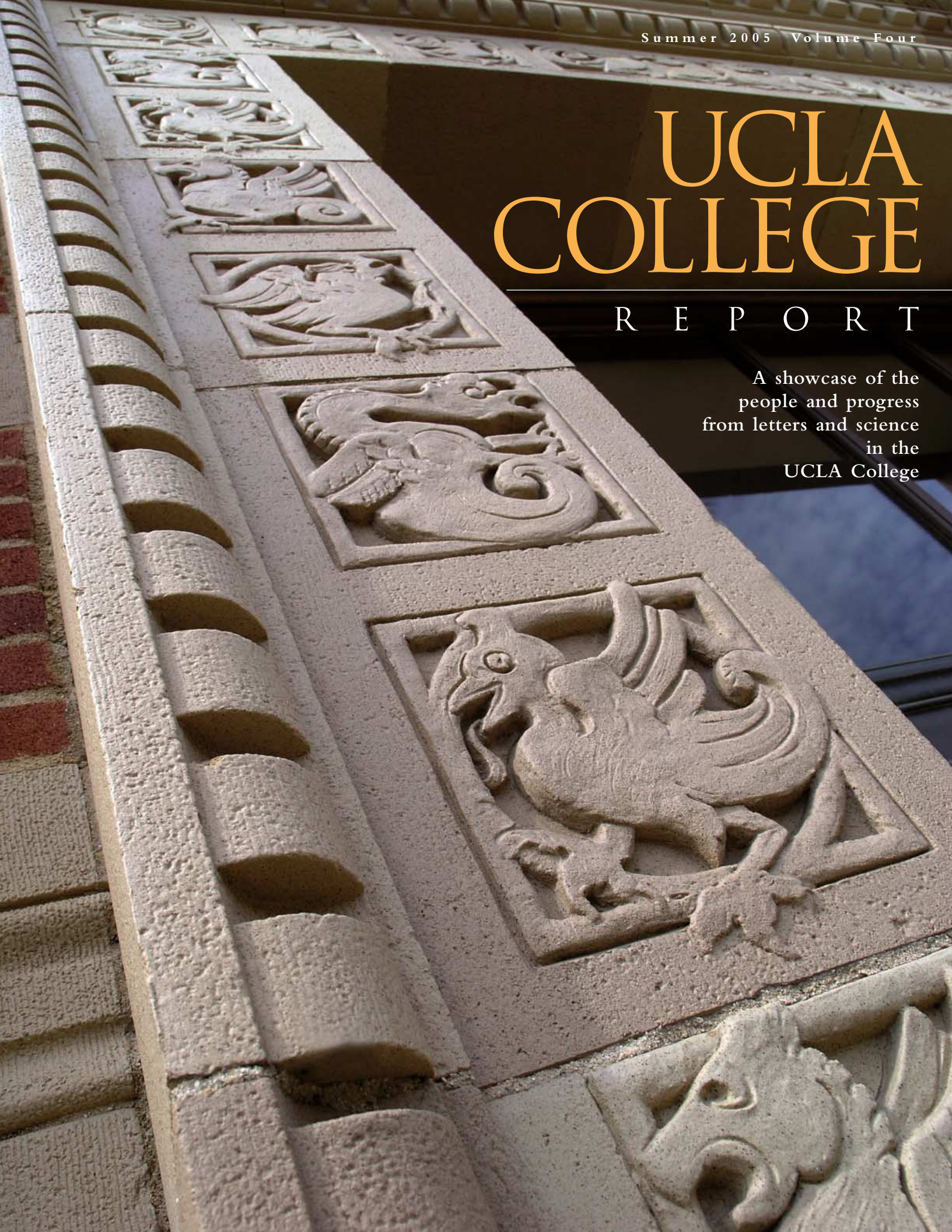


Summer 2005 Volume Four

UCLA COLLEGE

R E P O R T

A showcase of the
people and progress
from letters and science
in the
UCLA College



FROM THE EXECUTIVE DEAN

What an exciting academic year it has been at UCLA!

Our faculty in the UCLA College of Letters and Science continue to achieve one success after another in the national and international arenas, as their research productivity in all fields is burgeoning. In this issue, you will see examples of College faculty and programs involved in major national research initiatives, such as our leading role in new research on stem cells (*page 27*). And you will learn about a fascinating and significant project that explores the social shifts that are occurring within middle-class families (*page 5*). Four members of our science faculty have been named to the National Academy of Sciences, one of the highest professional honors bestowed for leadership in science (*page 33*). We have also featured two of our top faculty from fields as diverse as mathematics (*page 10*) and Italian (*page 13*) because of their outstanding accomplishments.



UCLA students are enriching the research and teaching environment of the College. I have had the pleasure of meeting with different groups of students throughout the academic year—student government leaders, the editorial board of the *Daily Bruin*, the College Bowl contestants in the residence halls, the men's tennis team, the women's swimming team, and the student staff in the residence halls, to name just a few. I am continually impressed by the industry and achievement of our students, and moved by their engagement. In this issue, we have highlighted the six winners of this year's Charles E. and Sue K. Young Student Awards, which were presented in March (*page 23*). The truly stellar accomplishments of these talented young people represent the current creation of knowledge and the future promise of leadership in the university and in society.

I would like to extend a special thanks to those alumni I have met since I began my service as Executive Dean last July. Serving with you on the Board of the UCLA Alumni Association and meeting with you in my travels up and down California, across the country and in my journeys throughout Asia, I have come to understand your loyalty to both the traditions and the groundbreaking innovation that UCLA embodies. To those special friends and donors who support the campus with their time, energy and resources, I express a special acknowledgement and gratitude. As a new Bruin, I join you in your well-founded pride in this great university that has taken as its mission not just to be better, but to be the best.

I hope you will continue to be as inspired as I am by the research, teaching and service that occur in the College. As always, I welcome your thoughts. Please write to me at pobrien@college.ucla.edu.

Cordially,

A handwritten signature in black ink, consisting of a large, stylized 'P' followed by 'O'Brien'.

Patricia O'Brien

Executive Dean

UCLA College of Letters and Science

UCLA COLLEGE REPORT

Volume Four
Summer 2005

UCLA COLLEGE

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from letters and science in the UCLA College

FEATURES

- 5 **The Modern American Family: Always in Motion, Child-Dominated, Strained—and Losing Intimacy?**
The UCLA Center on the Everyday Lives of Families is exploring the fragile and rapidly changing structures that once were the glue of American family life.
- 8 **A New Undergraduate Major for a Changing World**
A new undergraduate major developed by the UCLA International Institute provides an innovative approach to interdisciplinary study of critical global issues.
- 10 **Terence Tao: The “Mozart of Math”**
A “once-in-a-generation” talent unravels the complex problems of mathematics.
- 13 **Studying Food with the Seasoning of History**
A scholar deeply steeped in Italian culture makes surprising discoveries and offers intriguing speculations about the history of food.
- 16 **A Quarter-Century of Rising to the Intellectual Challenge**
On its 25th anniversary, the Honors Program celebrates a commitment to innovative academic enrichment in the UCLA College.
- 18 **A Permanent Honor for the College’s Leaders in Philanthropy**
The College creates new recognition for the generosity of its most dedicated supporters.
- 21 **What Can America Do About Mathematics?**
The College’s dean of physical sciences outlines the challenges of increasing math literacy in the United States.
- 23 **Acknowledging Academic Excellence and Leadership**
The six students who received the Charles E. and Sue K. Young Student Awards were recognized for the many achievements that set them apart.
- 27 **First Steps in a Bold Scientific Adventure**
The College is taking a leading role in UCLA’s broad new initiative to explore the scientific and medical potential that is emerging from research on stem cells.

SNAPSHOTS

- 2 **College News**
An update of events and progress in the UCLA College.
- 30 **Discovery Showcase**
Surveying the spectrum of scholarship by faculty in the UCLA College.
- 34 **Great Futures for the College**
Highlights of how gifts to the UCLA College are making a difference.

On the cover: The southeast entrance to Haines Hall, home to many departments and programs in the College. The terra-cotta images of animals are designed in the Italian Romanesque style of the original campus buildings. Photo by Robin Weisz

Unless otherwise indicated, all photos by Reed Hutchinson, UCLA Photographic Services.

College News

An update of events and progress in the UCLA College.

A “Vibrant, Dynamic Field” Thrives with New Status as a Department

UCLA’s program in Chicana and Chicano studies becomes a department to “build an even stronger foundation for the future for an academic field of study critical to UCLA.”

Chicana and Chicano studies at UCLA, which offers majors and minors in the growing field that includes courses for more than 2,400 students each year, has become a full academic department.

“Our program in Chicana and Chicano studies at UCLA has become nationally renowned for its teaching and research—a high level of achievement that has been our goal for many years,” said Scott Waugh, dean of social sciences. “Establishing a department of Chicana and Chicano studies will build an even stronger foundation for the future for an academic field of study critical to UCLA.”

Chicana and Chicano studies was formally established as a field at UCLA in the 1973–74 school year. It was organized as

an inter-departmental program until 1993, when the university created a new and unique unit—a Center for Interdisciplinary Instruction—that could better support the growth of Chicana and Chicano studies as an academic field. The center was named in honor of late labor leader César E. Chávez.

Since then, the field of Chicana and Chicano studies has flourished at UCLA. Some 2,485 students were enrolled in 70 Chicana and Chicano studies classes in 2003–04. That same year, 38 students graduated with a major in Chicana and Chicano studies and 49 students graduated with a minor in this field—this compared to 1993–94, the first full academic year after the center was created, when 14 majors and 491 students enrolled in classes.

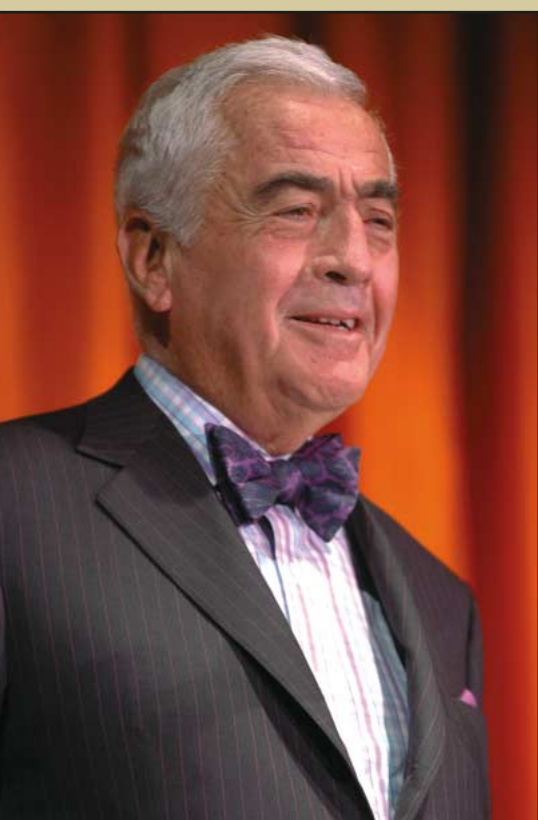
With such a growth in Chicana and Chicano studies, the center’s leadership felt the timing was right to become a department.

“Chicana and Chicano studies is a vibrant, dynamic, growing field of study,” said Reynaldo Macias, inaugural chair of

the new department, and current chair of the National Association for Chicana and Chicano Studies.

Establishing a department of Chicana and Chicano studies at UCLA recognizes that dynamism and growth throughout the country, Macias added. There are 78 undergraduate and graduate academic programs in Chicana and Chicano studies at 40 four-year institutions in the nation.

“Our mission is to examine the historical and contemporary experiences and the diversities of the populations of Mexican origin within the United States and the Americas,” Macias said. “Our students enter various occupations after graduation, and many go on to graduate and professional schools, including urban planning, law, medicine and education. They are able to think critically; they speak, read and write at least two languages; and are able to ‘read the world’ with an understanding of the continuing need to work for social justice, compassion and mutual respect between peoples.”



UCLA College Honors Philanthropist Lloyd Cotsen

Lloyd Cotsen, a supporter of UCLA for nearly four decades and an archaeologist in his own right, received the 2005 Honorary Fellow Award of the UCLA College.

“Lloyd Cotsen is a man who knows how to challenge assumptions and promote excellence,” said Patricia O’Brien, executive dean of the UCLA College. “Lloyd is a man who digs to the origins of things and builds from there—he is a dedicated friend of the UCLA College, both as a longtime supporter and as a talented scholar.”

Presentation of the College’s Honorary Fellow Award to Cotsen climaxed the March 21 dinner for the UCLA College, in a celebration of the achievements by students and community leaders.

The program also included presentation of the Charles E. and Sue K. Young Student Awards to three undergraduate and three graduate students (see page 23).

The College Awards Dinner for 2005 was attended by more than 250 guests. Proceeds from the dinner raised almost \$200,000 for faculty support and other financial needs in the College. The dinner was hosted by O’Brien, and the dinner co-chairs were Bill and Ann Lucas.

Cotsen—president of Cotsen Management Corporation and former president, chief executive officer, and chairman of the board of Neutrogena Corporation—first connected with UCLA almost 40 years ago. However, it was his lifelong interest in archaeology that led him to become involved with the Institute of Archaeology in 1980.

Over the course of this long and active association, Cotsen has funded a visiting scholars program, an advanced seminar series, an endowed directorship, and an imprint prize for archaeological publications. Currently he serves on the Institute’s Advisory Council. In 2000, in recognition of his generosity, the Institute was renamed the Cotsen Institute of Archaeology.

Construction Continues for Science Programs



More than \$250 million in new construction has been focused on four major projects in the southern half of the Court of Sciences on campus. This photo montage, looking north from the roof of the Factor Health Sciences Building, shows progress on construction for buildings that will house College programs, as well as health sciences departments.

1. The Neuroscience Research Building, for the Geffen School of Medicine, was completed in 2004 and is now being occupied by research faculty from the Brain Research Institute and related units.

2. California NanoSystems Institute. This major new research building, one of the four special research initiatives at UC campuses established by former Governor Gray Davis in 2001–02, is under construction east and above Parking Structure Nine. Completion is scheduled for the latter half of 2006.

3. and 5. Replacement Building 2 and Orthopaedic Hospital Research Laboratories—This project, actually two buildings in one, is a joint effort for the Geffen School of Medicine and the College that will house research laboratories for several academic departments. The west building (left) carries the Orthopaedic Hospital name, in recognition of the major contribution from the Board of Directors of the Orthopaedic Hospital. The east building is School of Medicine Replacement Building 2, funded as part of the State of California's seismic replacement program for the UCLA Center for Health Sciences. Completion is expected in late 2005-early 2006.

4. La Kretz Hall was completed in June 2005. This building houses a 350-seat auditorium, a 45-seat classroom and two 20-seat seminar rooms for life science courses plus administrative offices for the Institute of the Environment. *(For more on La Kretz Hall's status as UCLA's first "green" building, see page 4.)*

Collapse?

