UC DAVIS
BIOLOGICAL SCIENCES
News from the College of Biological Sciences
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UC Davis Biological Sciences is a periodic publication of the College of Biological Sciences to inform alumni and parents of current students about the programs and activities at the College. We welcome contributions from both graduate and undergraduate alumni. Please send us your news at http://biosci.ucdavis.edu/alumni/.

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New Dimensions of the Flu

Molecular biologists see viruses in 3D

Remember seeing your first 3D movie? Buildings towered overhead and monsters popped off the screen. You felt right in the middle of the action.

That's just a hint of the excitement shared by molecular biologists at UC Davis who, for the first time, are seeing three-dimensional images of the flu, HIV and other viruses, leading them to rethink how certain viruses escape from cells and, in the case of the flu, mutate into new flu strains each year.

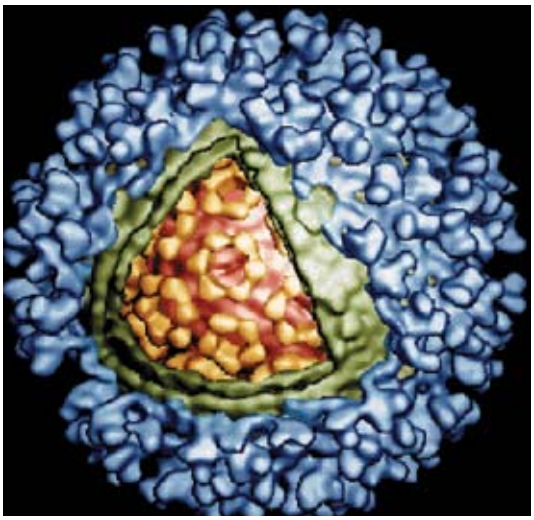
New techniques called cryoelectron microscopy are enabling **R. Holland Cheng**, professor of molecular and cellular biology, and fellow researchers, including **Ruben Diaz-Avalos**, to construct 3D images of viruses in their host environments. The images can be rotated and viewed from multiple angles, revealing new information about how the virus genome is packaged.

"To see [these images] is very exciting. It's very different from what I had imagined before," said Cheng, who worked at the Karolinska Institute in Sweden before joining UC Davis in 2004.

The new images give researchers novel understanding of the structure of viruses and may lead to new ideas for vaccines or treatments that interfere with packaging of the virus genome before it escapes from the host cell.

Rethinking the Flu

The flu virus carries its genes in eight segments of RNA and proteins. Before leaving the host cell, the virus must assemble the right pieces and package them into a complete virus. Scientists think that shuffling these segments allows flu viruses to vary from year to year, producing new infectious strains.



A fascinating property of viruses is that their structural proteins have the capacity to function both in assembly and in disassembly. Using cryoelectron microscopy, Cheng's lab has unveiled the 3D configuration of viral membrane proteins (blue, with particle diameter of 70nm), configured with the cellular lipid bilayer (green), to wrap the RNA genome (red) underneath the capsid proteins (orange).

Cheng and research collaborators from Japan, Sweden and the U.S. found that the eight genetic segments are organized into a precise pattern, with seven segments surrounding a central one, before the virus particle wraps itself in an outer membrane and buds out of the cell.

Prior theory was that the flu virus developed in random order, reported Cheng. "It was thought that viral RNA packaging often fails, but this is not true," he said. The research team published their findings on the structure of the flu virus in the January 26 issue of *Nature*.

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...Flu

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Starting Cold

At the heart of these discoveries are new techniques called cryoelectron microscopy. In conventional electron microscopy, samples are "fixed" with heavy metals that deflect electrons, providing the image contrast. However, this technique allows only the surface to be imaged, said Cheng. Cryoelectron microscopy involves rapidly freezing the viral structures at extremely low temperatures with liquid nitrogen or helium. Researchers then take pictures from multiple angles and use computers to reconstruct 3-D images that include information about protein structure and the host environment.

