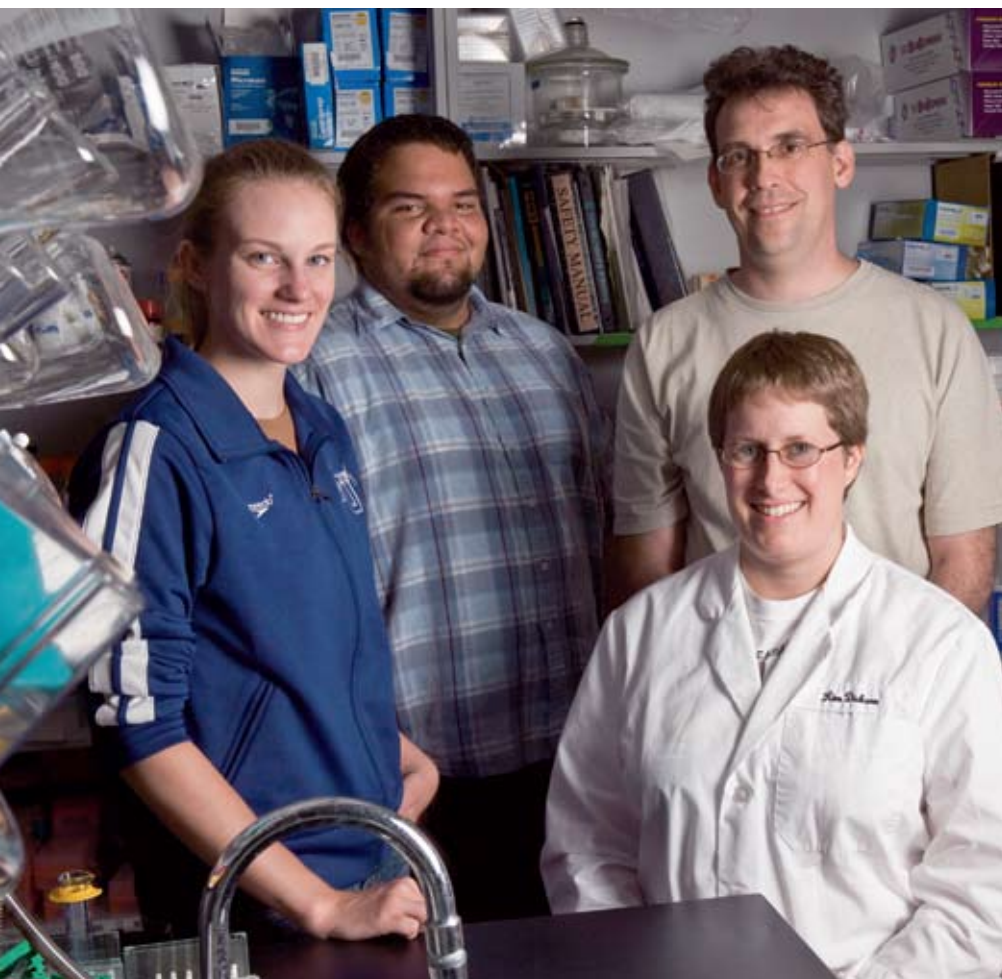
The addition of the new biochemistry major beginning this fall is the latest example of the college's ongoing response to a changing world and the career challenges presented by a global marketplace.

"The hallmark of the 20th century was specialization. Rarely did one venture outside their chosen field," said David Hall, associate professor of chemistry. "In the 21st century, it is more important than ever to be multitalented and have an understanding of many different fields. Biochemistry is a discipline that embraces a multifield approach to problem solving.