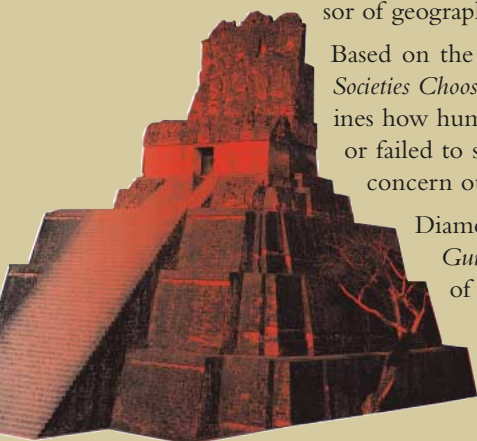
Opens in Los Angeles

The Natural History Museum of Los Angeles County is presenting a thought-provoking new exhibition that was inspired by the work of Jared Diamond, a professor of geography in the College.

Based on the ideas in Diamond's current bestseller, *Collapse: How Societies Choose to Fail or Succeed*, this groundbreaking exhibit examines how human societies have recognized or ignored—and solved or failed to solve—key environmental issues, including those that concern our contemporary global society.

Diamond, who won a Pulitzer Prize in 1998 for his book *Guns, Germs and Steel*, and received the National Medal of Science in 2000, has been a UCLA faculty member since 1966.

The exhibition continues through January 2006. For more on *Collapse?*, visit www.nhm.org.



"Green" Status for La Kretz Hall

The College's newest building will be the first on campus designed to be energy certified.

La Kretz Hall (*see photo on page 3*) is sure to be one of the College's more recognized and well-used facilities that will benefit many generations of faculty, students, staff and guests—and with reduced environmental impact as well.

La Kretz Hall, dedicated June 10, was possible because of the generosity of alumnus Morton La Kretz. The building will provide classrooms for undergraduate education and distance learning, office space and facilities for academic conferences.

Designed by The Smith Group architectural firm and constructed by West Coast Nielsen, La Kretz Hall will be the

first building at UCLA to receive accreditation under the LEED (Leadership in Energy and Environmental Design) Green Building Rating System, which provides recognition to buildings that meet stringent environmental criteria.

La Kretz Hall was built with rapidly renewable and low-emitting materials, operable windows and low energy consumption. The facility's mechanical systems have sensors to measure and verify carbon dioxide content and overall air quality, providing a better working environment and lowering energy consumption. Photovoltaic panels are included in the plan to provide a renewable source of energy. A displacement air system, which supplies ventilation from the floor rather than the ceiling, will reduce electricity usage even further.

Use Your Bruin Connection

If you're a UCLA graduate, you don't need to be on campus to keep up with what's happening at UCLA; just update your contact information on the new UCLA College Alumni Relations Web page. From research breakthroughs and award-winning professors to performances at Royce Hall and exhibits at the Fowler Museum, UCLA is making news every day—and you can be a part of it.

Your Bruin connection can enrich your professional, social, community and family ties for a lifetime. Updating your contact information allows UCLA to keep you informed of these opportunities and news through the monthly Connect@UCLA email to all alumni, as well as department emails tailored to your interests. It also provides UCLA the opportunity to invite your volunteer and advocacy involvement.

Take a moment to visit www.college.ucla.edu. Click on "Alumni Relations" to update your contact information. It will not be displayed without your permission.

Teamwork on a Grand Scale

More than 130 undergraduates become co-authors of important new research on the role of genes in the development of the eye.

UCLA undergraduates are frequently involved in publishable research, often through projects they develop themselves working one-on-one with faculty. However, research conducted by students with molecular biologist Utpal Banerjee is taking the notion of collaboration to a new level.

When Banerjee received a \$1 million grant from the Howard Hughes Medical Institute in 2003 to create "a fundamentally different research environment for undergraduates at UCLA," he developed an innovative new course on genomics that has since involved hundreds of science and non-science students in the research experience as part of their coursework (*see Volume Two of UCLA College Report online at www.college.ucla.edu*).

This work has created an important additional benefit: participation in published research. This spring, 139 undergraduates along with Banerjee were signed co-authors on a scientific paper that was published in the journal *Public Library of Sciences (Biology)*.

The research provides evidence that thousands of genes are likely to interact to play a role in eye development in the widely studied fruit fly *Drosophila*. The students participated in the course taught by Banerjee, who is also chair of molecular, cell and developmental biology. For the paper, the students genetically manipulated 1,375 *Drosophila* strains to create homozygous mutant clones in the eye. The surprising results indicate that just over one-third of the genes necessary for its viability are also involved in eye development. This research may have implications for the genes involved in human eye development.

The *Drosophila* eye is a "premier genetic system for studying many cellular and developmental processes," said Banerjee, who is also involved in the development of UCLA's new Institute for Stem Cell Biology and Medicine (*see page 27*). He added that a database of eye mutations developed with his undergraduates will be an "extremely valuable resource."

The Modern American Family:

Always in Motion, Child-Dominated, Strained— and Losing Intimacy?

The UCLA Center on the Everyday Lives of Families is exploring the fragile and rapidly changing structures that once were the glue of American family life.

By Joseph B. Verrengia

Jake Zeiss bolts from his west LA bungalow before 8 a.m., red hair damp and shirttail flapping.

After seven hours of back-to-back meetings, he volleys for an hour with his tennis pro. Still perspiring, he slides back into his Mercedes, gobbles a nutrition bar and does paperwork on a lap desk while his chauffeur burrows through the nation's worst rush hour traffic.

Jake Zeiss is nine years old. His paperwork is multiplication tables.

Jake gropes for a pencil that has dropped down the dark, sticky crevasse of the back seat. And he's tempted by a new yo-yo. It's the kind that beeps and lights up.

"Jakey, is that a good use of your time?" hollers his mother, Kim, as she swerves past a loafing Honda. "How many problems have you done?"

The Zeiss family is late for hockey practice. After that, it's fencing lessons for Madison, Jake's 10-year-old sister. Their father, Gary, will meet them at the gym—hopefully by 8 p.m.

The Zeiss family might be insanely busy. But they are not alone.

Researchers at the UCLA Center on the Everyday Lives of Families

have spent the past four years observing 32 Los Angeles families in a study of how working America somehow gets it done. Day after day.

For a week, scientists using digital video cameras recorded the Zeiss' every move. Back in the lab, the researchers analyzed their behavior—frame by frame—intent on seeing them with a dispassionate eye as if their subjects were chimps in the wild.

Archaeologists sifted through the family's belongings, down to the stray sock behind the dryer and the cans of tuna in the pantry.

Psychologists required everyone but the family dog, Ozzie, to spit into test tubes several times a day. The vials were frozen and

The Zeiss children, Madison 10 and Jake 9, during a minivan-based study session while on their way to an afternoon of activities—part of a study of the modern American family by the UCLA Center on the Everyday Lives of Families.



Photo by Kevork Djansizian/AP

shipped to a Pennsylvania lab where technicians measured the rise and fall of stress hormones in saliva.

Directed by Professor of Anthropology Elinor Ochs, the UCLA Center on the Everyday Lives of Families (CELf) is one of six long-term projects funded by the Alfred P. Sloan Foundation examining the intersection between family life and work.

At CELf, a team of 21 researchers has completed the data-collection phase. A second phase will be devoted to analysis and, researchers hope, influencing federal policy on family issues.

Already, trends are emerging from their observations, and they appear to be related to the biggest change in family dynamics since Kim and Gary Zeiss were kids themselves:

Mothers working outside of the home.

It's a poorly understood seismic shift in both the nation's economy and daily life. For some families in the study, it allows them to own a bigger house, drive better cars and take nicer vacations.

For many more families in the study, two paychecks are necessary to put food on the table.

Researchers say now there are three jobs in the American family—two careers plus parenting—and only two people to accomplish them.

It means parents and children live virtually apart at least five days a week. They reunite for a few hours at night, sleep and separate again the next morning. In this study, at least one parent was likely to be up and gone before the children awoke.

When they are together, today's families tend to stay in motion with lessons, classes and games. Or, they go shopping.

UCLA's Center on the Everyday Lives of Families (CELf), one of six Sloan Centers on Working Families, integrates scholars from the four sub-fields of anthropology—cultural anthropology, linguistic anthropology, archaeology, and biological anthropology—along with researchers from the fields of applied linguistics, education and psychology.

"The Center on the Everyday Lives of Families has begun an important exploration of the many changing issues that affect American life," said Scott Waugh, dean of social sciences. "This center is creating a unique body of knowledge about middle-class working families—work that is positioning the center as a catalyst for national dialogue about relationships and social well-being."

www.celf.ucla.edu

UCLA researchers say that, for the most part, husbands in their study haven't cut back on their work. Some, like Gary Zeiss, work from home occasionally. Others help out with chores a little more.

Yet mothers in the UCLA study still bear the key household and child-rearing responsibilities, even while working full-time.

Researchers contend this appears to erode families from within, like a rusting minivan dropping parts as it clatters down the highway.

What's falling by the wayside?

Playtime. Conversation. Courtesy. Intimacy.

And guess who is driving the minivan now? Researchers say parents effectively have relinquished the steering wheel to their children. That's because most family decisions and purchases are geared toward the kids' activities.

Whether these highly programmed kids will grow up to become competent and compassionate adults is an open question for many scientists.

They fear that all of this motion could cause health problems if elevated stress becomes chronic.

"We've scheduled and outsourced a lot of our relationships," said Ochs. "There isn't much room for the flow of life, those little moments when things happen spontaneously.

"And, we're moving from a child-centered society to a child-dominated society. Parents don't have a life after the children go to bed."

The requirements of the CELf study were straightforward: Find households with two parents who work outside the home, pay a mortgage and have two or three school-aged children.

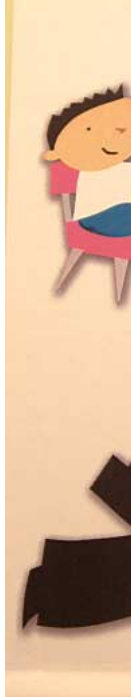
The families reflect LA's ethnic stew: Anglo, Black, Hispanic, Vietnamese, Indian and others. Two families had same-sex parents. They lived all over greater Los Angeles, from the ranch house subdivisions of the San Fernando Valley to gang-plagued streets in Compton.

Some facts of LA life, like traffic, could not be avoided. Yet the scientists believe they structured the study so it examined the interior factors of everyday life that are just as true in Fort Wayne or Yakima.

By using cameras, the scientists documented the families' real reactions and conversations as the day unfolded. Or, detonated.

Each family was observed over a week's time. Researchers would stick with the families from the morning's first pot of coffee to bedtime. They followed a simple rule: Knock first.

In 1,600 hours of digital video, scientists captured





Elinor Ochs, director of the UCLA Center on the Everyday Lives of Families: "We're moving from a child-centered society to a child-dominated society. Parents don't have a life after the children go to bed."

moments of unfiltered joy—but also of sorrow, anger and frustration.

For Ochs, the most worrisome trend is how indifferently people treat each other, especially when they reunite at the day's end.

"The kids aren't greeting the parents and the parents are allowing it to go on," Ochs said. "They are tiptoeing around their children."

The Zeiss family, however, is positively tribal with hugs and shouts. Their packed schedule just means they reunite in the car or parking lots.

However, the pace underscores a second trend emerging from the data—little time for dreaming.

Ochs laments how few people have any unstructured time. Kids spend less time at home and virtually no time in the yard. Play time tends to be organized and supervised by adults.

Kim and Gary Zeiss are keeping their children busy by design. They believe it's a key to being a successful adult in a culture that rewards multi-taskers.

"You know the old saying," said Gary, a 47-year-old attorney. "If you want something done, give it to a busy person. They're learning how to be that."

A typical Monday for the Zeiss family has four or five after-school events. They are in constant touch by cell phone, Blackberry and pager.

With all the scheduling and management, family life begins to resemble running a small business. That means requisitioning materials and supplies, which invariably leads to a third hallmark of the study: clutter.

UCLA Archaeologist Jeanne E. Arnold planned to treat each house in the study like a dig site, cataloging and mapping family belongings as artifacts. But there was too much stuff. Instead, her staff took photographs. Thousands of them.

By Arnold's rough estimate, the typical American family owns more than most Egyptian pharaohs.

For Arnold, who is accustomed to examining bits of bone and pottery, modern households are overwhelming. How much stuff do people own? So much that only two families had room to park their cars in the garage.

Researchers say schedules and clutter butt heads to create the fourth family trend: flux.

Using computers, scientists mapped the location of each family member throughout the home every 10 minutes. Originally, they planned to conduct this electronic roll call every 20 or 30 minutes. But they found themselves chasing their subjects from room to room as they orbited one another, hardly pausing.

Ochs said families gathered in the same room just 16 percent of the time. In five homes, the entire family was never in the same room while scientists were observing. Not once.

For parents, togetherness is even tougher to come by. In only six families did the parents spend more than 10 percent of their waking hours in the same room without a child present.

"People just don't come together very frequently in our society," Ochs said. "They might say they want community, but they don't seek it."

The Zeiss family congregates for dinner, but late.

Gary and Madison don't return from fencing practice until 10:20 p.m. Kim spoons chili from the crock pot and serves bowls of salad and mashed sweet potato. The television is off.

Conversation ping-pongs. Upcoming birthday parties. Jury duty.


Jake drops his spoon and starts rubbing his eyes. Time for pajamas. It's 10:56 p.m.

Gary and Kim smile across the table. It's their first time alone since the alarm clock buzzed 17 hours ago.

The table is covered with the day's remains. Cheese shreds. A hockey schedule. Yo-yo parts.

Kim stares at a spoonful of cold sweet potatoes, then eats it with a shrug and stretches back in her chair.

"My feet are up," she announces to the ceiling. "We'll do it all again tomorrow."

Seven hours from now. 



A New Undergraduate Major for a Changing World

A new undergraduate major developed by the UCLA International Institute provides an innovative approach to interdisciplinary study of critical global issues.

By Harlan Lebo

When Janelle Smith came to UCLA, she was leaning toward a career in science as she prepared to study psychobiology. But Smith, now a sophomore, traveled abroad after her freshman year, and realized that her academic career was better applied to exploring global issues.

"I had been thinking about getting involved in an international program," said Smith. "I'm fascinated by different cultures, and I realized that this really is what I've wanted to study all along—the interactions of peoples and organizations in different parts of the world. My goal is to work for an international agency—the State Department, a non-profit or an economic enhancing project."

When Smith learned that UCLA had created a major in global studies, she realized that the new program would give her the direction she was seeking.

"On the first day of class," Smith said, "I was so happy that I almost jumped out of my seat."

"All of the students I've talked to in class are enthusiastic that we are all so concerned about global issues," Smith said. "There are many ways we all view the world, and there are plenty of perspectives to explore."

Smith and some 400 of her student colleagues studied in Global Studies 1, the first class offered through UCLA's new Global Studies Program, which combines multi-disciplinary exploration of international issues in more than a dozen fields with intensive overseas programs and individual student research.