"Cryoelectron microscopy is an essential tool to see protein complexes and macromolecules in the native cell," according to Cheng, whose lab is one of only a handful in the world to house this technology.

UC Davis is home to three electron microscopes and is adding a fourth, more powerful machine. The equipment is in use 24/7 by researchers in the College of Biological Sciences and the College of Engineering. Research collaborators at UC Davis include the Cancer Center, Alzheimer's Disease Center and Biophotonics Center. Additional collaborators include Lawrence Livermore National Laboratory and certain biotechnology companies.

Cheng's lab is currently working with Chiron to develop a better antigen for HIV and he is working with the UC Davis Cancer Center to determine how viruses penetrate the cell environment through protein organization to cause cancer. Cryoelectron microscopy lets them look deeper into the cell to find the "glue" that bundles together the genome segments of a virus.

Cheng also serves on the Scientific Advisory Committee of the International Microscopy Congress, which works toward the advancement of instrumentation development. "The maturation of [electron microscopy] is happening right here at UC Davis," he said.

Kari Fish and Andy Fell contributed to this article.

Professor mixes sciences with goal of bringing lectures to life

With a rustle, 300 pages flip in unison and then fall quiet. Pens scratch to the sound of the voice at the front of the lecture hall. Oliver Fiehn, associate professor of molecular and cellular biology and member of the UC Davis Genome Center, flashes his laser pointer on the screen showing how the molecular structure of Vitamin D changes through metabolism.

The challenge, he says, is bringing each lecture to life for his students. Every time he stands before this crowd, he tries to answer one question: "How does this lecture relate to current research?"

Oliver Fiehn, whose lab is located in the Genome and Biomedical Sciences Facility, joined the UC Davis faculty in 2004.

Students today are infused with an understanding of biology as a linear hierarchy from genes to proteins to metabolites, according to Fiehn. His goal is to break through that rigid model to help students see, for example, that hormones are triggers that act upon genes and that genetic expression is a product of a number of biological and environmental variables.

Fiehn describes himself as a mixture of a biologist, chemist and computational scientist. A specialist in plant metabolism, over the past two years he has migrated to diabetes research, and is currently producing a paper on bioinformatics. To Fiehn, his path is not incongruous. In order to understand complex organisms, he says, we need to understand simple organisms. And to do that, we need to understand analytical and computational techniques and methods.

In other words, Fiehn breaks open the box to see all the working parts and then he puts it back together again, bolstered with a confidence that comes from understanding hidden dimensions.

"Most of my time," says Fiehn, "is spent in front of a computer screen, because that's where the discovery occurs."

The computational aspects of metabolic research are not standard textbook material in Fiehn's Bioenergetics and Metabolism (BIS 103) course, however. So he's added a special unit on analytical chemistry, covering instrumentation and data resolution, among other topics.

"Students need to know how to do this," says Fiehn. "They need to understand the very instruments used in analysis [of biological samples],

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...Fiehn

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from microarrays to imaging. They need to understand data resolution and biological variability. It's not just a question of whether the black spot is there or not."

Before joining the faculty of UC Davis in the fall of 2004, Fiehn was Group Leader of metabolic analysis in the department of plant molecular physiology at the Max-Planck Institute in Potsdam, Germany.

His lab is now located in the Genome and Biomedical Sciences Facility where he grows *Chlamydomonas reinhardtii*, unicellular green algae atypical in metabolic studies. Consistent with his approach of deciphering the most basic in order to understand the complex, Fiehn uses the simple organism to unravel complex questions about metabolism. Through a variety of mass spectrometric techniques, he expects to be able to extrapolate technical and methodological insights from these experiments that will inform his next big project: studying environmental impacts on rat lung development.

While Fiehn is analyzing data and developing new techniques and methods to better understand metabolism, his students can expect to be drawn beyond the textbook to learn about new discoveries—right from the lab.

Message from Interim Dean Ken Burtis

Thirty years ago, I walked the corridors of Briggs Hall as an undergraduate. My major was Biochemistry and Biophysics and my fellow students in the biological sciences were enrolled in majors such as Botany, Zoology, Bacteriology, Genetics, and Animal Physiology.

