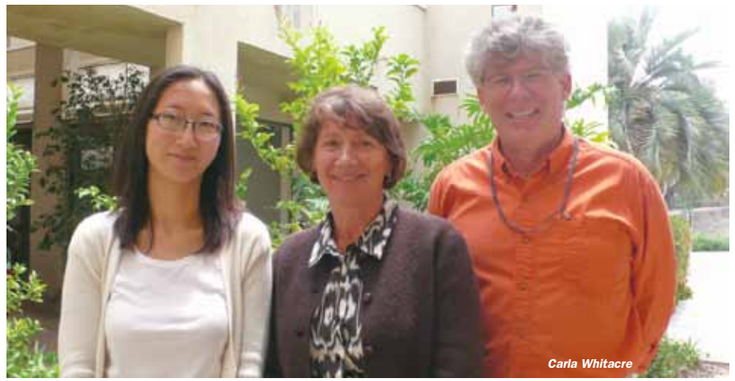

Brian Peoples

Ricardo Alamillo did research one summer at La Universidad de Chile in Santiago, Chile, in the chemical engineering and biotechnology department. His research focused on synthesizing copper-based, silica-based, and double-layered nanospheres. The program is sponsored by the UCSB Materials Research Lab through the Cooperative International Science and Engineering Internship program.

10 great things undergraduate research at UCSB can provide

1. **The opportunity to help create new knowledge.**
2. **Learning experiences beyond class work (and a valuable background for future educators).**
3. **New insights as you participate in cutting-edge research.**
4. **The inherent pleasure of learning about investigation and discovery.**
5. **Teamwork in a close-knit, interdisciplinary community.**
6. **Improved oral and written communication.**
7. **A chance to find out what it's really like to work in different areas.**
8. **Marketable skills: time management, critical thinking, problem solving, specialized training, leadership.**
9. **A network of faculty and graduate students who can help open doors to future opportunities.**
10. **A competitive advantage in your studies and career.**


Carla Whitacre

Excellence in Mentoring: Undergraduates are fortunate to have the mentoring support of hundreds of faculty, graduate students and postdoctoral students. UCSB acknowledges this important role with two annual $500 recognition awards for excellence in mentoring and ten $1,000 scholarships for graduate students who mentor undergraduate interns in summer laboratory research projects. This support exists in large part because of Dr. Fiona Goodchild, center, who received a presidential mentoring award administered by the National Science Foundation in 2002. The 2009 Goodchild recognition award winners are Jung-Eun Janie Lee, left, a Ph.D. candidate in linguistics, and Andrew Stull, now a postdoctoral scholar in psychology.

We're here to help you!

To find out more about undergraduate research, get in touch with your departmental adviser, your professors—or any of the people listed below.

CALIFORNIA NANOSYSTEMS INSTITUTE (CNSI) www.cnsi.ucsb.edu

- **M. Ofelia Aguirre,** Education Programs Development, California NanoSystems Institute, 1207 Elings Hall, 805-893-7472, aguirre@cnsi.ucsb.edu

COLLEGE OF CREATIVE STUDIES www.ccs.ucsb.edu

(Offering a research-intensive curriculum in eight fields)

- **Leslie Campbell,** Senior Academic Advisor and Admissions Counselor, 104 Building 494, 805-893-5319, leslie.campbell@ccs.ucsb.edu
- **Christopher Wilderman,** Academic Advisor, 104 Building 494, 805-893-4146, christopher.wilderman@ccs.ucsb.edu

COLLEGE OF LETTERS AND SCIENCE www.ltsc.ucsb.edu

- **Nan Anderson,** Coordinator, Undergraduate Research and Creative Activities, 1117 Cheadle Hall, 805-893-2319, urca@ltsc.ucsb.edu, www.ltsc.ucsb.edu/urca. URCA offers a list of faculty research interests in its Faculty Research Assistance Program directory: http://www.ltsc.ucsb.edu/urca/frap.php

COLLEGE OF ENGINEERING www.ltsc.ucsb.edu

- Office of Undergraduate Studies: **Tacy Costanzo,** Student Affairs Liaison, 1001 Frank Hall, 805-893-6139, tacy@engineering.ucsb.edu
- **Dotti Pak,** Director of Education Programs, including California Alliance for Minority Participation (CAMP) and Cooperative International Science and Engineering Internships (CISEI), Materials Research Laboratory, 2061 MRL, 805-893-5314, pak@mrl.ucsb.eduu
- **Angela Berenstein,** Nanotechnology Education Programs Coordinator, Department of Electrical and Computer Engineering, 2205E Engineering Science Building, 805-893-5999, berenstein@ece.ucsb.edu

