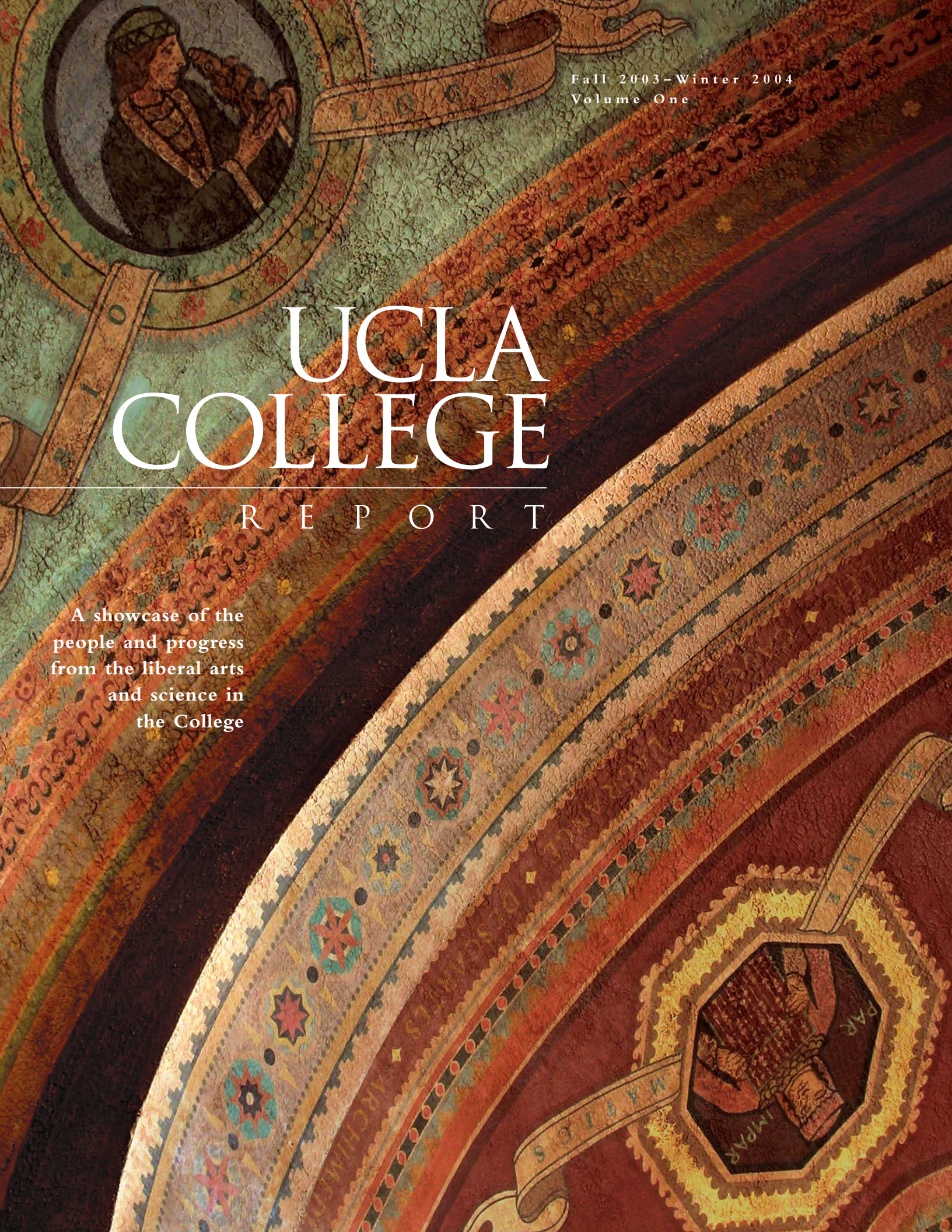


Fall 2003–Winter 2004
Volume One

UCLA COLLEGE

R E P O R T

A showcase of the
people and progress
from the liberal arts
and science in
the College



Welcome to *UCLA College Report*.



In this first issue of *UCLA College Report*, you will see a small sampling of the many exciting programs, talented faculty and students, and innovative educational opportunities in the College, the largest academic organization in the University of California system.

We created this publication to help build understanding and appreciation of the College's role as the core of the liberal arts tradition at UCLA. The College provides most of UCLA's teaching and research; more than 85 percent of the university's students earn their degree from the College.

In this publication, we have featured an article from each of the College's six divisions: Honors and Undergraduate Programs, Humanities, Life Sciences, Physical Sciences, Social Sciences, and the UCLA International Institute. We have also focused on an undergraduate student who is already an outstanding researcher, and a graduate student who is a superb teacher, scholar, and counselor. And, in our "Snapshot" sections ("College News," "Discovery Showcase," and "Great Futures for the College,") you will read about many programs and developments that continue to add to the excellence of the College.

Beyond the pages of *UCLA College Report*, I invite you to join us online to learn more about the many educational opportunities created by the College. On our College Home Page, you will find a gateway to every department, research center, and specialized program in the College. As a starting point, I encourage you to visit www.college.ucla.edu.

We hope you will find this first issue of *UCLA College Report* to peak your interest in learning more about our superb academic community. We plan to publish *UCLA College Report* again in the spring and would appreciate hearing about subjects and issues of great interest to you.

Sincerely,

Judith L. Smith
Acting Executive Dean
UCLA College

UCLA COLLEGE

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Fall 2003–Winter 2004
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A detail from the colonnade of Royce Hall, home to many humanities departments in the UCLA College.

UCLA COLLEGE

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Dean of Honors and Undergraduate Programs
Vice Provost for Undergraduate Education*

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Dean of Physical Sciences

Fred Eiserling
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College News

An update of events and progress in the UCLA College

New Faces for College Leadership

The return of Provost Brian Copenhaver to fulltime teaching and research left a gap that has been filled by the first woman to head the UCLA College.

Judith L. Smith, an award-winning teacher and scholar who heads UCLA's undergraduate programs, assumed her new position of acting executive dean of the UCLA College on July 1.

Smith is the first woman to lead the UCLA College—the largest academic unit in the University of California system. She manages an academic enterprise that houses nearly all of UCLA's undergraduate majors, and the vast majority of the university's academic departments, research and graduate training.

Smith assumes leadership of the College from Brian Copenhaver, provost of the College since 1993, who has chosen to return to fulltime teaching, research, and leadership of campus programs in his academic field of medieval and renaissance studies after 26 years in academic administration—15 of those years in the University of California system.

Smith began her career at UCLA in 1969 as an assistant professor in physiological science. She became an outstanding teacher and researcher in work on spinal cord physiology and limb dynamics, with research continuously funded for 27 years by the National Institutes of Health. Smith won the Jacob Javits Neuroscience Research Award in 1990.

Smith was honored with the UCLA Distinguished Teaching Award in 1973—the second woman at UCLA to achieve this honor—and was one of the founders of the university's undergraduate program in neuroscience. She was chair of her department from 1980–85, and served as chair of the Academic Senate in 1994–95.

While executive dean, (a new title for head of the College), Smith will retain her duties as vice provost, a position she

assumed in 1997. Smith leads the College's programs that improve undergraduate education. She has been responsible for many programs that foster innovation in undergraduate education, including general education, College Honors, programs for undergraduate research, the Writing II Program, UCLA's student diversity programs, and the Office of Instructional Development.

"I have devoted much of my life to research and teaching in the College, and I am thrilled to be able to provide leadership during this critical period of transition," Smith said.

New Acting Deans for Humanities, Life Sciences



Eric Sundquist

Eric Sundquist, professor in the Department of English, has been named acting dean of the Division of Humanities.

Sundquist is a scholar who specializes in American Literature and Culture. He is the author of eight books in his field, including the award-winning, *To Wake the Nations: Race in the Making of American Literature*.

Sundquist assumes leadership of the Humanities from Pauline Yu, who has become president of the American Council of Learned Societies, one of the most prominent national leadership positions in the liberal arts.

Sundquist will serve as dean until June 30, 2004.

▲ **Life Sciences**—Fred Eiserling, dean of life sciences since 1987, had planned to retire in June 2003. As the search for his successor continues, Eiserling agreed to

continue as leader of life sciences through the end of the calendar year. Emil Reisler, professor in the Department of Chemistry and Biochemistry, has agreed to serve as associate dean of life sciences during the Fall quarter, and will then serve as acting dean of the division through the end of the academic year.



Emil Reisler

Reisler joined the UCLA chemistry faculty in 1976. A researcher who focuses on understanding, at the molecular level, the function and interaction of proteins involved in muscle and non-muscle cells, Reisler served as vice chair of the department from 1989 to 1991, and then as chair from 1997 to 2000.

As acting dean, Reisler will also be the acting senior associate dean for life sciences in the David Geffen School of Medicine at UCLA.

College Awards Dinner Will Honor Students and Friends of UCLA

Watch for your invitation to the College Awards Dinner, coming up in the spring.

This traditional gala event highlights the achievements of outstanding students and honors special friends who have made exceptional personal contributions to the College over the years. Funds raised through the College Awards Dinner provide critical support for undergraduate and graduate students.

At the College Awards Dinner, top students, both undergraduate and graduate, will be recognized for exemplary

New Physics and Astronomy Building Scheduled for Spring Opening

A new College building will become “a unique venue for innovative teaching and world-class research.”

In Spring 2004, the College is scheduled to complete a major new facility—the six-story Physics and Astronomy Building.

“The new building will bring our laboratories up to date, and will contain the first new undergraduate science lecture hall built on campus in 40 years,” said Tony Chan, dean of physical science.

Connected to the existing Knudsen Hall and located south of Powell Library, the new state-of-the-science Physics and Astronomy Building will contain 120,000 square feet of teaching and research space, including laboratories that will accommodate sensitive scientific research such as laser and low-temperature research experiments, and undergraduate teaching laboratories and five classrooms with sophisticated multimedia capabilities for classes and conferences.

A large 200-seat classroom in the building will have a revolving stage, enabling



The College's new Physics and Astronomy Building, attached to Knudsen Hall due south of Powell Library, will house state-of-the-science laboratories and classrooms.

physics demonstrations to be set up in front of the class, while another demonstration is prepared backstage.

“The new building will provide a unique venue for innovative teaching and world-class research,” said Claudio Pellegrini, chair of the College’s Department of Physics and Astronomy. “The quality of space will be as good as exists anywhere in the country.”

“Our current building, Knudsen Hall, was designed in the 1950s and opened in 1964,” said Pellegrini. “By modern laboratory standards, Knudsen Hall is antiquated, and our research laboratories are limited in terms of modern experimentation.”

The College is seeking leadership gifts to support the groundbreaking teaching and research in the new structure, as well as for support of the new facility itself—including an opportunity to name the building.

“The new Physics and Astronomy Building, located in the heart of the campus, offers donors the opportunity to partner with us in creating a truly

unprecedented structure that will enhance our learning environment and strengthen our research efforts,” said Chan.

In a related project, the campus will begin renovation of Kinsey Hall, one of the original campus buildings that opened in 1929. This building was first called “the Physics-Biology Building,” and since 1963 has been known as Kinsey Hall (named for former physics department chair Edgar Lee Kinsey). Most of the offices in physics moved to Knudsen Hall in 1964.

When the Physics and Astronomy Building is completed, all of the offices for physics and astronomy will be housed in Knudsen Hall or the new building. The Kinsey name will be transferred to the teaching pavilion connected to the south end of Knudsen Hall.

The building currently known as Kinsey Hall will undergo a two-year renovation beginning in 2004; then, with a new name, it will house offices and classrooms for the Department of English and other programs from the Humanities.

work, both on and off campus. The Charles E. and Sue K. Young Undergraduate Awards and the Young Graduate Student Awards were established through the generosity of Louis and Evelyne Blau in honor of the former chancellor and his late wife.

In addition, the College Awards Dinner traditionally pays tribute to honorary fellows whose extraordinary commitment to the College has helped to keep UCLA at the forefront of research and teaching.

We hope you will join us at this exciting and inspiring event.

Annie Alpers: Excellence in Staff Leadership

A spontaneous outpouring of praise results in the Excellence in Service Award, presented annually by the UCLA Staff Assembly.

When Annie Alpers got a phone call recently from the UCLA Staff Assembly about the group's Excellence in Service Award, awarded annually to an outstanding staff member, she knew it could mean only one thing: the person she had nominated had captured this top staff prize.

But she was wrong. Unbeknownst to Alpers, a spontaneous outpouring of undiluted praise from staff and faculty in the College's Division of Life Sciences put her at the top of the list.

"I was stunned and just completely gratified. It was something I had never even thought of," says Alpers, who holds a position unique at UCLA.

Alpers is the executive officer for academic affairs for three departments: Organismic Biology, Ecology and Evolution; Physiological Science; and Molecular, Cell

and Developmental Biology. She reports to four chairs, including the chair of the Life Sciences Core Curriculum (basic courses that every student in the division must take).

Alpers' position came into being in the early 1990s with the creation of an administrative unit that coordinates services for all three departments. Three executive officers were put in charge of financial affairs, facilities and construction, and academic affairs.

Alpers, handling academic affairs with the assistance of a staff she deems outstanding, oversees all student affairs offices, the scheduling of classes and exams and all student academic counseling, among many other duties.

Creating this type of administration "has worked brilliantly," said Dean Fred Eiserling, "thanks largely to Annie's visionary leadership. In her quiet and reasoned way, she reorganized the staff and especially the student support area into an efficient unit that serves the needs of six different majors in three separate departments."

Alpers is also credited with helping to build the Life Sciences Core Curriculum

into one of the largest academic units at UCLA. It reaches 6,000 to 8,000 students annually and is taught by more than 30 different faculty and some 150 teaching assistants.

To Alpers, the key is the trust and support she shares with her two counterparts, Patty Johnson and Ken Sais. "They are wonderful to work with," Alpers said. "Anyone can come right to any one of us with a problem. It will be resolved."

Photo: Reed Hutchinson



Annie Alpers: "I was stunned and just completely gratified. It was something I had never even thought of."

Recharging High School Classrooms with Cutting-Edge Science

Los Angeles high school teachers are coming to UCLA to learn how to bring the emerging field of nanoscience into their instruction.

