



UC Davis Office of Research
A Vision of Excellence

Annual Report, 2011-2012

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Note: Due to the timing of this report, quantitative data contained herein is considered preliminary and has not yet been fully reconciled for FY 11-12. Similarly, prior year data that has been reconciled since last year's annual report may result in apparent inconsistencies between this year's and last year's data. The Office of Research is also in the process of implementing new systems with business rules that may impact data and reporting in the future.

A Message from the Vice Chancellor for Research

What an extraordinary year it has been for the Office of Research. Our reorganization is complete, with three new outstanding divisional Associate Vice Chancellors brought on board and 35 new employees added to our staff. This major investment by the campus resets our course; enabling the office to fulfill its primary mission of service to the faculty and to launch several new initiatives that we are confident will lead to further gains for UC Davis in the national rankings. I am pleased to report that UC Davis has broken all records for sponsored research activity in 2011-2012 (\$750 million), including record breaking levels of royalty income, and a rapidly growing portfolio of corporate partnerships. In 2011-2012, UC Davis showed the largest gain (\$65 million) in sponsored research in the University of California (UC) system, up 9.6% over the previous year. To put this in perspective, overall extramural awards to UC declined systemwide by 0.95%.



The UC Davis faculty, rightly, have much to be proud of in rising to #4 in the UC System in sponsored research, after UC San Diego, UC Los Angeles and UC San Francisco. And the Office of Research (OR) is privileged to be part of that success story. Indeed, our campus seems uniquely aligned to solve the major problems facing our world in the coming decade, making further growth in our research enterprise a strong likelihood if external funding levels remain stable. However, despite the campus' achievements, we are not resting on our past successes. The Office of Research has launched a variety of initiatives that will promote our continued ascendency as a globally-recognized research university. These include:

- The UC Davis Interdisciplinary Frontiers Program (IFP) - an \$18 million investment over three years in interdisciplinary research in the sciences and engineering (RISE), the humanities and arts (IFHA) and campus infrastructure to support collaborative research. A desired outcome of IFP is to propel UC Davis faculty and researchers to a position of strength in competing for major federal, corporate, and philanthropic research grants and partnerships.
- BGI@UC Davis - a partnership with the world's leading provider of genome sequencing. A new facility to house UC Davis will be completed on the School of Medicine campus, summer of 2013. This facility will provide UC Davis faculty with unparalleled resources for genomic analysis in the coming age of genomic medicine (human and animal), agriculture, and environmental sciences. On February 17, 2012, Provost Hexter participated in a signing ceremony attended by Mayor of Shenzhen, China, Xu Qin, and Mayor of Sacramento, Kevin Johnson.
- New programs and streamlined processes for technology transfer, promoting corporate research partnerships, and strategic initiatives.
- Signing of a memorandum of understanding with Lawrence Berkeley National Laboratory; support of site visits for two NSF Science and Technology Center grants.
- Administrative services upgrades, including revamping of Institutional Review Board standard operating procedures, implementing on-line systems for research compliance, and establishment of a special team for negotiating corporate and other complex non-federal research contracts.

Looking to next year, we expect great challenges as the campus research base continues to grow, demanding increased efficiency, higher levels of service to the faculty, and escalating compliance costs. However, the opportunities for UC Davis have never been brighter. The research conducted by our faculty is having greater impact on society and is contributing to the recovery of our local, regional and national economies through education and innovation. I am personally committed to the principles of Chancellor Katehi's Vision of Excellence, and know that OR staff, now more than 100 strong, are also dedicated to these goals. The Office of Research is now ready to move into its second year under new leadership with the confidence that we can and will achieve our vision of enabling UC Davis to be a global leader in research and technology transfer.

Harris A. Lewin
Vice Chancellor for Research

Drive Innovation at the Frontiers of Knowledge

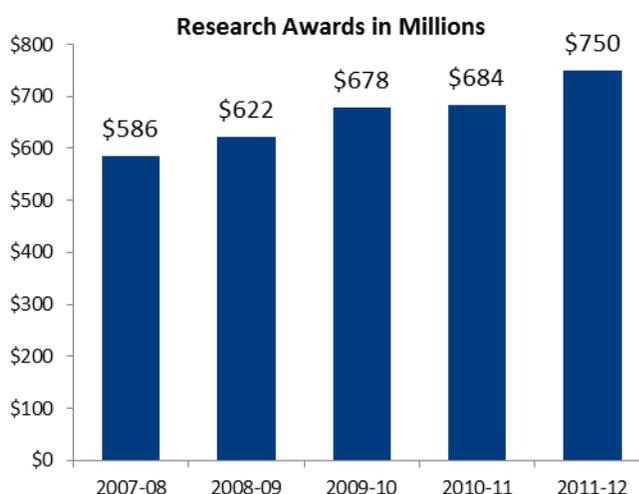
Building on the interdisciplinary strengths of its faculty, UC Davis promotes a collaborative environment that spurs innovations in learning and research by discovering ideas that take shape at the frontiers and intersections of academic disciplines.

Extramural Research Awards

UC Davis received \$750 million in extramural research awards in fiscal year 2011-12 representing a steady increase in research funding over the past five years.

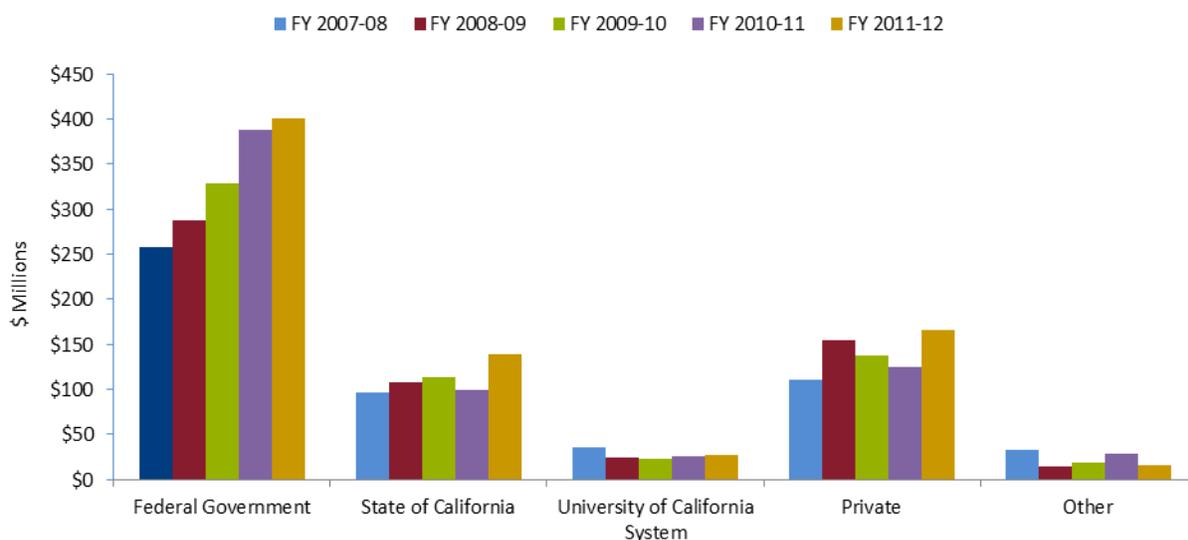
In fiscal year 2011-12, federal awards accounted for 51% of all research funds, compared to 56% in fiscal year 2010-11, although total federal awards increased by about \$18 million. State awards increased more than \$40 million in 2011-12, accounting for 19% of all research funds, compared to 14% in fiscal year 2010-11.

The total includes funding from contracts and grants awarded to the university to support research, including charities and foundations. The total does not include private or foundation gifts for research, which are reported separately in accordance with nationally accepted guidelines.



Award amounts include both direct costs and indirect costs (costs that are not easily allocable to a particular project such as utilities, depreciation, office supplies and administrative costs). Research funding totals were calculated on the basis of dollars transferred to the university during the indicated fiscal year. Some agencies commit to funding multi-year projects but only transfer funds one year at a time. In those cases, funds are counted in the year received. When the funding agency provides all of the committed funds up front, the total award amount is accounted for in the first year of funding but not in subsequent years.

Research Awards by Source

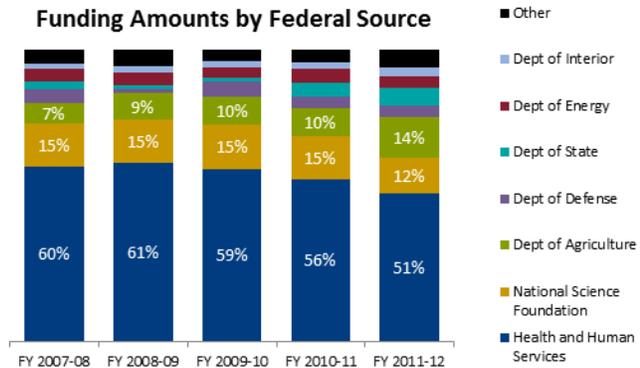


Note: Previous years' reports included UC system awards in the other category resulting in an apparent double-representation of awards. Business practices have been revised so that the 'Other' category now includes government awards outside of federal and state, Department of Energy laboratories, and other sponsors, but not including UC system-wide.

Funding Amounts by Federal Source

Of the awards derived from federal sources (about \$400 million), more than half (\$203 million) were received from the Department of Health and Human Services, including the National Institutes of Health. The Department of Agriculture was the second largest source of federal funds (\$56.1 million), with the National Science Foundation as the third (\$48.2 million).

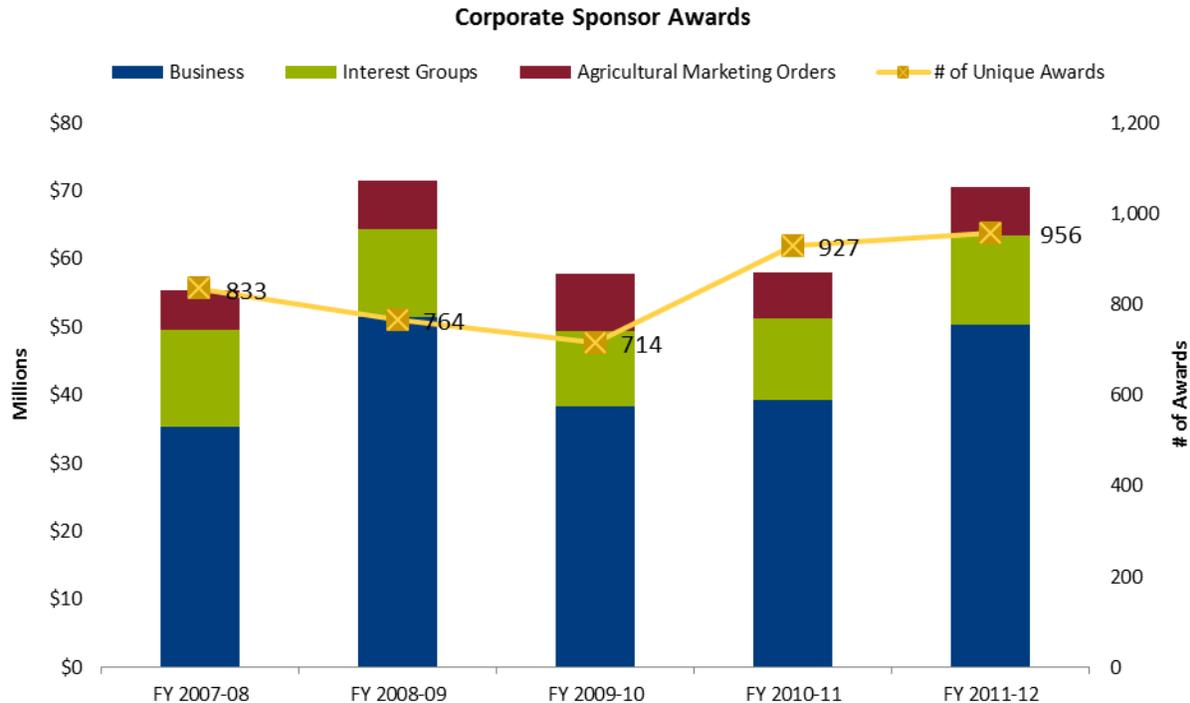
The percentage of funds derived from other federal agencies has remained relatively constant for the past five years.