BREN SCHOOL OF ENVIRONMENTAL SCIENCE AND MANAGEMENT www.bren.ucsb.edu

- **Laura Haston,** Assistant Dean, 805-893-6115, laura@bren.ucsb.edu

GEVIRTZ GRADUATE SCHOOL OF EDUCATION www.education.ucsb.edu

- **Heather Philips,** Research Office Coordinator, 4119 The Education Building, 805-893-5922, heather@education.ucsb.edu
- **Kelly Hayton,** Research Office Assistant, 4117 The Education Building, 805-893-5922, kelly@education.ucsb.edu

GRADUATE DIVISION www.graddiv.ucsb.edu

*(Offering **UC LEADS** for juniors and seniors in science, engineering, and mathematics.)*

- **M. Ofelia Aguirre,** UC LEADS and Education Programs Manager, California NanoSystems Institute, 1207 Elings Hall, 805-893-7472, aguirre@cnsi.ucsb.edu

OFFICE OF RESEARCH www.research.ucsb.edu

- **Carla Whitacre,** Director of Research Development, 3227 Cheadle Hall, 805-893-3925, whitacre@research.ucsb.edu

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*Aquatic biology major **Christina Tanner,** whose Worster award funded her research in South Africa.*


Chad Burt

Undergraduate Research... the *Other Half* of a Great Education!

"Careers today require continual, lifelong learning. Few experiences better prepare students for this process than participation in research early in their education."

—Herbert Kroemer, Winner, 2000 Nobel Prize for Physics; UCSB Professor of Electrical and Computer Engineering and of Materials

http://research.ucsb.edu/undergrad

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

You chose to be educated at a world-class research university!

- UCSB is one of only 62 research-intensive institutions elected to membership in the prestigious Association of American Universities, representing the **top 1.5 percent of all universities** and colleges.
- UCSB's renowned faculty includes **five winners of Nobel Prizes for landmark research** in chemistry, physics, and economics, and scores of elected members of national and international academies and societies.
- UCSB has **nearly 100 research units, centers, and institutes.** Thirteen of these are national centers, including seven that are sponsored by the National Science Foundation—an important indicator of research quality. Nearly all are interdisciplinary and provide opportunities for undergraduates to be involved in research. Imagine yourself conducting research in these areas (which represent only a tiny sample of what is available):
  - Chemical design of materials
  - Digital multimedia
  - Middle East studies
  - Marine and coastal research
  - Seismology
  - Neurodegenerative diseases
  - Human development
  - Theoretical and experimental physics
  - Sensors
  - Implications of new technologies
  - Ethnic studies
  - Film and new media
  - Energy efficiency
  - Immersive virtual environments
  - Systems biology
  - Globalization and internationalization
  - Next-generation computers
- *U.S. News and World Report's* guide, "America's Best Colleges," the most widely read college guide in the country, **ranks UCSB number 11** among all public universities.
- UCSB has been named one of the **nation's "hottest" colleges** by *Newsweek* magazine's popular guide to top colleges.

Alice Alldredge

Cover: Sammy Davis discovered a love of aquatic biology while on a research tour with Russell Schmitt, director of the Coastal Research Center at UCSB's Marine Science Institute and professor of Ecology, Evolution and Marine Biology. Schmitt's team, which includes Professor Sally Holbrook, vice chair of EEMB, spent the summer on the tiny island of Moorea, in French Polynesia, testing how coral growth is affected by changing ocean conditions.

Cover photos by Nicole Price and Gretchen Hofmann

Zia Isola

UC LEADS: UCSB Chancellor Henry Yang and UC Berkeley's Dr. Caroline Kane cheer for the 2008 class of UC LEADS Scholars during the group's symposium. UC LEADS (Leadership Excellence through Advanced Degrees) is an enrichment program for juniors and seniors in science, technology, engineering, and mathematics. Over two years, UC LEADS Scholars participate in activities designed to strengthen their academic, research, and leadership skills.

What other students say

"All my undergraduate research has taught me to think outside the box."

— Eileen Becker, *Chemistry*

Although Eileen Becker doesn't plan to join a forensic evidence team anytime soon, the résumé she's assembling could be a deal-maker later on. A chemistry major, Eileen joined the lab of earth science Professor David Valentine the summer before her junior year and tested ocean water samples to determine the breakdown of organic acids. The following summer, she went on a two-week research cruise with Valentine's group aboard the Atlantis, a Navy-owned vessel equipped with four main labs, including a wet lab, and a three-person submersible called the Alvin. Eileen's chief project involved science on demand: "Whenever Alvin surfaced with new samples (cores from the ocean floor that were sectioned and compressed to release water), we had to run all of our tests right away; otherwise, the samples would react with the air," she explains. She tested water from locations up and down the West coast. "When I first began, I couldn't have thought of an idea for a project of my own," Eileen says. "But now I'm more than ready to do that."