Science teachers from low-income high schools in Los Angeles are coming to UCLA to learn how to invigorate classes with teaching about the new field of nanoscience—the science of the tiniest

particles that will lead to advances in medicine and many other fields.

"The teachers learned a set of experiments to get their students excited and motivated about learning science," said Sarah Tolbert, a member of the California NanoSystems Institute (CNSI), and an associate professor of chemistry and biochemistry, who is heading this program, working closely with a group of CNSI graduate students and postdoctoral scholars.

The nanoscience project is one of

several programs offered by the UCLA Science Project.

Science is on the brink of a revolution at the nanoscale, with breakthroughs occurring at the atomic level. Nanoscience is done at the scale of a nanometer—one billionth of a meter. The DNA molecule, for example, is just two nanometers wide—10,000 times smaller than the diameter of a human hair. (For a research development in the College at the nanoscale, see page 28).

"Size matters," Tolbert said. "Scientists working at the nanometer-length scale have the potential to change the properties of materials just by changing their dimensions. This makes experiments fun and challenging for both scientists and students."

Some two dozen teachers of ninth- and tenth-grade science came to UCLA from Crenshaw, Fairfax, Carson, Franklin, Jordan and Verdugo Hills.

Graduate Student Alshakim Nelson (center) works with LAUSD teachers David Hicks, Lynn Kim, and Elizabeth Garcia to develop nanoscience projects for their high school instruction.



Photo: Reed Hutchinson

The Science Faculty Research Colloquium: A Showcase for the College's Premier Research

A lecture series that brings top science to a broad public audience begins its second year.

The College's Science Faculty Research Colloquium will highlight the frontiers of research as studied by the best scientists at UCLA.

Inaugurated last year by Tony Chan, dean of physical sciences, and Fred Eiserling, dean of life sciences, the series was created for an audience of scholars and interested non-scientists—especially College alumni—with the additional goal of promoting interdisciplinary interaction.

The inaugural colloquium series in 2002–03 featured four talks: chemist Emily Carter on modeling materials; astronomer Ned Wright on observing the origins of the universe; psychologist Alan Yuille on visual perception and image understanding; and molecular biologist Utpal Banerjee on fruit flies in cancer research.

Building on last year's success, Chan

Photo: Todd Cheney/UCLA Photography



Physical Sciences Dean Tony Chan (left) working with Life Sciences Dean Fred Eiserling created a science faculty lecture series designed to appeal to both campus scholars and interested non-scientists; alumni of the College are encouraged to attend.

and Eiserling have invited faculty from the Samueli School of Engineering and Applied Science and the David Geffen School of Medicine at UCLA to participate in this year's program. At press time, the series for 2003–04 was still evolving; and will feature at least four lectures.

All lectures are held on campus and are followed by a reception where audience members can meet the speaker and follow up with further discussions.

For the schedule for the 2003–04 Science Faculty Research Colloquium, visit: www.college.ucla.edu/physsci.htm.

A Historical Convergence

The world's 18th century historians came to UCLA to explore the Enlightenment, unconventional philosophies, and the impact of technology on scholarly research.

The discussion never turned to surfing or freeways, but in other ways the 18th-century “went native” when it paid a visit to Los Angeles, or so it seemed when nearly 1,000 scholars converged at UCLA in August for the Congress of the International Society of Eighteenth-Century Studies.

The Congress—an international event held once every four years for the world's premier historians—has met only once before in the United States.

The hottest academic trends for scholars of the Enlightenment ended up playing into stereotypes often associated with the home of the Internet, Hollywood and pursuers of unconventional philosophies.

At the event organized by the College's Center for 17th & 18th Century Studies, interest was high in “The Electronic Enlightenment”—or the movement to digitize tens of thousands of 18th century texts. Representatives from such leaders in the field as the commercial publishing house Thomson-Gale and Oxford's Voltaire Foundation unveiled new developments that are expected to turbocharge the discipline, allowing scholars to pursue themes across thousands of books at a time.

Lynn Hunt, a UCLA historian and immediate past president of the American Historical Association estimated the technology will allow her to accomplish in five seconds what once took a graduate student an entire summer.

“Our goal is to improve science education for all students in Los Angeles,” said Irene Swanson, director of the UCLA Science Project. “The program provides a collegial network for science educators from all levels to share expertise and new ideas. And the curriculum enables urban students and teachers to see the relevance of science concepts in their own lives.”

Graduate students and postdoctoral scholars developed the four nanoscience experiments learned by the teachers, with a fifth experiment on the way.

The program is sponsored by the UCLA Science Project in UCLA's Graduate School of Education & Information Studies (GSE&IS), in conjunction with CNSI and UCLA's National Science Foundation sponsored Materials Creation Training Program. The cost of building the nanoscience experiments is supported through a UCLA Community Partnership grant.

The teachers are designated as UCLA Science Fellows, and attend follow-up sessions during the school year.

A joint enterprise of UCLA and UC Santa Barbara, CNSI explores the power and potential of manipulating structures atom-by-atom to engineer new materials, devices and systems that will dramatically change virtually every aspect of our technology.

“CNSI will help propel the future of California's economy with revolutionary advances in fields as diverse as health care and medical treatment, manufacturing, information technology, high technology, aerospace, environmental protection, communications, multimedia entertainment and household lighting,” said CNSI director Fraser Stoddart, who is also UCLA's Saul Winstein Professor of Chemistry.

UCLA Science Project:
<http://csmf.ucop.edu/csp/ucla/about.php>

California NanoSystems Institute:
www.cnsi-uc.org

UCLA Materials Creation Training Program:
<http://mctp.chem.ucla.edu>

Working to Understand the Social Implications of Pain

By Meg Sullivan

An interdisciplinary team of faculty from the College, working with medical researchers and a \$2.5 million grant from the National Institutes of Health, begins the first exploration of the social impact of pain suffered by youth.

The 10-year-old boy's excruciating abdominal pains had stumped several doctors and landed him in the hospital before he was ultimately referred to UCLA's Pediatric Pain Clinic.

While his parents were understandably frantic to find relief for their son, they grew increasingly reluctant as clinic staff recommended a holistic schedule of biofeedback, acupuncture and medication to reduce anxiety.

"They wouldn't go for our recommendations," Lonnie Zeltzer, a UCLA professor of pediatrics and the clinic's director, said of the parents. "They wanted a single medicine to fix the problem, and they didn't want the treatment to be too out of the ordinary."

Cases like this inspired a unique interdisciplinary team of social scientists from the College and physicians from the David Geffen School of Medicine at UCLA to launch what they believe is the first major study of the experience of families trying to come to grips with the kind of pain that affects 10% to 20% of American youth.

"We can measure that the pain diminishes, but we don't understand the internal process, the way the therapies impact on the individual and their families," said Margaret C. Jacob, the study's principal investigator and a UCLA historian specializing in the history of science and its cultural reception. "We want to chronicle this internal story, but we can't get at this information with CAT scans, MRIs and other technical readings because pain is one of the most subjective of experiences."

Armed with a \$2.5 million grant from the National Institutes of Health, the team of historians, sociologists, pediatricians and child psychologists is spending three years studying 360 young people between the ages of 10 and 17 as they move through treatment at UCLA's Pediatric Pain Clinic.

What factors inspire some families to balk at multifaceted treatments, while others accept the bitter pill that no single solution is likely to bring relief to pain so chronic that it wreaks havoc with academic and social development?

Why do some families embrace unconventional, alternative or Eastern

"Our biggest challenge is creating a shift in attitudes about pain treatment. If we set up a treatment plan, but the family doesn't follow it because they're holding out for a single magic bullet, the child doesn't get better."

medical approaches, while others flinch at any treatment that isn't straight out of the canon of Western medicine?

And what inspires some young people to turn up their noses at self-directed approaches to finding relief, while others hunker down to learn yoga, biofeedback and other stress-management techniques?

No one knows for certain, but the answers are thought to be key to the success of the clinic's approach, which often represents the only hope for relief from acute migraines, stomach problems and other types of chronic pain stemming from nerve damage, irritable bowel syndrome or psychosomatic causes that relate to learning disorders or family issues.

"For such a long time, finding ways to help these kids was difficult because there is no single cause: a network of problems keeps their pain signals going," Zeltzer said. "But now our biggest challenge is creating a shift in attitudes about pain treatment. If we set up a treatment plan, but the family doesn't follow it because they're holding out for a single magic bullet, the child doesn't get better."

The social scientists in the College are comparing the attitudes and experiences of Pediatric Pain Clinic patients with those of a control group of youths receiving more conventional treatments.

Extensive oral histories will be gathered for about one-quarter of the group. And one parent of each of these youths will be interviewed at length.

The project's goal is to isolate attitudes and experiences that predispose families and youths to embrace and succeed with multifaceted approaches to pain treatment, especially those with non-Western components. Attitudes and approaches that appear particularly helpful will then be tested in an even more comprehensive study.

At stake is not only the physical comfort of the 150 to 175 children and youth being treated at any one time at UCLA's Pediatric Pain Clinic. Research

Photos: Irene Fertik



Margaret Jacob:
"Since social scientists in the College are so strong and innovative, they have many contributions to make in the realm of public health."

has found that children with chronic pain are more likely to suffer from depression and anxiety disorders than their pain-free peers. Children with chronic pain are also more likely than their peers to experience chronic pain as adults. Adults with chronic pain are also at a much higher risk than normal for depression and anxiety.

"Coming up with a better way to help these families and children is likely to save much heartache down the line," Jacob said.

But getting the answers will not be easy for the team that includes faculty from child psychology, pediatric gastroenterology and pediatric neurology.

John Heritage, a UCLA sociologist who is participating in the study, plans to dig deep into specialized approaches to studying rhetoric and non-verbal clues.

Michael Nutkiewicz, a historian with a background in interviewing Holocaust and torture victims, will employ techniques designed to penetrate defenses frequently erected by those who are suffering.

"This is the nation's first attempt to probe the inner life of youth who suffer from chronic pain," said Marcia Meldrum, a research associate and another historian specializing in pain. "So we really have to be innovative."

Jacob has a reputation for innovation. A specialist in the history of science, she is a frequent contributor to the Los Angeles Times Book Review and edits a series aimed at making the history of science more accessible for undergraduates. She has been selected as a UCLA Faculty Research Lecturer, the highest award presented by university faculty to one of their own. (Jacob's Faculty Research Lecture will be presented April 15.)




Lonnie Zeltzer: *“For such a long time, finding ways to help these kids was difficult because there is no single cause: a network of problems keeps their pain signals going.”*

UCLA is a natural place to look at changing attitudes towards pain. The university is home to the John C. Liebeskind History of Pain Collection, the only archive in the world devoted to pain research and pain pioneers (Liebeskind, a renowned member of UCLA's psychology faculty for more than 30 years, was a pioneer in the field of pain research and pain inhibition.)

The Liebeskind archive houses, among other material, the records of The International Association for the Study of Pain (IASP), the European Federation of IASP Chapters, and the Mayday Fund, a foundation dedicated to pain research, as well as the American Pain Society.

UCLA's Pediatric Pain Clinic is viewed as a leader in treating pain according to a “biopsychosocial model” or mind-body approach that takes into account the complex interaction among physiology, emotions, cognition, and the environment in all aspects of clinical evaluation and treatment. The clinic bills itself as offering one of the most integrative approaches to treatments for pediatric pain—i.e., combining the widest range of traditional Western and non-traditional and Eastern approaches—in the country.

The Pediatric Pain Clinic project represents a growing strength in the College, which strives to mobilize social scientists in the service of public health research. The California Center for Population Research, founded five years ago, partners social scientists from the College with colleagues in the schools of public health and public policy to study demographic trends such as aging, birth and disease rates. And the Department of Economics is collaborating with the School of Public Health to create a Ph.D. program in health economics. Students would complete core courses for a Ph.D. in economics while also studying public health methods and issues.

“Since social scientists in the College are so strong and innovative, they have many contributions to make in the realm of public health,” Jacob said. 

Meg Sullivan is a senior media relations officer in the College.

“We can measure that the pain diminishes, but we don't understand the internal process, the way the therapies impact on the individual and their families. We want to chronicle this internal story.”

An Undergraduate Passion for Research

By Stuart Wolpert

UCLA senior Saul Villeda has won a national award for his research on the spinal cord, and is publishing his findings in major scientific journals. His professors praise his work, and expect him to thrive in a career in research.

Why has research become a passion for this undergraduate?

“When you’re in the lab, it’s your project, and no one gives you instructions on how to do it,” said Villeda, who is majoring in physiological science. “You talk with your professor and graduate students, and you get ideas, but you have to come up with something new. That entices me. You get to think.

“Doing research is like finding a piece of a puzzle, but you have no idea what the puzzle looks like,” Villeda said. “As the pieces form together, you start getting a picture, and you want to find those pieces as fast as you can to solve the puzzle. I love it.”

Born in East Los Angeles to parents from Guatemala, Villeda grew up in Pasadena, and went to Antelope Valley High School in Lancaster, where he was valedictorian. His father works as a bus driver, and his mother has worked as a nurse’s assistant.

“My father wanted me to be a doctor—my parents understand ‘lawyer,’ ‘doctor,’ ‘engineer’—but now he’s really supportive of my research.”

Villeda’s research focuses on the spinal cord, and transmission of pain through proteins in the central nervous system.

“Saul is exceptional,” said Patricia Phelps, his faculty mentor and UCLA associate professor of physiological science. “He’s creative, original, extremely enthusiastic, and thinks way beyond his years in terms of experimental design. I expect him to be very successful.”

Villeda won a national award for the best research presentation in physiology at the Biomedical Research Conference for Minority Students in New Orleans last year. He plans to present his research findings at the neuroscience meeting in New Orleans this fall. He co-authored a scientific paper published in the *Journal of Comparative Neurology*, and will be the lead author of another scientific paper that he plans to submit to a major journal. He is also the recipient of scholarships for academic excellence, and has tutored UCLA students in calculus.