"Clearly, America's place in the world has changed dramatically since 9/11, and international studies in higher education must respond to it," said Geoffrey Garrett, vice provost and dean of the UCLA International Institute, which developed the new major.

"We created this innovative program to equip students not only to understand our rapidly changing world but also to contribute to creating a better

Geoffrey Garrett (left), vice provost of the UCLA International Institute, lectures in Global Studies 1, with Dominic Thomas (back), principal instructor for the course.

future," Garrett said. "UCLA's approach to global studies for undergraduates is arguably without precedent among American research universities."

After three years of planning by more than 30 faculty members, UCLA's new Global Studies Program will involve undergraduates in wide-ranging interdisciplinary study that marshals the full resources of the humanities and social sciences to study globalization, as well as the key issues confronting the world's flash point regions.

Global Studies at UCLA: Bringing Together Work Across the Disciplines

Global Studies students will complete a variety of academic experiences—research, specialized study overseas and research projects—working with faculty, renowned analysts and policymakers from a range of fields.

"Our Global Studies major will empower students to not only make sense of their world but also to make a difference in it," said Garrett. "To be effective global citizens, students must certainly understand the new global economy, such as how the foreign exchange markets work and what the World Trade Organization does. But they also need to know about the forces changing cultures and melding identities worldwide, such as the mushrooming of international migration and tourism and the globalization of media and entertainment."

"The UCLA program in Global Studies offers students the foundations they need in fields as diverse as economics and cultural studies," said Garrett. "But more importantly, it focuses on dynamic and expanding connections among these fields."

A Theme-Driven Approach for Undergraduates

The curriculum in the new Global Studies Program focuses on three thematic pillars—Culture and Society, Governance and Conflict, and Markets—that draw on expertise in anthropology, cultural studies, economics, geography, history, languages, political science and sociology.

“The three pillars of our program capture the major dimensions of the interconnections that define our world—among nations, international institutions, non-government organizations, and ethnic, cultural and religious groups,” said Ali Behdad, chair of the Global Studies Program and a professor in the Department of English who specializes in cultural history, literature and immigration.

Global Studies includes:

- The introductory course, Global Studies 1 (GS1), which explores the major concepts and most pressing issues framing international interconnections in the contemporary world.

The first session of GS1 began in UCLA’s 2005 spring quarter and includes a series of lectures by key national and international policymakers and corporate executives.

- Study abroad in strategic regions of the world during a unique summer program that examines how the global themes laid out in the core classes are playing out around the world.

- A two-quarter core class for upper division Global Studies students modeled on UCLA’s interdisciplinary Freshmen Clusters Program featuring team teaching by professors from different disciplines and small group discussions of key questions affecting the globalizing world.

- A senior year beginning with a research seminar and culminating in the writing of a research thesis based on issues critical to the global agenda.

Summer Abroad: Focus on “Cutting Edge” Studies at the Hubs of Globalization

Central to the new major will be specialized study in summer programs abroad—but with a different approach from traditional overseas education. The major requires a five-week summer program headed by a senior UCLA faculty member who will lead a two-part study agenda: history, culture and politics of the local region, coupled with research into how the forces of globalization are affecting the area.

The International Institute already held its first Global Learning Institute in Shanghai in June-July

2004; this year, it will offer new summer programs in Hong Kong and Guanajuato, Mexico. The institute is also developing programs in Australasia, Central Europe and the Middle East.

“We chose deliberately to take our summer programs to places that are not typically on the study abroad map for undergraduates,” said Garrett. “These locations are more at the ‘cutting edge,’ where the effects of globalization are more evident and the issues associated with it more pressing.”

“Global Challenges” Lecture Series: Discussion on Contemporary Issues

The Global Challenges Lectures, a key aspect of Global Studies 1, includes presentations that explore the cultural, economic, political and social issues confronting today’s globalized world. Topics and speakers for the first lectures, offered in the spring quarter, included:

- “Globalization’s Missing Middle”—taught by Garrett, who in addition to serving as vice provost and dean, is also director of the UCLA Burke Center for International Relations

- “America in the World Since 9/11”—Warren Christopher, former secretary of state


- “Contemporary International Security”—Albert Carnesale, UCLA Chancellor and expert on national security and nuclear issues

- “Globalization in America”—Mickey Kantor, former secretary of commerce and U.S. trade representative

- “The Globalization of Entertainment”—Gareth Chang, former founding CEO of Star TV Asia (part of News Corp)

A Catalyst for Change

“The goal of creating new pathways to worldwide prosperity, peace and freedom could not be more pressing,” said Garrett. “The United States will play a pivotal role in shaping this new ‘global century,’ but its role will likely be quite different from that in the last ‘American century.’

“Our nation’s universities must ensure that the next generation of leaders has a sophisticated understanding of the complex, multifaceted and rapidly changing global interconnections that they will encounter,” said Garrett. “We believe that the new UCLA program will be a catalyst for change and new developments in global studies.” 

www.international.ucla.edu

By Stuart Wolpert

A “once-in-a-generation”
talent unravels the complex
problems of mathematics.

Terence Tao: The “Mozart of Math”

Terence Tao has been years ahead of everyone else his entire life. Tao started taking high school classes at age eight; by 11, he was learning calculus and thriving in international mathematics competitions. He was only 21 when he earned his Ph.D. from Princeton University, and he joined UCLA’s faculty that year. The UCLA College promoted Tao to full professor of mathematics at 24.

“Terry is like Mozart—except without Mozart’s personality problems,” said John Garnett, professor and former chair of mathematics in the UCLA College. “Mathematics just flows out of him.

“Mathematicians with Terry’s abilities appear only once in a generation,” said Garnett. “He’s probably the best mathematician in the world right now. Terry can unravel an enormously complicated mathematical problem and reduce it to something very simple. We’re amazingly lucky to have him at UCLA.”

The Fields Medal is considered the Nobel Prize for mathematics, said Tony Chan, dean of physical sciences in the College, and professor and former chair of mathematics. The medal is given every fourth year by the International Mathematical Union, and will be given next summer in Madrid.

No one from UCLA has ever won the Fields Medal—but will that change in 2006?

“Terry is very creative and one of the most talented mathematicians I have seen in the last two decades,” Chan said. “He has solved problems that have stumped others. I think the breadth and depth of his work, taken together, should make him a worthy candidate for the Fields Medal. What is even more amazing is that Terry is still so young. If he were a company, he would be Microsoft right before it went public. If you could

invest in him, you would certainly want to, because the payoff will be enormous.”

“Terry will be a leading candidate for the 2006 Fields Medal,” Garnett said.

While most mathematicians focus on just one branch of mathematics, Tao works in several areas, some completely unrelated to the others, and is a leading figure in four distinct areas, Garnett said.

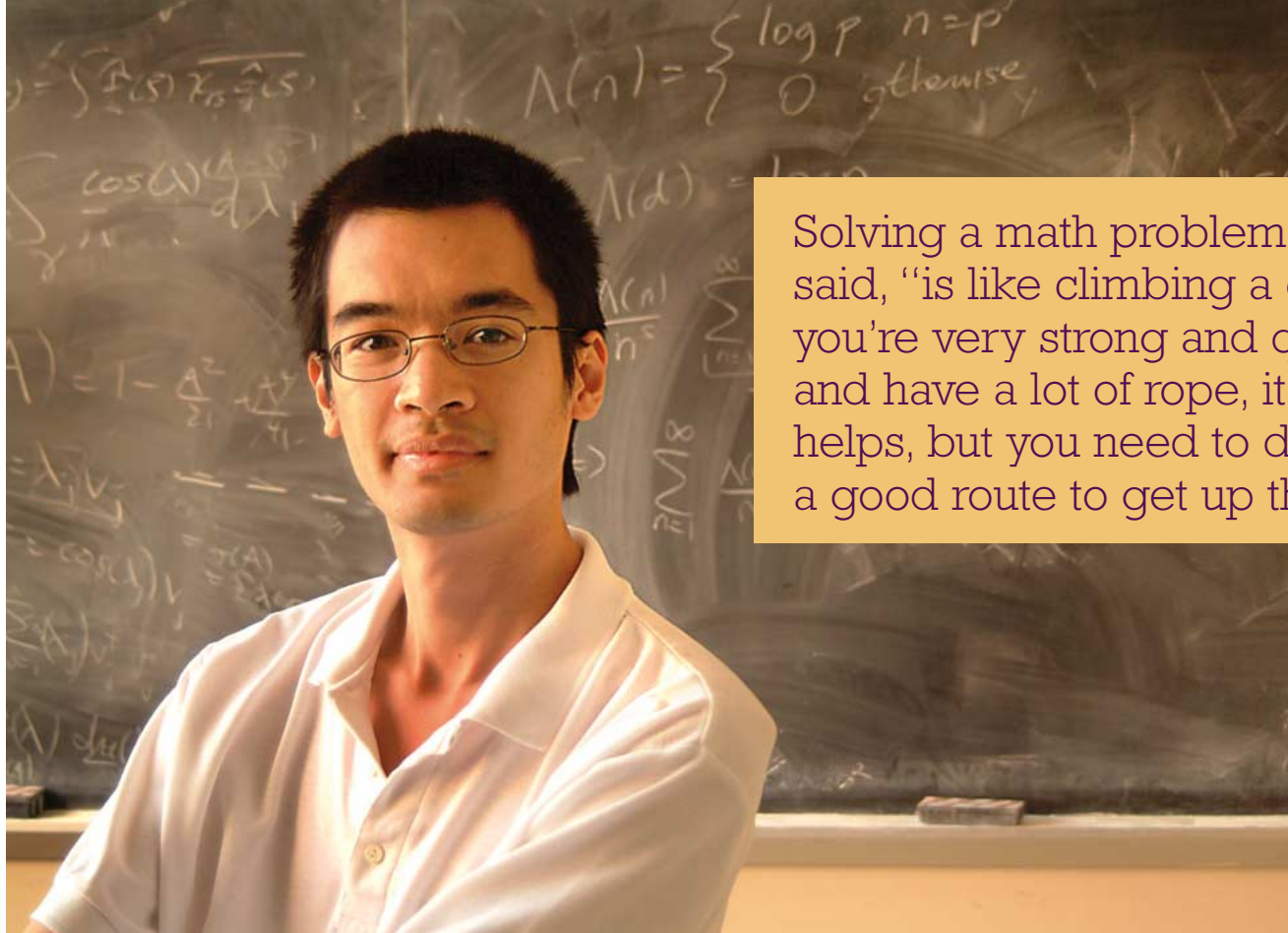
Tao’s branches of mathematics include a theoretical field called harmonic analysis, an advanced form of calculus that uses equations from physics. Some of this work involves, in Garnett’s words, “geometrical constructions that almost no one understands.”

Tao, 29, also works in a related field, non-linear partial differential equations, and in the entirely distinct fields of algebraic geometry, number theory and combinatorics.

Tao and colleagues have taken on complex mathematical problems, in one case expanding on work begun by one of the founders of formal mathematical studies more than 2,200 years ago. Work on prime numbers by Tao and University of Bristol mathematician Ben Green was acknowledged by *Discover* magazine as one of the 100 most important discoveries in science for 2004.

Green and Tao expanded on theories that originated with the Greek mathematician Euclid, who proved there is an infinite quantity of prime numbers (a number divisible only by itself and one). Green and Tao proved that the prime numbers contain infinitely many progressions of all finite lengths.

An example of an equally spaced progression of primes of length three (that



Solving a math problem, Tao said, “is like climbing a cliff; if you’re very strong and quick and have a lot of rope, it helps, but you need to devise a good route to get up there.”

is, with three numbers separating them) is 3, 7, 11; the largest known progression of prime numbers is length 24, with each of the numbers containing more than two dozen digits. Green and Tao’s discovery reveals that somewhere in the prime numbers, there is a progression of length 100, and length 1,000, and every other finite length.

To prove this, Tao and Green spent two years analyzing all four proofs of a theorem named for Hungarian mathematician Endre Szemerédi. Very few mathematicians understand all four proofs, and Szemerédi’s theorem does not apply to prime numbers.

“We took Szemerédi’s theorem and goosed it so that it handles primes,” Tao said. “To do that, we borrowed from each of the four proofs to build an extended version of Szemerédi’s theorem. Every time Ben and I got stuck, there was always an idea from one of the four proofs that we could somehow shoehorn into our argument.”

Tao is also renowned among mathematics researchers for his work on the “Kakeya conjecture,” a perplexing set of five problems in harmonic analysis. One of Tao’s proofs extends more than 50 pages, in which he and two colleagues obtained the most precise known estimate of the size of a particular geometric dimension in Euclidean space. The issue involves

UCLA’s Terence Tao: “He’s an incredible talent,” said former Mathematics Department Chair John Garnett, “and probably the best mathematician in the world right now.”

the most space-efficient way to fully rotate an object in three dimensions, a question that interests theoretical mathematicians.

Tao and colleagues Allen Knutson at UC Berkeley and Chris Woodward at Rutgers solved an old problem (proving a conjecture proposed by former UCLA professor Alfred Horn) for which they developed a method that also solved longstanding problems in algebraic geometry—describing equations geometrically—and representation theory.

Speaking of this work, Tao said, “Other mathematicians gave the impression that the puzzle required so much effort that it was not worth making the attempt—that first you have to understand this 100-page paper and that 100-page paper before even starting. We used a different approach to solve a key missing gap.”

Solving some problems comes out of less formal collaborations. Tao found a surprising result to an applied mathematics problem involving image processing with Caltech mathematician Emmanuel Candès in a collaboration forged while they were taking their children to UCLA’s Fernald Child Care Center.

"A lot of our work came at the pre-school while we were dropping off our kids," Tao said.

How does Tao explain his success?

"I don't have any magical ability," he said. "I look at a problem, and it looks something like one I've already done; you think maybe the idea that worked before will work here. Nothing's working out; then you think of a small trick that makes it a little better, but still is not quite right. You play with the problem, and after a while, figure out what's going on."

"Most mathematicians faced with a problem, will try to solve the problem directly. Even if they get it, they might not understand exactly what they did. Before I work out any details, I work on the strategy. Once I have a strategy, a very complicated problem can split up into a lot of mini-problems. I've never really been satisfied with just solving the problem; I want to see what happens if I make some changes."

"If I experiment enough, I get a deeper understanding," said Tao, whose work is supported by the David and Lucile Packard Foundation. "After a while, when something similar comes along, I get an idea of what works and what doesn't work."

"It's not about being smart or even fast," Tao added. "It's like climbing a cliff; if you're very strong and quick and have a lot of rope, it helps, but you need to devise a good route to get up there. Doing calculations quickly and knowing a lot of facts are like a rock climber with strength, quickness and good tools; you still need a plan—that's the hard part—and you have to see the bigger picture."

His views about mathematics have changed over the years.

"When I was a kid, I had a romanticized notion of mathematics—that hard problems were solved in Eureka moments of inspiration," he said. "With me, it's always, 'let's try this'; that gets me part of the way. Or, 'that doesn't work, so now let's try this. Oh, there's a little shortcut here.'"