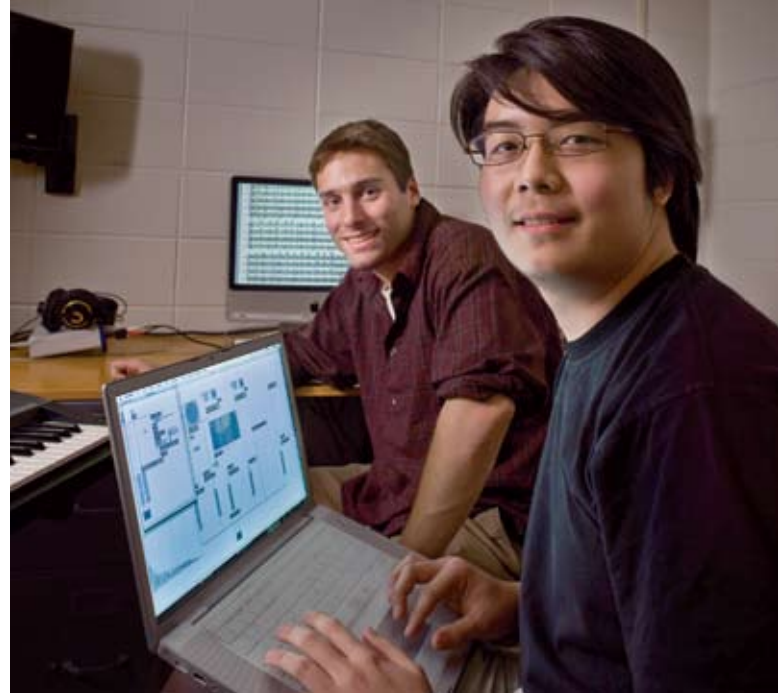
"One of our goals is to imbue in biochemistry majors a sense of confidence in themselves to ask questions and solve problems across fields and disciplines of science," Hall added. "Indeed, we would hope our students will have the confidence not only to do science across disciplines, but combine biochemistry with fields like statistics, business, and law."

The study of biological phenomena at the molecular level, biochemistry is a poster child for interdisciplinary cooperation, drawing advisors from three different departments and requiring classes from five different departments.

"Rather than viewing our new biochemistry major as providing a new disciplinary major, we have conceived Lawrence's biochemistry major as interdisciplinary, a view that is not only more in keeping with our liberal arts mission but also is providing the type of breadth that we feel our graduates will need in the 21st century," said Elizabeth De Stasio,



Left to right: Evan Jacobson '09 and Wilmer Chan '10 collaborating on music compositions using today's digital technology.



associate professor of biology and Raymond H. Herzog Professor in Science. "Those students who can integrate both knowledge and techniques across the disciplines of cell biology, genomics, organic chemistry, or physiology are going to be able to best address research questions in, and applications of, biochemistry in the coming decades."

Driven in part by student interest, Assistant Professor Kimberly Dickson said Lawrence was well-equipped to tackle the addition of the demanding discipline.

"There was a clear demand for the major by the students," said Dickson, a chemist specializing in protein structure and function. "We were able to respond to that interest because of the

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faculty foundation we had established. It's a difficult major to support because of the diversity of faculty needed. Not many small liberal arts colleges have the breadth of courses and faculty research interests to support a major in biochemistry.

In addition to professorial expertise, Dickson said an array of sophisticated instrumentation, including a flow cytometer, a real-time thermocycler, and an atomic force microscope provide the tools "to teach students the techniques needed to answer the profound questions that biochemistry raises."

With implications for the medicines we use, the food we eat, and the types of "machines" we use — especially in the nanotechnology arena — Dickson sees biochemistry as a timely addition to Lawrence's curriculum.

"We've taken what has traditionally been a very rigorous discipline because it draws from biology, chemistry, mathematics, physics, as well as computer science, and designed a unique

major that combines a liberal arts foundation with a strong individualized learning component."

New majors are but one way Lawrence is preparing students for the changing global landscape. And technology is not reserved for science labs. Conservatory of Music faculty and students are increasingly incorporating technology to maximize productivity, performance, and collaboration. Brian Pertl '86, who assumed the role of dean of the conservatory this summer after a 16-year career at Microsoft, says technology and globalization go hand-in-hand, and the college needs to take full advantage of it.