“Saul is a born leader, and his enthusiasm is contagious,” said Elma Gonzalez, UCLA professor of biology and director of UCLA’s Minority Access to Research Careers (MARC, www.nigms.nih.gov/minority/marc.html), a program funded by the National Institutes of Health that offers research training support to universities, with a goal of increasing the underrepresented minorities engaged in biomedical research; Villeda is a MARC fellow for the second year.

“All of our MARC fellows look up to him,” Gonzalez said. “Saul has a brilliant future. He has the intelligence, enthusiasm, and the drive and commitment. He can go anywhere in the country for graduate school.”

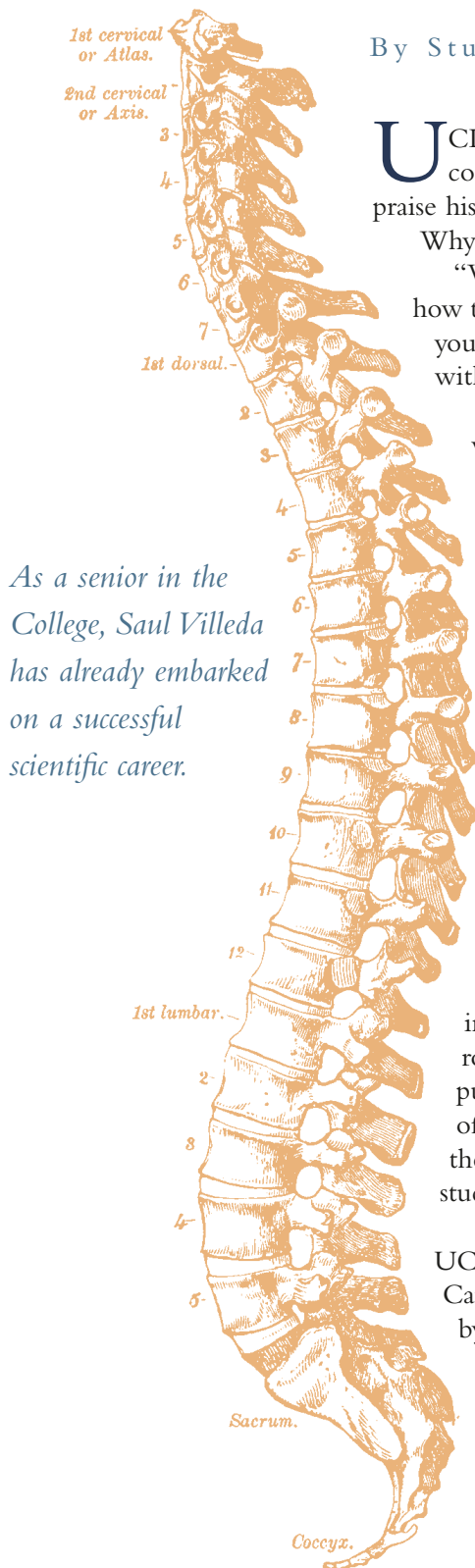


FIG. 22.—Lateral view of the spine.

As a senior in the College, Saul Villeda has already embarked on a successful scientific career.

It took Villeda some time to be comfortable viewing himself as a role model, but now he embraces the idea.

“I’m very proud to be a minority student in science, and to show that I can do every bit as well in research as anyone,” he said. “With research, it doesn’t matter whether you’re a minority; it’s whether you have a heart and passion for it. We’re capable. If we have the opportunities, we can do amazing science. I want to present more minorities with the option of research as a career. A lot of minority students don’t know research is an option. We come from high schools that don’t mention it.”

In his research, Villeda studies Reelin, a protein in the central nervous system of mice that is involved in the movement of neurons. Villeda found that Reelin and Dab1, a second protein that is part of the Reelin signaling pathway, are both found in the dorsal horn of the spine—an area that is involved with the sensation of pain. To date, Villeda has found an error in the migration of these neurons and he suspects that this error will cause defects in sensory connections.

Villeda devotes up to 30 hours a week in Phelps’ lab, even more during the summer, and has learned valuable lessons from Phelps and the graduate students who work in her laboratory.

“Dr. Phelps is generous with her time,” Villeda said. “She’s always looking out for all of her students. She’s a really big influence. If I have any questions about school, on life, on anything—I ask her for advice.

“I’ve learned from Dr. Phelps not to be afraid of

taking chances. And don’t sell yourself short. Challenge yourself. Do harder things. You can do them. Now I go into a class knowing I have the capability of doing well. That took time to develop.

“In high school, I didn’t know what a Ph.D. was,” Villeda said. “I never would have thought of it had she not presented it as an option. Working in the lab is a lot of fun. I thought it was pretty radical that you can do research, teach, and get paid for it.”

Villeda finds patience to be a virtue in research.

“There are a lot of dead ends, and frustrations as well,” he said. “But when you find something that actually works, it’s exciting and makes it worthwhile. I was stuck for a couple of months, but I’ve also had a couple-month streak where everything falls into place.”

Villeda will graduate from the UCLA College in June, and then work toward his Ph.D. in neuroscience or developmental biology. He plans to apply to universities including UCLA, UC San Francisco and Harvard, with a goal of being a professor with his own laboratory.


“I would love to work at a university with a large minority population,” he said. “I would like to make a difference. I hadn’t seen myself as a role model, but now I would like to go as high as I can go, and encourage others to do research. I’m very excited about the future.”

Villeda said the MARC program has been a tremendous help.

“I don’t think I would be ready for graduate school if I hadn’t done the MARC program and hadn’t been in Dr. Phelps’ lab,” he said. “The funding has helped a lot. I had to ask my parents for money for books before, and now I don’t have to ask them.”

Villeda will have fond memories of his years at UCLA.

“UCLA has a lot of smart people who raise the bar, and you have to raise yourself to meet the challenge,” he said.

“One of the lessons I learned here is that I can make a difference being a scientist—a big difference.” 

“Doing research is like finding a piece of a puzzle, but you have no idea what the puzzle looks like. As the pieces form together, you start getting a picture, and you want to find those pieces as fast as you can to solve the puzzle.”

Photo: Irene Fertik



Undergraduate researcher Saul Villeda: “I hadn’t seen myself as a role model, but now I would like to go as high as I can go, and encourage others to do research. I’m very excited about the future.”

For more about undergraduate research in the College:

www.college.ucla.edu/ugresearch/index.html

Stuart Wolpert is a senior media relations officer in the College.

A former monk is the catalyst for building a renowned program in the College for the study of Buddhism.

Robert Buswell: Building a Base for Buddhism Studies

By Meg Sullivan



Buddhism may champion the concept of detachment, but UCLA Buddhist scholar Robert Buswell admits his ego got bruised when he returned this summer to the Buddhist monastery where he practiced for five years in his early 20s.

A friend who had remained at the monastery looked just like he did nearly 30 years earlier, insists Buswell, chair of the Department of East Asian Languages and Cultures. “He hadn’t changed at all—no gray hair, no lines, nothing.”

Meanwhile Buswell, who is also director of the Center for Buddhist Studies, had matured considerably, the friend pointed out.

“The first thing this friend said to me is, ‘Gosh, you’ve become a grandfather,’” recalled the 50-year-old who has no children much less grandchildren. “And I said, ‘Gee, thanks.’”

Such are the lumps for Buddhists who trade in the contemplative life for the stresses and strains of manuscript deadlines, budget battles, teaching demands and departmental governance.

But if Buswell is concerned about the wear and tear of bringing Buddhism and Korean culture to a wider audience, the gifted administrator, who is one of only two fully ordained Buddhist monks currently active in academia, doesn’t let on.

Indeed, this walking contrast to Buddhism’s laid-back image has brought one distinction after another to the College, which he joined in 1986.

Both centers that he has established now rank as the largest of their kind in the country: the Center for Korean Studies, founded in 1993, and the Center for Buddhist Studies, founded in 2000. Meanwhile, the program in Korean Christianity, also founded in 2000, is the first—and only—academic program to look at the cultural impact of Christianity in contemporary Korea.

So vast, in fact, has been Buswell’s impact that his department will be renamed early in 2004 to reflect the strength he helped to add in South and Southeast Asian studies. While maintaining its traditional strengths in Korean, Japanese and Chinese

“UCLA is seen as the most exciting place for studying Buddhism today. It’s the happening place, which is amazing because the program is so new.”

studies, UCLA's newly christened Department of Asian Languages and Cultures will boast one of the nation's largest faculties in Southeast Asian and Indic studies and be the nation's leader in Indian religion.

"Robert is capable of pulling rabbits out of the most unlikely hats," marveled Gregory Schopen, a professor in Asian languages and cultures.

Another recent feat is the creation of the 1,000-page Encyclopedia of Buddhism, which was published in October by Macmillan. As editor-in-chief, Buswell spent three years mobilizing a team of 250 contributors, including several UCLA faculty members—Buddhist scholars William M. Bodiford, Schopen and Jonathan A. Silk, and art historian Robert Brown—as well as three UCLA Ph.D. candidates in Buddhist studies—William Chu, David E. Riggs and Patrick Uhlmann.

Not only is the 450-entry behemoth the first truly comprehensive encyclopedia of Buddhism to be published in a Western language, but it follows two infamously protracted attempts by others to produce a similar reference resource—the first begun in 1929 and the second in 1961.

"We have the distinction of starting last and finishing first," Buswell said.

From "Abhidharma" (Buddhist philosophy) to "Zongmi" (a ninth-century Chinese Buddhist monk), Encyclopedia of Buddhism describes the art, literature, rituals, doctrines, folk practices, sacred sites and scriptures of Buddhism as practiced in Central Asia, China, Europe, the United States, Japan, India, the Himalayas, Nepal, Korea, Southeast Asia, Sri Lanka, Tibet and Mongolia.

Entries discuss Buddhist interactions with other religions, including Daoism, Islam and Christianity.

No less than nine entries address different interpretations of Buddhist enlightenment. The encyclopedia is so complete that it even details Buddhist hell—in all its eight levels. The scholars also tackled politically charged issues. Ever wonder about the Buddhist take on sex, abortion, or nationalism? The 500,000-word reference book is the place to get the answer.

"We thought, 'What would a student starting off in Buddhist studies need to know?'" Buswell said.

Macmillan hopes that the encyclopedia will stand as the definitive English language reference for at least a generation. But for Buswell, it may mark a beginning. Since completing the book, he has been approached by publishers to edit no less than three reference books, an honor that surprises none of his colleagues.

"Robert shows exceptional creativity not only in his own scholarship but also in the administrative leadership critical to the teaching and research of a great university," said Eric Sundquist, UCLA's acting dean of humanities. "He has proved, too, that the contemplation one might associate with the study of Buddhism is not at odds with exciting intellectual entrepreneurship."

Despite a track record that would be the envy of any hard-charging administrator, Buswell is undeniably to the monastery born. At the Topanga Canyon home he shares with wife Christina, a translator of Korean Buddhist texts, Buswell tends a Zen garden and an array of Buddhist art and artifacts, including a seventh-century bronze Buddha. In his Royce Hall office, a meditation cushion sits discreetly in one corner. Most afternoons he closes his door for 10 to 15 minutes to meditate. Students who visit him are more likely to be offered a floor mat than an actual chair.

At academic conferences, he folds himself into a cross-legged position.

"He is the only person I know over the age of four who can easily and clearly quite comfortably assume the lotus while perched on an office chair," said Tim Tangherlini, an associate professor of Asian languages and cultures, and vice chair of the College's Scandinavian Section.

Buswell even brings Buddhist principles of modesty, wisdom and compassion to his work, Tangherlini said: "He is a rare combination of excellent scholar, inspired teacher, personable and supportive colleague, and innovative, fair and diplomatic administrator."

"Robert shows exceptional creativity not only in his own scholarship but also in the administrative leadership critical to the teaching and research of a great university. He has proved, too, that the contemplation one might associate with the study of Buddhism is not at odds with exciting intellectual entrepreneurship."



Buswell (shown here teaching his undergraduate course in Chinese Buddhist texts): “He is a rare combination of excellent scholar, inspired teacher, supportive colleague, and innovative, fair and diplomatic administrator.”

Colleagues also praise Buswell’s generosity in mentoring younger scholars and his open-mindedness, especially in dealings with scholars from other disciplines or perspectives on Buddhism.

“He doesn’t look for yes men or people who are easily led,” said fellow Buddhism scholar Schopen. “He goes for good people even if they might be a pain. That takes guts.”

The approach came in handy while building Buddhism studies in the College from a one-person operation 17 years ago to an unrivaled nexus of four core and six affiliated faculty, all of them leaders in their respective fields.

“UCLA is seen as the most exciting place for studying Buddhism today,” said art historian Brown, an affiliated scholar with the center. “It’s the happening place, which is amazing because the program is so new.”

Buswell says he is motivated by his enduring fascination with the faith that he discovered as a precocious teen growing up in a non-practicing Methodist household in Palos Verdes, California.

“I thought, ‘Oh my God, it’s all right here,’” he recently recalled of his first encounter with a Buddhist text at 16. “I really had a strong sense of a conversion experience. I was absolutely convinced this was my life calling—there was no question about it.”

Much to his parents’ bewilderment, Buswell mobilized contacts made during his first year as an undergraduate at UC Santa Barbara and set out for a Buddhist monastery in Thailand in 1972.

“My mother’s reaction was: ‘What about my grandchildren?’” Buswell recalled with a chuckle.

He served as a Buddhist monk for a year each in Thailand and in Hong Kong before settling at Songgwang-sa (Piney Expanse Monastery), one of Korea’s four largest monasteries and a major center for *Son*—or the Korean version of Zen Buddhism. At the time Buswell spoke no Korean, so he communicated with his peers by writing in the only language they had in common: classical Chinese. Dubbed *Hyemyong* (Brightness of Wisdom) by his master, Buswell was immediately struck by the powers of koan—enlightenment-inducing paradoxes, such as “the sound of one hand clapping.”

Today, Buswell is one of the nation’s leading scholars on koans. He is credited with making Korean Buddhism—long perceived as a poor relative of Chinese and Japanese Buddhism—a subject of serious scholarship. Buswell’s background in the linguistic and historical roots of Buddhism has established him as a popular speaker at the Zen centers across the nation. All of which makes him a very busy Buddhist, indeed.