The biological disciplines have changed dramatically in the 30 years since I walked across Toomey Field to collect my diploma and so has the academic landscape of our campus. Biochemistry and Biophysics is now merged with Genetics into the Section of Molecular and Cellular Biology. Zoology has become Evolution and Ecology, Botany is now Plant Biology, Bacteriology is Microbiology, and Animal Physiology is now Neurobiology, Physiology and Behavior. Even the College has a new name—the College of Biological Sciences.

Though names have evolved, the college's mission has not. The faculty, who are the heart and soul of the college, continue on in their mission of introducing successive generations of students to the wonders of biology. Like many of you, I had the transforming experience of doing undergraduate research in a faculty member's lab. I was fortunate to work in Briggs Hall with Professor **Roy Doi**, who continues to teach and carry on his research, now in the Life Sciences building. Many of the great faculty from whom you and I took courses are still teaching and mentoring students in our nine majors, and have been joined by many other talented faculty hired over the last three decades.

If you haven't visited in a while, you might be surprised by some of the changes around here—changes that go beyond the naming of things. New teaching and research buildings, most recently the Sciences Laboratory Building and the Genome and Biomedical Sciences Facility, are now integral to our faculty's success as educators and researchers.

No matter when you graduated and which of the biological sciences you studied, the College of Biological Sciences is your college. We embrace you and welcome you to share in our successes and to be part of our future. Become familiar with us, renew your ties, join us for campus events and college celebrations.

One opportunity will be Picnic Day, which is just around the corner on April 22nd. I will be at the College of Biological Sciences Pavilion in front of the Sciences Laboratory Building from 11 a.m. to 1 p.m. It would be great to meet you and to welcome you as a fellow alumnus of the new College of Biological Sciences.

Leading Biologists Featured in Storer Series

The Storer Life Sciences Lecture Series at UC Davis brings some of today's most prominent scientific researchers to campus for interaction with faculty and students and for public lectures on their groundbreaking research. This winter, the series included UC San Francisco professor of biochemistry and biophysics **Cynthia Kenyon** and Yale University professor of cell biology **Tom Pollard**, both members of the National Academy of Sciences.

Genetic Fountain of Youth

Not long ago, conventional thinking was that living bodies simply wear out over time; aging was viewed as an inevitable product of living. Then in 1993, Cynthia Kenyon discovered that a single-gene mutation could double the lifespan of the small nematode worm *C. elegans*. Her discovery sparked intense new interest in the study of the molecular biology of aging.

In lectures on January 24 and 25, Kenyon discussed her discoveries of the life span regulation mechanisms in the nematode, and the offspring of these discoveries, relating the hormonal life span regulators in the nematode to the human insulin and IGF-1 receptors. Her findings have led to the discovery that insulin/IGF-1 signaling controls aging in other organisms as well, including mammals.

Cellular Mathematics

Recent discoveries in cell biology have led to important new understanding of disease and health. Tom Pollard is at the forefront of such research, incorporating a range of disciplines from biochemistry and molecular biology to sophisticated microscopy and mathematical modeling. His lab is credited with pioneering research on the molecular mechanisms of important cell behaviors, most notably cell motility and cell division. Defects in the cell division process contribute to uncontrolled cell proliferation that is characteristic of cancer.

On March 14 and 15, Pollard discussed his discoveries related to intracellular organelle movements and the development of a series of differential equations that describe actin-myosin assembly and dynamics.

Kudos

Shaffer Honored by Academic Senate


Brad Shaffer

The UC Davis Academic Senate has selected **Brad Shaffer**, professor of evolution and ecology, to receive the **2006 Distinguished Scholarly Public Service Award**. The annual honor recognizes significant contributions to the world, nation, state and community through distinguished scholarly public service.