Awards from Corporate Sponsors

In fiscal year 2011-12, UC Davis received over 956 unique awards for contracts and grants with corporate sponsors for a total of \$70.4 million in awards, a \$12.5 million increase from the previous fiscal year. The three categories of corporate sponsors are:

- Business: profit entity business or other entity engaged in activities for profit
- Interest Groups: non-profit; business related non-profit organizations sponsored by one or more business or other entities engaged in activities for profit, including corporate foundations, industry or trade associations & professional, union or lobbying organizations
- Agricultural Marketing Orders: Marketing Orders or Regulated Agricultural Marketing Order Boards



The average award size of these contracts and grants is \$74,600 for awards in businesses, \$84,350 for awards from interest groups and \$43,600 for awards from Agricultural Marketing Orders.

Building Successful Industry-University Partnerships

With the goal to increase the quality and quantity of industry partnerships on campus, the Office of Research has streamlined and enhanced its services to faculty and potential industry partners to advance industry-university partnerships. Over the last year, these services have grown through the integration of the corporate relations unit within the Office of Research so as to proactively identify and establish innovative alliances. Additionally, the establishment of an integrated cross-institutional negotiation team addresses the complex needs of companies in contract development, the expansion of new business creation and development services within the technology management and corporate relations group, and the integration of university development into the building and implementation of industry partnership planning. With a defined focus on motivating successful outcome driven partnerships with industry, from start-ups to multinational corporations, the Office of Research contributed to increased investments from industry to the campus through more efficient contract negotiations, consultation on intellectual property, conflict of interest, better corporate intelligence, and promoting university assets that fit with companies' needs.



Video snapshot for the news release "[100K Genome Project takes aim at foodborne diseases](#)" from UC Davis News & Information, July 2012. This project is funded in part by Agilent Technologies, Inc., a partnership managed by the Office of Corporate Relations.

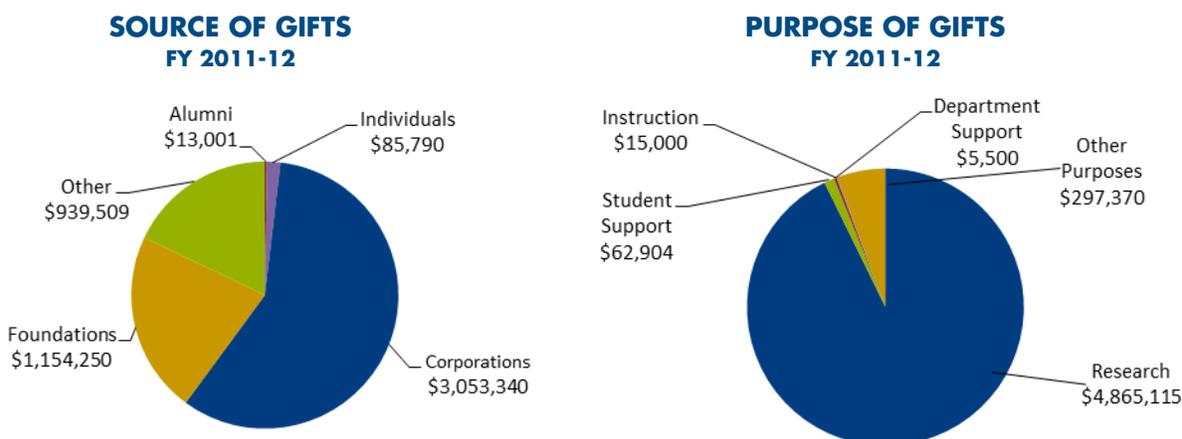
Financial investment in UC Davis from corporations continues to grow across the campus. In taking a new and coordinated approach to developing corporate partnerships, the Office of Research collaborates on all modes of investment from companies in the university, including gifts, business services and research contracts. During this year, the Office of Corporate Relations established a much closer collaboration with University Development and Alumni Relations, formally serving as strategic relationship manager for over 10 companies in their interactions across the campus and working as part of joint teams on increasing corporate engagement for another 40 corporations. In addition, sponsored research contracts from industry increased with 956 unique awards for contracts and grants from corporate sponsors, totaling \$70.4 million in support, a \$12.5 million increase from the previous year. The Office of Corporate Relations along with its close partnership with InnovationAccess has facilitated many of these interactions through interfacing directly with faculty and serving as a conduit for enhanced internal and external communication.

Along with other campus units, the office contributes to advancing UC Davis' vision as an enterprise for innovation by facilitating and managing research partnerships with industry that integrate faculty, staff and students across UC Davis with opportunities to engage with corporations in support of the university's mission. This includes alliance management of the newly launched BGI@UC Davis partnership, as well as initiatives such as Seed Central, a partnership to invigorate the agricultural seed cluster in the region that has resulted in engaging with 10 seed companies based regionally and internationally over the past fiscal year. The Office of Corporate Relations has also been instrumental in building and growing 49 corporate partnerships during this time and has assisted in the connection to critical resources and venture development related to 3 start-up companies.

Private Support Received for Interdisciplinary Programs

Private support enhances the excellence of key interdisciplinary research initiatives by connecting the philanthropic interests of individuals, foundations and corporations to innovative opportunities overseen by the Office of Research. These private gifts and grants support faculty working on solutions to pressing societal problems, students learning to become future leaders, and outreach activities that bring research to life for the community.

In fiscal year 2011-12 there were a total of 255 gifts to the research units reporting to the Office of Research totaling \$5.25 million, a \$1.5 million or 39% increase from the previous fiscal year. The majority of gifts were from corporations (\$3 million or 58%) and the majority was designated for the purpose of research (\$4.8 million or 93%).



Note: The private support reported here is primarily reflective of gifts and grants to the units reporting to the Office of Research, and is not reflective of total private support for all research campuswide.

Research Indirect Costs

Historically, the University of California Office of the President retained approximately 25% of all campus generated indirect cost recovery and all state contract indirect cost recovery. In fiscal year 2011-12 the Office of the President modified their financial model to distribute all indirect cost recovery back to the campus where it was generated. Similarly, UC Davis modified its indirect cost recovery distribution method.

Prior to fiscal year 2011-12 the Office of Research was responsible for distribution of indirect cost recovery funds to the various campus departments. Effective fiscal year 2011-12, the distribution of indirect cost recovery funds is now managed by the Budget & Institutional Analysis unit. These funds are no longer distributed to the departments but rather are distributed to the Deans and Vice Chancellors.

For fiscal year 2011-12, the Office of Research received an indirect cost recovery allocation of \$1,431,000 for campuswide interdisciplinary research units (i.e., Organized Research Units, Special Research Programs, Research Instruments and Central Facilities).

Interdisciplinary Research Support

The Interdisciplinary Research Support unit within the Office of Research coordinates the preparation of major grant proposals for large-scale, interdisciplinary research programs. The team works on grants and contracts that involve multiple schools, colleges, divisions or institutions to support new research units, programs or centers at UC Davis that are funded by major extramural research sponsors. Since its inception in 2004, the team has assisted research faculty on over 190 projects ranging from center grants and training grants to pre-proposals and prestigious fellowships.

In fiscal year 2010-11 the Interdisciplinary Research Support team assisted UC Davis researchers on 20 projects, including 13 full proposals. Of the full proposals, seven have been funded and one is pending review for a success rate of 58% in fiscal year 2011-12, and a 3-year success rate of 48%.

The team also hosted numerous workshops and discussion sessions to inform UC Davis researchers about upcoming funding opportunities, connect them with campus outreach professionals, and encourage team-building across disciplinary boundaries.

The IRS-assisted projects that were funded in FY 11/12 have a combined total value of nearly \$47 million.

	2008-09	2009-10	2010-11	2011-12	Average Annual*	Total Distinct*
Full Proposals Prepared	17	16	14	13	15	92
Number of Faculty Served	195	192	148	237	193	711
Number of Departments Served	74	67	59	68	67	115
Number of Divisions Served	10	12	12	14	11	14

* Since inception of the Interdisciplinary Research Support unit in 2004



Ying Liu, a research specialist working with Alexander Revzin, professor of biomedical engineering at UC Davis, is photographed in the campus Genome and Biomedical Sciences Facility. Liu helped develop a microfluidic chip to test for latent tuberculosis. They hope the test will be a cheaper, faster and more reliable than current testing for the disease.

Embrace Global Issues

UC Davis will be the university of choice for international students, post-doctoral scholars, faculty, prestigious international and governmental exchange programs and research enterprises that have trans-national and global applications.

International Sponsors

International sponsorship has almost doubled between fiscal year 2010-11 and 2011-12, from \$11,745,760 to \$22,894,397. Germany was the highest dollar sponsor, at approximately \$5 million, followed by Great Britain and Switzerland in the \$3 million range.



Country	# of Awards	Award \$
Australia	8	\$ 380,448
Brazil	4	\$ 295,750
Canada	27	\$ 245,103
Chile	3	\$ 523,474
Czech Republic	1	\$ 81,000
Denmark	2	\$ 429,946
Egypt	2	\$ 49,700
France	11	\$ 475,094
Germany	14	\$ 4,949,570
Great Britain	29	\$ 3,402,714
Israel	1	\$ 10,789
Italy	2	\$ 104,851
Japan	12	\$ 1,527,084
Korea	8	\$ 474,206
Malaysia	1	\$ 172,705
Netherlands	7	\$ 543,880
New Zealand	5	\$ 225,442
Norway	2	\$ 91,995
Scotland	6	\$ 189,596
Spain	4	\$ 1,738,586
Switzerland	21	\$ 3,174,396
United Arab Emirates	1	\$ 463,357
Uruguay	1	\$ 14,848
Vietnam	6	\$ 115,400
Other	24	\$ 3,214,463
TOTAL	202	\$ 22,894,397



BGI@UC Davis Launches

In February of 2012 the University of California, Davis signed a master agreement with China-based BGI, formerly the Beijing Genomics Institute, the world's largest genomics organization, cementing a partnership that will change the landscape of genomic sciences in California and the western United States by establishing a joint facility called BGI@UC Davis. The alliance will foster critical breakthroughs in the areas of food security, and human, animal and environmental health. It also represents an important international relationship between the University of California and a high-growth Chinese company. This relationship is managed within the Office of Corporate Relations with Bart Weimer, faculty coordinator within the Office of Corporate Relations, serving as its co-director along with his counterpart at BGI, Hao Zhang.

Through BGI, campus researchers will have access to the capabilities and expertise of one of the world's premier genomics and bioinformatics institutes, while BGI's scientists will have the opportunity to collaborate with UC Davis researchers, thereby benefiting from the university's diverse resources and high-end expertise and thought leadership, especially in biology, the medical sciences, agriculture, veterinary health, the environment and education.

BGI@UC Davis is working closely with the UC Davis Genome Center, located in the Genome and Biomedical Sciences facility on campus, in the further development of genomics technologies at UC Davis. An interim facility for BGI@UC Davis is currently operational in a temporary space. Renovation and construction of the new facility is expected to be completed by summer 2013. The permanent facility, once completed, will house up to 20 state of the art DNA sequencers on the UC Davis Sacramento campus.



At an October 2011 signing ceremony for the BGI Davis Partnership Harris Lewin, vice chancellor for research, presented Jun Wang, executive director of BGI, with a UC Davis Campus Grown wood bowl.