“Like everybody in the College, the biggest challenge I face is balancing all the responsibilities of family, research, teaching, administrative work, fundraising and dealing with budget cuts,” he said. “It’s much harder than looking for spiritual enlightenment.”

For more on Buddhist studies in the College:

www.international.ucla.edu/buddhist

A View of the Invisible

By Stuart Wolpert

Using infrared astronomy, researchers in the College are revealing new insights about extraordinary celestial bodies.

For scientists who work in infrared astronomy, says professor Ian McLean, “we are entering a golden age.”

Infrared astronomers in the College are examining the telltale evidence of electromagnetic waves in the infrared spectrum far beyond the range of light that can be seen by the naked eye, or even with the most powerful telescopes.

“Infrared astronomy is opening a new window on the universe,” said Claudio Pelligrini, chair of the Department of Physics and Astronomy in the UCLA College.

Infrared astronomy is a tool for creating breakthroughs because it allows for observation outside of the visible spectrum to study objects that would otherwise be obscured from view by dust or other galactic debris.

Every object in the universe with a temperature above absolute zero (–459 degrees Fahrenheit) emits some heat, or infrared radiation, which can be studied with infrared detectors. Until two decades ago, key questions about the universe could not be answered because many celestial bodies and galactic phenomena could not be seen with optical instruments. Now, infrared astronomy—including leading research in the College—is beginning to reveal them.

Ian McLean: The Search for Brown Dwarfs

McLean, a professor of astronomy, and his UCLA colleagues are developing new insights about stars, “brown dwarfs”—neither stars nor planets—and the enormous black hole at the center of our galaxy.

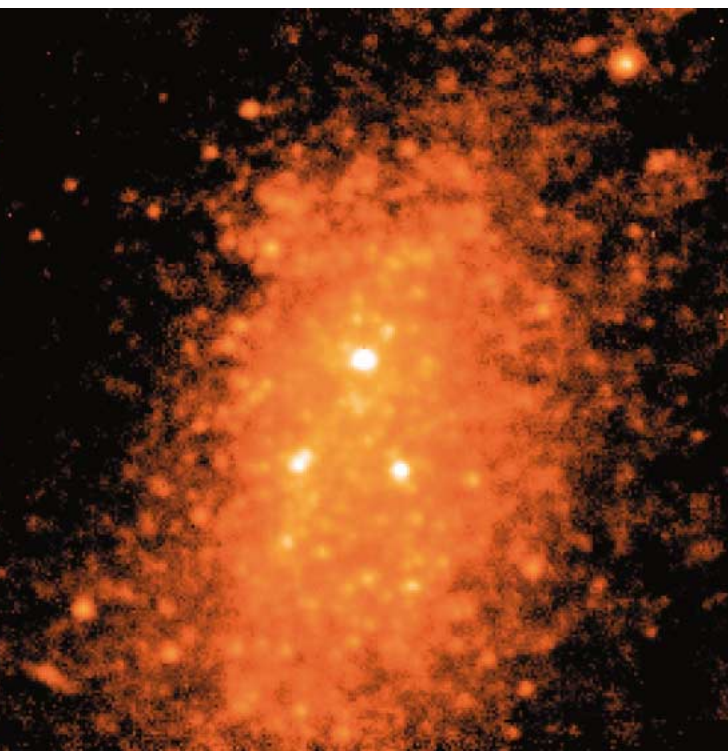
Elusive brown dwarfs, the missing link between gas giant planets like Jupiter and small, low-mass stars, have now been “fingerprinted” by McLean and colleagues, using the Keck II Telescope in Hawaii.

In October 2003, McLean’s team published the most comprehensive analysis of more than 50 brown dwarfs in the *Astrophysical Journal*, the premier publication in astronomy.

“The infrared spectra of brown dwarfs reveal their atomic and molecular fingerprints,” McLean said. “Each class of brown dwarfs has a unique fingerprint. We have recorded the spectra of more than 50 of them, which reveal their physical and chemical properties.”

Brown dwarfs are failed stars about the size of Jupiter, with a much larger mass—but not quite large enough to form stars. Like the sun and Jupiter, they are composed mainly of hydrogen gas, formed by the contraction of galactic dust and gases. However, unlike stars, brown dwarfs have no internal energy, and emit almost no visible light.

“Brown dwarfs are so elusive, so hard to find,” McLean said. “They can be detected best in the infrared, and even within the infrared, they are very difficult to detect.”



One million stars in a cluster (the large white center spot), identified by a team of infrared astronomers led by Jean Turner



Ian McLean

McLean and his colleagues have developed their results using a sophisticated instrument that McLean designed and built at UCLA with other astronomers from UCLA and UC Berkeley. The instrument is called the Near Infrared Spectrometer (NIRSPEC), and is now attached to the W.M. Keck Observatory's 10-meter Keck II Telescope atop Mauna Kea in Hawaii—the world's largest optical and infrared telescope. It is six feet high, weighs one ton, and contains the world's most powerful infrared spectrometers.

McLean's research, including NIRSPEC, is funded by the California Association for Research in Astronomy, the entity that operates the W.M. Keck Observatory.

McLean built the world's first infrared camera for wide use by astronomers in 1986, and has built six increasingly sophisticated infrared cameras and spectrometers since then. (A spectrometer splits light into its component colors.)

McLean and his colleagues—Davy Kirkpatrick, staff scientist at Caltech's NASA-funded Infrared Processing and Analysis Center; Adam Burgasser, a UCLA postdoctoral scholar in McLean's group and recipient of a NASA-funded Hubble fellowship; UCLA graduate student Mark McGovern and postdoctoral scholar Lisa Prato, who both work in McLean's group; and former UCLA postdoctoral scholar Sungsoo Kim—published their atlas and analysis of brown dwarf infrared spectra in the *Astrophysical Journal*. Kirkpatrick and Burgasser were responsible for most of the initial brown dwarf identifications using an infrared all-sky survey called 2MASS.

"After four years of data gathering, we have studied more than 50 brown dwarfs, and analyzed the variations," McLean said. "Astronomers will be able to

obtain the infrared spectrum of a newly discovered brown dwarf, compare their findings with our work, and instantly identify what kind of brown dwarf they have found. Probing more distant regions of the galaxy to study the youngest, recently-formed brown dwarfs is the next step."

Jean Turner: Looking at Million-star Clusters

While McLean's infrared research on brown dwarfs focuses on individual celestial bodies, fellow astronomer Jean Turner has focused on extraordinary clusters of stars.

A small, bizarre cluster of one million young stars, enshrouded in thick gas and dust, has been confirmed by a team led by Turner, UCLA professor of physics and astronomy, and her colleagues, who include McLean.

Turner and her colleagues estimate that the stars are still forming, and are less than a million years old—extremely young by astronomical standards.

By the standards of our own sun, the stars in the cluster are almost unfathomably large. The cluster contains more than 4,000 massive "O" stars, each a million times brighter than our sun, with more than 30 times the mass of our sun. "O" stars blow off violent winds, and are the most luminous of all known stars.

"This is the first time such a large cluster of O stars, bound with its natal gas, has been observed anywhere in the universe," said Turner.

"These O stars should not fit in this small region," Turner said, "yet somehow they do."

The star cluster is buried within a "supernebula" consisting of hot gases in the galaxy NGC 5253, a galaxy that contains hundreds of large star clusters. NGC 5253 is located in the southern part of the sky, slightly above the horizon, in the constellation Centaurus about 12 million light years from Earth.

The cluster has one billion times the luminosity



Jean Turner

of our sun, but is invisible in ordinary light, hidden from optical view by its own gases.

Turner's team, federally funded by the National Science Foundation, focused the NIRSPEC to study the star cluster. Turner's team includes Sara Beck, astronomy professor at Tel Aviv University's School of Physics and Astronomy in Israel; former UCLA astronomy graduate students Lucian Crosthwaite and David Meier; James Larkin, assistant professor of physics and astronomy at UCLA; and McLean.

The stars in the cluster are packed tightly in a region only three light years across—less than the distance from our sun to its closest neighbor star.

The star cluster is surrounded by thick gases that move faster than 100,000 miles per hour—faster than the speed of sound—yet they are trapped by gravity.

"The dense gases are bound by the enormous gravity of the cluster, which makes this cluster different from any other known young cluster," Turner said. "It is truly a unique object. Clusters in our galaxy are not nearly as massive and cannot trap their gas.

"It's a mystery why this tiny galaxy can form globular clusters at the present time and the Milky Way can't. We hope to be able to solve this mystery. How a million stars can form in such a small region is also a mystery."

Turner's team detected the cluster using infrared and radio observations.

"We haven't observed this type of star formation before," Turner said. "This globular cluster is invisible to ultraviolet telescopes, and could remain invisible for most of its star-forming lifetime."

Andrea Ghez: Exploring Galactic Violence

At the center of our own Milky Way galaxy is a celestial storm that infrared astronomers are now beginning to understand.

A team led by astronomer Andrea Ghez has found a swirling tempest of hot plasma—hot, ionized gas-like matter—being swallowed up by the monstrous black hole residing at the center of our Milky Way galaxy, 26,000 light years away. This detection of the hot plasma is the first in an infrared wavelength, where most of the disturbed plasma's energy is emitted, and was made using the 10-meter Keck II Telescope at the W.M. Keck Observatory in Hawaii.

"One of the big mysteries in studies of the black hole at the center of our galaxy is why the surrounding gas is emitting so little light compared to black holes at the center of other galaxies," said Andrea Ghez, a professor of physics and astronomy at UCLA

Photo: Todd Cheney, UCLA Photography



Andrea Ghez

who headed the research team. "We now have a completely new and continuously open window to study the material that is falling into the black hole at the center of the Milky Way."


"I see this as a real breakthrough," said Mark Morris, a UCLA professor of physics and astronomy who worked with Ghez. "It's a big leap, not just an incremental advance. The infrared is precisely where we need to look to learn what the black hole is eating. In the infrared, you see it all. The black hole's dirty laundry is hanging right there for us to see."

Black holes are collapsed stars so dense that nothing can escape their gravitational pull, not even light. Black holes cannot be seen directly, but their influence on nearby stars is visible, and provides a signature. The black hole, with a mass more than three million times that of our sun, is in the constellation of Sagittarius.

Ghez's co-authors include Morris; UCLA physics and astronomy professor Eric Becklin, who identified the center of the Milky Way in 1968; Caltech research scientist Keith Matthews; and UCLA graduate student Shelley Wright.

The research is funded by a grant from the National Science Foundation, the foundation's Center for Adaptive Optics, and the Packard Foundation.

On October 30, Ghez described her work on the black hole at the center of the Milky Way as UCLA's 95th Faculty Research Lecturer, the highest honor the university's faculty can award to one of its own.

"What's exciting and important is not just that we detected the plasma," Ghez said, "but that it varies dramatically in intensity from week-to-week, day-to-day, and even within a single hour. It's as if we have been watching the black hole breathing." 

For more on infrared astronomy research:
www.college.ucla.edu/infrared

Blurring the Borders

As biomedicine becomes more complex, collaboration between the College and School of Medicine faculty is a key to discovery.

By Rich Elbaum

Walls are being built almost everywhere today in the southern part of UCLA's campus. Construction workers weld steel and nail drywall for new buildings that are being constructed to house laboratories, classrooms and offices for life sciences faculty in the UCLA College.

Yet as fast as workers put up walls, faculty in the College and the David Geffen School of Medicine at UCLA tear down other walls.

The walls torn down by faculty are not the physical kind; rather, they represent some of the oldest and most traditional in any university's culture—they are the boundaries between different disciplines, between different schools, between different approaches to scientific understanding.

As a result, the College and the School of Medicine are now strongly positioned to adapt quickly to the fast-paced advances in biomedical knowledge, providing a unique environment not only for faculty researchers to come together, but also for undergraduate and graduate students to span disciplines that even 10 years ago had little in common.

"Today, there are unprecedented collaborations between faculty from the College and the School of Medicine," said Fred Eiserling, the College's dean of life sciences. "We collaborate on research projects to better understand, and perhaps some day treat, such problems as muscular dystrophy, mass anthrax poisoning, and spinal cord injury. And some medical school faculty are now teaching undergraduates in the College, providing students with a new perspective on biomedicine."

What—and who—is driving these new collaborations? And how are they changing the way research and teaching will be done at UCLA in the future?

Although UCLA has earned a well-deserved reputation over the years as a pioneer in bridging disciplines—the Brain Research Institute and the Molecular Biology Institute, for example, were established decades ago to foster collaborations among faculty members who had similar research interests but were in different academic disciplines—the scope and volume of collaborations between the College's life science faculty and their School of Medicine counterparts have dramatically increased in the past couple of years, and will likely continue to expand.

"While in the past, most science was done by individual researchers who rarely had to stray outside their traditional discipline, such as immunology or physiology, in the future there will undoubtedly be more linkage between fields of study," said UCLA microbiologist Jeff F. Miller.

Miller used as an example the current scientific hunt for answers to combat such bioterrorism possibilities as anthrax or smallpox. To develop new methods to prevent or treat a large outbreak requires a deep understanding not only of

bacteria and viruses, but also of genetics, immunology and cell biology. And these fields have become so complex in the past decade that no single person, or even a single discipline, can work alone to solve the problem.

Miller's vantage point for these changes is notable: he is the M. Philip Davis Chair of the Department of Microbiology, Immunology and Molecular Genetics, which was recently formed by merging two previously separate departments—the Department of Microbiology and Immunology in the School of Medicine and the Department of Microbiology and Molecular Genetics in the College.

The merger has linked faculty with similar research interests, enabling new types of collaborations.

For example, the department is scheduled to occupy a floor of the new Research Building 2 when the construction is completed in 2005. With the newly linked faculty, "We will have the opportunity to locate departmental labs in a way that will facilitate our work," Miller said. "We can put a cell biologist's lab between an immunologist's and a bacteriologist's, whereas before they might be in different buildings or surrounded by colleagues from the same subdiscipline."