As an evolutionary biologist focused on reptiles and other amphibians, Shaffer and his lab apply the tools of molecular biology to fill in missing data in the "tree of life" and to understand the geographic dispersion of particular species. They have also done extensive work on the genetic and landscape ecology of the California tiger salamander (*Ambystoma californiense*), working with federal and state agencies.

Locally, Shaffer has tackled projects that address the biodiversity of urban landscapes, including a study conducted at the toad pond on Second Street and this summer, a study in the UC Davis Arboretum. Due to their close proximity, both of these projects are opportunities to engage undergraduate students in research, said Shaffer.

Burtis and Keene Recognized by National Academies

The National Academies have bestowed the title of **Education Fellow in the Life Sciences** to 42 educators specially prepared to foster innovative approaches to teaching undergraduate biology. Among those honored were interim dean and professor of genetics **Ken Burtis** and evolution and ecology lecturer **Susan Keen**.

Burtis and Keene successfully competed for slots in the highly competitive National Academies' 2005 summer institute based on their ideas for enhancing undergraduate biology education and a commitment expressed by UC Davis to support teaching innovations.

A total of 19 research-intensive colleges and universities were represented at a summer institute, which focused on how to improve large introductory biology courses. Participants collaborated on development of curriculum packages on specific topics and discussed how to encourage adoption of new teaching practices, how to engage nonbiology majors and increase student participation in large lectures, and how to properly assess student learning.

On the Scent Trail

Tracking Malaria Mosquitoes' Sense of Smell

Malaria has had a persistent and devastating effect on human populations in sub-Saharan Africa, due in part to a particular mosquito, *Anopheles gambiae*. A team of researchers at UC Davis is sniffing out new clues on how the pest finds its prey.

Insects smell through their antennae. When airborne scent molecules enter the antennae, they are picked up by specialized odorant-binding proteins and carried to sensory cells where they are released, said **Walter Leal**, professor of entomology at UC Davis. The mosquito can then track the location of its next blood meal or find a waterhole for laying eggs.

Working with one such odorant-binding protein identified by Leal's research group, AgamOPB1, associate professor **David Wilson** and graduate student **Mark Wogulis** of the Section of Molecular and Cellular Biology used X-ray technology to discern the protein structure. AgamOPB1 forms pairs, or dimers, with a single long "sausage-like" tunnel running through the middle, which holds the scent molecules.

"That shape is something we've not seen before in this class of proteins," Wilson said. Structures of a small number of other odorant-binding proteins are known—from bees, cockroaches and moths. All of these have a smaller pocket or fold to hold scent molecules.

The group also determined that the protein changes shape as its pH level drops, opening the tunnel and releasing the molecule it is carrying. Other known odorant-binding proteins show a similar pH-dependent mechanism, Leal said.

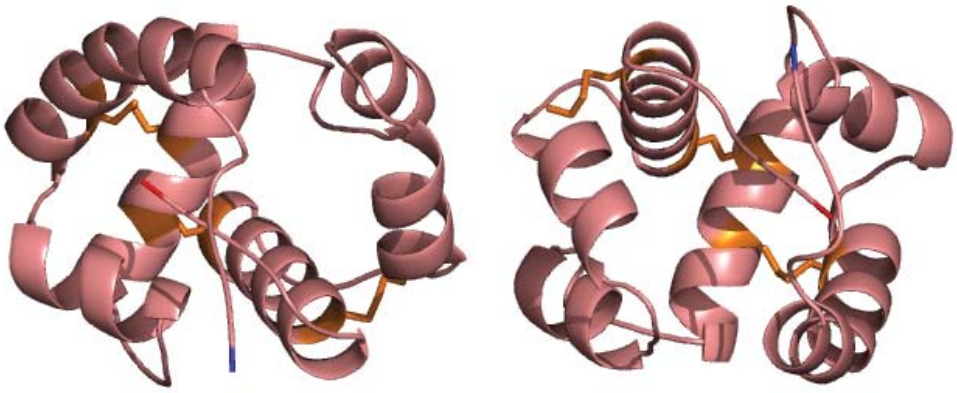
"Now we understand how mosquitoes smell a human meal," said Wilson. "We are not sure what the human odorant is, but based on the shape of the protein, we can guess what it looks like." The odorant molecule would need to fit inside the protein's tunnel.