"You work on it long enough and you happen to make progress toward a hard problem by a back door at some point. At the end, it's usually, 'oh, I've solved the problem.'"

Tao concentrates on one math problem at a time, but keeps a couple of dozen others in the back of his mind, "hoping one day I'll figure out a way to solve them. If there's a problem that looks like I should be able to solve it but I can't, that gnaws at me."

Does theoretical mathematics have applications?



Tao concentrates on one math problem at a time, but keeps a couple of dozen others in the back of his mind, "hoping one day I'll figure out a way to solve them. If there's a problem that looks like I should be able to solve it but I can't, that gnaws at me."


"Mathematicians often work on pure problems that may not have applications for 20 years—and then a physicist or computer scientist or engineer has a real-life problem that requires the solution of a mathematical problem, and finds that someone already solved it 20 years ago," Tao said.

"When Einstein developed his theory of relativity, he needed a theory of curved space. Einstein found that a mathematician devised exactly the theory he needed more than 30 years earlier."

Will Tao become an even better mathematician in another decade or so?

"Experience helps a lot," he said. "I may get a little slower, but I'll have access to a larger database of tricks; I'll know better what will work and what won't. I'll get déjà vu more often, seeing a problem that reminds me of something."

What does Tao think of his success?

"I'm very happy," he said. "Maybe when I'm in my 60s, I'll look back at what I've done, but now I would rather work on the problems." 

Stuart Wolpert is a senior media relations officer for the UCLA College.

Studying Food

with the Seasoning of History

By Meg Sullivan

Everybody knows the improbable history of spaghetti. Marco Polo brought it back to Italy from China, right?

“A total fallacy,” insists Luigi Ballerini, a UCLA professor of Italian. “Dry pasta was invented in Sicily by the Arabs in the 12th century. Fresh pasta has been done since Day One. It’s all over the world.”

And what about bechamel, that creamy white sauce at the root of so many fancy French dishes?

“Made by the Romans,” Ballerini contends.

And is “French toast” actually French?

“Not in the least!” he said. “It goes back to the Italian Renaissance.”

With contributor status at the food journal *Gastronomica*, a cooking series on Italian television under his belt and two new books just published, Ballerini, a native of Milan, has gained a reputation as one of the world’s foremost authorities on the long and colorful culinary history of his homeland.

“Not only does Luigi know Italian food inside and out, he is deeply steeped in Italian culture and history and therefore able to make startling discoveries and offer intriguing speculations about the ways in which various foodstuffs were used and enjoyed in the past,” said Darra Goldstein, editor in chief of *Gastronomica*.

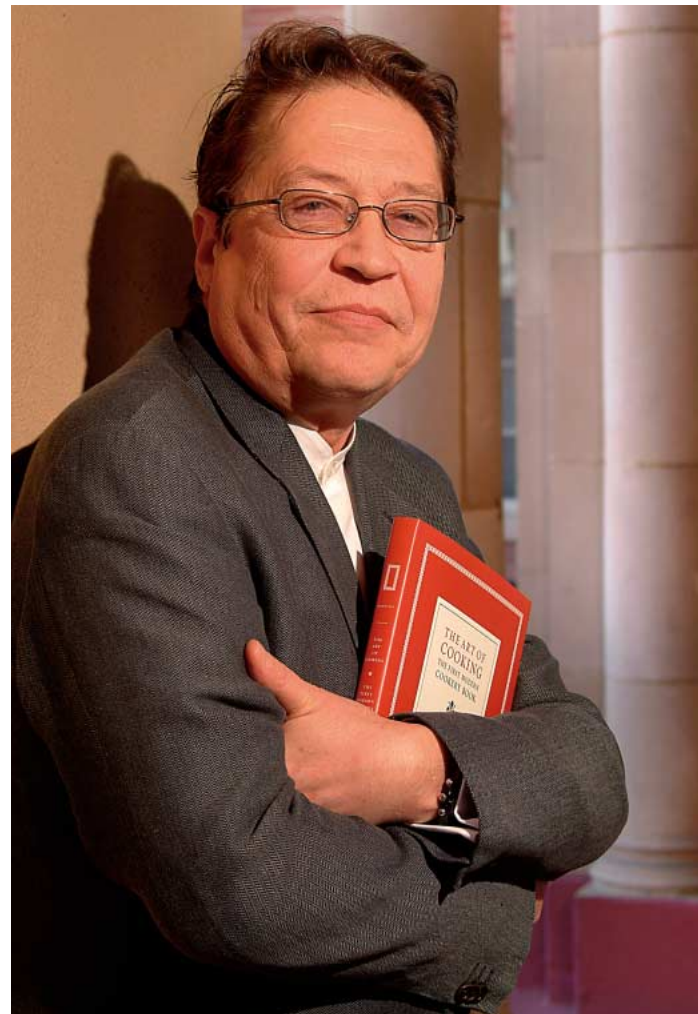
Ballerini, said Jeremy Parzen, a New York-based food authority, “is without a doubt, the most important Italian food historian in America.”

Ballerini, who returned to UCLA 14 years ago after a stint at New York University, maintains he would much rather be known for his own literary creations than for pushing 500-year-old recipes of eel torte or kid with garlic—to cite a few examples from his latest book. A teacher of modern and contemporary literature in the Department of Italian, which celebrates its 70th anniversary this year, Ballerini writes extensively on avant-garde literature, curates exhibitions of contemporary Italian art, and has convened several international academic conferences.

The winner of the 1992 Feronia Prize for Poetry, Ballerini published eight books of his own works as well as anthologies of American and Italian poets. And, he translates into Italian such venerated English-language authors as Herman Melville, Henry James, William Carlos Williams, James Baldwin and Kurt Vonnegut.

Professor of Italian Luigi Ballerini credits his success in studying the history of food to approaching the discipline with the same care he gives to his work as a renowned poet, art historian and scholar in literary studies.

A scholar deeply steeped in Italian culture makes surprising discoveries and offers intriguing speculations about the history of food.



But Ballerini credits his success in studying the history of food to approaching the discipline with the same care as an art historian or scholar in literary studies.

“Food has been a show of social and political power through the ages, so if you follow that trail, you’re fleshing out history, particularly the history of social classes,” he said.

The formula appears to be a winning one. In 2002 the prominent Italian publishing house Tommasi Editori hired Ballerini to develop a series of books in Italian dedicated to historic gastronomy. For the next and seventh volume of *Cum Grano Salis* (With a Grain of Salt), Ballerini recruited UCLA French Professor Jean-Claude Carron to translate and introduce the early 17th-century classic “Le Cuisinier Francois,” considered the cornerstone of French cuisine.

“In Italy, his *Cum Grano Salis* series is among the most vibrant new initiatives in historical cookery,” Parzen said.

Then Italy’s Ministry of Foreign Affairs enlisted Ballerini and UCLA Italian Department Chairman Massimo Ciavolella to develop a series of English translations of classic Italian texts. The first title, an unabridged English translation of Pellegrino Artusi’s 1891 classic, *Scienza in Cucina*, rolled off the presses in 2003 at University of Toronto Press with an introduction by Ballerini.

Sometimes described as “the cookbook that united Italy,” the 653-page behemoth is recognized as the first Italian cookbook—in the sense it was the first to put under one cover recipes from all regions of the newly unified country. Unabashedly patriotic in tone, “Artusi”—as Italian homemakers call it to this day—reclaims Italian cooking traditions that had long been assumed to be French. It is also credited with helping Italy forge a national identity in the first two decades following unification.

“Artusi conveyed melting pot messages at a time when the country was struggling with embracing people of different regions and different dialects,” Ballerini said.

In February, the University of California Press released yet another historical cookbook edited by Ballerini. *The Art of Cooking: The First Modern Cookery Book* presents 50 recipes written in the late 15th century by Maestro Martino, who has been called the first celebrity chef. The private chef of a prominent cardinal and gourmet, Martino is remembered for his mastery of sumptuous, convivial dinners for small groups of people at a time when the prevailing custom was showy banquets.



Luigi Ballerini—“Food has been a show of social and political power through the ages, so if you follow that trail, you’re fleshing out history, particularly the history of social classes.”

“This is the first evidence we have of the dinner party,” Ballerini said.

So useful was Martino’s *De Arte Coquinaria* (The Art of Cooking) perceived to be that the 15th-century Italian humanist Bartolomeo Sacchi, better known as Platina, promptly appropriated it, translating the cookbook from vernacular Italian into Latin and making copies with a newfangled invention: the printing press.

“By ‘lifting’ Maestro Martino’s recipes and translating them into Latin, Platina ensured that the highly original approach of *De Arte Coquinaria* would not remain confined to a few obscure manuscripts penned in the vernacular, but on the contrary would be disseminated through Renaissance Europe in the first cookbook deemed worthy of mechanical reproduction,” Ballerini wrote.

“It’s a good thing his recipes didn’t get picked up more widely,” Ballerini said, “because Europe might not have felt the need to look for a back door to the Spice Route, and Christopher Columbus wouldn’t have had reason to discover America.”

Additionally, Martino is credited with inventing “battuto,” a basic building block for savory dishes that

Meg Sullivan is a senior media relations officers for the UCLA College.

consists of sauteed onion, carrot and celery. Ballerini contends Martino developed the combination to cope with the spice shortage that vexed Europe after the Spice Route fell to Ottoman control in 1453.

Solid historical appraisal from a man who claims to come from “a family with no culinary tradition.”

“My mother was a working woman,” Ballerini recalled. “So we ate every night at the local trattoria.”


Ballerini’s involvement in Italian food history came in 1997 when he agreed to write a column for the venerable cooking periodical, *La Cucina Italiana*.

In no time, he was hooked: What did Rossini eat? Or Casanova? Or Leonardo da Vinci? These are the kinds of mysteries that still keep Ballerini’s juices flowing. “A Tavola con la Storia” (Dining with History), a 12-part mini-series on Italian gastronomic history, followed on Italy’s Gambero Rosso Food Channel.

A cooking amateur who insists he can’t cook anything but eggs—a skill developed while working at a

London breakfast house as a college student in the late 1950s—Ballerini nonetheless manages to pull out the stops for his book launches with the help of master chefs. In 2003 he enlisted celebrity chef Mauro Maffrici from the New York restaurant Trulli to demonstrate the wonders of Artusi’s creations. Sal Marino, the chef at Santa Monica’s Il Grano, followed suit in the spring. Marino tackled the classic Martino concoctions with a special dinner in February.

Ballerini and chef Marino are already discussing the roll-out for his next book on the work of Cristoforo Messisburo, which will detail 10 banquets thrown by the Este family in the northern Italian city of Ferrara, which was famous for the brilliance of its court life during the Renaissance. And he will discuss Martino at the Culinary Historians of Southern California on October 15 at the LA Central Library.

Buon appetito! 

www.italian.ucla.edu

Cooking, Renaissance Style

*P*rior to the 15th century, recipes were informally passed along from one chef to another; few instructions for cooking were written down or published. Even the recipes in *The Art of Cooking* by the “Eminent Maestro” chef Martino of Como—the first known culinary guide that specifies ingredients, cooking times, techniques and utensils—contains instructions that are notoriously casual, and uses general descriptions instead of detailed amounts for preparation. Edited by UCLA historian Luigi Ballerini and published by the University of California Press, *The Art of Cooking* as written by Martino refers to quantities such as “take some good cheese” or “the blackest cherries you can find.”

Here are two versions of a recipe for a classic frittata, from Chapter Six of *The Art of Cooking*, “How to Cook Eggs in Every Way.” Compare the 15th-century recipe as written by Martino with the same recipe updated by food historian Stefania Barzini for 21st-century chefs.

FRITTATA (ORIGINAL MARTINO RECIPE, 1474)

Beat the eggs well together with a little water and milk to make the frittata softer; likewise, add some good cheese that has been grated and cook the frittata in good butter to make it more fatty. Note that, for it to be good, it should not be stirred or overly cooked. If you wish to make it green, take the things mentioned above and add the water from the following herbs: chard, a generous amount of parsley, borage, mint, marjoram, and a lesser amount of sage, passing through a stramine to obtain their water; then remove the herbs that will have been crushed in the stramine.

Another way to make a frittata with herbs is to take the above herbs, finely chop, and fry in good butter or oil, and then by mixing them together with the eggs and the other ingredients mentioned above, you make the frittata which should be carefully cooked when well seasoned, but not overcooked.

FRITTATA (2005 UPDATE)

1/2 pound Swiss chard
1/2 pound spinach
2 tablespoons butter
1 garlic clove, peeled
1 bunch Italian parsley, finely chopped
1 bunch marjoram, finely chopped
1 bunch mint, finely chopped
10 fresh sage leaves, finely chopped
6 eggs
3 tablespoons grated Parmigiano Reggiano
1/2 cup milk
salt and freshly ground black pepper

Wilt the chard and spinach, using the water that clings to the leaves after they have been washed and a pinch of salt. Squeeze well and finely chop. Melt the butter in a pan. Add the garlic clove; when browned, remove. To the butter add the chard, spinach, parsley, marjoram, mint and sage.

In a bowl, beat the eggs with the Parmigiano, milk, salt, and pepper. Pour the mixture into the pan and allow it to cook through without burning the bottom. Turn onto a platter.

A QUARTER-CENTURY OF RISING TO THE INTELLECTUAL CHALLENGE

On its 25th anniversary, the Honors Program celebrates a commitment to innovative academic enrichment in the UCLA College.

By Robin Heffler

For Kelly Wachowicz, who graduated from UCLA in 1991 with a degree in history, the UCLA Honors Program coursework she took continues to impact her life, extending to a project of developing airport transportation for lower Manhattan as part of the area's rebuilding in the wake of 9/11.

The Honors classes, including "Literature and the Culture of the American South" as well as "Politics and History of Literature," "raised ideas about the way I thought about the world that changed my mind and ultimately my identity," said Wachowicz, now the senior vice president of policy and strategy for New York City Economic Development Corp.

"I came into school with a more conservative, black-and-white world view," said Wachowicz, "but the Honors Program enabled me to see the gray and have greater sympathy for suffering in the world.

"I make public policy now and I am keenly aware of the context in which we operate," Wachowicz said. "There are neighborhoods in New York where the income disparity and poverty are so great, and I feel more sympathy for those communities because I am conscious of the forces that created the conditions."

Wachowicz is among the three percent of undergraduates who graduate with Honors from the UCLA College. Graduating with College Honors is one of the highest academic awards a UCLA student can receive. Although Honors has a long history at UCLA—in the decades before it became a formal program, Honors was bestowed at graduation by recognizing high grade point average—the modern program was just created in the 1979-80 academic year. This year, the Honors Program celebrates its 25th anniversary in the UCLA College.

The Honors Program was developed a quarter-

century ago largely through the initiative and imagination of Eugen Weber, then dean of the College who sought to "give more weight to intelligence and curiosity" in the undergraduate curriculum. Now a Professor Emeritus of History, Weber was honored in May at the program's 25th anniversary celebration with the creation of a teaching award in his name.