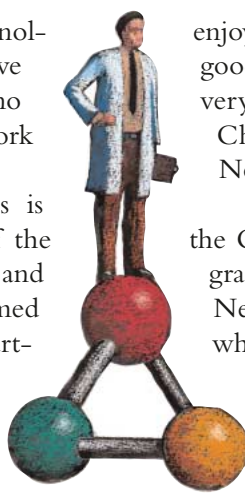
The combination has changed the landscape not only for faculty research, but for undergraduate and graduate education as well.

"With the combination of faculty from the School of Medicine and the College in the new department, our curriculum for undergraduate students has improved," Miller said, noting as an example a new undergraduate elective course in molecular parasitology that is taught by former School of Medicine faculty who are now in the combined department.

Despite the success of the Department of Microbiology, Immunology and Molecular Genetics, joining departments is not necessarily the best solution for every basic science in the medical school and the College, Eiserling said. He pointed to several other examples where collaboration has increased, but a merger was not determined to be the best solution.

For example, in the School of Medicine's Department of Neurobiology, a number of faculty have joint appointments in the College, and in fact teach a number of undergraduate courses in the College's Department of Physiological Sciences.

"Our faculty have found that they really



enjoy teaching undergraduates, because they ask good questions, are very eager to learn and are very well prepared," said Marie-Francoise Chesselet, chair of the Department of Neurobiology in the School of Medicine.

Chesselet herself spends time teaching in the College, having recently organized an undergraduate seminar called "Clinical Neuroscience: New Concepts in Neurological Disorders," where she brought together prominent neurologists and other clinical specialists from the

School of Medicine to give lectures on such topics as Alzheimer's disease, epilepsy, stroke and Parkinson's disease.

The Department of Neurobiology also collaborates with the College on an interdepartmental undergraduate major in neuroscience. In addition, many undergraduate students in the College are able to work with School of Medicine faculty in their labs, helping on research and gaining a front-row perspective on medical science.

Another example of collaboration is interdepartmental programs, such as the Ph.D. program created through a collaboration of the College's Physiological Sciences Department and the medical school's Physiology Department, which merged each of their separate doctoral programs.

"Our interdisciplinary programs attract some of the best graduate students in the nation, because they realize this is the way that science will be done in the future," said Leonard Rome, senior associate dean for research and professor of biological chemistry in the School of Medicine.

"It's not that a solo researcher can't do good science," Rome said, "but the kinds of problems being explored now in biomedicine are so complex and broad that they require more than one mind. We need to start to blur the borders between the disciplines, and to train students to do science in a different way."

The major funders of biomedical research seem to agree with Rome. The National Institutes of Health, the National Science Foundation and several large private foundations have been giving more priority in the last few years to funding larger, multidisciplinary projects.

"Our interdisciplinary programs attract some of the best graduate students in the nation, because they realize this is the way that science will be done."



Recently, Rome and his School of Medicine colleagues collaborated with the College and the School of Engineering to get funding from the National Science Foundation for a Nanoscience Interdisciplinary Research Team. Comprising UCLA cell biologists, engineers, chemists and structural biologists, the team will work on engineering extremely tiny—nanoscience is done at the scale of a nanometer, one billionth of a meter—biological particles called vaults. Because these naturally occurring vaults are found in almost every cell of the body, Rome and his team hope eventually to be able to alter them chemically to enable their use in medical treatments and other applications.

Chesselet points out another reason that UCLA is among the leaders in interdisciplinary collaboration in the biomedical sciences: location, location, location. She is not referring to the Southern California climate, however, but to the closeness of the medical school and the College, literally across the street from one another.

“Among the large research universities, this is relatively rare,” she said. “If you are at the medical schools of places like Johns Hopkins or Yale, you need to get in your car and drive a half hour to the main campus. At Cornell, it’s several hours between the medical campus in New York City and the main campus in Ithaca.”

At UCLA, Chesselet just walks across the street to reach the lab of a colleague in the College.

This proximity is also a big asset when it comes to sharing the increasingly complex (and expensive) equipment needed for today’s molecular and genetics research. At UCLA, faculty in the College and School of Medicine come together to use equipment and other shared resources (such as technical support) in what are called “core facilities.”

One such facility on campus, funded by a grant from the W.M. Keck Foundation to the College and the School of Medicine, contains sophisticated mass spectrometer equipment that enables scientists to study the structure and function of very small amounts of proteins that occur on various types of human cells. By understanding more about how these proteins work in

the cell, the scientists hope to be able to use them to block chemicals that could harm the cell, thus treating or even preventing future diseases.

Perhaps the most important issue underlying the increasing collaborations between the College and the medical school is not in structural changes, but in changes of attitude.

“The atmosphere is much more collegial now compared to how it once was,” said Alan Grinnell, who came to UCLA in 1964 and has served as a faculty member in both the School of Medicine and the College. “Many borders that previously kept departments and schools isolated from one another have disappeared.”


Grinnell, along with other faculty members, pointed to the leadership in both the College and the School of Medicine as having important roles in fostering the closer working relationships. They have not only set a tone of teamwork by focusing more on the shared aspects—and not the differences—of the respective visions of the College and the medical school, but have also been willing to change some of the administrative structures to make the sharing of resources (such as faculty positions and funding) easier for everyone.

“Fred Eiserling and Jerry Levey (vice chancellor of medical sciences and dean of the medical school) have been extremely supportive of

these collaborations,” Grinnell said.

Eiserling recalls with a smile the first time he met Levey, in 1994, when Levey came to UCLA to interview for the position. Eiserling notes that at the time, Levey was senior vice president at a large pharmaceutical company.

“As we talked about life sciences in the UCLA College, and I described the different departments, he seemed struck by some of the similarities between the basic sciences in the College and the medical school, and interrupted me. ‘Wait a minute!’ he said, ‘Isn’t UCLA all one company?’”

“At that moment,” Eiserling said, “I thought this was someone very committed to collaboration with the College, and I turned out to be absolutely correct!” 

Rich Elbaum is a writer and communications consultant based in Irvine.

“Today, there are unprecedented collaborations between the College and the School of Medicine. We collaborate on research to better understand, and perhaps some day treat, such problems as muscular dystrophy, mass anthrax poisoning, and spinal cord injury. And, medical school faculty are now teaching undergraduates in the College, providing students with a new perspective on biomedicine.”

Freshman Clusters: A Gateway to Undergraduate Studies

By Harlan Lebo

For Jeffrey Ghassemi, the choice was easy to begin his academic career in the College by enrolling in a Freshman Cluster: he was looking for an intellectual challenge unlike anything he had encountered before.

“In high school, students are generally responsible for learning facts and repeating them back on tests—during college, what’s most important is what students think and how they think,” said Ghassemi, who graduated from UCLA last spring. “A Freshman Cluster was the perfect way to help me articulate my ideas as I started my college career.”

Like Ghassemi, each year almost 1,500 new UCLA students begin their academic careers in the College with the Freshman Cluster Program, an ambitious project that creates an exciting intellectual introduction to university life.

By enrolling in one of the ten Freshman Clusters offered for 2003–04, new UCLA students study in a related series of lectures and seminars on a single topic that continues throughout the first academic year. The clusters are taught by teams of the university’s top faculty, who work with students during the Fall and Winter quarters to explore broad subjects that span several disciplines, such as interracial dynamics, global affairs, multicultural issues, biotechnology, evolution, the arts, or key periods in American history.

Then, in the spring quarter, cluster students enroll in a “capstone” seminar that builds on their experiences in the first two quarters, and challenges them to complete a major project.

As a result of the clusters, students begin their studies at UCLA in an energized academic environment.

“In clusters, freshmen study with distinguished

teacher-scholars from all parts of the campus,” said Judith L. Smith, vice provost for undergraduate education and acting executive dean of the College.

“Academic skills—such as critical thinking, problem solving, rhetorical effectiveness, and effective writing—are developed throughout the year,” Smith said. “In the clusters, the intense educational experience creates a *community of learners* among faculty, teaching assistants, and students—an ideal environment for students as they begin their academic careers.”

For Janice Reiff, associate professor of history who teaches in the cluster, “The United States, 1963–74: Politics, Society, and Culture,” the principal advantage of a yearlong program as an introduction to academic life at UCLA is the depth and breadth such work allows.

“Freshmen come to the College with an enthusiasm that these clusters capture and build,” said Reiff. “The idea of establishing an academic community among freshmen opens up many possibilities for how a large university can respond to the intellectual interests of new students.

“Because the clusters are experiences that last for three academic quarters, they help freshmen get into a subject with a great deal of depth,” said Reiff. “Students then come to the seminar I teach later in the cluster with a tremendous amount of background, and a deep appreciation for the issues.”

From the teacher’s perspective, the clusters give freshmen a chance to appreciate the boundaries of a particular intellectual discipline, operate at those boundaries, and cross them.

“Students begin to appreciate how, for example, a

The College’s innovative approach to general education through yearlong interdisciplinary courses for freshmen continues to flourish.

“In the clusters, the intense educational experience creates a community of learners among faculty, teaching assistants, and students—an ideal environment for students as they begin their academic careers.”

political science course actually relates to an English course,” Reiff said, “which is a more difficult concept to grasp when you are just taking a single course. The clusters also help students understand that scholarship is not necessarily *truth*; perspectives and different kinds of evidence lead to certain types of conclusions, and scholarship really means that by asking different types of questions you get different answers.”

The intellectual growth and confidence generated in the Freshman Clusters continues to evolve throughout the freshman year.

“Over the course of the term, we watch students learn how to master the material, and also how they ‘learn how to learn’ about the subject,” said Keith Stolzenbach, a professor of civil and environmental engineering who has taught in the Freshman Cluster Program since its inception. “In the seminars during the third quarter, you can watch students become so much more confident and charged up about their involvement.”

And, the clusters—with an additional mission of encouraging students to participate in research and community service—help open the entire academic experience beyond the freshman year.

“Our faculty encouraged us to look outside the classroom for opportunities to work on research and in the community,” said Masuma Tewari, a sophomore who participated in two of the Freshman Clusters:

Freshman Clusters for 2003–04


- ▲ **The Global Environment: A Multidisciplinary Perspective**
- ▲ **Interracial Dynamics in American Culture, Society, and Literature**
- ▲ **The United States, 1963–74: Politics, Society, and Culture**
- ▲ **Frontiers in Human Aging: Biomedical, Social and Policy Perspectives**
- ▲ **Biotechnology and Society**
- ▲ **Work, Labor, and Social Justice in the United States**
- ▲ **The History of Social Thought**
- ▲ **Evolution of the Cosmos and Life**
- ▲ **Inside the Performing Arts: Interdisciplinary Explorations of Performance in Society and Culture**
- ▲ **Politics, Society, and Urban Culture in East Asia**

“Biotechnology and Society” and “Work, Labor, and Social Justice.”

“Through the clusters, I worked for AIDS Project Los Angeles, and interned with the United Farm Workers,” said Tewari. “I continue to work on research with Dr. Jeanne Perry in her protein expression lab, and with Professor Abel Valenzuela in his studies of day laborers.”

Ultimately, perhaps the most important benefit of the Freshman Cluster Program is that it creates new—and often unexpected—opportunities for each new class of UCLA students.

“Some people come into the university with an idea of what they want to do, but others arrive with no idea at all,” said Ghassemi, now a graduate student in the UCLA School of Public Health.

“Because a cluster is multidisciplinary, it gives students an appreciation of many fields,” Ghassemi said. “Through the issues we explored, I ventured away from my initial interests, and moved into policy and political science. Participating in a Freshman Cluster encouraged me look at issues that I hadn’t considered before.” 

For more on the Freshman Clusters:

www.college.ucla.edu/ge/clusters

Harlan Lebo is director of communications for the UCLA College, and editor of UCLA College Report.

Photo: Irene Fertik



Historian Robert Hill meets with students in De Neve Auditorium for the Freshman Cluster course, “Interracial Dynamics in American Culture, Society, and Literature.” Most cluster lectures are taught in this new auditorium, which was jointly designed by the College and the Office of Residential Life, and constructed within the campus residential neighborhood to support the flourishing of an academic community where students live.

Picking Up the Pieces in Bosnia

Two undergraduates, with a grant from the UCLA Burkle Center for International Relations and the College's Honors Program, are working in Bosnia as active participants in the reconstruction.

By Leslie Evans

Around the time that U.S. tanks rumbled into Baghdad this spring, two UCLA undergraduates were prompted to wonder if there were lessons to learn from the U.S. military involvement in the Balkans in the mid-1990s that might be useful in reconstructing Saddam Hussein's homeland. Jonathan Dotan and Alicia Stevenson, both seniors in the College, wrote an impromptu grant proposal to the UCLA Ronald W. Burkle Center for International Relations, along with the College's Honors Program, to ask for funding to go to Bosnia-Herzegovina to find out.

On April 29 Dotan and Stevenson arrived in Sarajevo. Seven months later, they are still there.

Dotan and Stevenson began work as student fellows attached to the Office of the High Representative (OHR), the international body that oversees the Dayton agreements of 1995 that ended the last war. OHR is a protectorate government over the two "entities," or states, that make up Bosnia-Herzegovina, the Serb-dominated Republika Srpska and the Federation, an uneasy alliance of Croats and Muslims (Bosniaks).

Dotan and Stevenson were welcomed by the short-staffed

international community and were assigned to the Rule of Law Pillar, a department that is in charge of reorganizing the Bosnian judiciary. They have been working 14-hour days ever since.

In the time they have been in Bosnia, Dotan and Stevenson have boldly parlayed their internship into a series of accomplishments that much older and more experienced people would find difficult to match. They interviewed Prime Minister Adnan Terzic, visited the town where forensic pathologists are still trying to identify the victims of the Serb massacres of

Muslim Bosnians at Srebrenica in 1995, helped to organize the training of judges and prosecutors in the country's new legal code, and held discussions with U.S. Ambassador to Bosnia Clifford Bond about similarities between Bosnia and Iraq. And in their "spare time," they are making a documentary film.

"The common theme that everyone from the international contingents has been experiencing here in Bosnia," Dotan said in a phone interview from Sarajevo at the end of September, "is that you get to do things in Bosnia that you would otherwise never be able to do in the United States, given your profession or seniority—or age in our case." (Stevenson, a history major, and Dotan, who created his own major, are each 22 years old.)