While Wogulis and Wilson are involved in the basic research, impairment of the mosquito's sense of smell is a possible application down the road, according to Wilson.

Wogulis has a special interest in malaria, having served as a Peace Corps volunteer teaching science in Africa.

"Malaria season would come, and students would be absent" due to illness, he said. His hope is "to figure out some way to stop mosquitoes from infecting people."

The research is published in the Jan. 6 issue of *Biochemical and Biophysical Research Communications*.



Malaria-carrying mosquitoes hunt by smell. The crystal structure of this protein could give clues into how the insect's sense of smell works and might be defeated. (Graphic/Mark Wogulis)

How to Grow a Bigger Brain

Hatchery-reared steelhead trout show increased growth of some parts of the brain when small stones are scattered on the bottom of their tank, according to graduate student **Rebecca Kihslinger**. The brains of those young fish were closer to those of salmon reared in the wild, and the fish also behaved more like wild fish than to hatchery-reared fish.

"There's an obvious difference between the hatchery and the wild fish," said Kihslinger, who carried out the study with **Gabrielle Nevitt**, professor of neurobiology, physiology and behavior at UC Davis. "A simple change affected brain growth in a large-scale way."

Wild steelhead lay their eggs in gravel nests on the riverbed. After hatching, the fry, called alevins, stay among the gravel and live off their yolk sac until they emerge as free-swimming fry. In hatcheries, the fish are reared in tanks of clean, well-aerated water, but without environmental features or enrichment.

After hatching, steelhead fry, or alevins, carry a yolk sac and stay close to the gravel bottom.

Kihslinger reared steelhead in regular tanks and in tanks scattered with small stones. She videotaped the fish, and measured the size of their brains after 10 to 12 days, when the fish were emerging as free-swimming fry. She also studied fish reared in natural conditions in rivers.

Fish reared in both sets of tanks had brains of similar size, but the cerebellum, a part of the brain that controls movement and body position, was significantly larger in fish reared with stones. Those fish also moved around less, perhaps using their yolk reserves more efficiently.

Fish reared in the river had larger brains than either group of fish reared in tanks, but the relative size of the cerebellum compared to the rest of the brain was about the same as in fish reared in tanks with stones.

The results could affect the design of hatcheries for breeding fish to restock wild populations, Kihslinger said. The study is published in the February 2006 issue of the *Journal of Experimental Biology*.

Andy Fell and Kari Fish contributed to these articles.

In the News

Intelligent Science

Backed by illustrations of the rich diversity of life on Earth, Evolution and Ecology Chairwoman **Maureen Stanton** addressed a sold-out audience at the Sacramento Zoo on February 22. Her talk, titled "Why Do Organisms Appear Designed? The Truth Behind Intelligent Design," covered the history of scientific and social debate surrounding Charles Darwin's theory of evolution.

Maureen Stanton

Legitimate scientific debate about the validity of evolution is settled, according to Stanton, but the social debate rages on, spurred by school boards and court cases. She related this to the historical challenges to Nicolaus Copernicus' theory that our solar system is heliocentric. In both cases, the scientific debate was settled long before the social debate quieted.

Referring to the persistent efforts of some school boards around the country to replace the teaching of evolution with intelligent design, Stanton sounded a note of alarm. The harm, she said, is that "we are misleading students about what scientific inquiry really is." Specifically, scientists seek an unknown answer and are constrained by specific rules, including testing falsifiable hypotheses. Intelligent design, she says, uses available evidence to support a specific belief, and thus is not truly a scientific inquiry.

Stanton was the 2005 recipient of the UC Davis Prize for Undergraduate Teaching and Scholarly Achievement.