A National Model for Undergraduate Programs, and a Tool to Capitalize on UCLA's Broad Strengths

What began 25 years ago as a small collection of courses that served fewer than 350 students has now grown into a nationally-renowned and emulated program that currently enrolls some 4,800 students and has become a tool for recruiting top undergraduates. The Honors Program provides these talented, ambitious and increasingly diverse students with the most challenging educational experience possible, while also preparing them for graduate work.

"Our Honors Programs capitalize on the broad academic strengths of a major research university through small classes, innovative topics and top faculty," said Judith Smith, vice provost for undergraduate education, who has strongly supported and helped the program since assuming her current position in 1996.

Honors represents an umbrella of opportunities that extends throughout the UCLA College, including College Honors, Departmental Scholars, and individual majors, with students choosing their coursework. Honors credit is given for certain General Education courses, research projects, and professional school seminars, as well as internships, study abroad and other academic enrichment. Specialized counseling, scholarships and research stipends are also available.

Competitive, Interdisciplinary Collegium Courses Form the Core

At the heart of the program is the Honors Collegium of College Honors, a series of rigorous interdisciplinary courses that usually take the form of seminars with 20 or fewer students, like those that Wachowicz found life-changing. Both faculty and students face heavy peer competition for the privilege of teaching or participating in the courses.

A sampling of the 65 Collegium courses offered in 2004–05 include “Midwives, Mothers, and Medicine: Perspectives on the History of Childbirth,” “The Scientific Method: A Critical Inquiry into the Question of Extraterrestrial Life,” and “International Flash Points,” which is taught by former U.S. Secretary of State Warren Christopher. Christopher also taught a previous Honors course, and has been selected as the first recipient of the Eugen Weber Honors Collegium Teaching Award.

G. Jennifer Wilson, assistant vice provost for honors who directs the program, has taught literature-based Honors Collegium courses for more than 20 years.

“I continue to be enthusiastic about the experience,” Wilson said, “because the Honors Program allows students to take charge of their education and make it exceptionally meaningful—both to advance their goals and their own personal development. Our faculty have a real institutional commitment to Honors as well. It’s also democratic in the sense that while you have to achieve a lot to remain in the program, access is open.”



Warren Christopher, former U.S. Secretary of State (left) leads a discussion for UCLA undergraduates in the Honors Collegium course, “International Flash Points,” along with John Broder, Los Angeles bureau chief of The New York Times (center).

“The Honors Program allows students to take charge of their education and make it exceptionally meaningful—both to advance their goals and their own personal development.”


For Jonathan Dotan, who graduated in 2004, Honors was a way to design his own major in information policy. He said it helped him to get accepted at Oxford University, where he is currently working on a master’s degree in international relations.

“My undergraduate major was 60 percent graduate-level work and spanned four different departments,” Dotan said, “because I was dealing with a field that is really in its nascence: the regulation of the Internet, with a focus on copyright law. No academic department was well-suited to dealing with this, but Honors understood the merit of pursuing these topics and gave me a platform to explore them.”

Through the Honors Program, Dotan also received a fellowship to spend four months in Bosnia on a rule-of-law task force. (For more on this program, see a profile of Dotan and student colleague Alicia Stevenson and their work in Bosnia that appears in Volume One of *UCLA College Report*, available online at www.college.ucla.edu/collegereport.) That project, in turn, helped Dotan to obtain a job drafting indictments of several high-ranking Bosnian officials for a United Nations anti-crime and corruption unit.

Expanding and Setting a Standard for All University Education

After 25 years, Honors continues to create new opportunities for undergraduates. The program would like to develop academic minors in areas such as “civic engagement” and “science and society” to involve more upper-division students, including transfer students, according to Smith.

“Honors is what education should be,” said Wilson, whose courses were among those that Wachowicz found eye-opening. “It’s a commitment to the intellectual life and not being narrowly curtailed by the discipline structure of the university, but moving beyond it.” 

www.college.ucla.edu/up/honors

Robin Heffler is a freelance writer based in Los Angeles.

A Permanent Honor for the College


The College creates new recognition for the generosity of its most dedicated supporters.

In recent months, visitors entering Murphy Hall at the north entrance closest to Hilgard Avenue have encountered a striking new addition to the lobby. On the left side, instead of a row of old, empty phone carrels, stands the new UCLA College Wall of Philanthropy.

The installation acknowledges by name the many alumni and friends of the UCLA College who have given a total of \$500,000 or more over the history of the College. The generosity of these dedicated supporters has funded numerous innovations in scientific research, promoted advanced scholarship and intellectual discourse in a broad range of subjects, and made accessible to thousands of students the life-transforming experience of a university education.

The current version of the wall is temporary and acknowledges donors through June 30, 2004. The names of more recent donors will be added over the next several months. When Campaign UCLA concludes on December 31 of this year, a final donor list will be compiled, and in spring 2006 a permanent wall of cherry wood and non-reflective glass, designed to blend with the interior of Murphy Hall, will be installed in the entrance.

“We didn’t want to wait to honor the wonderful alumni and friends who have provided so much support to our students, faculty and programs over the years,” said Patricia O’Brien, executive dean of the College. “We’re truly grateful to these visionary donors. Their commitment and leadership have made a tremendous difference in the ability of the College to provide high-quality education and to serve the broader community.

“This Wall of Philanthropy is just a small token of appreciation for their extraordinary support.” 



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See page 20 for the list of current donors on the Wall of Philanthropy.

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What Can America Do About Mathematics?



The College's dean of physical sciences outlines the challenges of increasing math literacy in the United States.

By Tony Chan

Any educated person would be embarrassed to admit not knowing how to read, but many Americans would have no hesitation in admitting they are incompetent in math. Many even take pride in their ignorance of math. Students who demonstrate their talents in math and science are labeled as “nerds.”

Lawyers, doctors and businessmen make much more money than mathematicians and scientists. Hundreds of prime-time television dramas glorify doctors, lawyers and police officers, but only one program—“Numb3rs” on CBS—incorporates math and science in any meaningful way.

These cultural influences are quite powerful, so I was not surprised by results from two international tests on mathematics competence for high school students that were released in January that show U.S. students lag behind their counterparts in many other countries. The same countries that we beat in the Olympics in athletic competitions defeat us soundly in math proficiency.

The Program for International Student Assessment test shows that 15-year-olds in the U.S. rank close to the bottom of 29 industrialized countries in their ability to apply mathematics to real-life situations. This places the U.S. just above Mexico and Turkey, and significantly below Finland and Hong Kong, and also behind France and Poland. In the Trends in International Mathematics and Science Study, the U.S. appears to do somewhat better, but this study includes developing countries such as Ghana and Botswana. The study shows U.S. fourth graders just above those in Cyprus and Moldova, and behind those in not only Singapore and Hong Kong, but several other countries as well, including Latvia and Hungary.

As U.S. students get older, they do worse in math. By eighth grade, students in Singapore, Hong Kong and other countries have expanded their lead over U.S. students.

Should we be alarmed by these results? What are the implications for our future, and what can the United States do to improve?

We should strive to do better, not for the sake of topping other countries in these tests, but because a strong math education is crucial for the economic and political future of our country as the world becomes increasingly competitive. Not only is math at the very foundation of a highly technological society, it is also a necessary skill to function in our democratic society. Understanding probability, for example, is a critical skill for citizens and consumers alike when evaluating the latest study about global warming or the safety of taking certain vitamin supplements. In assessing reforms to Social Security and making decisions about how to invest our retirement income, we need an understanding of math to guide us.

The U.S. simply cannot maintain its technological leadership of the rest of the world without citizens well educated in math.

What can we do about it? First, we have to understand the root causes of the problem. A primary cause is the lack of qualified math teachers. K-12 teaching can be very rewarding, but is also very demanding with low pay. University graduates with math and science degrees usually have many other more lucrative career choices than teaching; the drop-out rate of new teachers is understandably high.

An alarmingly high percentage of our K-12 math teachers did not get their formal training in math or science. One high school science teacher attending a teacher-training program at UCLA admitted she was only a couple of days ahead of her class in learning the material. To be an effective and inspiring teacher, you need to have the context, the history, the applications and know the nuances of the subject matter. We need to attract more qualified teachers.


One way to improve this problem is to provide continuing education for math and science teachers. Our state has recognized this need and has passed legislation providing funds for this professional training.

My own mathematics department at UCLA has a long tradition of providing such teacher-preparation programs—this in addition to offering a math major that prepares students for K-12 teaching. Also, programs in the Graduate School of Education and Information Studies (GSEIS) have been designed in collaboration with math teachers and school districts to focus on the current mathematics reform movement, reshape the mathematics curriculum and reflect the roles of technology and mathematics in today's society. For example, Center X in GSEIS, in partnership with our Department of Mathematics and the Los Angeles Unified School District, created the LUCIMATH program, which since 2001 has trained approximately two-thirds of all LAUSD teachers in kindergarten through second grade.

Are these programs working? In 2002, second-graders (on average) from LAUSD scored higher than 53 percent of all students on a nationwide standardized test—this was up from 44 percent the previous year. According to a GSEIS study, teachers who completed the LUCIMATH program reported enhanced confidence in teaching math.

Certainly, this work represents progress, but this type of local commitment to math improvement needs to be duplicated on a national scale.

UCLA's efforts can be a model for what other universities can do, but the real solution requires political leadership at the national and state level, and a commitment from citizens to recognize the importance of the basic problem and to fund a national program to counter it.

The U.S. made this kind of national commitment when we responded to the Soviet Sputnik challenge in the 1960's, and we succeeded in sending our astronauts to the moon. Perhaps this time it will be China, with its meteoric rise in economic power, that will galvanize our national will. The fundamental change that has to occur in the United States is cultural. Our society simply does not value excellence in math and science. For that, there is no quick fix. But it is time to start. 

“The U.S. simply cannot maintain its technological lead of the rest of the world without citizens well educated in math.”

Tony Chan is UCLA's dean of physical sciences, professor of mathematics, and former director of UCLA's Institute for Pure and Applied Mathematics. An edited version of this article appeared in the Sunday Opinion section of the Los Angeles Times.

Acknowledging Academic Excellence and Leadership

The six students who received the Charles E. and Sue K. Young Student Awards were recognized for the many achievements that set them apart.

By Robin Heffler

As the largest and most comprehensive academic organization in the University of California System, the UCLA College enrolls some 21,000 undergraduate students and about 3,000 graduate students. So it is a formidable challenge each spring to single out six of those talented students—three undergraduates and three graduate students—to receive the Charles E. and Sue K. Young Student Awards.

“The winners of the Young Awards represent everything about excellence and commitment that are the hallmarks of the UCLA experience—as superb students, as researchers, and as leaders in campus service and community outreach,” said Patricia O’Brien, executive dean of the College. The winners are chosen based on their distinctive academic achievements, research accomplishments and community service.

In 1996, Evelyne and Louis Blau ensured perpetual funding for the awards by establishing an endowment in honor of UCLA’s chancellor emeritus Charles E. Young and his late wife, Sue.

This year’s six student winners, profiled here, were honored at the March 21 College Awards Dinner, along with Lloyd Cotsen, winner of the College’s Honorary Fellow Award, which recognizes an alumnus or friend who has demonstrated philanthropic and volunteer leadership in the College (see page 3).

For the Young Awards, it seems that 2005 is the year of the female and the year of the scientist. Four of the College’s student award winners are women and five of them are engaged in scientific research.

Understanding the Mechanisms that Regulate Emotion

By eighth grade, **MOLLY CROCKETT** knew that science was her calling. In her senior year of high school she had narrowed down her choices to studying neuroscience at UCLA, Harvard or Stanford. She called Matthew Lieberman, assistant professor of psychology, to inquire about studying the subject at UCLA.

“Molly persuaded me of how impressive a student she was going to be, so I recruited her as quickly as I could to work in my lab,” said Lieberman. “Molly has a true joy in everything she does, and especially in all the different kinds of learning that I’ve seen her partake in. Molly has no fear that she’ll fail because she

know she’ll try hard enough to make it all work.”

As an undergraduate psychobiology major, Crockett has conducted research in the growing area of social cognitive neuroscience, which uses neuroimaging techniques such as magnetic resonance imaging (MRI).

“I’m interested in the brain mechanisms underlying emotion regulation and how these systems go awry in various forms of psychopathology,” Crockett said. “It’s incredibly rewarding to be recognized for pursuing my passion.”

That passion includes a strong interest in the role that dysfunctional emotional processing and cognitive control play in mood and anxiety disorders.

Crockett has presented her work at three professional conferences and assisted graduate students with their research. She also has been involved on campus as a volunteer for the UCLA Peer Helpline and as president of the Alumni Scholars Club. She plans to earn a Ph.D. in neuroscience and psychology and pursue a career as a researcher and mentor.

Discovering Common Links Underlying Social and Physical Pain

NAOMI EISENBERGER also began her academic career in psychobiology, earning a B.A. summa cum laude from UCLA in 1997. Now, as a graduate student in social psychology, she is already a leader in the field of social cognitive neuroscience. She has lectured on three continents and has received numerous awards, including a National Science Foundation Graduate Fellowship and a UCLA dissertation year fellowship.

“Naomi leapt to prominence last year when a groundbreaking paper of hers appeared in the journal *Science*,” said Anne Peplau, professor of psychology. “Her discovery was that social pain and physical pain actually have the same neural underpinnings. She shows how brain scans can be used to understand our intensely personal everyday experiences.”

Eisenberger’s dissertation research examines how neural responses to social threats may help trigger neuroendocrine and immunological responses. “It is my hope that by continuing to investigate the social experience, I can help to understand the power of social relationships and how they influence our health and well-being,” she said.

Eisenberger also serves as a graduate mentor in the undergraduate Psychology Research Opportunity Program. Recently, she was awarded a fellowship to conduct postdoctoral work at the UCLA Cousins Center for Psychoneuroimmunology, where she will examine the links between human sociality, the brain and the immune system.

Technology to Detect Disease Sooner

The latest imaging methods also play an important role in the research of **SUSIE HUANG**. As a doctoral student in physical chemistry, this National Science Foundation fellow has developed many internationally-recognized contributions to the area of nuclear magnetic resonance spectroscopy.

At UCLA, Huang is collaborating with faculty and surgeons at the UCLA Medical Center in developing MRI technology that will enable scientists to investigate the molecular mechanisms of disease and detect tumors at an early stage.

“Just as disease pathways don’t care which tools from what disciplines are used to unlock their secrets, I want to transcend the artificial boundaries of different sub-fields of science in my future career,” said Huang, who plans to pursue a medical degree, and then teaching and biomedical research.



The winners of the Charles E. and Sue K. Young Student Award are Naomi Eisenberger, Susie Huang, and [unseen]



wards for 2005. From left: Molly Crockett, Abraham Tabaja, ng, Andy Yip, and Robyn Javier.