In May, when the pair interviewed the country's Prime Minister, Adnan Terzic, "He emphasized to us how important it is to have an independent judiciary that can weed out corruption and fight the injustice of ethnic bias," Stevenson said. "He also mentioned that you can't have a real democracy until war criminals are brought to justice, because their threat (like Saddam Hussein's) has a chilling effect on progress." When they interviewed Ambassador Bond in July, they found he shared Terzic's sentiments about the importance of a strong legal system.

"Our conversation with Bond about that concept really brought to light some of the things that we were thinking before going out to Bosnia, some ideas of how we can learn from the protectorate that was established in Bosnia after the war, and what we can reapply in Iraq's reconstruction," Stevenson said.

Bosnia is a country that has seen little of law in the last decade. Stevenson took the lead in exploring its bloody past when the UCLA pair went to the morgue in Tuzla that houses the remains of more than 4,000 unidentified war dead brought there from a Serb massacre site at Srebrenica. The morgue and

"I have read books, attended lectures, and watched movies about genocide. But nothing could prepare me for the smell of 'crimes against humanity.'"



Alicia Stevenson, at the Office of the High Representative in Sarajevo.

forensic pathology laboratory are operated by the International Commission for Missing Persons—a site for attempting to begin the imposition of rule of law in Bosnia, by at least identifying the victims through DNA analysis.

“As a history major at UCLA, I have read books, attended lectures, and watched movies about genocide,” Stevenson wrote. “But nothing could prepare me for the smell of ‘crimes against humanity’—decayed bones, canvas bags, and dirty laundry. The stench was oppressive; it lingered on our clothes for hours.”

As they became more familiar with their jobs, Dotan and Stevenson were assigned to act as liaisons between the OHR and the judicial sections of the Bosnian government. In particular, they were drawn in to the project to retrain all of the country’s judges and prosecutors in the new legal code.

“The way we got involved in training is that OHR, in its position as the lead international agency, ensures that there is no redundancy in the kind of training that is going on,” Dotan said. “We were specifically in the Rule of Law Pillar, so we supervised 15 to 20 different training projects that were going on in Bosnia-Herzegovina. The reason this training is so important is that about a month after we arrived, they approved an entirely new legal code.”

Said Stevenson, “After that, several different levels of judges and prosecutors had to be educated in a system that was completely different from what was in place before. Previously, the system was very similar to socialist/communist courts where the judge is the investigator and the prosecutor is very weak, as opposed to the court system that we are very familiar with in the United States where the prosecutor has the burden of proof and is very strong and the judge is more of a mediator.”

Through this program, Dotan and Stevenson got to know many Bosnian judges and prosecutors, acted as liaisons to the State Prosecutor’s office, and met many of the international jurists who came to Bosnia

to help train judges in the new legal codes.

“Last Sunday, Alicia and I had dinner with two federal judges from Orange County who were in town for a Department of Justice training program,” Jonathan told me. “In the United States—eager, and ready to go as we are—we would never get an opportunity like that. They were genuinely interested in our insight.”

And if they weren’t busy enough, Dotan and Stevenson are also making a documentary film about the Sarajevo Ballet.

“We found a truly inspirational story meeting one of the principal ballerinas who was here during the war,” Stevenson said. “She is deeply committed to the arts despite the atrocities during the war, and she has amazing stories to tell about her belief in the art form.

“We are getting her to open up to us, and we are filming a lot of their rehearsals. We spent a lot of time with her, learning how she wants to rebuild her program. The community is recovering some of its vibrant spirit in a healthy way.”

For more about Dotan and Stevenson:

www.international.ucla.edu/bosnia



Jonathan Dotan, in front of a memorial billboard for the Srebrenica massacre of Muslim Bosniaks by Serbs in 1995.

Leslie Evans is Web site and publications manager for the UCLA International Institute.

La'Tonya Rease Miles:

Impassioned Teacher, Imaginative Researcher

By Robin Heffler

Graduate student La'Tonya Rease Miles was easily drawn to English as an undergraduate at the University of Maryland because it offered a feast for her intellectual appetite. "I was and remain interested in so many things—art history, women's studies, African-American studies—and English allowed me to pursue all of them," she says.

But for this scholar of American literature who won the UCLA Distinguished Teaching Assistant Award in 2002 and hopes to receive her Ph.D. in 2004, feeling comfortable about a career in academia started out as a more difficult process.

Coming from a working-class neighborhood outside of Washington, D.C., Miles was the first member of her family to go to college. She had planned to get a master's degree in education and become a high school teacher, until she was recruited for the McNair Program, which aims to increase the number of minorities in graduate schools. The program showed her the broader career options available with a doctoral degree and she developed an interest in research.

Yet in 1995, when Miles entered the graduate program in the College's Department of English, she still had to overcome her own fears and preconceptions about an academic career.

"It seemed like what I was studying (modern poetry) had no relation to my real life," said Miles, who is now a mother of two and married to Robert Miles, a systems administrator in the Office of Instructional Development. "My issue was that as a first-generation college student I had no role model in my family. So it felt like all my relatives were doing real work and I was a phony."

Then, the value of her chosen profession became clear when Miles began to demonstrate to her students that what they read and write could affect their lives.

"They've learned how to formulate arguments, which can help them not only in writing college papers, but is a necessary skill for writing a business proposal or making a scientific presentation," she said. "Helping to convince students that writing is useful to them helped to convince me."

She also prods her students into understanding the source of their attitudes toward writing. "I ask my students to consider what they learned about writing in their own families, to examine the

A graduate scholar in English transforms her students by demonstrating that what they read and write can affect their lives positively.

Photo: Irene Fertik



Miles: *Her passion for her subject while teaching, said one former student, "was inspirational and infectious."*

messages they received about whether writing is important or not,” she said. “This way, they know what they have to combat and what they have to build on when they become writers at the university.”

Miles takes great pleasure in teaching introductory writing and literature, working to decrease her students’ fears and make the material accessible. She uses popular culture to ease them into the subject matter, as she did this past summer when she had students listen to a song by Eminem called “Lose Yourself.” She explains that “the rhyme schemes are really obvious and they identified with them. Then they applied what they learned from the lyrics to the works of 17th-century poets who were new to them—Anne Bradstreet and John Donne.”

Her teaching has included English courses on “Heroes and the Hood,” “To Live and Die in L.A.,” “The Cheerleader in Popular American Literature and Culture,” and an interdisciplinary Freshman Cluster Program course on “Inter-racial Dynamics in American Literature, History and Law.” They reflect her passion for sports, urban culture, and ethnic studies.

Known as “LT” to her students, Miles said she enjoys teaching because “I like to see people become more self-confident in their writing, and I like helping people to realize strengths they didn’t think they had in analytic ability and critical thought.” So it’s no surprise that receiving one of UCLA’s Distinguished Teaching Awards was a huge source of satisfaction and pride. “It was great to have a number of my former students write *me* letters of recommendations for once,” she says. “It was also very rewarding to have them be so clear about how I helped them.”

Matthew Brown, who graduated in 2000 with a degree in English, recalled, “LT quite literally turned me from a quiet and timid classroom observer into a confident and bold Superman via an improvisational skit. She helped me to develop my quiet strength in writing during office hours, and targeted my social weaknesses in the classroom.” Years later, Brown said, he continues to use those important lessons as a media relations assistant with the San Francisco Giants and a co-founder of a video production company.

Robin Heffler is a Los Angeles-area free-lance writer and former editor at UCLA.

Senior Maria Do, a biology major who took Miles’ composition class between her sophomore and junior years, has another perspective. “Molecules, cells, and equations were always more appealing to me than poems, short stories, or writing essays,” she said. “However, from the first day of class, LT’s passion for English was inspirational and infectious. She brought the subject material to life for a class full of non-English majors just trying to fulfill a requirement. I believe she helped me to write some of the best papers I’ve ever written.”


Miles also recently supported Do outside the classroom, writing a letter of recommendation and critiquing a required personal statement when she applied to dental school. In addition, Miles provides more formal guidance as a part-time counseling assistant for the College, helping first-year students in all majors and English majors at all class levels to “stay afloat.” She advises them on program planning, course selection, and graduate school.

As to her own academic progress, Miles is the lead researcher on an Oral History Project about Negro League baseball players in Los Angeles, while working on her dissertation, “Basketball, Masculinity, and Authenticity in African American Literature and Culture.” Her dissertation adviser, Associate

Professor Richard A. Yarborough, praises Miles’ approach to her subject.

“One of La’Tonya’s stronger qualities is her imagination,” observed Yarborough, who specializes in African-American literature. “Given that her topic is somewhat unusual for an English dissertation, the extent to which she can come up with fresh insights and strategies is not only appropriate, but indispensable to completing it. And in being interdisciplinary, her work fits with one of the strengths of our program.”

Perhaps her former student Matthew Brown best summed up how Miles connects with the needs and the spirit of the university community.

“La’Tonya is devoted to challenging and encouraging her students to approach life with an open mind, a keen ear, and a sharing soul. She is special to the university, and especially so to me.” 

“I like to see people become more self-confident in their writing, and I like helping people to realize strengths they didn’t think they had in analytic ability and critical thought.”

Discovery Showcase

Surveying the spectrum of scholarship by faculty in the College

Harryette Mullen English

A Loving Poetic Tribute to Dictionaries

A nominee for the National Book Award finds inspiration in a lifetime of words.

The idea for Harryette Mullen's latest book of poetry came to her in her sleep—literally.

"I woke up in the morning and something was poking me in the back," recalls Mullen, an associate professor of English and African-American studies.

The author of *Sleeping With the Dictionary* had fallen asleep with her frequent collaborator: the *American Heritage Dictionary*.

"I use the dictionary to inspire me," Mullen explains.

The approach resulted in more than the collection's title poem—a loving tribute to the poetic powers of dictionaries. Published in 2002 by the UC Press, *Sleeping With the Dictionary* has steadily drawn acclaim. The 85-page collection was selected as a finalist for the National Book Award, the nation's preeminent liter-

ary prize that recognizes books of merit written by Americans.

Sleeping With the Dictionary was also selected as one of five finalists for the National Book Critics Circle Awards in Poetry, given by the nation's 700 or so active book reviewers.

Mullen, whose four previous collections were published by small presses, is still pinching herself.

"For years, I've been satisfied with very little: one person saying, 'I like that poem,' or a publisher agreeing to print a poem," she says. "I just wanted to express myself."

The transplanted Texan traces the poetic impulse to growing up among Baptist ministers, typists, printers, educators and clerks. "All my closest kin had jobs that involved words," she says. Meanwhile, she credits black teachers in the state's segregated school system with awakening a love of poetry by introducing her to Harlem Renaissance poets Langston Hughes, James Weldon and others.

Steeped in this ethos, Mullen explored black and female identity in such early collections as "Tree Tall Women" and



Harryette Mullen: "I use the dictionary to inspire me."

"Blues Baby," which have recently been combined in a single volume—*Blues Baby: Early Poems* (Bucknell University Press).

"African-American poets are more integrated into American literary culture than in the past," she says. "In the 1960s, we had something to prove and we did it. Now we're aware of our need to innovate. In fact, as we've explored our heritage more thoroughly, we've discovered that we have been innovative all along."

www.english.ucla.edu/poetry/mullen

Richard Zimmer

Organismic Biology, Ecology, and Evolution

Does a Newly-Discovered Molecule Play a Role in Fertilization?

Scientists in the College and in Germany have isolated a chemical that may have an important function in reproduction.

In research with implications for both increasing fertilization and preventing pregnancies, biologists in the College working with German scientists have identified and isolated a molecule that attracts sperm.

"Potentially, this research could promote fertilization, and could lead to a new generation of non-toxic contraceptives that would not require women to take hormones," said Richard Zimmer, professor in the Department of Organismic Biology, Ecology, and Evolution.

Zimmer and his colleagues have identified bourgeonal, a molecule that controls the navigation of sperm cells, and the genes that code for that molecule, which may play a role in human fertilization.

Zimmer's team, funded by the National Science Foundation, first found that a molecule called tryptophan attracts sperm when released by female eggs of abalone. Zimmer, graduate student Jeffrey Riffell and postdoctoral scholar Patrick Krug isolated tryptophan, and determined its function. Zimmer's team and colleagues in Germany found that bourgeonal is the human counterpart to tryptophan.

"Sexual reproduction and fertilization are controlled to a significant degree by chemical communication," Zimmer said, "and we are filling in important pieces of the chemical communication puzzle. For the first time, we

have been able to verify experimentally that tryptophan promotes rates of fertilization, and by how much. It is likely that bourgeonal has a similar effect in humans.

"Our research may help us learn if sperm will behave in a way that increases the likelihood of successful fertilization."

"This work is a perfect example of the importance of basic research," Zimmer said. "We were initially working with a marine animal (abalone); the German group isolated a human gene and identified a receptor protein on sperm that responds to bourgeonal,

but did not know its function. They contacted us, and within a month, we had shown the function."

<http://zimmerlab.biology.ucla.edu>

"This research could promote fertilization, and could lead to a new generation of non-toxic contraceptives that would not require hormones."

Shelley Taylor Psychology

Some Surprising Insights Into Nature vs. Nurture

Tending to others may be as based in human biology as is searching for food or sleeping.

Nurturing others and caring for their needs are as wired into our genes as our aggressive and competitive nature, said psychologist Shelley E. Taylor.

“The tending instinct is every bit as tenacious as our more aggressive, selfish side,” Taylor argues in *The Tending Instinct: How Nurturing Is Essential to Who We Are and How We Live* (Henry Holt). “Tending to others is as natural, as biologically based, as searching for food or sleeping.”

Taylor, who studies stress and health, conducted 25 years of research and analyzed more than 1,000 research studies before writing this book.

“I originally assumed that biology largely determines behavior,” Taylor said,

“and so it was a tantalizing surprise to see how clearly social relationships forge our underlying biology, even at the level of gene expression. Chief among these social forces are the ways in which people take care of one another and tend to one another’s needs. An early warm and nurturant relationship, such as mothers often enjoy with their children, is as vital to development as calcium is to bones.