Nutritional Genomics

A consortium of 88 researchers from the U.S. and around the world, including 12 UC Davis scientists, is calling for an international effort to study how diet and genetics interact in health and disease. Stimulating international collaboration in nutritional genomics, or "nutrigenomics," could increase global health and wellness and reduce health disparities in both developed and developing countries, according to an article in a recent issue of the British Journal of Nutrition.

"Nutrigenomics is a multidisciplinary science, and the chances of finding all the skills you need in one lab are nil," said **Raymond Rodriguez**, professor of molecular and cellular biology and director of the Center of Excellence in Nutritional Genomics at UC Davis. "We really need to come together as an international team."

Nutrigenomics aims to resolve relationships between diet, genetics and disease. Diet is known to influence chronic diseases such as diabetes, cancer and heart disease, which also have hereditary or other genetic influences. But these links are not always clear, and individuals respond in different ways to changes in diet.

An early priority for international collaboration is to set up a nutritional genomics databank where researchers worldwide can file their results, Rodriguez said. Scientists could look for new patterns by sifting through the collected mass of data.

AGGIES RECEIVE SPECIAL MERIT AWARDS

Ask genetics majors **Kelechi Chikere** and **Geoffrey Lovely** what is key to their success and they both give the same answer: family values and a supportive lab team.


Senior Kelechi Chikere studied biophotonics

Chikere and Lovely were two of five UC Davis students to receive Special Merit Awards for their poster presentations at the 2006 California Alliance for Minority Participation (CAMP) Symposium held February 25 at UC Irvine. CAMP is an NSF-funded program to increase the number of B.S. degrees in science, technology, mathematics and engineering achieved by ethnically under-represented students.

Chikere is a San Francisco native and two-year undergraduate intern at the Center for Biophotonics Science and Technology (CBST). He plans to graduate this spring and has been working in the lab of **Clark Lagarias**, professor of molecular and cellular biology. His poster, titled "The Effects of Mutant Phytochromes on Light Dependent Pathways in *Arabidopsis thaliana*," presented research conducted as part of a larger set of work in the Lagarias lab.

"The Lagarias lab is big on teaching, giving you the tools you need to do the experiment yourself. I was able to do well at CAMP because I had this basis of understanding and was able to explain it to others," said Chikere. And as the oldest of four siblings, he aims to set a good example for his younger sisters by reaching high and doing well.


Second-year Geoffrey Lovely developed a phylogeny for turtles

Lovely was advised in his project by research associate **Phil Spinks** (B.S. '98, Evolution and Ecology; PhD, '04, Ecology) and professor of evolution and ecology **Brad Shaffer**.

Using a DNA sequence-based approach, Lovely developed a phylogeny (Tree of Life) to understand relations between species of turtles. "The judges liked that I was knowledgeable and passionate about my presentation," said the second-year student. "They were amazed that the project combined molecular and computer work. I had to learn 6 computer applications in the process of the study."

"Geoff is a really wonderful example of a passionate interested student who has taken advantage of one of the things we do best here – science research. And he does it because he loves it. That's what makes an undergraduate experience at UC Davis great," said Shaffer, who was awarded the 2006 Distinguished Scholarly Public Service Award from the UC Davis Academic Senate.

Lovely credits his success to his mom, who "stressed education and worked two jobs so I could focus on learning and pursuing my interests," and to the support received in the lab from Spinks and Shaffer. "Phil guided me all the way through and always made time for me. I'm telling him 'thank you' all the time for making this opportunity possible."

STAND-OUT ATHLETES REPRESENT BIOLOGICAL SCIENCES

With UC Davis' recent shift to D-I Athletics, *The California Aggie* made its top picks of outstanding student athletes for its "All-UC Davis Team" for fall and winter sports.

Senior **Patrick Jacobson**, the 2005 water polo team captain, has a career total of 178 goals and is tied for third place on the UC Davis all-time scoring list. He's achieved All-WWPA First-Team honors twice and is majoring in Biological Sciences.

Quincy Amarikwa, only 17 years old and already a key player on the men's soccer team, has blown away the team stats during his first season with the Aggies. The Biological Sciences major is tied for the most assists and leads in both shots and shots on goal.