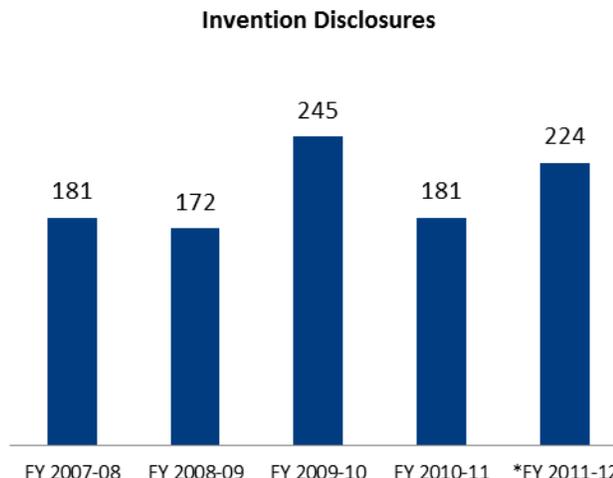
Nurture a Sustainable Future and Propel Economic Vitality

UC Davis will be the pre-eminent university partner in advancing the economic prosperity of our region, fostering the burgeoning life-science, agricultural and “clean energy” industries of California, and in investigating and sharing socially, politically, economically and environmentally relevant solutions to global problems.

Invention Disclosures

In fiscal year 2011-12, UC Davis had 224 invention disclosures, up 19% from 181 for the previous fiscal year. The total invention portfolio increased by approximately 6% during this same period, from 1,119 in fiscal year 2010-11 to 1,190 in fiscal year 2011-12.

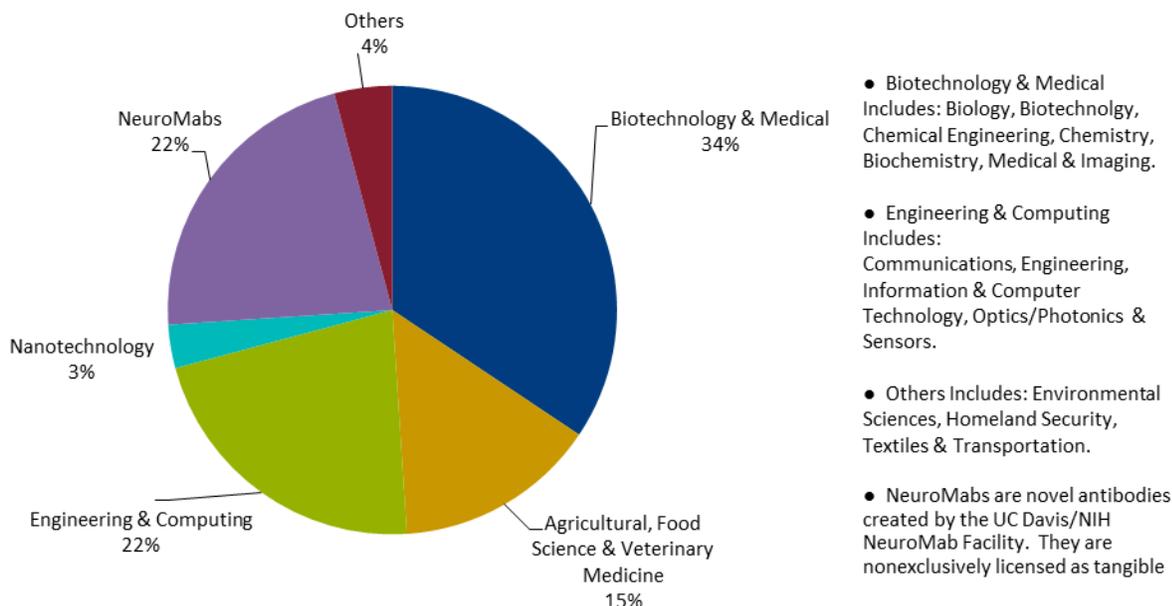
* All fiscal year 2011-12 data is preliminary.



Categories of Invention Disclosures

Out of the 224 Record of Invention Disclosures in fiscal year 2011-12, 34% were in the fields of biotechnology and medical-related technologies.

UC Davis Record of Invention Disclosures Classification, FY 2011-12



Patents

In fiscal year 2011-12, 25 U.S. patents and 34 foreign patents were issued to UC Davis affiliates. UC Davis manages a five-year average patent portfolio of 411 active U.S. patents and 427 active foreign patents.

PATENTS FILED	2007-08	2008-09	2009-10	2010-11	2011-12
U.S. First Filings	65	49	59	56	71
U.S. Second Filings	47	42	42	42	53
Foreign Filings	40	67	61	66	4
Total Filed	152	158	162	164	128

PATENTS ISSUED	2007-08	2008-09	2009-10	2010-11	2011-12
U.S.	21	24	29	29	25
Foreign	36	14	28	44	34
Total Issued	57	38	57	73	59

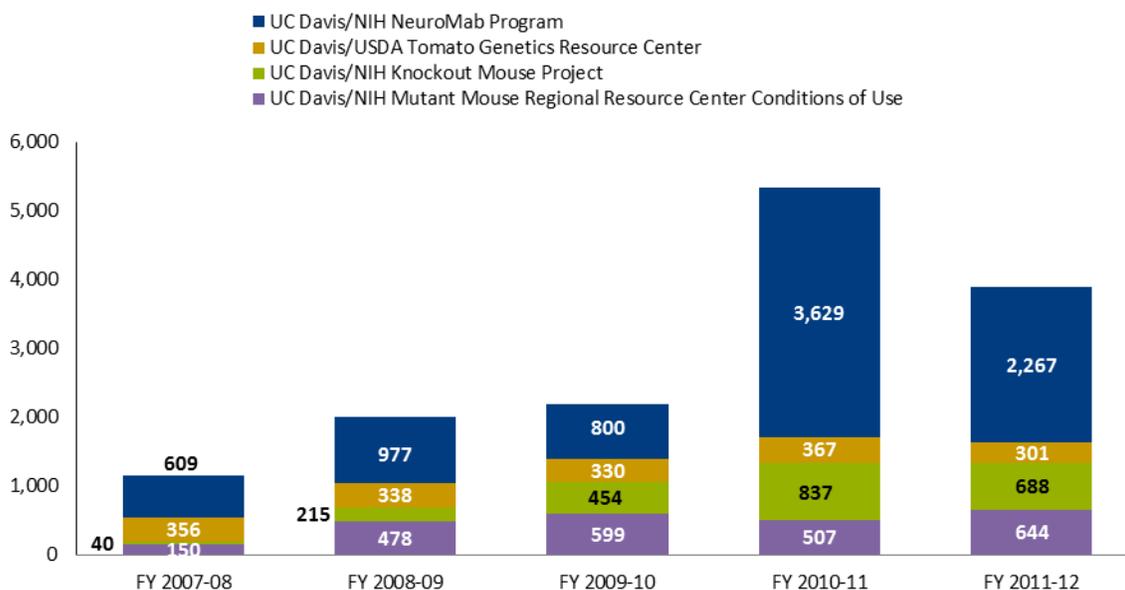
ACTIVE PATENTS	2007-08	2008-09	2009-10	2010-11	2011-12
U.S.	409	414	419	375	411
Foreign	436	399	403	417	427
Total Active	845	813	822	792	838

* All fiscal year 2011-12 data is preliminary.

Material Transfer Agreements

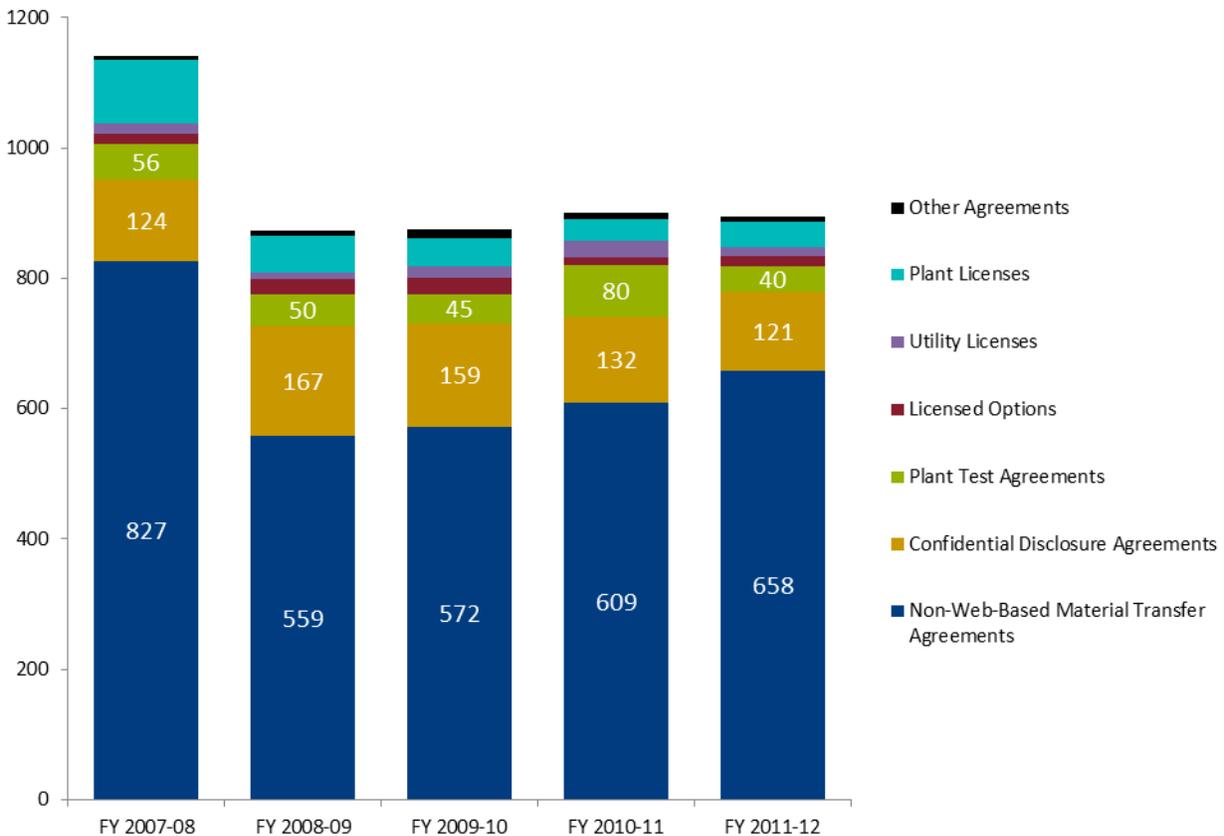
Since fiscal year 2004-05, UC Davis has seen a large increase in the total number of Material Transfer Agreements (MTAs). The majority of the increase has taken place in four programs that utilize standardized web-based Material Transfer Agreements. In fiscal year 2011-12, 86% of the MTA's executed were web-based.