“The benefits that tending provides to children, especially those with genetic risks, are substantial. Children who are well tended in early childhood grow up with better social and emotional ways of meeting the world. Even in adult relationships, we tend to each other’s needs in ways that sustain long and healthy lives.”

What role does our genetic makeup play in determining our behavior?

“It was a surprise to see how clearly social relationships forge our underlying biology, even at the level of gene expression.”

“The genome is like an architect’s first plan, a rough projection of how a person may turn out,” said Taylor, whose research is funded by the National Science Foundation and the National Institute of Mental Health.

People with social support have “younger” stress systems and better protection against major chronic diseases, according to Taylor. Strong ties with family and friends protect against health ailments, while social isolation increases the risk for all causes of death, including heart disease, cancer, strokes and accidents.

“From life in the womb to the surprisingly resilient brain of old age, the social environment molds and shapes the expression of our genetic heritage until the genetic contribution is sometimes barely evident,” Taylor said.

www.psych.ucla.edu/Faculty/Taylor

John Dagenais Spanish and Portuguese

Recreating an Ancient Cathedral—Virtually

Computer modeling brings back to life the 800-year history of a cherished shrine.

Eager to find more effective ways to explain what it was like to make a religious pilgrimage in medieval Spain, John Dagenais decided to recreate the experience through computer modeling.

“I wanted my students to have a sense of that culminating moment when religious pilgrims first entered the cathedral after months of travel,” Dagenais said.

Two years later, the scholar of Spanish medieval literature revealed the results: his hauntingly realistic—but purely virtual—Cathedral of Santiago de Compostela that is being used in the College’s Spanish literature, history and architectural history courses.

Thanks to the wonders of large-scale, three-dimensional computer modeling, the virtual Santiago de Compostela gives the viewer the impression of entering and moving through the legendary cathedral at the time of its dedication in 1211 in the northwest Spanish region of Galicia.

Even travelers lucky enough to visit the

real cathedral today cannot enjoy the same medieval experience. In the 800 years since it was built, the popular destination for religious pilgrims—which figures prominently in classic works of medieval Spanish literature—has undergone several transformations, particularly in the 17th and 18th century, when baroque flourishes replaced the cathedral’s simple but elegant Romanesque aesthetic.

Dagenais uses the model in his undergraduate course that explores literature inspired by the renowned pilgrimage route to the cathedral, one of the most popular themes for medieval Spanish literature.

While Dagenais plans to make some of the information available on the Web and on CD-ROM, his digital cathedral is shown to the best effect on UCLA’s Visualization Portal, a special curved screen that stands 9-foot tall and 22-foot wide, offering a 160-degree view of the cathedral from any given vantage point.

Undergraduates in the College will continue to gather research for the project as part of an ongoing UCLA travel-study program. And recently installed software

now makes it possible to hear how medieval music would have resonated in Santiago de Compostela.

“We don’t have the sound of pilgrims’ footsteps yet,” said Dagenais, “but we’re working on them.”

www.humnet.ucla.edu/santiago/iagohome.html



The Cathedral of Santiago de Compostela, recreated with computer modeling by medieval literature scholar John Dagenais and his undergraduate students as it appeared 800 years ago.

Creating a Sensor with a Single Molecule

A development at the nanoscale creates a wealth of potential applications.

Physicists in the College have created a first-of-its-kind nanoscale sensor using a single molecule less than 20 nanometers long—more than 1,000 times smaller than the thickness of a human hair.

“The nano molecular sensor could help with early diagnosis of genetic diseases, and have numerous other applications for medicine, biotechnology and other fields, said Giovanni Zocchi, assistant professor of physics, and a member of the California NanoSystems Institute (CNSI) and leader of the research team.

CNSI explores the power and potential of manipulating structures atom-by-atom to engineer new materials, devices and technology.

“This nanoscale single-molecule method

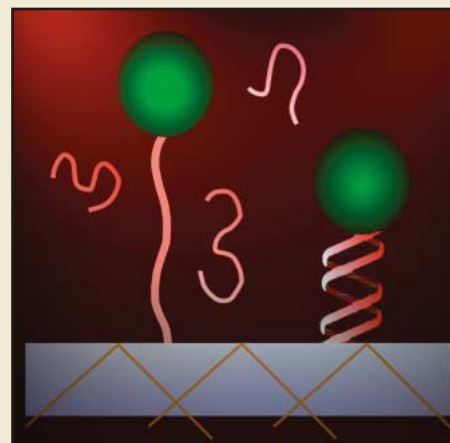
could lead to significant improvements in early diagnosis of genetic diseases, including the growing number of cancer forms for which genetic markers are known,” Zocchi said. “The largest potential applications for this sensor may be in drug discovery, where the possibility of quickly gauging the gene expression response of cells to prospective drugs is crucial.”

Zocchi’s team includes research physicist Mukta Singh-Zocchi, postdoctoral scholar Sanhita Dixit, and UCLA graduate student Vassili Ivanov. The research is funded by the National Science Foundation.

Zocchi’s nanoscale sensor uses a single molecule to recognize the presence of a specific short sequence in a mixture of DNA or RNA molecules—which he equates to finding a needle in a haystack.

“This single molecule sensor could be an important component of ‘a lab on a chip’ technology for doing chemical analysis on a chip,” Zocchi said.

Zocchi’s team plans to use the nanoscale sensor for experimental leukemia research,



In this sensor developed by a team led by physicist Giovanni Zocchi, a single DNA molecule (right) attached to a minuscule bead forms the sensing element. When a target molecule binds to the sensor, the changing shape of the sensor molecule causes the bead to displace by a nanometer (one billionth of a meter)—movement that can be detected optically.

to test whether the sensor’s high sensitivity can detect a recurrence of cancer at an earlier stage than is now possible.

www.physics.ucla.edu/zocchi_lab

A Flood of Negative Stereotypes

An award-winning book reveals disturbing characterizations of Latinos in the media.

“A wash under a brown tide.” “The Arelentless flow of immigrants.” “Human flows...remaking the face of America.”

“In the past decade, such deprecating metaphors have permeated media accounts of the growing Latino population in the United States,” linguist Otto Santa Ana argues in an award-winning book.

“Far from being mere figures of speech, these metaphors produce and sustain a negative public perception of the Latino community and its place in American society,” Santa Ana writes in *Brown Tide Rising: Metaphors of Latinos in Contemporary American Public Discourse*.

Brown Tide Rising was named the Best Book of the Year on Ethnic and Racial Political Ideology by the American Political Science Association.

An associate professor in the College’s

César Chávez Center for Chicano Studies, Santa Ana tabulated and analyzed the metaphorical language used by the Los Angeles Times in coverage of diversity-related ballot propositions between May 1992 and July 1998. The study was funded by the National Research Council, the Ford Foundation, California Policy Seminar and UCLA Faculty Senate.

Santa Ana found that during the six years Santa Ana identified metaphors, Latinos were characterized in deprecating terms in 90 percent of cases, with abundant comparisons to disease, weeds and animals.

Santa Ana found only one affirmative metaphor—the immigrant as angel—in the entire six-year period, and the characterization was used exclusively by clergy.

Of more than 1,500 metaphorical references to the United States that were identified by Santa Ana, 98 percent characterized the nation as a body or a home; in all these cases, immigrants or immigration were characterized as a threat to the

national health or hearth.

Many of the pejoratives first appeared in comments made by proponents of the ballot propositions, Santa Ana found. But the metaphors quickly worked their way into what should have been objective reporting, as well as the comments of opponents to the propositions.

“While the Los Angeles Times writers are not overtly racist, their perpetuation of metaphors contributed to demeaning characterizations,” Santa Ana said.

The study was not designed to single out weaknesses in any particular media outlet, Santa Ana stressed. Indeed, he conducted a less-extensive survey of more than 20 major daily newspapers, and determined that they used the troubling metaphors at least as frequently as the Los Angeles Times.

“Journalists have to pay much more attention to the influence of the metaphors that they perpetuate,” Santa Ana said.

www.sscnet.ucla.edu/chavez/santaana.html

“Far from being mere figures of speech, these metaphors produce and sustain a negative public perception of the Latino community and its place in American society.”

New Views on a Baffling Global Problem

A centuries-old epidemic holds clues to today's diabetes puzzle.

A diabetes epidemic that claimed thousands of victims more than 300 years ago may explain the baffling disparities in the disease's rates among today's ethnic groups, according to research by geographer Jared Diamond, winner of both the National Medal of Science and the Pulitzer Prize.

Aside from speculating that many people may carry genes that predispose them to diabetes, researchers have been at loss to explain why, for instance, only two percent of Europeans contract the disease as opposed to 13 percent of African Americans, 17 percent of U.S. Latinos and up to 50 percent of Native Americans.

"Immediately following Europe's last widespread famines centuries ago, a diabetes epidemic appears to have killed a large number of Europeans with these genes before they could be passed on to successive generations," said Diamond, a UCLA professor of geography and environmental health sciences.

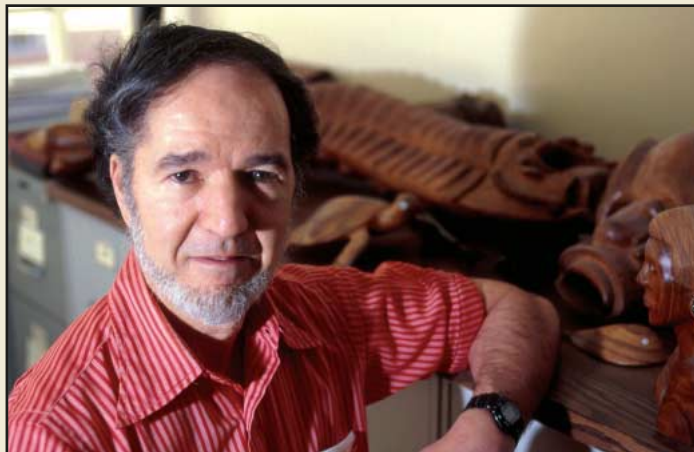
"Poor or rural non-European populations have not experienced a diabetes epidemic—until recently. These people still carry the genes in large measure, and as a result become highly prone to diabetes when they move into urban or Westernized settings, where the disease's risk factors are more common."

If accurate, Diamond's theory means today's soaring diabetes rates will continue to mount as people whose ancestors were never exposed to the epidemic adopt the disease's twin risk factors: abundant food

and more sedentary lifestyles. Diabetes affects 150 million worldwide.

"At its present rate of increase, within a few decades diabetes will become one of the world's commonest diseases and biggest public health problems with an estimated minimum of 500 million cases," Diamond said.

Photo: William Short



Jared Diamond: "At its present rate of increase, within a few decades diabetes will become one of the world's commonest diseases and biggest health problems."

The findings relate to Type II diabetes, also known as the adult-onset version of the disease. Diabetes affects the human hormone responsible for controlling blood sugar. When left unchecked, elevated blood sugar can result in loss of limbs, vision damage, or death, as well as an increased risk of cardiovascular disease.

Adult-onset diabetes often can be controlled through dietary changes and exercise.

Diamond, who won the 1998 Pulitzer Prize in general non-fiction for his book, "Guns, Germs and Steel: The Fates of Human Societies," and received the National Medal of Science in 1999, used a combination of medical analysis and geographic research to produce his findings on diabetes.

Diamond studied current and historic Type II diabetes rates among nine different population groups in 24 regions. He then examined the groups' food history, including improvements in farming, Westernization or urbanization.

Diamond found that diabetes rates have risen in tandem with living standards for the populations now most prone to the disease, including Arizona's Pima Indians, U.S. Latinos, Pacific Islanders, Westernized Australian Aborigines, African Americans, urban Asians and eastern Indians. For

instance, when New Guineans moved from a rural to urban setting, their diabetes rate shot from zero to 37 percent.

Diamond's findings are consistent with a long-standing theory of an evolutionary advantage to insulin resistance, which would tend to favor populations with so-called "thrifty genes" that promote metab-

olism and storage of blood sugars, thus allowing their carriers to better survive periodic famines.

"Much like the gene that protects against malaria but also predisposes so many people of African ancestry to sickle-cell anemia, the 'thrifty gene' is a double-edged sword that becomes a liability only after living standards improve," Diamond said. "Until a stable food source is secured, the gene helps people survive famines, but afterward it puts them at risk for the dangers of diabetes."

Diamond's theory would also explain another disparity in diabetes rates that have puzzled researchers: why white Americans and Australians who came from Europe are three to four times more likely than Europeans to be diagnosed with the disease.

"Europeans who stayed at home tended to be richer than those who emigrated, and the genotype that predisposed the stay-at-homes to diabetes may already have been selected out by centuries of abundant food," Diamond said.

"Diabetes is a disease of increasing affluence. People eat more and risk developing diabetic symptoms when they have more money."

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"Diabetes is a disease of increasing affluence. People eat more and risk developing diabetic symptoms when they have more money."

Great Futures for the College

Donald Cram: A Monumental Legacy

A beloved faculty member and Nobel Laureate created an endowed chair to bring talented chemists to the College.

When Professor Emeritus Donald Cram died in 2001, he left behind an extraordinary legacy of groundbreaking chemistry research and dedicated, energetic teaching. Cram was an acclaimed scientist and a treasured faculty member in UCLA's Department of Chemistry and Biochemistry, where he is remembered for writing a classic undergraduate chemistry textbook and for strumming his guitar and singing folk songs in class.

In 1987 Cram was a co-winner of the Nobel Prize in chemistry for creating a field of science called host-guest chemistry, in which synthetic host molecules are made to mimic some of the actions that enzymes perform in cells. Cram won numerous other awards as well, including the National Medal of Science in 1993.

But Donald Cram also left another significant legacy at UCLA—a legacy that clearly indicates the affection he felt toward the university where he spent more than 50 years of his life. In 2003, according to his wishes, the Cram Family Trust established the D.J. and J.M. Cram Endowed Chair in Organic Chemistry with a gift of more than \$1 million dollars to the College's Department of Chemistry and Biochemistry. The chair is named for Cram and his late second wife, chemist Jane Maxwell Cram.