"In order to function in a world with fewer barriers and borders, we need to embrace technology and thoroughly integrate it into our musical lives," said Pertl, whose specialty is the didgeridoo, an Australian Aboriginal instrument. "We need to think in new ways. As musicians, our focus changes from 'how can we build an audience in Appleton' to 'how can we build an audience globally.' Social networking, music downloads, blogs, and streaming concerts make this a real possibility."

From composition software that takes the once arduous task of transcribing and transposing dozens of separate parts and reduces it to a series of mouse clicks, to sound editing on computer laptops that not-so-long ago required million-dollar studios, to webcasts of ensemble or solo performances that anyone anywhere in the world with an Internet connection can listen to live, technology is revolutionizing the way music is created and distributed.

"The broad liberal arts education that Lawrence has been providing for more than 150 years is still the most important key to success in an ever-changing world," said Pertl.



"Technology, however, also can play an important role. We are currently watching one of the most monumental shifts in the music industry since the invention of the phonograph, and we should feel privileged to be witnesses to such an amazing event.

"Amid the uncertainty of what lies ahead, it's clear that technology is providing opportunities for musicians not even dreamed of a few decades back. I am confident Lawrence can

"Students must have more than a localized understanding to successfully contribute to improving the environment."

provide its graduates with the tools they will need to successfully navigate the challenging waters of the 21st century."

Waters of a different variety will be the subject of the latest collaboration between the economics and environmental studies programs. An annual seminar course that has concentrated on subjects close to home for the past several years — a sustainable garden on campus, a "green" renovation

for Wilson House, a campus riverwalk, and an environmentally sustainable development plan for the city of Appleton — will take a global approach to water-use issues in the coming year, conducting a comparative examination of water systems in the United States and China.

The seminar will pay particular attention to the potential for private and social entrepreneurship efforts to improve fresh water management. This will mark the first time the seminar will be team-taught by members of the economics and geology departments." Since both markets and pollutants have increased their global footprint in recent years, students must have more than a localized understanding of each to successfully contribute to improving the environment," said Merton Finkler, professor of economics and John R. Kimberly Distinguished Professor in the American Economic System, who will team-teach the seminar "Water Wars: Local and Global." "The course seeks to provide students not only the methodological analytics from both economics and geology but to apply these disciplinary insights to understanding the nature of fresh water availability in both China and the U.S. and the challenges of designing public policy to sustain it."

"Sustainability is at the heart of the modern environmental movement and as such is a fundamental principle in our curriculum," added Andrew Knudsen, assistant professor of geology, who will join Finkler in teaching the seminar. "We stress the importance of having students take classes in a



LEFT: Andrew Knudsen, assistant professor of geology, left, and Merton Finkler, professor of economics and John R. Kimberly Distinguished Professor of the American Economic System, along the banks of the Fox River.

ABOVE: Libby Kocher '09, described her term in London working with Parliament as a "once-in-a-lifetime" experience.

wide array of disciplines to expose them to the scientific, policy, and economic issues that are necessary to understand the ways that human impacts on the environment can be lightened while still fostering communities that are strong both economically and socially."

While classroom instruction provides a valuable foundation, there is no teacher like real-world, hands-on experience. Internship opportunities are continually opening doors for students around the world. Study-abroad programs in London long have been a source of such opportunities, as Libby Kocher '09 discovered last fall.

A government major from Brookfield, Wis., Kocher spent nine weeks working for the Labour Party's Jim Dowd while on the study-abroad term, tackling assignments from responding to constituency concerns to helping organize party fund-raisers. In addition to work-related tasks, her insider's perch earned her such perks as a front-row seat behind Gordon Brown at one of the weekly Prime Minister's Question Sessions with members of Parliament, a tour inside the bell tower of Big Ben, and a lavish Christmas dinner in "The Churchill," the exclusive, members-only restaurant in the basement of the Houses of Parliament.

Returning stateside, Kocher turned her London experience into a 2008 summer internship in the Capitol Hill office of Wisconsin Congresswoman Tammy Baldwin. Her résumé also earned her interview requests from Wisconsin U.S. Senators Herb Kohl and Russ Feingold.