Huang came to UCLA after graduating summa cum laude from Harvard in 2002, where she earned B.A. and M.A. degrees in chemistry as well as several prestigious awards. At UCLA, beyond her research she is an enthusiastic teaching assistant in quantum mechanics, and assists families as a volunteer in the surgical waiting area at the UCLA Medical Center.

“In the last two years, Susie has published five important papers in well-known journals and given talks at three international conferences. She also has received probably a record high rating from students for her teaching in our department,” said Yung-Ya Lin, assistant professor of chemistry and biochemistry. “But what truly impresses me and touches my heart are the unique strengths I have observed in Susie’s character. She cares deeply about the concerns and needs of those around her.”

Math Models to Regulate a Cancer-suppressing Protein

ROBYN JAVIER is both a gifted scientist and a gifted musician, and sometimes she is able to blend the two.

A third-year undergraduate in the Cybernetics Interdepartmental Program with a double major in cybernetics and neuroscience, Javier is among only seven others who were selected for a two-year intensive program that gives undergraduates the opportunity to conduct in-depth research in preparation for graduate school. As part of this program, UC LEADS, Javier conducted research involving math modeling of the regulation of a tumor-suppressing protein.

“Robyn’s got everything going for her, certainly the intellect, the synthetic abilities, intense motivation, and intestinal fortitude for creative research, and she’s already demonstrated this in my lab,” said Joe Di Stefano III, professor and chair of the Cybernetics Interdisciplinary Program. Di Stefano also plays saxophone and sometimes holds jazz jams in his lab with Javier, who plays trombone.

“I found my home here, conducting creative research, learning from the experts, and playing music with the masters,” Javier said. Her goal is to pursue an academic career, teaching and conducting research focused on Alzheimer’s disease, and playing music on the side.

Javier is a member of several jazz ensembles, teaches music and for the last two years received a Herb Alpert Foundation scholarship. She also established the Maria Javier Memorial Scholarship for music students at her alma mater of Long Beach Poly High School.

Studying International Treaties and Failed States to Alleviate Suffering

ABRAHAM TABAIE has something highly unusual on his resume as well: the fourth-year political science and history major is one of the few undergraduates to serve as a teaching assistant in an undergraduate class. Tabaie's dedication and creativity in researching international treaties led to his selection as a T.A. in a course on international law. He also has a strong interest in the causes of state failure, and is using quantitative methodology to examine the subject in his senior Honors thesis.

"I feel this kind of research is necessary to help alleviate the massive human suffering taking place due to political violence," Tabaie said.

"I knew when I first met Abraham that this was someone astonishingly special," said Ronald Rogowski, professor of political science. "In class you know that you have to be completely on your toes. He's going to be two steps ahead of you on the material. I'll be pretty surprised if he doesn't go on to a top-flight legal and perhaps political career."

After graduating summa cum laude, Tabaie plans to attend law school and specialize in international law and mediation. At UCLA, he has served as president of Sigma Alpha Epsilon, the largest fraternity on campus, which received a humanitarian award for philanthropy during his tenure. He also has volunteered with Habitat for Humanity, and has tutored children with learning disabilities.

Aiming to Apply Computations and Math to Cancer Therapies

Outstanding communication and interpersonal skills make **ANDY YIP** well suited for his role as a mentor and supervisor of a first-year Ph.D. student in mathematics.


The Ph.D. candidate's research interest is applied mathematics, and he has initiated innovative joint research projects with biologists and geneticists in the School of Public Health and the human genetics department of the David Geffen School of Medicine.

Using computational biology and mathematical methods, Yip has identified genetic elements of special interest.

"Ultimately we hope the methods could lead to a design of therapeutics for cancer," said Yip, a Hong Kong native. "I find it truly exciting to do interdisciplinary research because I learn a lot from people of different departments and different cultures."

Before entering the Ph.D. program, Yip earned a master's degree at UCLA in 2002, a M.Phil. degree in mathematics at the University of Hong Kong in 2000, and a B.Sc. degree at the Chinese University of Hong Kong in 1998.

"In Andy I see a profound theoretical knowledge, creativity and mathematical knowledge," said Steve Horvath, assistant

professor of human genetics and biostatistics. "I also don't know anyone who's as fast at thinking of an idea, working it out, coding it, and at the same time writing it up in a format that you can almost submit. He already has many publications to his credit. He's ready to jump directly from graduate student into an assistant professor position, and would have no problem succeeding." 

"The winners of the Charles E. and Sue K. Young Student Awards represent everything about excellence and commitment that are the hallmarks of the UCLA experience — as superb students, as researchers, and as leaders in campus service and community outreach."

FIRST STEPS IN A BOLD SCIENTIFIC ADVENTURE

THE COLLEGE IS TAKING A LEADING ROLE IN UCLA'S BROAD NEW INITIATIVE TO EXPLORE THE SCIENTIFIC AND MEDICAL POTENTIAL THAT IS EMERGING FROM RESEARCH ON STEM CELLS.

"WE'RE SEEING A CONCERTED EFFORT TO BUILD A SCIENTIFIC CULTURE FOUNDED ON TIES BETWEEN INVESTIGATORS INTERESTED IN CLINICAL AND BIOMEDICAL RESEARCH, BASIC LIFE SCIENCES, ENGINEERING AND THE PHYSICAL SCIENCES."

By Dan Gordon

They are the source of all we become—the unspecialized cells that give rise to the human body's tissues: lungs, liver, brain, hair, heart—and the source of great excitement among scientists.

Armed with ever more powerful tools, researchers from a wide array of disciplines are exploiting the power of stem cells to reveal vital information about human development, including the events that lead to serious medical conditions such as cancer and birth defects. Such study could uncover new avenues for treating numerous diseases, or may lead to a renewable source of replacement cells and tissue to treat degenerative diseases such as Alzheimer's, heart disease or diabetes.

Recently, the non-scientific public expressed its own enthusiasm for this research. Last November, California voters approved Proposition 71, which provides \$3 billion in bonds to create the California Institute for Regenerative Medicine—an agency that will regulate human embryonic stem cell research and provide funding through grants and loans for stem cell science at institutions across the state.

The funding boon places California in the forefront of stem cell research, and UCLA will be a formidable player—especially with the announcement in March that the university has formed the Institute for Stem Cell Biology and Medicine.

The institute, in which the UCLA College is taking a leading role, brings together geneticists, engineers, ethicists, chemists, policy experts, pathologists, immunologists, oncologists, hematologists and scientists from other disciplines in a joint effort to unravel the mysteries of the growth and development of adult and embryonic stem cells.

Research will focus on translating fundamental observations about stem cells into new and more effective ways to treat and prevent HIV, cancer and neurological disorders such as stroke, spinal cord injury, brain tumors, multiple sclerosis and genetic diseases.

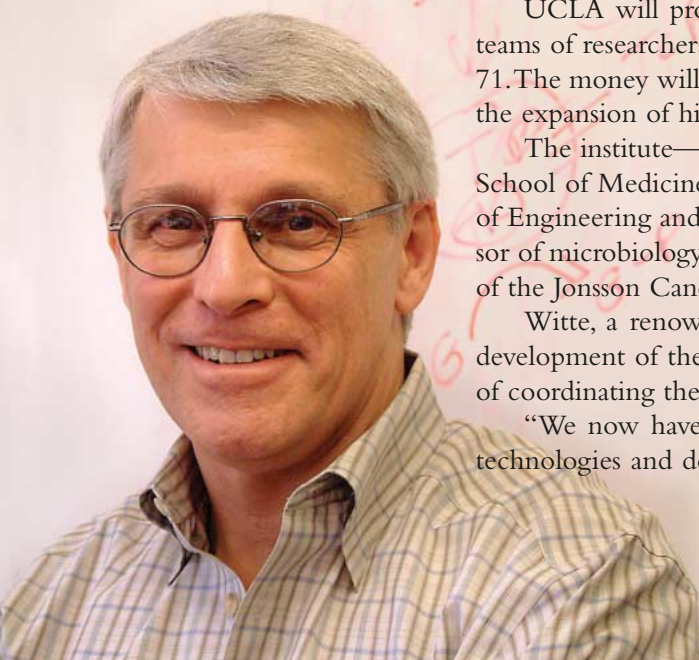
UCLA will provide \$20 million over five years to launch the institute, enabling teams of researchers to compete for state grants created by the passage of Proposition 71. The money will fund the recruitment of a dozen new faculty positions, salaries and the expansion of highly sophisticated laboratory space, infrastructure and supplies.

The institute—a collaboration between the UCLA College and the David Geffen School of Medicine, UCLA's Jonsson Cancer Center, and the Henry Samueli School of Engineering and Applied Science—is headed by the College's Owen Witte, professor of microbiology, immunology and molecular genetics, with Judith Gasson, director of the Jonsson Cancer Center, serving as co-director.

Witte, a renowned scientist whose laboratory research laid the groundwork for development of the targeted leukemia therapy Gleevec, has begun the important task of coordinating the efforts of researchers from a wide array of disciplines.

"We now have a remarkable opportunity in biomedical research to utilize new technologies and develop ways of treating human disease that we previously couldn't

Owen Witte—"We now have a remarkable opportunity in biomedical research to utilize new technologies and develop ways of treating human disease that we previously couldn't fathom."



fathom,” said Witte. “As someone whose entire career has been about finding ways to apply knowledge of the basic pathobiology of disease to devise new therapeutic strategies, I am very excited to be involved in this effort.”

Under Proposition 71, priority for grants will be given to stem cell research that meets the state institute’s criteria and is unlikely to receive federal funding. That means that in addition to studies with adult stem cells and so-called presidential stem cell lines—the embryonic lines created before April 9, 2001, the only ones available for federally-funded investigations—researchers eventually hope to be able to work with previously unavailable embryonic lines.

“It will be very helpful to study new embryonic stem cell lines,” Witte said. “Many of these lines have unique characteristics, so we need to study lots of different ones in order to learn how things work.”

Adult stem cells, which help the body replace tissues that must be renewed continually throughout life, are descended from embryonic stem cells—the cells that give birth to those that become the different parts of the body. Scientists obtain adult stem cells for research from many organs and tissues in the body, including the brain, blood vessels, skin and bone marrow.

Adult stem cells generally are limited to becoming the cell type of their tissue of origin. Embryonic stem cells can be found in an embryo—a fertilized human egg—five to seven days after conception; typically, they are extracted from embryos that have been donated to research by parents undergoing fertility treatments. In vitro fertilization clinics prepare many cells that are not used for the initial impregnation, and the unused or surplus cells are kept frozen as human tissue in case they are needed. When the tissue is no longer needed for pregnancy, it is available for life-saving stem cell research.

Although adult stem cells offer potential benefits and will continue to be studied, most scientists agree that with what is known today, there is much greater promise in embryonic stem cells, given their potential to develop into every type of cell in the body. Jerome Zack, professor of medicine and of microbiology, immunology and molecular genetics, and the associate academic director of UCLA’s new stem cell institute, has been involved in clinical trials of a strategy that treats adult stem cells with antiviral genes to provide protection from HIV infection.

The adult stem cells can differentiate to become the blood-forming stem cells infected by the AIDS virus. But the inherent drawback to the approach is



Jeffrey F. Miller—“The stem cell institute is designed to take advantage of the full range of expertise available on this campus.”

that it requires patients to go through the arduous process of having their own stem cells isolated, treated with the genes, and then re-implanted.

“The beauty of embryonic stem cells, assuming we can get them to develop into blood-forming lineage, is that we could engineer cells to be universally transplantable without having to remove the patients’ adult cells and manipulate them in culture,” Zack said.

Given the ambitious nature of the task, capitalizing on the public’s support requires harnessing expertise from academic fields all over the university.

“UCLA encourages strong collaborations between faculty in the life sciences and the health sciences,” said Patricia O’Brien, executive dean of the UCLA College. “As biomedicine grows increasingly complex, new academic partnerships hold the key to discovery; this institute will create novel opportunities for research that span many disciplines.”

Said Witte, “There will be opportunities for collaborations that otherwise would not have occurred, simply because faculty from different disciplines are meeting and talking to each other about their work for the first time.” Witte has initiated a series of workshops designed to facilitate such discussions.

Within the College alone, researchers with diverse interests are becoming involved. Many faculty in the Department of Molecular, Cell, and Developmental Biology use model systems to understand genetic regulations needed for cells to go into differentiated states.

“In that sense, a stem cell is an ideal system for study,” said Utpal Banerjee, the department’s chair. Banerjee sees his department’s faculty providing fundamental information on non-human organisms that can be applied by translational researchers.

Jeffrey F. Miller, chair of the Department of

Microbiology, Immunology, and Molecular Genetics, points out that the multidisciplinary nature of his department—which includes researchers who cover areas ranging from immunology, virology, bacteriology and cell biology to regulatory mechanisms, molecular biology and the study of single cells—makes it ideal for faculty to work with researchers on other parts of campus to better understand and manipulate stem cells.

“This is an exciting time on campus, a time when we’re seeing a concerted effort to build a scientific culture founded on ties between investigators interested in clinical and biomedical research, basic life sciences, engineering and the physical sciences,” Miller said.

“The stem cell institute is clearly designed to take advantage of the full range of expertise available on this campus and our ability to effectively collaborate in an effort to solve complex biological problems.”

Outside the College, the Jonsson Cancer Center features an established clinical trials infrastructure that can be used to test applications that come out of collaborations with biological researchers.

“More and more evidence suggests that cancer is a stem cell disease,” said institute co-director Gasson, the cancer center’s director and a professor of medicine and biological chemistry. “Many of our current therapies are not effective because they don’t target the cancer stem cells.”

Meanwhile, faculty in the engineering school with expertise in microfluidics and nanosystems will be counted on to develop new technologies to help accelerate the pace of progress in embryonic stem cell research.

“Every major advance in science that I’m aware of these days is coming from interdisciplinary work,” said Witte, who is also looking beyond the College’s medical school and engineering partners to other campus departments and schools—future collaborations are envisioned with ethicists, social scientists and experts in business and public policy, among others.

“The image of the solitary scientist is no longer relevant,” said Witte. “Stem cell research cuts across every scientific discipline one can imagine—from fundamentals of developmental, cell and molecular biology into applied issues such as how to introduce new or altered genetic information, up to engineering questions of how does one grow and manipulate these cells at scale, and into medical issues of how do you apply this knowledge in the clinic. It’s a unifying science that requires different kinds of people to work together.”

If the passage of Proposition 71 makes California


the focal point for stem cell research in the United States, UCLA appears ideally positioned to take on a central role in the state. Even before the recruitment of new stem cell researchers to the faculty, the campus already boasts experts in adult human stem cells and experts in mouse embryonic stem cells; the two sides will share knowledge as the institute delves further into human embryonic stem cell research. UCLA is



Utpal Banerjee—To understand genetic regulations needed for cells, “a stem cell is an ideal system for study.”

also the only public university in California with a Good Manufacturing Practice suite, a specialized laboratory that is critical for the safe growth and manipulation of stem cell lines.