Web-based Program Specific MTAs



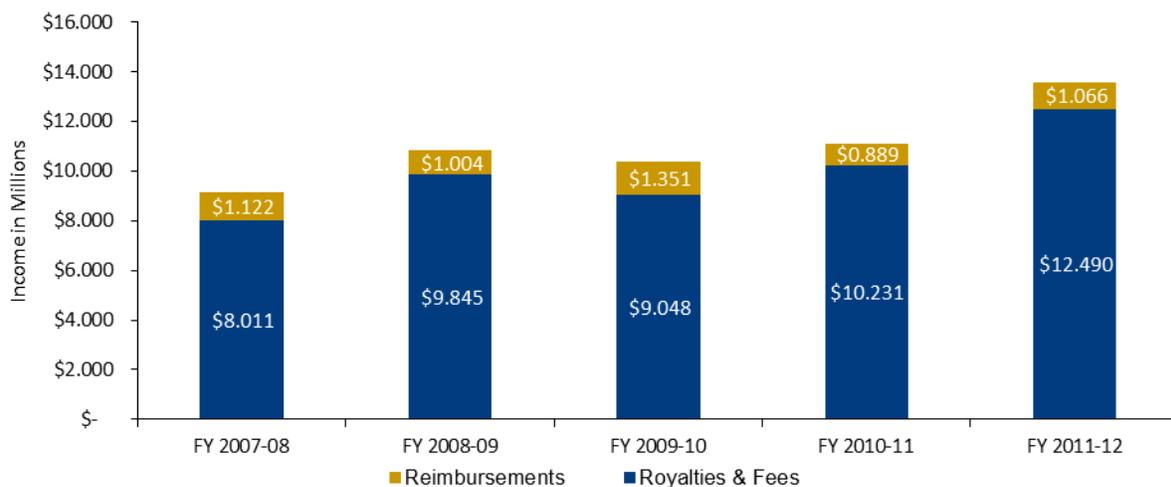
Licensing Agreements

Excluding the automated web-based MTAs, licensing agreements have remained relatively unchanged for the past four years. A total of 894 were executed in 2011-12.



Licensing Income

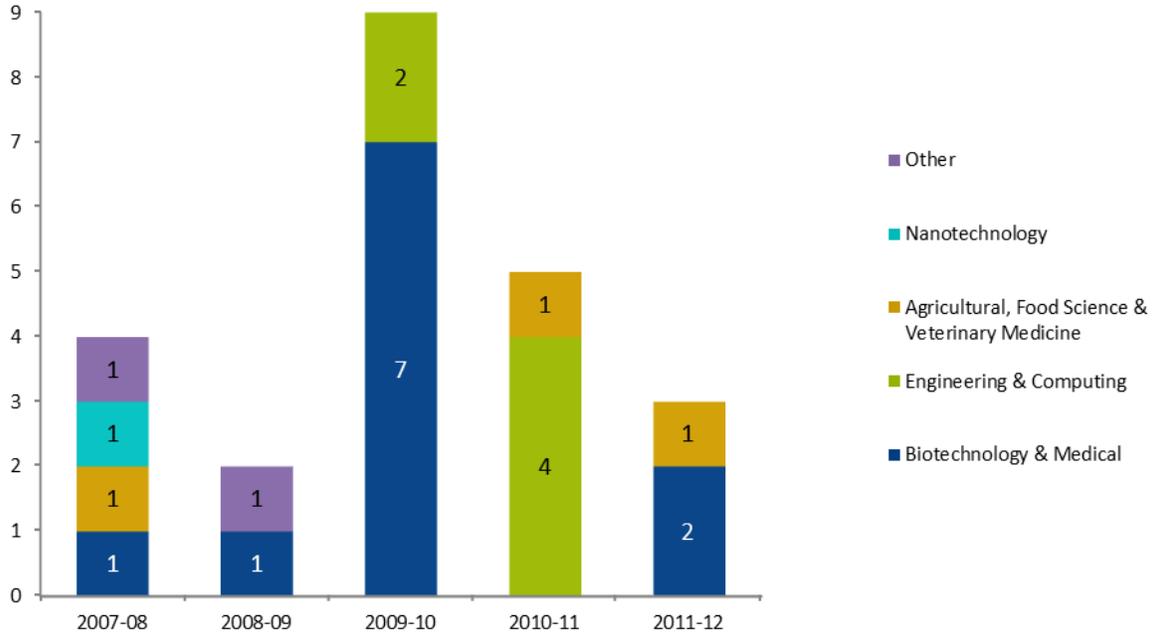
Total licensing income for the university in fiscal year 2011-12 was \$13.6 million, up 18% from \$11.1 for the previous fiscal year.



* All fiscal year 2011-12 data is preliminary. Financial figures reflect activity for the entire UC Davis invention portfolio and do not include inventor and campus research share payments.

Start-up Companies

Since fiscal year 2003-04, 44 start-up companies have been formed at UC Davis. The majority of the companies formed were in the fields of biotechnology and medical sciences, as well as engineering and computing. In fiscal year 2011-12, two start-ups were biotechnology and medical; and one was in agricultural, food science & veterinary medicine.



Ruihong Zhang, a UC Davis professor of biological and agricultural engineering, has worked on anaerobic digester technology for the past decade, bringing it from the laboratory to the pilot stage in 2006. Clean World Partners, a Sacramento-based startup that licensed the technology from UC Davis, installed the biodigester at American River Packaging. It converts food waste from regional food producers and unrecyclable corrugated material from the company into natural gas.

Foster a Vibrant Community of Learning and Scholarship

Through transformative and diverse opportunities for learning, UC Davis will inspire and prepare its students, faculty, staff and alumni to lead and excel in solving the dynamic challenges of tomorrow's world.

Interdisciplinary Frontiers Program

The Interdisciplinary Frontiers Program promotes interdisciplinary research teams in science, engineering, arts and the humanities with seed grants. In late January 2012, the Office of Research announced the Interdisciplinary Frontiers Program (IFP) which uses American Recovery and Reinvestment Act (ARRA) funds to promote interdisciplinary research with grants of up to \$1 million over three years to help establish projects that can compete for major funding from government, private industry, philanthropic foundations and other external sources.

The Interdisciplinary Frontiers Program includes two subprograms:

- RISE — Research Investments in the Sciences and Engineering
- IFHA — Interdisciplinary Frontiers in the Humanities and Arts

A request for applications for the Research Investments in the Sciences and Engineering (RISE) sub-program was made in February 2012. One hundred and nineteen submissions were received, requesting over \$111M in support. In total, 520 faculty participated with representation from all schools and colleges. Encouragingly, over \$9M in matching cash funds and in-kind contributions were highlighted. With the proposals there was ample evidence of commitment to student and postdoctoral training with a request for support for 179 postdoctoral researchers, 395 graduate students and 313 undergraduate trainees.

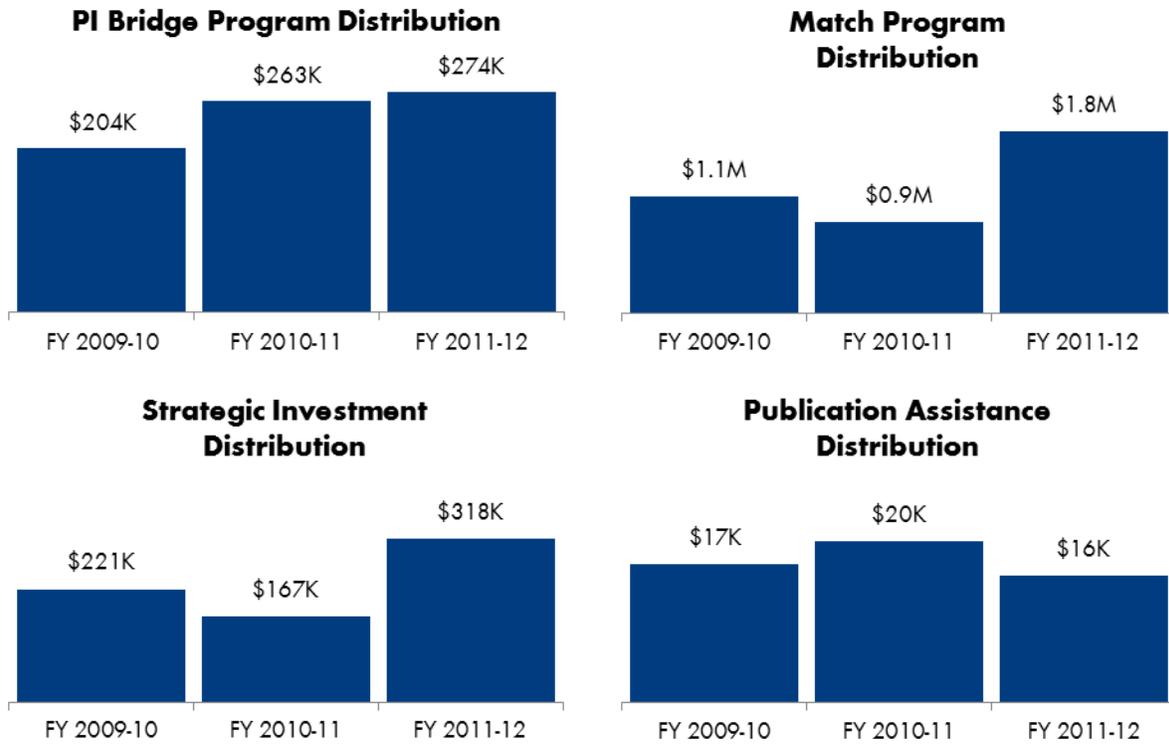
Successful proposals were those with the greatest potential for future, highly significant discoveries and innovation. Applications were judged on their scientific merit, potential impact on society, and sustainability. Following a rigorous multilayered review process, thirteen research themes were funded, representing a total funding commitment of \$10,870,000.

A request for applications for the Interdisciplinary Frontiers in the Humanities and Arts (IFHA) sub-program was made in fiscal year 2012-13.

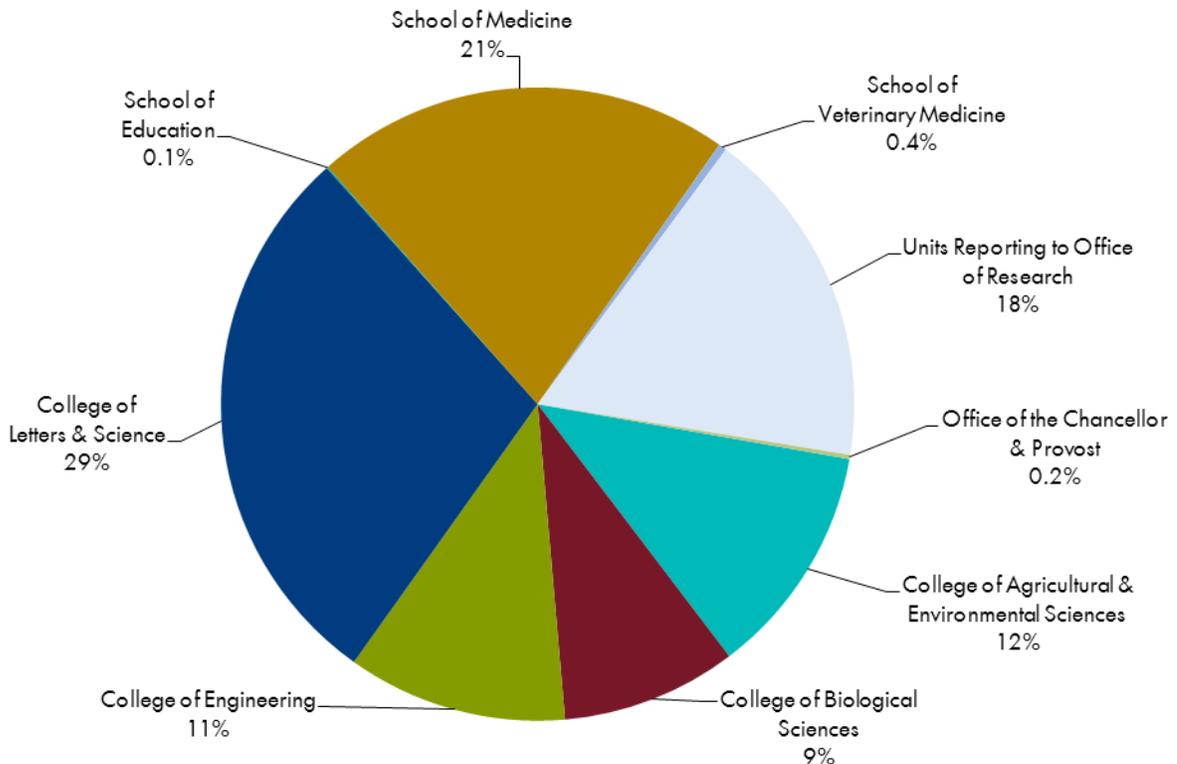
Internal Strategic Funding Programs

The Office of Research (OR) is the chief administrative unit and the catalyst for advancing the research mission at UC Davis. The Office of Research receives a permanent and recurring annual allocation currently valued at \$2.7 million to administer the following four internal funding programs:

- Principal Investigator (PI) Bridge Program: Provides one-time funding to investigators who have lost or will lose their primary extramural funding. Funds ensure continuation of a research project for an interim period until extramural support can be re-established.
- Match Program: Provides a portion of cost sharing or matching funds when required by an external sponsor.
- Strategic Investments: Provides funding for investigator initiatives, center start-up costs, seed money, program support and memberships. Funding is provided to an array of areas and disciplines across campus – UC wide and externally.
- Publication Assistance: Provides funding to faculty for the publication of books or monographs and exhibition or performance of works of art.