"Those two months in London were a once-in-a-lifetime experience and really opened a lot of doors for me," said Kocher. "There's no doubt it got me the internship in Washington, D.C. The experience I gained in London put me in a great position and made me a competitive candidate for my future goals."

ECONOMICS, ENVIRONMENTAL STUDIES DEPARTMENTS BRING INTERNATIONAL SYMPOSIUM TO BJÖRKLUNDEN

Students enrolled in the environmental studies seminar "Water Wars: Local and Global" will have an opportunity to attend a U.S.-China water symposium. Lawrence is co-hosting this summer in conjunction with NEW North, a consortium of business, economic development, civic, and non-profit leaders in northeast Wisconsin.

The symposium, "A Wisconsin Idea Approach to Connecting Science, Policy and Practice," will bring approximately 35 Chinese technical experts, government advisors, and academics to Björklunden July 21-24 for discussions with Wisconsin business leaders and educators on water issues related to China's environmental needs.

As part of the symposium, Merton Finkler, professor of economics and John R. Kimberly Distinguished Professor in the American Economic System, will deliver a talk on water economics, and Andrew Knudsen, assistant professor of geology, will address the delegates on aspects of groundwater pollution.

"Some of the attendees will be invited to campus as guest speakers for the environmental studies seminar," said Finkler. "We're also hoping to develop some student internship opportunities with some of the companies participating in the conference."

Below: Claudena Skran, associate professor of government and the Edwin and Ruth West Professor in Economics and Social Science

Right: Danielle Jordan '07 and professor Merton Finkler in Hong Kong



JORDAN FINDS A.O. SMITH INTERNSHIP A.O.K.

Danielle Jordan '07 could be Exhibit A in the case for the value of internships,

turning a summer stint into a budding career opportunity. With assistance from professor Finkler, Jordan spent the summer of 2006 as an intern with A.O. Smith, a Milwaukee-based manufacturer of electric motors and water heaters. Today, she's working in business development and human resources for the company's operations in Nanjing, China.

"Prior to the internship, I had absolutely no business experience and was uncertain where my majors could lead me," said Jordan, who graduated with a double major in mathematics and economics. "I learned a lot about business and China during my internship, but the most important thing that I gained was a new-found confidence in myself, my educational background, and my preparation for the future. My well-rounded Lawrence education helped me develop the skills to successfully take on any challenges, even in completely unfamiliar fields."

Jordan, whose current responsibilities include market research for new business opportunities for A.O. Smith in China, called her internship "an essential part of my college experience."

"I developed valuable skills at Lawrence, but I didn't realize their significance until I was able to apply those skills to unfamiliar challenges. My position has only served to strengthen my view of the value of my strong liberal arts education."

Kathleen Crispin '10 and Gustavo Guimaraes '10 are hoping for similar paybacks on internships they were awarded this spring through the Kikkoman-Kuriyama Student Internship program that will take them to Japan. Crispin, who will spend the coming academic year enrolled at Tokyo's Waseda University, is looking for a position with a Japanese cultural organization, while Guimaraes, president of the Ship for World Youth Alumni Association, is exploring opportunities with several international businesses.

From the Carter Center in Atlanta, Ga., (where Nicki Dabney '08, with support from the Povolny Fund for International Studies, spent last summer as an intern translating Chinese articles and analyzing Chinese news stories), to the U.S. embassy in Beijing, (where Stephanie Kirk '08, will spend two months this summer working with the U.S. State Department), students are finding ways to apply their classroom knowledge in real-world situations.



"In this age of globalization, it's increasingly important that our students have opportunities to learn and work in a 'global city,' such as London, Toyko, or Beijing or by interning with a global actor here in the United States," said Claudena Skran, associate professor of government and the Edwin and Ruth West Professor in Economics and Social Science.

"These internship experiences help students back in the classroom and serve as the foundation for future careers."

In his book *The World is Flat*, author Thomas Friedman assures readers there are plenty of good jobs in the new "flat world" for people with the right knowledge, skills, ideas, and self-motivation to seize them. Through innovation, adaptation, and collaboration, Lawrence continues to provide the kind of education that will help students avoid being flattened by global economic forces. ■