This winter, the women's gymnastics team saw the rise of junior **Brandi Forte**, an Exercise Biology major. Forte achieved a career-high score of 9.850 on the uneven bars, which catapulted her to the top of the leader board in the Mountain Pacific Sports Federation.

Senior **Yuka Kobayashi**, captain of the women's swimming team, pushed into first place at the Big West Championship with an Aggie all-time record in the 200 butterfly. Kobayashi is a Neurobiology, Physiology and Behavior major.

Wrestler and Biochemistry and Molecular Biology major **Derek Moore** has a Pac-10 title and a 19-3 overall record this season. The junior is currently ranked eighth nationally in his weight class.

Kristen Commins, known for her aggressive defense, led the women's basketball team in the assists-to-turnover ratio this year, helping her earn the title, "Freshman of the Year." This Biochemistry and Molecular Biology major will likely be a starter on next year's team.

The College of Biological Sciences is proud to recognize these high-caliber student athletes who have maintained good academic standing while giving their all to their Aggie athletic teams.

ROY SAIGO ('62)

Bio Sci Grad Makes His Mark on Education

Roy Saigo (BA, Biological Sciences) always envisioned himself an educator. As an undergrad at UC Davis, he aspired to teaching high school biology. He was recruited to play football, lettered in baseball, and joined the Alpha Gamma Rho fraternity.

But before long, he became so engrossed in science that his career track veered, leading eventually to the presidency at St. Cloud State University in Minnesota.

Local Roots

Roy's childhood included three years of incarceration in Arizona during WWII. Following the war, his family settled in Elk Grove, but because of their Japanese descent, his family was prohibited from owning property. His father supported the family by working as a foreman on an orchard and dairy farm.

UC Davis was a natural choice for Saigo's undergraduate studies because of its proximity to his home, but its deeper value quickly became apparent.

"My UC Davis professors were great researchers, but they also took an interest in their students," said Saigo. "It was a great combination of humanity and intellectual pursuits."

He remembers several faculty members with special fondness, including **T. Elliot Weier**, **Ernest Gifford**, **John Tucker**, **Katherine Esau**, **Grady Webster**, **Barbara Webster**, **Ralph Stocking**, **Harry Laidlaw** and **Joe Ogawa**.

Roy Saigo (Biological Sciences, '62) is now President of St. Cloud State University in Minnesota.

Dedication to Education

Once engaged in science, Saigo was hooked. He went on to earn a Ph.D. in Botany and Plant Pathology at Oregon State University (OSU). While there, he met his future wife, Barbara Woodworth Saigo. After OSU, they moved to the University of Wisconsin-Eau Claire where Roy began his administrative path as Assistant Dean of Arts and Sciences, and together, Roy and Barbara nurtured their faculty careers and three children.

Saigo later became dean of the College of Natural Sciences at the University of Northern Iowa, then provost and vice president for academic and student affairs at Southeastern Louisiana University, and chancellor of Auburn University at Montgomery, Alabama, before moving to Minnesota.

With a rich career of academic excellence to build upon, Saigo feels his greatest achievement has been working to make a difference for the better by taking on tough social issues. He has been an advocate for equal opportunity and fairness through enrollment, hiring, global initiatives, and participation in minority leadership programs. In recognition of his national leadership on the issue of native-American mascots, logos and nicknames in intercollegiate sports, he was awarded an Eagle Feather by the native-American community.

Saigo has been honored by the Botanical Society of America for his work in biology education and he is a Fellow of the American Association for the Advancement of Science. In 2005 he became a Distinguished Alumni Fellow of Oregon State University. Two awards brought him back home to Davis, one as a Distinguished Alumnus and one as an inductee in the AGR Hall of Fame.

As a leader in public higher education, Saigo is driven by a sense of service and accountability. "It's not enough to say that we will be better tomorrow than we are today," he said. "We have to be able to demonstrate that what we are doing today is making a difference and show how we are measuring our progress."