**Strategic Funding Programs
FY 2011-12 Distribution = \$2.38 million**



In fiscal year 2011-12, \$2.38 million was distributed to the schools/colleges and units reporting to the Office of Research, an increase of \$1 million or 43.8% from the previous fiscal year. The Match Program distribution increased \$884K or 49.8% and the Strategic Investment distribution increased \$152K or 47.6%.

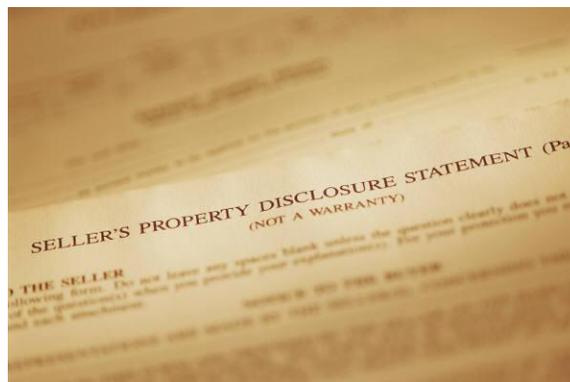
Responsible Conduct of Research Education Program

The Office of Research Compliance and Integrity (RCI) organizes a Responsible Conduct of Research Education Program to benefit postdoctoral researchers, graduate students and undergraduate engaged in research funded by the National Science Foundation and National Institutes of Health training grants. In fiscal year 2011-2012, over 121 participants attended the Responsible Conduct of Research curriculum on the ethical conduct of research. Subject matter included:

- Animal Subjects in Research
- Collaborative Research including Collaborations with Industry
- Conflict of Interest
- Contemporary Ethical Issues in Biomedical Research
- Data Acquisition and Laboratory Tools; Management, Sharing and Ownership
- Human Subjects in Research
- Mentor/Mentee Responsibilities and Relationships
- Peer Review
- Research Misconduct
- Responsible Authorship and Publication
- The Scientist as a Responsible Member of Society and the Environmental and Societal Impacts of Scientific Research

Experiential Learning for Law Students in Technology Transfer

UC Davis law students with an interest in patent law and intellectual property have an ongoing opportunity for professional immersion with experiential learning through InnovationAccess. The externship program is now in its seventh year with over 40 students to date. During the course of a semester the law students assist InnovationAccess in all aspects of technology transfer, including technical searching, invention assessment, patentability assessment, marketing, licensing and legal research. They also participate in a weekly seminar program conducted by InnovationAccess on patents, licensing, and technology transfer. The externship program runs year round with programs in the summer and each semester. It is a formal program providing law school credit. Many of the alumni of the program have gone on to careers in patent law, both in law firms and in university technology transfer offices.



Cultivate a Culture of Organizational Excellence, Effectiveness and Stewardship

UC Davis will provide an efficient, professional administrative organization that is committed to serving and advancing the university's academic mission.

The Office of Research is continually responding to feedback from our research community and other stakeholders in order to provide the highest quality of service to support the research mission of the university. During fiscal year 2011-12 we implemented a number of recommendations, processes and improvements to address concerns raised by clients, stakeholders, and external reviews.

World-class Leadership

In fiscal year 2010-11 Vice Chancellor Harris Lewin laid the foundation for reorganization of the Office of Research with the establishment of three executive leadership positions: 1) Executive Associate Vice Chancellor for Research Administration, 2) Associate Vice Chancellor for Technology Management and Corporate Research Relations, and 3) Associate Vice Chancellor for Interdisciplinary Research and Strategic Initiatives. In fiscal year 2011-12, after national and international searches, the Office of Research filled all three of the positions with outstanding leaders who are working with Vice Chancellor Lewin to support the world-class research of the university.

Cindy Kiel embraced the role of Executive Associate Vice Chancellor for Research Administration in August of 2011. She is responsible for over-seeing Sponsored Programs, Research Compliance & Integrity, Institutional Review Board Administration, Information Technology Service, Business & Finance and Human Resources for the entire Office of Research. Kiel came to UC Davis from Washington University in St. Louis where she was the Assistant Vice Chancellor for Research Services and Executive Director of the Research Office. In her role at Washington University, she earned a reputation for building collaborative relationships between academia, government and industry. Under Kiel's leadership, the UC Davis Office of Research was able to fill other key leadership positions, including Daniel Redline as the director of Institutional Review Board Administration and Craig Allison as the director of Research Compliance & Integrity.

In January of 2012, Dushyant Pathak was named the Associate Vice Chancellor for Technology Management and Corporate Relations. Pathak will provide leadership over UC Davis' intellectual property as well as innovative partnerships between the university and corporate partners and technology transfer. Pathak has 15 years of management experience including Fortune-500, publicly traded, entrepreneurial and start-up companies. He was the CEO of two early stage companies and his other roles have included leading business development and intellectual property teams, commercial planning and clinical project operations activities and he has been in senior leadership responsible for a successful NASDAQ initial public offering.

The position of Associate Vice Chancellor for Interdisciplinary Research and Strategic Initiatives was filled in May of 2012 by Paul Dodd. Dodd is responsible for developing interdisciplinary research activities for the Davis campus and for initiating, supporting and coordinating the development of new strategic research partnerships, domestic and international. Under his direction, the Office of Research will further its strategic efforts to leverage and expand UC Davis research programs through partnerships with federal and state governments, and private entities. Prior to his position at UC Davis, Dodd was director of the Industry Collaborative Programs at Science Foundation Ireland where he was responsible for large-scale collaborative research centers and clusters in information and communication technologies, life sciences and renewable energy.

Harris Lewin: UC Davis' 43rd National Academy Member

In May of 2012, Vice Chancellor Harris Lewin was elected to the National Academy of Sciences.

Election to the national academies — the National Academy of Sciences, Institute of Medicine and National Academy of Engineering — is one of the highest honors given to our nation's scientists, physicians and engineers.

Throughout his career, Lewin has been deeply involved in transformative, interdisciplinary research that has the potential to move ideas from the laboratory to the marketplace, where it can help solve real-world problems. As a graduate student at UC Davis, he discovered genetic factors linked to disease resistance in cattle, leading to a patent on a screening test for cattle resistance to leukemia viruses.

Lewin, who earned his doctorate in immunology at UC Davis in 1984, returned to his alma mater last year as a vice chancellor to lead the Office of Research.



First Annual Campus Outreach Event: Partners for Research

Over 325 people attended *Partners for Research*, the Office of Research's first annual campus outreach event, to learn about recent changes and new developments in the Office of Research. In lieu of an open house, which brings customers to the research offices, *Partners for Research* brought the research offices to the campus and showcased how campus research is supported by the Office of Research and other units across the university.

Provost Ralph Hexter opened the event with a standing-room only presentation on "The Sustainability of the Land-Grant Mission and Valuation of Knowledge Transfer," emphasizing the critical need for research excellence at a university providing a top-tier education. Additional break-out sessions included an open forum with Vice Chancellor Harris Lewin and Associate Vice Chancellors Cindy Kiel, Dushyant Pathak and Bernd Hamann; a Q&A session with Pathak regarding technology transfer and corporate relations; a panel on interdisciplinary research; an update on the recently-announced Interdisciplinary Frontiers Program; and the latest news on federal research out of Washington, DC.

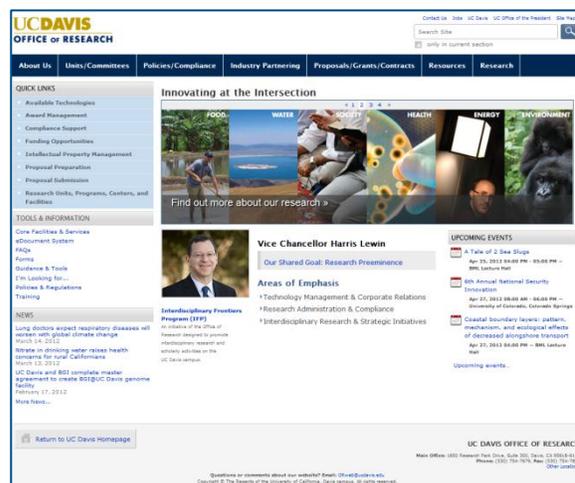
Exhibits from the Office of Research highlighted increased efficiency and customer satisfaction, and shared facilities and equipment available for the campus community. New partnerships were forged, plans were discussed for new ways to communicate our breadth and depth of research support, and many reported that they would like to do something like this again.



Office of Research Website Redesign

In January of 2012, the Office of Research launched a fresh face to the world. A new website was the fruit of months of hard work and contributions from hundreds of colleagues throughout Office of Research and the campus who participated in providing feedback, developing and updating content, developing a new design, installing and configuring a new web content management system and many more activities that led to the current, improved website.

The new site lays the foundation for future improvements in our web presence and the way OR provides services to our researchers and business partners.



Features of the new website include:

- Hybrid business function with public relations and brand management for UC Davis research
- Customer-centric design and content that is focused on simplifying access for researchers and business partners
- Modern website design with dynamic global navigation and active search functionalities
- New content management system (Plone) that provides robust tools for managing the website content without programmer intervention

An ongoing web content workgroup will continue to ensure the content is consistent, up-to-date and well integrated. For example, the Interdisciplinary Research Support team created a guide for research project development to compile information researchers need in one location. Future plans include enhanced access to campus expertise and research units, and an interactive dashboard to report information concerning research awards and funding allocations.

Improvements in Communications

This fiscal year the Office of Research launched an internal biweekly newsletter, which is distributed to the Office of Research core employees and campuswide stakeholders. The newsletter reports contract and grant proposal activity and indicates the top contract and grant awards received. It highlights success in research and scholarship, process and productivity improvements, accomplishments of employees and teams within OR. It also provides helpful tips and updates for employees in technology use and green-living.

Each week the Office of Research sends an email update to approximately 1,400 campus researchers regarding limited submissions opportunities, other funding opportunities that may be of interest to the UC Davis research community, and research-related news and announcements. (Limited Submissions are requests for proposals in which the university may only submit a limited number of applications.) The recent addition of the “News and Announcements” section to the weekly email is part of an ongoing effort to provide timely and relevant information to campus researchers. Examples of items included in this section are federal sponsor policy changes, compliance changes, and funding-related conferences and workshops.