David Valentine

Marcia Meier

"I just love analyzing people, finding out why people do what they do."

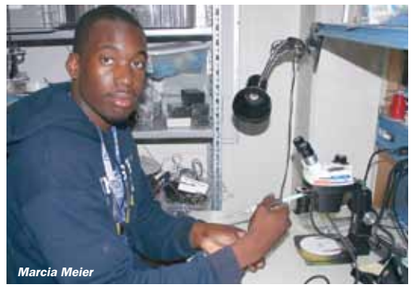
— Audra Kosh, *Anthropology & Mathematics*

Audra Kosh loves math and people–as in studying people. A cultural anthropology and math major, Audra's research projects in both subjects were highlighted at the 2009 Undergraduate Research Colloquium. Since coming to UCSB, Audra has initiated or participated in five major studies. Her anthropology project in her junior year looked at how people choose mates based on religiosity. Audra also designed and conducted experiments on self-assessment and mate selection; cooperation in problem solving; and a campus religious organization, studying how it uses social events to build bonds with students and evangelize. Her latest project is another study of the anthropology of religion, following the work of an international missions group over the summer. Audra hopes to attend graduate school in cultural anthropology on the East Coast, where she wants to focus on the areas of childhood and parenting. Her UCSB research experiences will help make that possible.

"I want to start teaching people about science early. That's the only way to get them past the fear of something being too hard."

— Kenechukwu "Kenny" Akametalu, *Electrical Engineering*

Electrical engineering major Kenechukwu "Kenny" Akametalu jumped headfirst into undergraduate research, getting involved in the second half of his freshman year with a project called "Thermoelectric Semiconductors." Working in the lab of electrical and computer engineering Professor Christopher Palmstrom, Kenny tested various substances for their electrical conductivity to see how easily current passed through them and generated voltage. His research experience as a freshman was facilitated by the California NanoSystems Institute at UCSB. Kenny saw fliers announcing undergrad research opportunities when he arrived on campus and wanted to see if he'd like research. Kenny says he has always been drawn to science and knew he wanted to do something with engineering. His favorite teacher in middle school got him excited about science. That's why he's interested in teaching. "Kids have to be hooked early," Kenny says. "You have to show them the cool phenomena and get them interested."



Marcia Meier

"Being in a lab, finding some success, really helps you see what research is all about."

— Peter Ramirez, *Molecular Biology*

Undergraduate research internships in academia and with industry helped Peter Ramirez win a full ride as a Ph.D. candidate in molecular biology at the University of Utah after he graduated from UCSB. Peter began his undergraduate research career in chemistry and biochemistry as a second-semester freshman, working on self-assembly of nanostructures from amphiphilic comb polymers. Peter also completed summer programs before his freshman year with Expanding Pathways to Science, Engineering and Mathematics (EPSEM) and the Summer Institute in Mathematics and Science (SIMS), hosted by the California NanoSystems Institute at UCSB. Internships with industry added to his experience. The summer after his sophomore year, he got a research position with Genentech in San Francisco through a campus organization, the Society for the Advancement of Chicano and Native American Scientists (SACNAS). Then, in his junior and senior years, Peter did an internship with Dako, an immunological staining company. Undergraduate research gave him the experience and the confidence to go on to grad school, he says.

Marcia Meier

Marcia Meier

Helping Latina moms and daughters communicate: Education Professor Laura Romo's "Growing Together" program through Santa Barbara Girls Inc. reaches out to Latina moms and daughters to teach them how to communicate about sexuality. Funded with a grant from the William T. Grant Foundation, the project engages both graduate and undergraduate researchers. Magali Bravo, second from left, became involved as an undergraduate and was inspired to continue as a graduate student. With Magali and Dr. Romo, second from right, are graduate students Rebeca Mireles, left, and Elena Cruz, right.

How to get started

(Motivation is the key!)

1. **Think** about the subjects that truly interest you and that you'd like to explore.
2. **Decide** what you could gain from working on a project—such as simply learning more about a field of study, being better prepared for a future career, and working closely with faculty and graduate students who can offer professional guidance and mentoring.
3. **Check out** UCSB web pages to identify researchers working on projects that interest you; you might want to sit in on an upper-division lecture to get a sense of a subject's scope.
4. **Tell your professor** of your interest after class or during office hours.
5. **Contact** the individuals listed on the back of this brochure—or the academic adviser in your major—for more information. (And don't limit your thinking to just one discipline! Many UCSB researchers work in at least two fields; think about all the possibilities.)