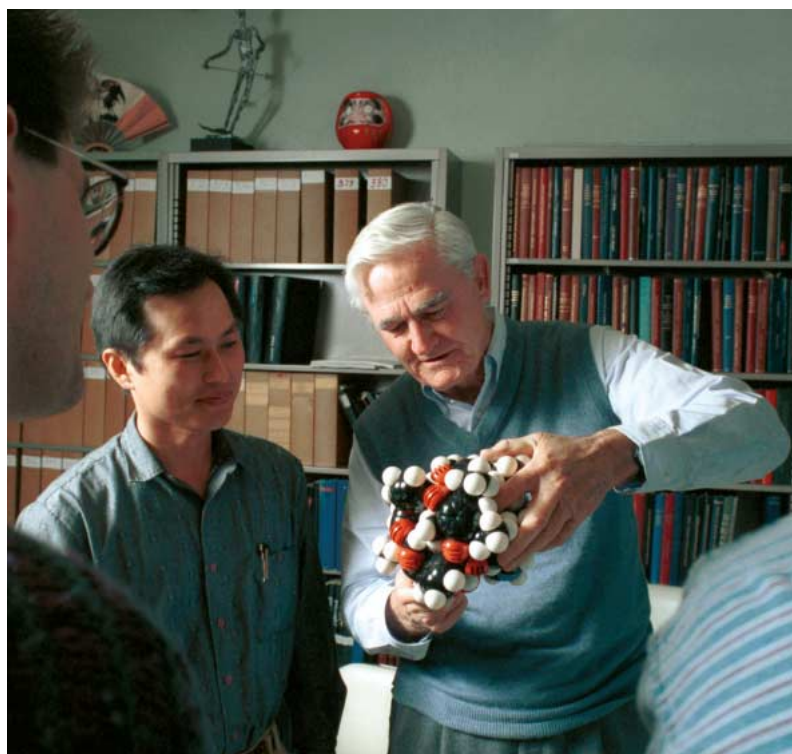
Endowed chairs are a vital resource for the UCLA College, helping to attract and retain top scholars and scientists by providing critical funding for their research and teaching. Don Cram certainly understood the importance of these chairs. In 1985, 38 years after his arrival at UCLA as a young instructor with a new Harvard Ph.D., he became the first holder of the Saul Winstein Endowed Chair in Organic Chemistry. The Winstein Chair was established with university funding and a series of gifts from the Winstein family and others, to honor the memory of Saul Winstein, another renowned professor in the department who had a close relationship with Cram.

Department Chair Bill Gelbart described the two men, "They were both very intense; they lived for their research. The two of them focused the world's attention on UCLA, and the fact that they were in their primes over the same decades made for quite a one-two punch. Organic chemistry was surely what first put the UCLA department on the map."

The Cram Chair will be used to recruit a prominent new senior faculty member in organic chemistry. Gelbart explained that endowed chairs offer "something extra" for senior faculty.

"The payout on the endowment provides vital support that goes an especially long way because these supplemental funds are unrestricted," Gelbart said. "Distinguished scientists are also drawn by the prestige of coming to UCLA as one of the few chairholders in a department that has many outstanding senior members."

In turn, the presence of these stellar figures draws excellent graduate students and younger faculty who



A chemist in the College for more than 50 years, Nobel Prize winner Donald Cram (shown here demonstrating host-guest chemistry to his graduate students in 1991) created an endowment to support his department's faculty recruitment.

want to work with world-renowned scientists.

“One of the benefits of bringing in someone who already has a high profile is that because people already know about them all over the country and the world, it’s more likely that young people will want to do their graduate work or take an assistant professorship here,” Gelbart said. “They know this is a

department where there are very visible, creative, and active people.”


In recognition of Donald Cram’s monumental contributions to organic chemistry and to UCLA, the Department of Chemistry and Biochemistry has begun a new series of scientific debates in his name.

The Cram Debates, which will be held annually and which are open to the public, will include UCLA faculty members as well as other eminent scientists and will focus attention on exciting, controversial subjects in science.

The first Cram Debate, titled “Can There Be a Molecular Computer-Based Technology?” was held September 22, and featured Professor James Heath of Caltech on the “pro” side and

Ed Chandross of Materials Chemistry LLC on the “con” side. The debate followed a day-long symposium sponsored by the California NanoSystems Institute, a joint project of UCLA and UC Santa Barbara.

Don Cram would have enjoyed these debates. For him, scientific research was the most stimulating of pursuits. In a speech he gave later in his life about creativity and motivation, he finished by stating, “I personally can think of no other profession or activity in which I could have invested my life and obtained a more satisfying return than has been realized.”

The D.J. and J.M. Cram Endowed Chair in Organic Chemistry and the Cram Debates will ensure that others have the opportunity, for generations to come, to experience the excitement that Donald Cram felt about scientific research. 

“The payout on the endowment provides vital support that goes an especially long way because these supplemental funds are unrestricted. Distinguished scientists are also drawn by the prestige of coming to UCLA as one of the few chairholders in a department that has many outstanding senior members.”

Albert Family Research Fund Gives the Department of Economics a Competitive Edge

A first-of-its-kind endowment helps attract top scholars to a premier College department.

Kevin Albert’s feelings for UCLA could be described as “love at first sight.”

Originally from a suburb of Milwaukee, Albert began his undergraduate education at the University of Wisconsin, but didn’t like it there. “It was too close to home,” he said.

“After my first year of college, I took one of those classic road trips in a ’60 Ford Falcon with a bunch of buddies, and came out to California for the first time.” He had cousins here who took him sightseeing, including a visit to UCLA. “I just loved it,” he said. Later, as a student on the Westwood campus, he moved in with some high school friends in Santa Monica. “I got a motorcycle, and I never looked back.”

Albert, who received his B.A. in economics from UCLA in 1974 and his M.B.A. in 1978, says his experiences here were invaluable to his future life and his career as an investment banker for Merrill Lynch in New York. In fact, he views his years at UCLA as one of two key experiences in his life—the other being meeting his wife, Mary. “I wasn’t really motivated before college, but at UCLA things started to click. As an undergraduate I learned basic skills like research, and articulating verbally or in writing, and I learned how to go about getting things done.”

Albert’s affection for UCLA has led to his generous support of the Department of Economics. Albert says it’s been easy for him to focus his philanthropy on UCLA. He explained that most of his giving is related to education.

“I do that because...well, I can’t help people find wives,” he laughed. “But I can, in my own way, help give people opportunities to get a better education.”

Recently, when Albert decided to make a new gift to the department, he asked what would have the greatest impact. Economics Chair V. Joseph Hotz responded unequivocally that the department needed resources to help attract faculty.

The result was the Albert Family Research Fund, an endowment totaling \$500,000. Income from the endowment—the first gift of its kind in the Department of Economics—will provide research funds to

help the department attract faculty who are exceptional scholars and researchers in their field. Outstanding faculty can significantly strengthen a department and enhance its reputation, attracting top graduate students and young assistant professors who are eager to work with prominent senior scholars.



Kevin Albert (left) with Economics Chair V. Joseph Hotz.

Hotz explained, “The market for top-flight economics faculty is a highly competitive one, which makes it a real challenge to recruit the very best economists to UCLA and keep them here. Having resources like the Albert Family Research Fund is essential for us to meet this challenge. We’re extremely pleased and truly appreciative of the gift from Kevin Albert and his family, and for his continuing support of our department and UCLA.”

Albert also is a member of the new Economics Board of Visitors. He explained that he wants to get as involved as he can.

“There are things I can do other than provide money. I’d like to help the department widen its network and generate more outside interest in supporting the very good work that’s going on there.”

Harold Mortenson Establishes Undergraduate Scholarships

A College alumnus creates two charitable gift annuities to provide scholarships for outstanding undergraduates.

Charitable giving comes naturally to Harold Mortenson, who for many years has been involved in organizations such as the Shriner’s Hospitals for Children. When he decided that he wanted to help his alma mater, he created two charitable gift annuities, which will form the Harold R. Mortenson Endowed Scholarship Fund after his lifetime, to support outstanding undergraduate students in the UCLA College.

A charitable gift annuity provides the donor with guaranteed income for life as well as an immediate income tax charitable deduction.

In 1940, Mortenson started university life as a business economics major. In those days, he recalls, UCLA was a very different place. War-related shortages and rationing dominated everyday life. Extra-curricular activities were scarce; once America entered World War II, Mortenson said, “So many young men had been drafted overseas that several fraternities, including Theta Chi where I had pledged, shut down completely.”

Because the College of Business Administration was short of instructors, Mortenson’s stellar academic record led to his appointment to teach accounting labs during his senior year. Despite gas rationing, he managed to continue commuting from his parents’ house

in Sherman Oaks, eventually graduating summa cum laude and Phi Beta Kappa.

Noting Mortenson’s success in the classroom, some colleagues tried to persuade him to switch to a teaching career, but he had always been fascinated by accounting, especially in the retail business. “With retail accounting, there is more opportunity for manipulation and variations. I’m a born auditor—I have an inquiring mind and I enjoy playing detective.”

Mortenson’s first auditing job with the CPA firm Haskins and Sells was at the Eastern Columbia department store in downtown Los Angeles, where he spotted financial irregularities that led to the firing of a greedy credit manager. Mortenson was

well on his way to a distinguished accounting career that would span four decades.

Mortenson’s generous philanthropy has paved the way for other alumni and friends in Hawaii to establish charitable gift annuities to benefit UCLA.

“I have such fond memories of UCLA that it makes sense for me to give in this way. It is more natural for me to give than to receive, and I get immense satisfaction from giving to others.”

“A charitable gift annuity provides the donor with guaranteed income for life as well as an immediate income tax charitable deduction.”

For information about supporting the UCLA College, call Tracie Christensen, executive director of development (310) 206-0669

Campaign UCLA: Moving Ahead in Support of the College's Faculty, Students, and Facilities

By Judith Forman

With UCLA's excellence being challenged by the state's ongoing fiscal problems, and the prospects of more cuts to the UC system likely during the next fiscal year, private support has become increasingly important to the university. Through Campaign UCLA, the university's many dedicated alumni and friends are providing critical funds that are helping to ensure UCLA's success by strengthening programs and creating financial support for the student population.

Of particular significance in the overall campaign goal of \$2.4 billion is the \$315 million goal for the UCLA College—the largest academic unit in the University of California system, and the focal point of teaching and research in the liberal arts tradition at UCLA since the College was established in 1923.

Under the exemplary leadership of former Provost Brian Copenhaver, in partnership with former College Campaign Cabinet Chair Richard Bergman, the College raised an impressive \$222 million as of September 30, 2003—nearly six times the amount raised in the previous campaign. Now, with the involvement of acting executive dean Judith L. Smith, the College is working to garner additional funding—in particular for three critical areas: endowments for faculty support, graduate student fellowships, and new buildings.

Campaign UCLA leadership gifts are creating strong benefits for education and research in these key spheres. Here are examples in the College:

Faculty Endowments

John McTague, a renowned professor of materials at UC Santa Barbara and former faculty member at UCLA, endowed two faculty development chairs in the Department of Chemistry and Biochemistry to support the research of promising young professors.

The John McTague Career Development Chair brought to the College a gifted young scientist, Thomas G. Mason, a pioneer in the new field of microrheology. The other chair, the Harold Reiss Career Development Chair, is held by talented organic chemist Heather Maynard.

More endowed chairs like these are needed to help the College attract and retain outstanding faculty, who significantly strengthen departments and enhance their reputations.

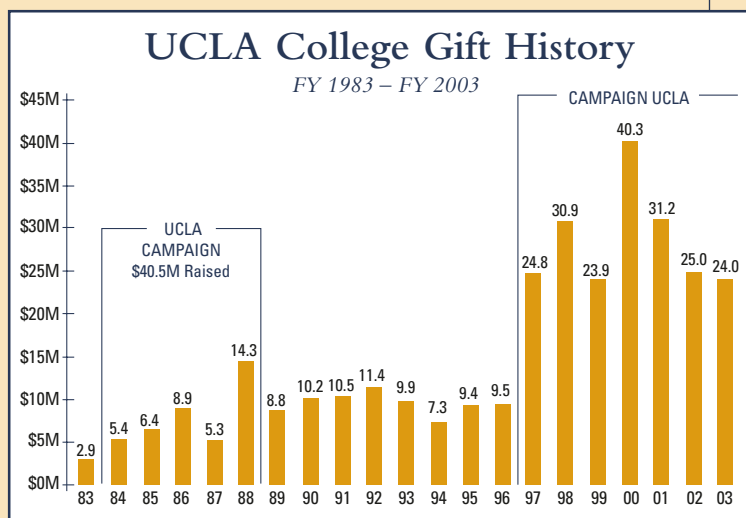
Graduate Student Fellowships

Guided by gifted faculty members, successive generations of graduate students have helped UCLA achieve its position as one of the world's premier research universities.

As the chair of the English Department, Professor Tom

Wortham understands the importance of attracting superior graduate students to UCLA. Several months ago, Wortham established the George Chavez Endowed Graduate Fellowship in his department, named in honor of his late partner.

Endowed graduate fellowships such as the one funded by Wortham can give the College a competitive edge in bringing the most promising graduate students to UCLA. Such awards bring honor to the recipients, providing them with both financial assistance and substantial encouragement.



New Buildings

Thanks to a generous gift from the La Kretz Family Foundation, UCLA's new La Kretz Hall is currently under construction next to the university's Life Sciences building.

This state-of-the-art facility will provide much-needed additional lecture and classroom space for life sciences faculty and students, as well as a home for UCLA's innovative Institute of the Environment.

Modern physical resources such as La Kretz Hall are critical to the College's ability to maintain the high quality of its renowned programs.

Private funding has become increasingly important to the advancement of teaching and research in the UCLA College. Additional endowed support for faculty chairs, graduate fellowships, and physical resources will help keep the College at the forefront of higher education for generations to come. Thanks to the dedication and commitment of alumni, faculty, volunteers, and friends, the College is moving steadily toward achievement of its Campaign UCLA goal.



Construction crews work on the Physics and Astronomy Building, a 120,000-square-foot project for the UCLA College that will create a unique venue for science research and teaching when completed in Spring 2004. For more on the latest building project for the UCLA College, see page two.

UCLA COLLEGE

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