As with any relatively new scientific endeavor, researchers are quick to caution that the revolutionary new treatments they hope will eventually evolve for Parkinson’s, spinal cord injuries, Alzheimer’s, cancer and other diseases may be years or even decades away. But they are also optimistic about the gains that can be realized from this new frontier.

“Technology is such now that with scientists working together, we should be able to determine the signals and conditions that tell these cells what to become,” said Zack. “And if we can do that, it opens up a floodgate of therapeutic possibilities.” 

Dan Gordon is a Los Angeles-based writer who contributes frequently to UCLA publications.

Discovery Showcase

Surveying the spectrum of scholarship by faculty in the UCLA College.

David Glanzman Physiological Science

Interested in the workings of the human brain? Take a look at marine snails

A neuroscientist in the College is gaining insights into the human brain through the functions of a five-inch-long snail called *Aplysia*.

What can neuroscientists learn about the human brain from studying a marine snail? Much more than one might suspect.

“On a cell biological level, the mechanisms of learning and memory are identical, as far as we can tell,” said David Glanzman, a UCLA professor of physiological science and neurobiology, whose research has strengthened the view that the human brain and that of a snail named *Aplysia* are surprisingly similar. “Human brains have many more neurons than the *Aplysia*’s, but it doesn’t look like there is any difference on a molecular or synaptic level.

“When this animal learns,” Glanzman said, “many changes take place in its nervous system. I want to understand what causes these changes for certain forms of learning; I want to understand everything there is to understand. This knowledge will inform us about the kinds of changes that take place in our brains when we learn.”

Glanzman’s quest for this knowledge will be helped by his selection last November as one of eight scientists awarded the prestigious Senator Jacob Javits Award in the Neurosciences, an award presented to investigators who have “demonstrated exceptional scientific excellence and productivity in research areas supported by the NINDS,” and which provides up to seven years of research funding from the National Institute of Neurological Disorders and Stroke (NINDS).

Glanzman’s research, which also has primary funding from the National Institute of Mental Health, may lead to such human applications as developing



“When this animal learns, many changes take place in its nervous system. I want to understand what causes these changes for certain forms of learning.”

*David Glanzman—“Everything that my colleagues and I have found in the *Aplysia* has turned out to be relevant to nervous systems in mammals.”*

interventions for people with memory-related disorders and reducing age-related memory loss.

Glanzman, whose appointments are in both the UCLA College and the David Geffen School of Medicine, has been conducting research on the marine snail for 20 years.

“As far as I can tell, everything that my colleagues and I have found in the *Aplysia* has turned out to be relevant to nervous systems in mammals. I expect there to be valuable lessons from the *Aplysia* for age-related memory loss in humans.”

Aplysia is native to California, living in the coastal tide waters. At five inches in length, it is substantially larger than its garden-variety counterpart, and has approximately 20,000 neurons in its central nervous system (humans have approximately one trillion).

Glanzman has a good understanding of the functions of about 1,000 of the *Aplysia*’s neurons. With funding from the Jacob Javits Award, Glanzman’s laboratory will study topics including the role of protein synthe-

sis in long-term memory. In both the *Aplysia* and mammals, learning that is spaced over several hours induces long-term memory and activates specific genes in neurons, causing proteins to be synthesized that have important functions in long-term memory. Glanzman’s team is identifying genes and proteins, and their functions in learning and memory.

What does the marine snail learn?

“The marine snail has to process information about its environment, and it has to make associations between different stimuli, just as we do,” Glanzman said. “It is capable of learning when an environment is safe and when it is not, and of understanding the danger posed by a predator.”

“Our laboratory has evidence that for long-term memory, protein synthesis may occur at an earlier stage in memory formation than was thought before. Then the questions are: What proteins are being synthesized, where are they being synthesized and what are they doing once they’re synthesized? We will use the Jacob Javits Award to try to answer these questions.”

www.physci.ucla.edu

Brenda Stevenson History

A Living Embodiment of History

A scholar who studies American slavery becomes head of UCLA's African American Studies Program.

As a child, Brenda Stevenson traveled every summer to the South Carolina plantation where one of her ancestors was sold into slavery—and sexual brutality—at 15.

With a slave cemetery nearby and fields still planted in tobacco and sugar cane, the site that remains in Stevenson's family to this day helped bring history to life.

"When we were young, my father used to say to my mother, 'Oh, let's not talk about those old stories!'" Stevenson recalled. "But I was captivated. My mother's stories framed my consciousness. I'm passing them on to my daughter."

So it's not surprising that the historian who specializes in the history of American slavery—particularly of women—was selected to head UCLA's prestigious African American Studies Program, which recently marked the 30th anniversary of its founding.

For students in African-American history courses at UCLA, the warm, engaging author of *Life in Black and White: Family and Community in the Slave South* (Oxford University Press) and a forthcoming history of American female slavery is a living embodiment of history.

"When I tell students about my family's history, my students always say, 'Oh, my gosh! You make the past seem so immediate!'"

Still, the former chair of the Department of History has her work cut out for her in the program composed mostly of faculty with primary appointments in other academic units.

As recently as a decade ago, the important cradle of the American Black Power movement ranked third in the nation. But private institutions with large endowments have repeatedly lured away prominent senior faculty. UCLA has hired promising new scholars, but they're at the junior level; the program can now only claim to be in the top ten nationwide.

Moreover, overall African-American enrollment continues to lag at UCLA in the wake of Proposition 209. For the past two years, fewer African-American freshmen have enrolled than anytime in the 30

years since UCLA started tracking the ethnicity of incoming freshmen.

"If they're not getting into the university, it's hard to get them to our classes," Stevenson said.

But if anybody's up to the task, colleagues say it's the accomplished scholar with a track record of overcoming adversity. This after all is a woman who attended segregated schools until ninth grade but nonetheless managed to get elected vice-president of her newly integrated high school, serve as a cheerleader and graduate valedictorian.

Armed with support from the College's development team, Stevenson is hoping to put a new emphasis on cultivation and recruitment for the teaching unit.

"This responsibility weighs on me a great deal," Stevenson said. "I feel like I'm trying to hold things together with bubble gum, but I love this work."

www.history.ucla.edu



Brenda Stevenson—"When we were young, my father used to say to my mother, 'Oh, let's not talk about those old stories.' But I was captivated. My mother's stories framed my consciousness. I'm passing them on to my daughter."

Juli Feigon Chemistry and Biochemistry

Discovering a New Piece in the Cancer Puzzle

Biochemists in the College identify the structure involved in a process that plays a key role in cancer.

A team of UCLA biochemists have determined the three-dimensional structure of a major domain of telomerase, the enzyme that helps maintain telomeres—small pieces of DNA on the ends of chromosomes that act as protective caps—allowing DNA ends to be copied completely when cells are replicated.

Every time a cell divides, telomeres, which act like the plastic tips on the ends of shoelaces, get shorter. In the natural aging process, the telomeres eventually get so short that cells can no longer divide, and they die. While telomerase is turned off in most types of healthy cells in our bodies, it stays active in the vast majority of cancer cells, said Juli Feigon, professor of chemistry and biochemistry at UCLA.

Because cancer cells divide rapidly, their telomeres should get shorter more quickly than normal cells. However, because cancer cells have high levels of telomerase activity, which rebuilds the telomeres, cancer cells can maintain the length of their telomeres indefinitely.

The domain of telomerase whose structure the biochemists have determined is essential for telomerase to add nucleotides to telomeres. Telomerase is composed of both RNA and proteins. The entire RNA domain is composed of 451 nucleotides, represented by the letters A, C, G and U. Feigon solved the structure of an essential piece of this RNA.

This is the first major piece of telomerase for which the structure is known. Telomerase plays a key role in most cancers, and this work ultimately may lead to targets for drug intervention, the scientists reported in the journal *Molecular Cell*.

“Knowledge of the structure should provide insights into how telomerase works,” said Feigon, who led the research group that included co-authors UCLA postdoctoral scholar Carla Theimer and graduate student Craig Blois.

“Knowing the structure also will allow



Juli Feigon: "Knowing the structure also will allow the pursuit of rational, structure-based drug design, and is a critical first step. The structure provides a potential target for drug intervention."

the pursuit of rational, structure-based drug design, and is a critical first step. The structure provides a potential target for drug intervention."

Although it is not known whether telomerase activation is just a marker for cancer cells or involved in causing it, telomerase is an attractive target for development of anti-cancer drugs by pharmaceutical companies.

The research, which was federally-funded by the National Science Foundation and the National Institutes of Health, could have applications for many kinds of cancers.

Mutations in the RNA are associated with the inherited diseases aplastic anemia and dyskeratosis congenita, which frequently are manifested by progressive bone-marrow failure.

"There are five known disease mutations in this part of the RNA identified so far," Feigon said. "For three of them, it was not clear why they would be a problem for telomerase, but by solving the structure, we now understand how they disrupt

the folding and stability of the RNA and why they are disease mutations."

For telomerase to be active, it needs the telomerase RNA and a protein called human telomerase reverse transcriptase, which is related to the protein that is important for replicating the AIDS virus. Feigon's laboratory has been working on the RNA.

"It is a dream of mine to figure out what this RNA is doing with the protein," Feigon said. "Reverse transcriptases normally copy RNA to DNA, but do not contain RNA; in this enzyme, the protein requires the RNA component to function. The enzyme is unique because it has its own internal piece of RNA that is used to copy the DNA, but this 'template' is only approximately 10 of the 451 nucleotides. Nobody knows what the rest of the RNA is really doing as part of this enzyme; that is what we're trying to understand. We're getting closer to answering this question."

www.biochemistry.ucla.edu

National Recognition for Four Talented Scholars

Four faculty in the College have been elected to the National Academy of Sciences for 2005, "one of the scholarly community's highest honors."

Four UCLA faculty have received one of the highest honors that can be awarded to a scientist or engineer—in May they were elected to the National Academy of Sciences.

The newly-elected members all hold appointments in the UCLA College.

"These elections to the National Academy of Sciences recognize superb achievement by some of our finest scholars," said Patricia O'Brien, executive dean of the College. "UCLA is among the nation's leaders in election of faculty to all of the principal organizations that honor academic achievement. The new elections to the National Academy of Sciences are vivid examples of the quality of scholarship across the academic fields on campus."

The 2005 elected members of the National Academy of Sciences from UCLA are:

William A.V. Clark, professor of geography

Clark's research and teaching focuses on the internal changes in cities in the United States, especially the changes that occur because of residential mobility and migration. Clark, who came to UCLA in 1970, conducts large-scale studies of demographic change in the neighborhoods of large metropolitan areas, looking at white flight, how population flows between cities and suburbs, the legal issues that affect urban life, and the interaction of class, race and geography.

Wayne L. Hubbell, professor of chemistry and biochemistry Jules Stein Professor of Ophthalmology

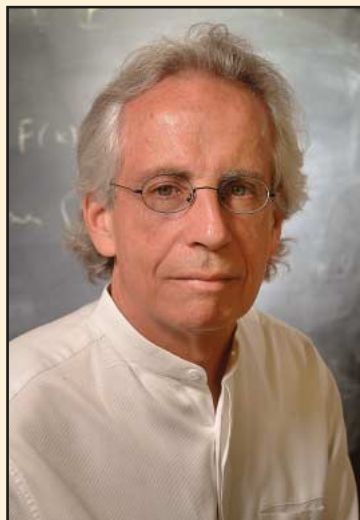
Hubbell explores the relationship between the molecular structure of a protein and the changes that control its function. Of particular interest to Hubbell, who joined the UCLA faculty in 1983, are membrane proteins that behave as "molecular switches"—the proteins whose structures are switched to an active state by a

physical or chemical signal. Also under study by Hubbell is light-activated rhodopsin, the visual pigment in the photoreceptor cells of the retina.

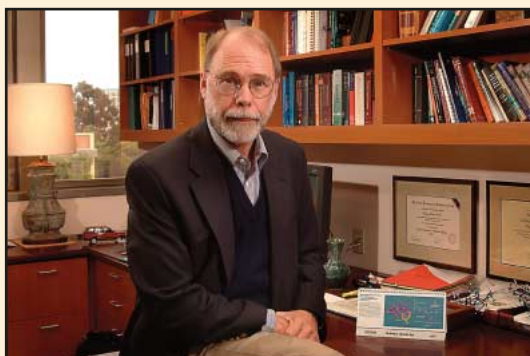
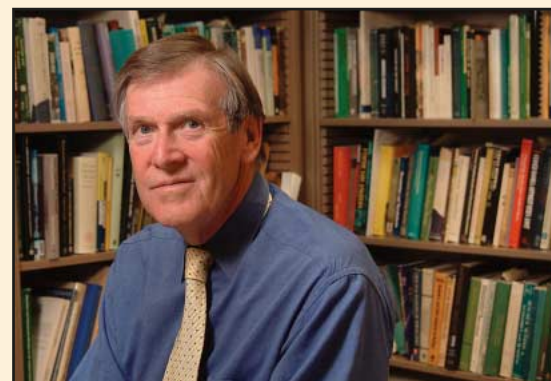
Stanley Osher, professor of mathematics director of special projects, UCLA Institute for Pure and Applied Mathematics

Osher has made fundamental contributions to applied mathematics, computational science and scientific computing. He has also co-founded three companies based, in part, on his research. Osher, who came to UCLA in 1976, has applied his pioneering work to the field of image processing and, in particular, to video image enhancing and movie animation. Osher is currently director of special projects at the UCLA Institute for Pure and Applied Mathematics, the campus organization that launches new collaborations between mathematicians and scientists on interdisciplinary problems and broadens the range of applications in which mathematics is used.