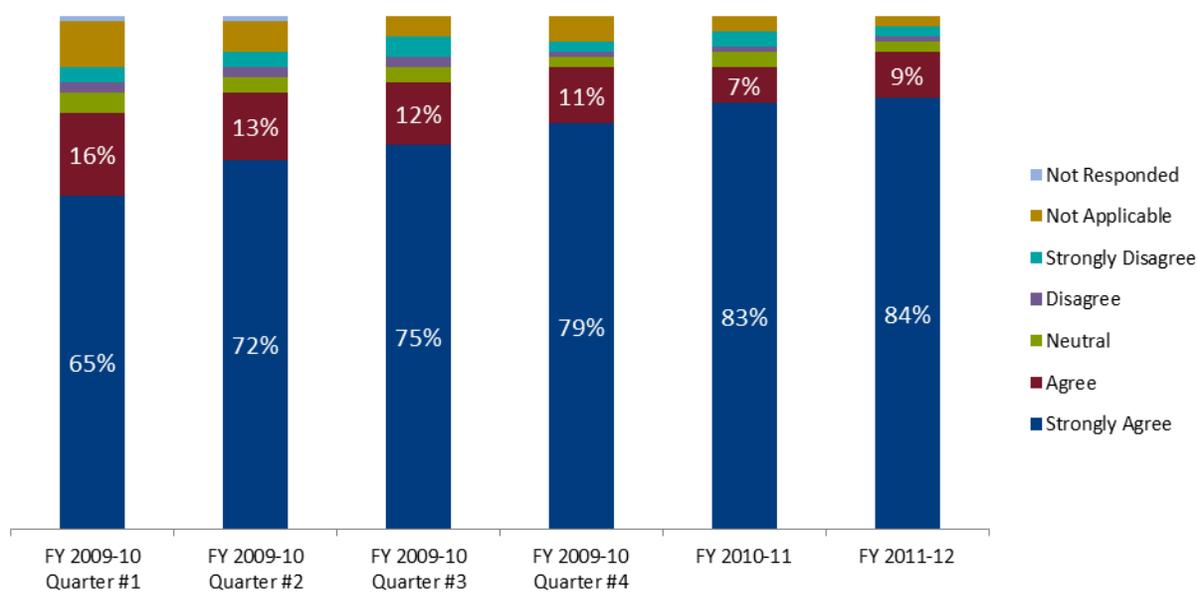


Customer Satisfaction

In response to the recommendations of our internal stakeholders and external reviewers, for the past three years the Sponsored Programs Office has routinely implemented a customer satisfaction survey for all proposals and awards processed. The response rate to the surveys for fiscal year 2009-10 was 24%, for fiscal year 2010-11 was 32%, and for fiscal year 2011-12 was 25%.

The results of the survey indicate that the UC Davis research community is increasingly satisfied with the efficiency, effectiveness, courtesy, and knowledge of Sponsored Programs staff. The positive responses (combined “agree”, and “strongly agree”) have steadily increased over three years - from 81% in the first quarter of fiscal year 2009-10, to 90% at the end of fiscal year 2010-11, and 93% at the end of fiscal year 2011-12. More importantly, the average “disagree” or “strongly disagree” rating of 1.5% at the end of fiscal year 2011-12 shows a decrease of near 50% over the 3-year survey period.

**Sponsored Programs Customer Satisfaction Survey
FY 2009-10 through FY 2011-12 Comparison
Total Campus/All Projects**



Compliance and Integrity in Research

The university is committed to achieving the highest ethical and legal standards of research conduct by fostering a culture of compliance, responsibility and conscience that reflects integrity and truth as core values in science and scholarship. The Research Compliance and Integrity unit of the Office of Research promotes integrity through education and training, and by developing and implementing policies and procedures to assure compliance with federal and state laws and regulations regarding the responsible conduct of research. Among its many other functions, the unit provides administrative support for Export Control Compliance, the Committee for Research Integrity, the Financial Conflict of Interest in Research Committee, the Human Anatomical Specimen & Tissue Oversight Committee, and the Stem Cell Research Oversight Committee.

In May 2012, Craig C. Allison, formerly a partner at the DLA Piper law firm, was selected as director of the Research Compliance and Integrity unit, bringing to campus a wealth of knowledge and regulatory interpretation expertise. In fiscal year 2011-12, Research Compliance and Integrity assumed responsibility for administration of research misconduct investigations, formerly in the provost’s office. Also new this year, the unit is tasked with conducting quality improvement auditing of research studies involving human subjects as requested by the Institutional Review Board Administration.

Further, Research Compliance and Integrity collaborates with the director of Institutional Animal Care and Use Committee to maintain accreditation from the Association for Assessment and Accreditation of Laboratory Animal Care, ensuring the humane treatment of animals in science. In addition, the unit liaises with departments, research units, and government agencies, in coordination with other compliance units on Campus, to help ensure compliance in biosafety, human subjects, and animal subjects' research.

Institutional Review Board

The past year has been a period of change for the Institutional Review Board (IRB) Administration. There was a transition in leadership, and Huron Consulting Group was asked to review standard operating procedures and daily operations and provide recommendations for improvement. As a result of this review and interim management, new standard operating procedures and template forms were proposed and developed to streamline operations and eliminate duplication of effort. In addition, a new infrastructure for the IRB Administration was put in place. These changes resulted in a decrease in the backlog and timelines for review of expedited and exempt submissions. In fiscal year 2011-12, the IRB Administration received nearly 6,000 submissions in the following submission categories:

Submission Category	# of Submissions	% of Total
New Projects	990	17%
Renewal Projects	1380	23%
Modifications to Projects	1592	27%
Responses to IRB Requests	1376	23%
Other	616	10%

There are four IRB Committees that review human subjects research at UC Davis, consisting of two Biomedical (Clinical) Committees, one Social and Behavioral Committee, and one Fast-Track Committee. Their collective role is to follow the Federal Regulations for human subjects' research in order to protect the rights and welfare of research participants at UC Davis. Over the next fiscal year, the IRB Administration and IRB Committees will be fully implementing new standard operating procedures, forms and templates with the goal of reduced review times for all review categories. The new processes and procedures will also put the IRB Administration in alignment for future Association for the Accreditation of Human Research Protection Programs (AAHRPP) accreditation.

Delegation for Expedited Processing in Sponsored Programs

Sponsored Programs is continuing its impressive track record of improving efficiency and customer service. With the start of fiscal year 2011-12, the delegation of authority to perform final review and sign certain documents on behalf of the university was extended to team leaders and high level analysts. Until the end of June 2011 this authority lay exclusively with the Sponsored Programs Executive Director and Associate Directors,

As a result of the above change, team leaders and high level analysts are now authorized to generate initial subcontracts using approved templates, which streamlines the collaborative process. These delegations of authority serve the research mission through lower transaction costs, expedited decision making and better management of grant and contract awards.



In April 2012, Sponsored Programs launched the Negotiation Team to improve service on all sponsored funding agreements that require negotiation of terms and conditions or the creation of a research collaboration agreement. The team includes representatives from InnovationAccess, University Development, Office of Corporate Relations and the Business Contracts office to avoid jurisdictional delays, improve communication with sponsors, investigators and the administrative offices that serve the research community, and reduce turnaround times on contract negotiations.

Saving Money, Time and Effort with Material Transfer Agreements and License Agreements

Over the past 10 years, the number of Material Transfer Agreements (MTAs) for transferring proprietary materials and tangible research properties between UC Davis and companies, universities or other nonprofit organizations has grown exponentially from about 200 MTAs a year in fiscal year 2001-02 to over 5,900 in fiscal year 2011-12. In order to effectively and efficiently process this many MTAs, the UC Davis InnovationAccess team initiated the following innovative agreements for transferring tangible research properties, such as antibodies, mice and seeds, that are in high demand, but have low probabilities of generating new intellectual property:

- Web-based, nonnegotiable MTAs, pre-signed by UC Davis, in fiscal year 2007, in which the recipient of materials fills-in-the-blanks, prints and signs the MTA, and emails the MTA to UC Davis;
- Web-based, nonnegotiable MTAs in fiscal year 2008, in which the recipient of materials fills-in-the-blanks and signs the MTA online;
- Shrink-wrap license agreements and MTAs in fiscal year 2011, which are not filled in or signed, but are included in every shipment of materials.

UC Davis was the first UC campus to use these three types of MTAs, and one of a few universities in the world to use shrink-wrap license agreements to transfer tangible research property. In fiscal year 2011, more than 90% of UC Davis material transfers were fulfilled using these three types of MTAs.

By using these MTAs, UC Davis was able to:

- Save many thousands of dollars a year by eliminating the hiring of staff to manage, negotiate, file, mail, store and work on these MTAs;
- Save time by eliminating the handling and maintaining of physical documents and files;
- Save space by eliminating physical files and their storage space;
- Be environmentally friendly by eliminating the printing and shipping of paper contracts;
- Enable researchers to engage in their research more quickly.

Information Technology Support

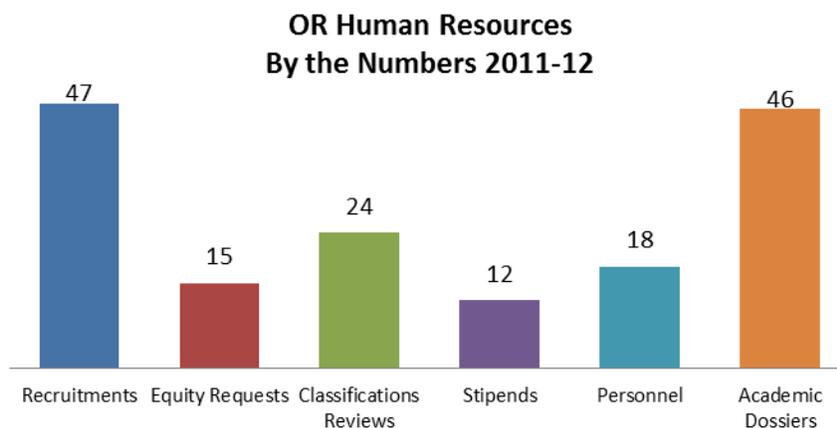
Support for information technology (IT) in the Office of Research has prospered, making the office more efficient for its members and its clients. The Office of Research has joined with Safety Services in supporting a single consolidated IT Services team. This team not only provides desktop support and website enhancements, but works on research administration systems that make processes easy and effective. In fiscal year 2011-12, the IT Services team developed a new system for streamlining the reporting requirements for stem cell awards. The team has also accomplished major progress in implementing the Kuali Coeus system, a comprehensive suite of tools for managing all aspects of research administration and compliance. Upon rollout in 2012-13, the system will streamline the management of contracts and grants and empower the research community with new tools for developing and managing grants proposals and submissions. The system will provide integration with the Kuali Financial System and eliminate inherent administrative inefficiencies associated with standalone systems.

Human Resources Advancements

The Human Resources team within the Office of Research continues its upward trend of engaging in open communication with staff and establishing the unit as a true “human” resource. Human Resources works in partnership with research unit directors and managers, central supervisors, managers and individual employees in the Office of Research to provide programs and services which create a work environment of employee empowerment. The team’s beliefs of customer orientation, continuous improvement, teamwork and achieving measurable results are woven into every aspect of human resource management.

Working in collaboration with unit leaders, the Office of Research’s Human Resources unit successfully facilitated 47 regional and/or international recruitments to employ the most qualified personnel. The team strives to support and advance the research and technology transfer goals of the university by partnering with central units and research units as well as external and campus constituents to build strong collaborative relationships and maintain a network of supportive leadership well-versed in campus human resources policies and procedures. The end goal is to ensure leadership retains a well-trained, service-oriented and fully supported workforce.

Over the last fiscal year, Office of Research’s Human Resources successfully handled the following compensation and academic actions (data does not include consultative or employee and labor relations cases):



For the 2011-12 fiscal year, all classification and equity requests submitted to Central Human Resources for review were approved which accords Office of Research’s Human Resources a 100% approval rate.



Interdisciplinary Research: Organized Research Units

Organized Research Units are established within the Office of Research to provide a supportive infrastructure for research programs complementary to the academic goals of the campus.