Saigo's message to biology students and alumni of UC Davis reflects his optimism and sense of purpose: "You've have experienced the finest education, second to none in the United States. Work hard and you can achieve your highest dreams."

AGGIE UNDERGRAD APPLICATIONS UP

Mirroring a trend seen across the UC system, UC Davis got a spike in undergraduate applications this year, up 6.1 percent from last year. The newly formed College of Biological Sciences got an even bigger boost, with a 12.6 percent overall increase in applications. A total of 8,704 potential freshman and transfer students applied for fall 2006 admission to the college. However, transfer student applications for the college decreased by 1.6 percent, considerably less than the overall drop in transfer applications to UC Davis, which fell by 4.1 percent. All UC campuses except UC Berkeley saw a similar drop in transfer student applications.

CELEBRATING 90

Friends came from far and near to celebrate the 90th birthday of **John Tucker**, professor emeritus of Botany,. The January reception was attended by current and former faculty, students and staff who gathered in the Center for Plant Diversity, which houses the John Tucker Collections Area.

Best wishes, Professor Tucker!

UC Davis College of Biological Sciences

Undergraduate Majors
Biochemistry and Molecular Biology
Biological Sciences
Cell Biology
Evolution, Ecology and Biodiversity
Exercise Biology
Genetics
Microbiology
Neurobiology, Physiology, and Behavior
Plant Biology

Graduate Programs
Animal Behavior
Biochemistry and Molecular Biology
Biophysics
Cell and Developmental Biology
Exercise Science
Genetics
Molecular, Cellular and Integrative Physiology
Neuroscience
Plant Biology
Population Biology

Sections
Evolution and Ecology
Microbiology
Molecular and Cellular Biology
Neurobiology, Physiology, and Behavior
Plant Biology

Universitywide & Campuswide Programs
Center for Genetics and Development
Center for Neuroscience
Center for Population Biology
UC Davis Genome Center
UC Davis Biotechnology Program
UC BREP

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Upcoming Events

Biology is a Picnic!

Visit the Biological Sciences on Picnic Day, Saturday, April 22

Deans' Pavilion: Meet the deans of the College of Biological Sciences at the Deans' Pavilion outside the Sciences Laboratory Building, 11:00 a.m. – 1:00 p.m. Let us know you're an alumnus of the biological sciences and you'll receive a free gift!

UC Davis Conservatory: From the rare to the sublime, discover the marvels of the plant kingdom in the greenhouses behind Storer Hall. The Botanical Conservatory will be open from 11:30 a.m. to 4:00 p.m. Visitors may see chocolate plants, a coffee tree, tropical orchids, cacti and much, much more.

UC Davis Biotechnology Program: Do you know how cheese is made or how your jeans are dyed to get that stylish stone-washed look? Be a biotechnologist for a day with the Biotechnology Program in 148 Briggs. Come explore the applications of genetically modified enzymes and get a free Frisbee and t-shirt!

EEB Student Club: The Evolution, Ecology and Biodiversity Club will host a table in the MU with displays of invertebrates and information about their classes, their major and current research.

Microbiology Club: Wondering what's lurking beneath your skin, crawling in your food or swimming in your water? Visit the Davis chapter of the American Society of Microbiology on the second floor of the Science Laboratory building to learn about everyday microorganisms living all around us. Through hands on experiments and exhibits, you'll get a first-hand look at microorganisms in action.

Evolution and Ecology Invertebrate Petting Zoo: Have you ever wanted to hold a starfish or pet a sea anemone? Visit the Evolution and Ecology petting zoo on the first floor of the Sciences Laboratory Building for a close encounter with many species of marine animals. Kids can explore the amazing world of invertebrates through hands-on activities and crafts!

Neurobiology, Physiology and Behavior Club: Wonder what your insides look like? Join the NPB Club in 2141A Science Laboratory Building for a close-up look at animal organs—even human brains. For a personal lesson on physiology, try out the "nerve shocker" and "spinning chair."

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