Stanley Osher



William A.V. Clark



Wayne L. Hubbell



Penny Jennings

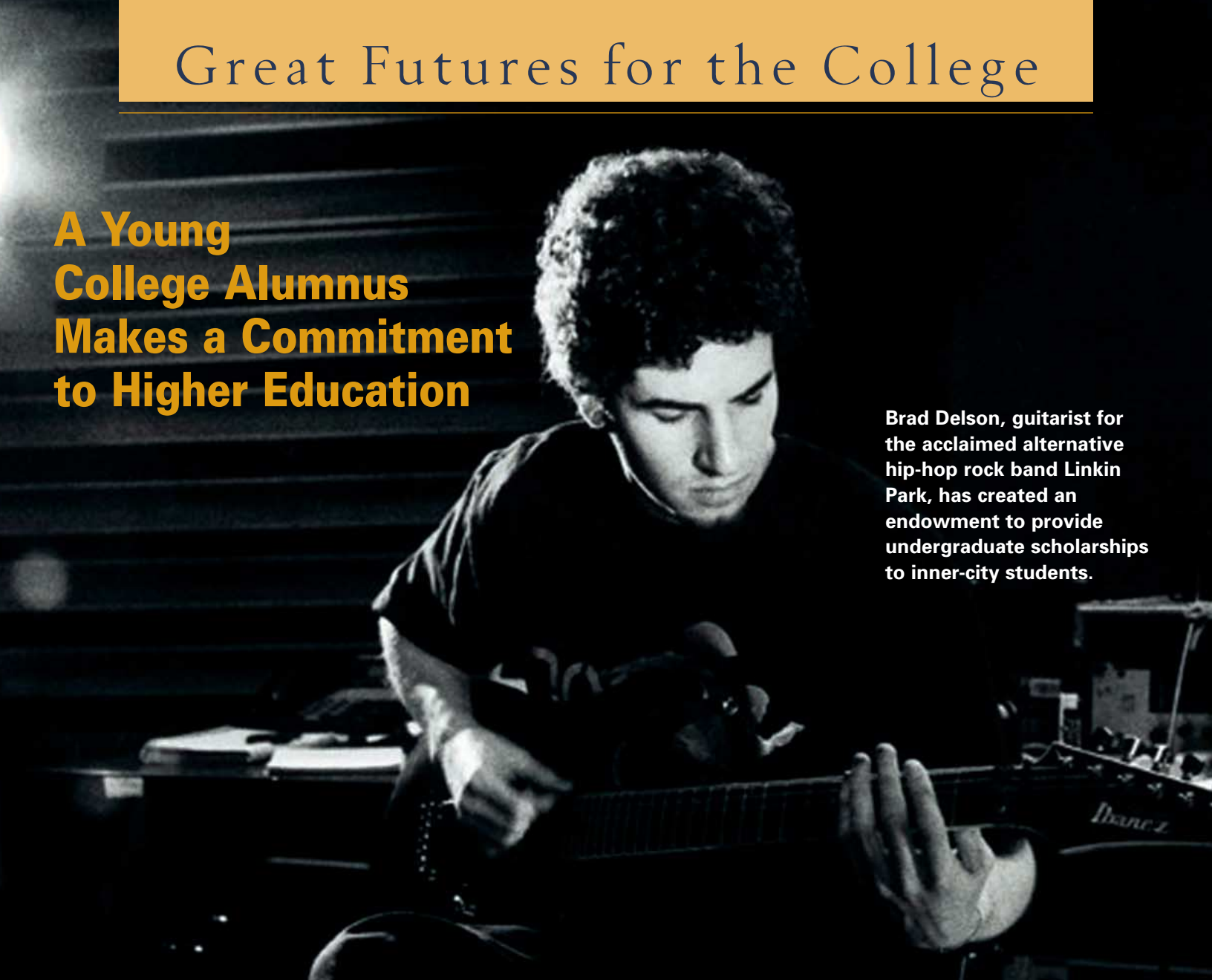
Joan Selverstone Valentine

Joan Selverstone Valentine, professor of chemistry and biochemistry

Valentine is a leading figure working at the interface of inorganic chemistry and biology. Her recent work focuses on copper-containing proteins that play important roles in organisms ranging from bacteria and yeast to plants and animals. Valentine has pioneered the chemistry of superoxide anion and its significance to life processes, including the mechanism responsible for amyotrophic lateral sclerosis, also known as ALS or "Lou Gehrig's Disease." Valentine, who has served on the UCLA faculty since 1984, also explores yeast studies of oxidative stress and antioxidants—studies that may lead to a better understanding of the role of "oxidative stress" in processes involving human aging, cell death and disease.

Great Futures for the College

A Young College Alumnus Makes a Commitment to Higher Education

A black and white photograph of Brad Delson, a young man with curly hair, playing an electric guitar. He is looking down at his hands on the fretboard. The background is dark and out of focus, showing some stage equipment.

Brad Delson, guitarist for the acclaimed alternative hip-hop rock band Linkin Park, has created an endowment to provide undergraduate scholarships to inner-city students.

The UCLA College boasts many prominent alumni in a broad array of fields, from business executives to entertainers to scientists. Among the youngest of these celebrated graduates is guitarist Brad Delson, a member of Linkin Park, the highly successful and internationally acclaimed alternative metal/hip-hop/rock band. In 2001, Linkin Park's first album, "Hybrid Theory," was the world's top selling album of the year. In 2002, "Hybrid Theory" received a Grammy Award for Best Hard Rock Performance, as well as nominations for Best Rock Album and Best New Artist.

A 1999 communications graduate, Delson, 27, has created the Delson Scholarship Fund in the UCLA College to provide undergraduate scholarships for Los Angeles-area inner-city high school graduates, particularly those who attended Nimitz Middle School in Huntington Park. Delson spoke about his experience at UCLA and his decision to establish the scholarship fund.

CR: When did you become interested in music?

Delson: I've been interested in music as far back as I can remember. I played trumpet in my elementary school orchestra. I started learning to play guitar when I was 12 or 13 and took lessons for about 5 years. After that I taught guitar and played with friends in local bands through high school. I did it as a hobby, something that I loved, but I never thought I would pursue it professionally.

CR: When you were looking at colleges, what made you choose UCLA?

Delson: Growing up near UCLA, I may have taken it for granted and thought about colleges that were further from home. But then, when I visited the campus

again during my senior year in high school, I really just fell in love with it. I was also offered a scholarship, and that weighed in on my decision.

CR: You were a communications major, with a specialization in business. What were your career goals?

Delson: That's a good question. I liked communication studies because it's interdisciplinary. One of the values of a liberal arts education is that it's possibly the greatest opportunity in life to be exposed to a number of different disciplines. It really expands your perspective and understanding of the world and how it works.

Also, I was still very interested in music, and I had a number of internships in the entertainment industry. I figured maybe I'd go to law school and then pursue the business side of music.

During that time I was performing in a band with a group of my friends, and people actually started to like the music we were playing. So we just took it from there. We signed a publishing deal while I was at UCLA. During my senior year I was debating, "Should I do the more traditional route, go to graduate school—I don't really have a record contract—or should I just take a risk and pursue music?" I chose the latter.

It was a little scary, but, fortunately, it paid off.

CR: Do you think your education has contributed to your music career?

Delson: Absolutely. That's one of the themes I try to impart to younger students. I've had the opportunity to speak with kids at Nimitz Middle School, where one of my friends has taught. I think my career is very compelling to kids growing up. They identify with the artists and musicians they see on TV and hear on the radio. I tell them that, although my career is maybe more glamorous than others and may seem antithetical to going to school and being committed to educational goals, the two go hand in hand. My education at UCLA has contributed to my success tremendously.

CR: In what way?

Delson: There's much more to being a musician than just playing your instrument. Linkin Park is our career, our business, and ultimately we're in charge of our own destiny. Although we have people advising us, we make the decisions. Our bass player, who was my roommate at UCLA, got his degree in philosophy, and the other guys are smart and educated, and I think it

really informed our decision-making process and allowed us to maximize our success.

CR: Linkin Park is a very philanthropic band. Why?

Delson: We feel that it's important for us to give back, because we've been so fortunate in our careers and we've received so much support from people around the world. That directly influenced our decision to start Music for Relief, a global effort by the music industry to help people who have been affected by a disaster such as the recent tsunami in South Asia.


CR: What led to your decision to create a scholarship in the UCLA College?

Delson: The idea came out of my experience at Nimitz Middle School. When my friend invited me to speak to her class, I chose to focus not only on my music career but on my experience in college and how that helped me to be successful.

In some high schools in LA, the graduation rate is a lot lower than it should be, and the number of students attending college is quite low. I think it's important to get kids at a young age to start thinking about college, because that will inform their experience in high school and give them something to work toward. I hope to go to Nimitz every year and speak to the kids about my experience at UCLA, and let them know that we've created this scholarship for them. Our goal is to award one full, four-year scholarship every year. We'll be awarding the first one in the next academic year.

CR: You're one of the College's youngest major donors. What would you say to other young alumni who might be starting to think about giving to UCLA? Why is it important?

Delson: I realize that I'm in a unique position, but it doesn't matter how much you give. Even if it's a small amount—whatever is comfortable—it's important to make a commitment to give back.

I have a great feeling when I think about UCLA—the education I received, the friends I made, and the support I got from the professors and staff. With the rising cost of tuition and the cuts in state funding, it's important now more than ever for alumni to contribute to the school, to make it as great a place as it can be. 

For information about supporting the UCLA College, call Tracie Christensen, assistant vice chancellor of development (310)206-0699

Supporting Past and Future

An appreciation of history led to the creation of a graduate fellowship by Meyer and Renee Luskin.

Meyer Luskin is a thoughtful man. When he is asked a question, he takes a breath and pauses to think about his reply before he speaks. Perhaps that's one of the reasons for his professional success. It also may explain, in part, his strong interest in history. "I think knowing history is very important in trying to make the right decisions for the future," he said.

Luskin, in fact, entered UCLA as an undergraduate history major. But after his freshman year, his education was interrupted by World War II, and he went overseas with the U.S. Army Air Corps. With time to think about his education, he became concerned that he might not be able to make a good living with a history degree. When he returned to UCLA after his tour of duty, he switched to economics because it would bring him closer to the business world. After graduating from UCLA in 1949, he earned an M.B.A. at Stanford.

Today, Luskin is president of Scope Industries, a Santa Monica company that makes high-calorie animal feed from bakery waste.

"I think the appreciation of history helped me a great deal in my career," he said. "Certain major decisions I made that worked out well were based on an appreciation of the history of economic events, the history of political events."

Last year, Luskin and his wife Renee, a UCLA alumna in sociology, created the Meyer and Renee Luskin Graduate Endowed Fellowship in History in the UCLA College.

"I appreciate the people who study and write history," Luskin said. "Renee and I understand that, for the history department to grow, it's important to be able to attract and retain outstanding young scholars."

The Luskin Fellowship will advance UCLA's Ensuring Academic Excellence initiative, aimed at generating private support to enable the university to continue to compete for top faculty and superior students.


Dean of Social Sciences Scott Waugh said, "Fellowships such as the one provided by Meyer and Renee Luskin allow our graduate students to focus their time and energy on their studies, and also play an essential role in the education of our undergraduates. The history department has been extremely fortunate

to have a number of strong supporters like the Luskins, who understand how critical graduate students are to the university."

The first Luskin Fellowship was awarded this year, to doctoral candidate Jessica Breitenicher Elkind, whose research focuses on 20th-century American and Southeast Asian history, with an emphasis on American development programs in Vietnam during the 1950s and 1960s.

"The Luskin Fellowship has enabled me to focus full time on my writing and research—which included a trip to archives in Saigon—and finish my dissertation more quickly than I had expected," Elkind said. "I'm honored to be the first recipient of the fellowship."

Asked why he supports UCLA, Luskin paused thoughtfully and then explained, "In the culture in which I was raised, education is something to be pursued, venerated, supported. I think it's important to further the ability of educators to grow and survive and to pass knowledge on to the following generations.

"UCLA provided an education for me at a most reasonable price, and I'm grateful for that," Luskin said. "Without the education I got at UCLA, I wouldn't have had the good life I lead, or this opportunity to give back something of consequence." 



From left: Renee and Meyer Luskin with Jessica Breitenicher Elkind, first recipient of the fellowship in the Department of History endowed by the Luskins.

A New Fund for Dynamic Economics

Economics Alumnus Robert Ettinger finds many ways to give back to the College that helped forge his career.

Native Angeleno Robert Ettinger has been a fan and supporter of UCLA for most of his life. He grew up in the San Fernando Valley and came to the Westwood campus often to attend athletic events and visit friends.

“So when I had the opportunity to attend UCLA, it was an easy decision,” he said.

Ettinger graduated in 1980 with a B.A. in economics and then earned an M.B.A. from the Wharton School of the University of Pennsylvania. Today, as president of Flaherty & Crumrine, Inc., a Pasadena investment counseling firm with \$4 billion of assets under management, he still remembers the moment when he decided what he wanted to do with his life.

“I vividly recall sitting in my ‘Money and Banking’ class at UCLA, with Professor Rod Jacobs, and deciding I’d like to pursue a career in investments,” he said.


Ettinger continues to be an enthusiastic participant in UCLA programs, particularly the Department of Economics. In addition to serving on the university’s Foundation Board of Governors, he is an active member of the Economics Board of Visitors, a group of alumni and friends who share their knowledge and expertise to help strengthen the department and enhance its leadership position in the field. In 2001, Ettinger served as the keynote speaker at the department’s commencement ceremony, and in 2003 he created the Robert Ettinger Prize for Graduate Student Research, awarded annually for the best papers written by two UCLA third-year economics graduate students.

Ettinger’s latest venture is the establishment of the Ettinger Family Research Fund for Dynamic Economics at UCLA. This gift from Ettinger and his wife Jane will enable the Department of Economics to create a research center focusing on macroeconomics. The new center will foster collaborations across a broad array of economic fields.

“Research conducted in the center will use new analytical tools that treat economic relationships as a dynamic process rather than a static condition,” Ettinger said. “For example, dynamic analysis has given economists and policymakers a greater understanding of the impact of inflation on national employment.”

Ettinger has fond memories of UCLA and wants to give back to the school and the department that contributed so much to his professional success.

“After 25 years, I’ve come to realize that my economics education is the foundation for much of the knowledge I’m able to bring to my work,” he said. “Most of the subjects I studied at UCLA are essential to the investment decision-making process.”

Ettinger hopes his gift will inspire other alumni to support the university. To those who are interested in becoming involved, he advised, “Take the time to learn more about the challenges and opportunities facing UCLA. Visit the campus. Bookmark the Web site. And specifically, for all the economics majors, I’d say, don’t be part of the ‘free-rider’ problem we studied! Contact the department or the development office to learn more about what they’re up to and how you can help.” 

Creative Giving Provides Benefits to Donor and College

“I wanted to help students—to aid aspiring young men and women who demonstrate creativity and dedication in their studies,” said Dorothy John about her planned gift that supports outstanding graduate students in the UCLA College.

Dorothy, who recently passed away, looked at giving options that could help her accomplish this goal and provide her with lifetime income. UCLA Office of Gift Planning staff worked closely with her to establish a life estate gift annuity based on the value of her Santa Barbara home. This gift enabled her to live in her home and to receive payments until her death.

“All told, my gift gives me a good feeling of security,” Dorothy said. Her gift will benefit the Roy and Dorothy John Fellowship Fund, which is named for her and her husband, who died in 1975.

The Roy and Dorothy John Fellowship Fund will exist in perpetuity as a lasting tribute to a special UCLA friend.

Current Gift Annuity Payment Rates

Selected Rates for One Person

Age	Rate
65	6.0%
70	6.5
75	7.1
80	8.0
85	9.5

For more information, please call:

UCLA Office of Gift Planning
Chad Holman at (800) 737-8252

www.giftplanning.ucla.edu
giftplanning@support.ucla.edu

Current rates for other ages available upon request.



Former California governors (from right) Jerry Brown, George Deukmejian, and Gray Davis discuss their views on the state's challenges in the 21st century, with State Librarian Emeritus Kevin Starr (left) moderating. The former governors met at UCLA for the celebration of the 20th Annual Bollens-Ries Memorial Lecture, which was held May 4. The Bollens-Ries Lectures—created in memory of Jack Bollens and Chuck Ries, both distinguished professors of political science in the UCLA College—bring public servants and scholars to campus to discuss academic exploration and practical politics. For more news about the College, see page 2.

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