In 2011-12, research funds awarded to Organized Research Units from all sources totaled \$46 million.

Air Quality Research Center

The Air Quality Research Center advances our understanding of the nature of air pollutants, their sources, chemical transformations, health, environmental and climate impacts to improve public policy formation and science-based regulation. The center continues to host international scholars, graduate and undergraduate students, multi-disciplinary grants, international conferences and seminars, and large-scale projects for the university. Of particular note is the growth in monitoring of long-range transport of pollutants to California from Asia, including the establishment of monitoring sites at strategic locations in the state.



Bodega Marine Laboratory

The Bodega Marine Laboratory has been dedicated for over fifty years to understanding environmental processes at the land-sea interface on California's North Coast – an area known for the productivity and diversity of its marine and terrestrial ecosystems. Through innovative research programs and teaching initiatives, the laboratory leads the way to the multi-disciplinary scientific understanding required to solve complex environmental problems on the marine and terrestrial sides of the tideline in Northern California. As the largest of only two marine laboratories on the north coast of California, and one of the top marine laboratories in the nation, Bodega Marine Laboratory and its surrounding University of California Natural Reserve creates opportunities for new kinds of experimental studies, monitoring, and ocean exploration and teaching. Bodega Marine Laboratory continues to lead in determining the impacts of climate change and other environmental impacts in coastal and estuarine ecosystems, with implications for the health of our local as well as statewide plant, invertebrate, and fish populations. In 2011-12, the laboratory attracted 88 international scholars from 16 countries, 21 postdoctoral researchers, 75 graduate student research projects, invited >10,000 visitors per year, and taught 17 resident courses to 47 undergraduate and 65 graduate students. In addition, BML hosted 29 visiting university classes with 800 students and 21 scientific groups with 524 participants. BML's NSF-funded CAMEOS K-12 program provided a third year of ocean science literacy to six local schools and over 400 students.



California National Primate Research Center

The California National Primate Research Center is one of eight National Primate Research Centers supported by the National Institute of Health. The center is a regional, national and international resource that has as its major missions to conduct translational research and provide services to the greater research community. Research projects conducted at the primate center develop a better understanding of, and new treatments for, a wide range of human health problems including asthma, Alzheimer's disease, Autism, HIV/AIDS, immune function and regenerative medicine. Not only does the center provide teaching and research to approximately 200 undergraduate and graduate students, postdoctoral scholars, clinical fellows, and veterinary residents, but the center also engages K-6th grade audiences to demonstrate the direct connection between biomedical research and the impact on human health. The California National Primate Research Center also hosts the UC Davis Translational Human Embryonic Stem Cell Shared Research Facility which is a campuswide facility dedicated to the study of embryonic stem cells. During the fiscal year 2011-12 125 nonhuman primate research projects were conducted involving 51 investigators from UC Davis, 10 investigators from other UC's and 36 investigators from other institutions. In addition, the center leveraged \$101,625 in general fund support from the campus to support \$26 million in nonhuman primate support administered at the center and \$15 million administered in other UC Davis departments. The center's National Institute of Health American Recovery & Reinvestment Act funded 19,000 square feet Respiratory Diseases Building began construction this past year, with an estimated occupancy date of April 2014. This facility will be the only such facility in the United States for nonhuman primate studies of respiratory diseases that affect humans, such as asthma and chronic obstructive pulmonary disease.



Comprehensive Cancer Center

The UC Davis Comprehensive Cancer Center provides premier, multidisciplinary cancer care for Northern California cancer patients. The program explores, develops and facilitates the translation of basic science research into new treatment approaches and prevention strategies. The center advances a wide range of cancer research including genome integrity, nuclear receptor biology, targeted cancer therapy, Nano carriers, DNA repair, more accurate and effective surgical interventions, drug development and optimization, and the development of biomedical engineering for cancer diagnosis, treatment, and research. Over the past decade, the cancer research program has seen an economic growth from \$43 million to \$125 million, an increase of 190%; similarly, the contribution to the economy in the region has grown from \$95 million to \$197 million over the same period. The Cancer Center expansion, open in September 2012, will make it more practical to design clinical trials for both pediatric and adult cancer patients and will allow us to accelerate the implementation of Phase I, investigator-initiated trials. The center draws almost 200 faculty, 40% of which are outside the School of Medicine, for research, service and training of graduate students, post-doctoral scholars, and young professionals. New areas of initiative include enhanced access to and use of California Cancer Registry data, the central repository of which is now operated by UC Davis, new collaborations with the Foods for Health Institute, accelerating our understanding of nutrition and cancer, new collaborations with the Jackson Laboratories to evaluate precision medicine in mouse models with superb fidelity to the biology of human tumors, collaborative discussions with six other UC campuses and four other UC cancer centers, and advancement of our work in cancer health disparities across a range of populations.



Center for Healthcare Policy and Research

The Center for Healthcare Policy and Research facilitates research, promotes education, and informs policy about health and healthcare. In addition to a highly skilled grants development team that assists faculty members to submit grant proposals in relevant areas, the center is a home for research evaluating projects that aim to sustain healthy, equitable communities. For example, center projects include those that target increasing patient confidence to undergo colorectal cancer screening (especially among Latinos), assisting safety-net breast cancer screening programs to address policy and cost concerns, examining heat wave impacts on public health, using telemedicine access to enhance care for underserved populations, and improving patient, care-giver and physician communication about prognosis and treatment for advanced cancer. The center leads the Public Health Impact Policy Review component of the California Healthcare Benefits Review Program, a program coordinated by the UC Office of the President to provide scientific review of proposed health benefit mandate legislation. In the 2011-12 academic year, the center received a total of \$3,418,960 in annual awarded grant and contract funding. A total of \$2,355,676 in new multi-year awards was received by the center as a result of \$31.7 million in proposals and contracts submitted by the center's grants development team. The Center for Healthcare Policy and Research is well-positioned to facilitate research on the opportunities and challenges posed by health care reform in the upcoming years.

Crocker Nuclear Laboratory

The Crocker Nuclear Laboratory maintains and operates a 76 inch cyclotron, provides data capture and quality improvements for the National Park Service Interagency Monitoring of Protected Visual Environments (IMPROVE), and runs a 2,500 square foot mechanical and electronics shop in support of the laboratory that also services the machine and electronics shop needs of the greater UC Davis research community. Proton beams generated by the cyclotron are used in relatively non-invasive treatments of eye diseases. For instance, about 15 patients per month are treated for melanoma of the eye with a 95% cure rate, plus over 50% retain sight in the affected eye, much better than more invasive therapies. Federal agencies, universities, and the space industry use Crocker's Radiation Effects Facility to test the durability and effectiveness of microelectronics, transmitters and detector systems to be used in satellites. Radiation Effects Facility customers include the Jet Propulsion Laboratory, Lockheed Martin, NASA Goddard, RYOEI Japan and the U.S. Naval Observatory. Through Crocker's air quality laboratory, UC Davis assumes responsibility for monitoring over 150 IMPROVE visibility sites in national parks and other public lands nationwide, including processing over 5,000 filters each month and designing better equipment and operating procedures that reduce errors and operating costs. Together, IMPROVE and UC Davis data analysts are refining procedures that allow for investigations of how climate change and air pollution emission reductions will impact the air we breathe, with a focus on improving visibility in our valued public natural spaces.



Institute of Governmental Affairs

The Institute of Governmental Affairs is a research center and incubator for social and policy sciences that encourage and sustain UC Davis research programs. In fiscal year 2011-12 the institute's UC Center Sacramento presented 32 policy-relevant research forums from across the UC system to the policy-making community in our state's capital. Research programs at the institute promote collaboration at the intersection of academic disciplines. For example, the Center for International Data is engaged in work that will compute the real gross domestic product (GDP) of countries to measure growth and relative poverty levels. The institute is also proactive at responding to funding opportunities. A proposal to the Department of Health and Human Services resulted in a \$4 million award over 5 years to be one of three national centers devoted to facilitating non-partisan academic research on poverty in the U.S., disseminating this research, and training the next generation of poverty scholars.

Institute of Transportation Studies

The Institute of Transportation Studies (ITS) is internationally recognized for its multidisciplinary approach to transportation studies with a focus on sustainability. The institute has strong research programs in the areas of travel behavior and transport systems modeling; environmental vehicle technologies; transportation energy; and climate change, air quality and other environmental impacts. Research programs within ITS-Davis include the Urban Land Use and Transportation Center, Plug-in Hybrid & Electric Vehicle Research Center, China Center for Energy and Transportation, and Sustainable Transportation Energy Pathways Program. ITS-Davis is the only research



institute within the UC system that hosts a matching graduate education program. Last year was very successful with ITS continuing to expand its research funding, its profile, and its impact on policy. The coming year looks promising. ITS moves to West Village where it will be able to develop and enhance its distinct identity, build on a \$2.8 million award for energy research from the California Energy Commission, expand its international programs with the recruitment of Dr. Lew Fulton from the International Energy Agency, and launch new research and energy executive training programs (the latter jointly with the Graduate School of Management) with the recruitment of Amy Myers Jaffe from the Baker Institute at Rice University.

John Muir Institute of the Environment

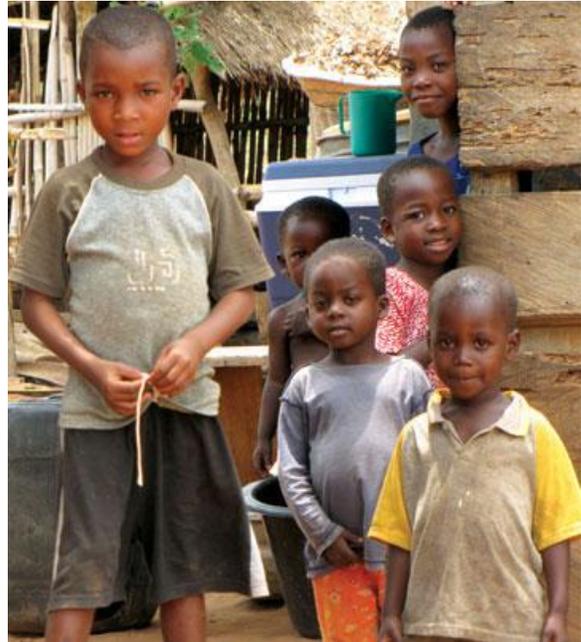
The John Muir Institute of the Environment delivers actionable research results to policymakers, resource managers and stakeholders on environmental issues that matter most to society. The institute accomplishes its mission of research-based environmental sustainability solutions through a suite of core scientists associated with centers and programs and the much larger network of affiliated scientists from across the campus. The institute's programs focus on pivotal ecosystems such as Lake Tahoe and the Sacramento River Basin, environmental health and toxicity, forest biology and conservation ecology. The institute provides



administrative support to facilities such as the UC Davis Natural Reserve System and is a founding member of the Southwest Climate Alliance. In fiscal year 2011-12 over 100 graduate students participated in interdisciplinary science communication, writing and outreach workshops. 67 new grants were processed resulting in \$17.3 million. In 2012-13 the center will continue to focus on climate change adaptation research on issues ranging from environmental toxins to water supply to wildlife vulnerability.

Program in International and Community Nutrition

The Program in International and Community Nutrition coordinates research and training activities concerning human nutrition problems of low-income countries, and of ethnic minorities and disadvantaged groups in the United States. The program provides technical assistance to national governments and international agencies concerned with food and nutrition policies of disadvantaged populations. Roughly half of the program's student body are from developing nations. Of 24 currently enrolled doctoral students, 11 are international. In the past few years, program faculty and students have been engaged in research projects in numerous countries in Asia, Africa and Latin America, as well as in the U.S. Research themes include maternal and child nutrition, micronutrient deficiencies, nutrition-infection interactions, prevention of obesity, and evaluation of nutrition interventions and programs. One highlight in 2011-12 was the launch of the project called "Ninos Sanos, Familia Sana" (Healthy Children, Healthy Family) -- a new collaborative effort between UC Davis, the UC Cooperative Extension, and local communities and organizations to help fight obesity among Mexican-heritage children in the Central Valley. Another highlight is the participation of program faculty in a new initiative entitled the Breast Milk, Gut Microbiome and Immunity Project, funded by the Bill & Melinda Gates Foundation. The iLiNS Project (International Lipid-based Nutrient Supplements Project), also funded by the Gates Foundation, is progressing well, with two of four randomized controlled trials in Africa having completed data collection. Lastly, the Program in International and Community Nutrition was successful in obtaining funding from the Fogarty International Center at NIH for a new training grant entitled "Nutritional Antecedents of Chronic Diseases and Disorders in Low-Income Populations", which will involve partnerships with universities and research institutes in Ghana, Malawi and Bangladesh.



Interdisciplinary Research: Special Research Programs

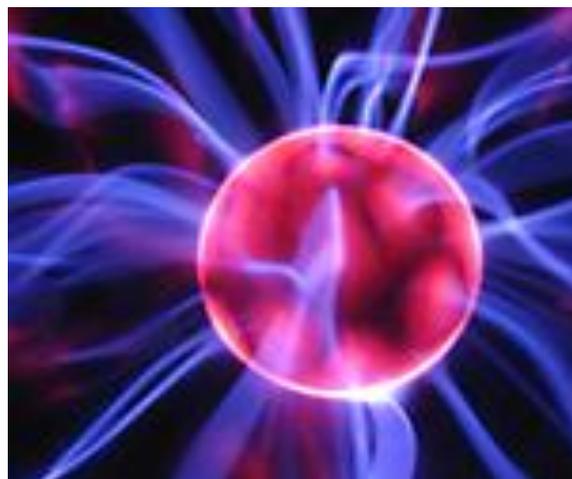
Special Research Programs exist to provide a structure for collaborative research activities that do not fit the definition and purpose of an Organized Research Unit.

Biotechnology Program

The UC Davis Biotechnology Program coordinates campus activities in interdisciplinary doctoral training across the life sciences, physical sciences and engineering; promotes public-private partnerships and off-campus collaborations with public agencies and research institutes; and facilitates public understanding of emerging technologies by maintaining open lines of communication with policy makers, media, community groups, and regional secondary and post-secondary educators, while developing fact-based educational outreach materials for diverse audiences. The program is the administrative home for the National Institute of Health's T32 Training Program in Biomolecular Technology, the Designated Emphasis in Biotechnology--the largest designated emphasis on campus with over 230 students across 29 disciplines, supported by over \$300,000 in 2011-2012 in fellowship and paid industry internship support for affiliated doctoral students--and the Advanced Degree for Corporate Employees graduate program. The program also offers innovative technical short courses for faculty, graduate students, postdoctoral scholars, industry scientists and visiting scientists (international and national). These short, intensive summer courses offer cutting edge techniques in some of the following subjects: Flow Cytometry, Proteomics, Bioinformatics (Next Gen Sequencing), etc. As a consequence, many participants have stated they have obtained positions within these fields or received promotions after receiving certificates. Savings for the campus in these courses is substantial as the program's goal is to offer these courses at dramatically reduced rates to UC affiliates, so that they are easily budgeted. These new skills will enable researchers to have more competitive research grant proposals, which lead to new cutting-edge research initiatives on campus.

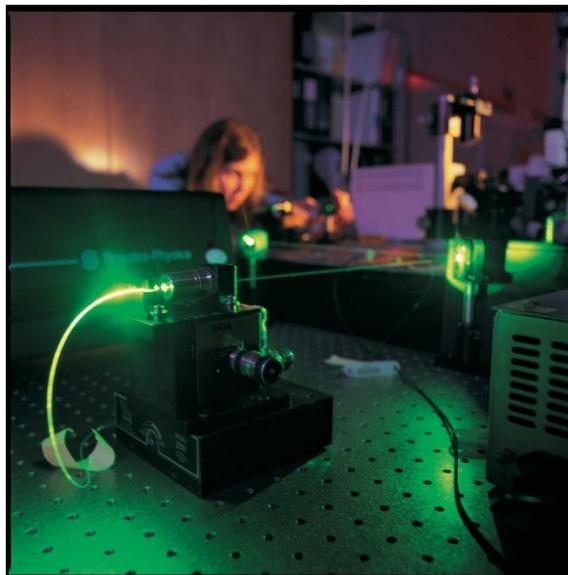
Center for Advanced Laboratory Fusion Science and Engineering

The Center for Advanced Laboratory Fusion Science and Engineering focuses on research and education relating to fusion energy, encompassing topics that cut across numerous engineering, science, and policy disciplines, and addressing plasma accelerators, high energy particle accelerators, plasma diagnostics, advanced computing, advanced materials, and energy policy. In 2012, activities were centered around experimental nuclear fusion research. In spring of 2012, the directors visited major Chinese Fusion facilities as well as other universities and institutes. One of the results of these visits was the submission of a U.S. group proposal, led by David Hwang of UC Davis, to U.S. Department of Energy international program. The proposal was selected in the first round and now awaits the final selection. UC Davis was also a member of two other large proposal teams responding to the DOE International Collaboration proposal call. The first focused on the EAST tokamak at the Institute of Plasma Physics (Chinese Academy of Science) located in Hefei, China. The second proposal involved the KSTAR superconducting tokamak at the National Fusion Research Institute in Dajon, Korea. Both proposals were strongly supported in large part due to long standing collaborations. Both are awaiting a final decision. The other major activity involved the Southwest Institute of Physics in Chengdu, China where UC Davis is receiving funding from SWIP to develop an advanced millimeter wave imaging instrument which will be finished in November for future collaborative experiments on the HL-2A tokamak.



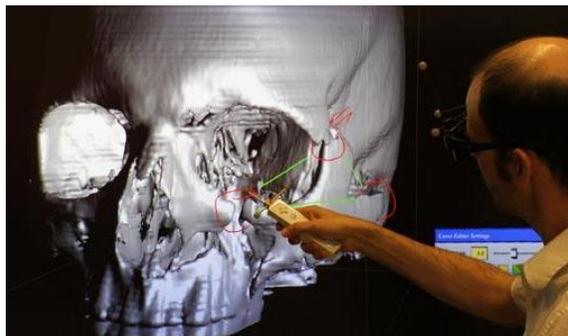
Center for Biophotonics, Science and Technology

The Center for Biophotonics, Science & Technology continues to pursue research, development and application of new optical/photonic technologies for the advancement of medicine and the life sciences. Center researchers are working to develop next-generation super-resolution imaging methods and apply them to important new areas such as quantitative digital pathology. The researchers are also pursuing applications of cell phone-based cameras configured as high magnification microscopes and spectrometers, in order to develop home-based or point-of-care blood tests and other tools to help diagnose skin cancer, measure blood perfusion in tissues, determine blood oxygen concentration, and develop a field device for making point spectroscopic measurements for agricultural applications. A number of label-free techniques are used to sort cancerous versus normal cells, differentiated versus undifferentiated stem cells, and antibiotic-treated versus non-treated bacteria. The center is also involved in numerous and extensive collaborations with researchers from the UC Davis Comprehensive Cancer Center, Stem Cell Program, Departments of Medical Microbiology, Biochemistry and Molecular Medicine, Radiation Oncology, Pediatric Oncology, Food & Nutrition, and Molecular & Cellular Biology - to provide advanced imaging capabilities to measure and control live biological processes at the cellular and molecular level. Finally, in fiscal year 2011-12, center researchers collaborated with industry and other third-party investors, on pre-competitive research projects and to develop technologies to bring them closer to market.



Center for Information Technology Research in the Interest of Society (CITRIS)

The Center for Information Technology Research in the Interest of Society creates information technology solutions for many of our most pressing social, environmental and health care problems. The center facilitates partnerships and collaborations among more than 300 faculty members and thousands of students from numerous departments at four University of California campuses (Berkeley, Davis, Merced, and Santa Cruz) and with industrial researchers from over 60 corporations. At UC Davis, the Center for Information Technology Research in the Interest of Society is active both on the main campus and at the medical school facilitating innovative multi-disciplinary research. Center activities align well with the UC Davis Health System's new strategic plan for the future. Through the annual seed funding competition, seven new projects on energy efficiency, environmental monitoring and planning, and medical informatics and telemedicine were initiated. Ongoing center-initiated projects and collaborations include smart wind turbine blades, power and heat co-generation, robotic surgery, telehealth, and mHealth. By leveraging center support and research collaboration, UC Davis investigators have been better positioned to secure external funding as well as attract industry partners. During the Research Investments in Science and Engineering program, the Center for Information Technology Research in the Interest of Society helped broker several of the winning collaborations. This fall the center is inaugurating an Undergraduate Sustainability Research Competition to extend awards to student teams that pursue information technology research projects to reduce greenhouse gasses or adapt to climate change.



Consortium for Women and Research

The Consortium for Women and Research supports interdisciplinary research and creative work that focuses on relevant societal issues as they affect women and other historically marginalized groups. It promotes a critical understanding of the ways that gender, in its intersections with race, class, sexual orientation, and other categories of identity and analysis, shape culture and society, including the university itself. The consortium makes small awards to graduate students for developing research projects on women/gender and for travel to professional conferences and workshops. The pool is competitive; we are able to fund fewer than half of all applicants. Last year we gave \$11,400 across 10 travel awards and 10 research awards. A major highlight of the unit is the Davis Feminist Film Festival, an international event featuring filmmakers from around the world. The films span documentary, experimental, and narrative genres and focus on issues of gender and social justice often ignored by mainstream media. Over 100 film submissions from many different countries are received, and only 1/5 of those are chosen for inclusion, enabling us to host a high-caliber program attracting roughly 500 attendees with \$3,000 in ticket sales. The festival is a true campus-community partnership because the larger Davis-Sacramento community is involved: community members attend the festival and hold seats on the festival Advisory Board, local businesses help advertise the event and sell tickets, and the festival works in partnership with local businesses to provide the theatre, projection equipment, refreshment, and items for the Silent Auction held in conjunction with the festival.



Energy Institute

The Energy Institute is structured to coordinate UC Davis' world-class strengths in energy research and education across campus and to partner with other campus, state, national, and international organizations to foster new innovations, expand public service, and inform decision making in government, industry, and other sectors. The institute works to accelerate a sustainable energy future by integrating basic and applied energy research across the spectrum from fundamental science to market entry. The institute administers the California Renewable Energy Center, a statewide multi-sector collaborative that addresses critical time-sensitive issues in expanding renewable energy in California. The center recently signed a two-year contract with the California Energy Commission to further their work in biomass, geothermal, solar, micro-hydro and wind research. Each resource sector within the center holds an annual forum in which industry stakeholders are invited to review research and identify further work that can help remove existing barriers and result in more renewable energy development. The Energy Institute also coordinates educational programs in energy including undergraduate energy engineering minors and an international summer school in renewable energy.

Policy Institute for Energy, Environment and the Economy

The UC Davis Policy Institute for Energy, Environment and the Economy leverages world-class university expertise and engages policy makers and stakeholders to identify policy and research priorities, synthesize existing knowledge, and deliver timely and relevant information to the policy process. The institute focuses on subjects where UC Davis has world-class expertise including: sustainable mobility, clean energy, energy and water efficiency, climate, agriculture, and ecology. The Policy Institute is guided by a steering committee comprised of the directors of key interdisciplinary energy and environmental research centers at UC Davis; advised by a prestigious advisory board with leaders and experts from government, academia, and non-government organizations; engaged directly with over a hundred agency and legislative staff through briefings and the signature Policy Forum Series in Sacramento; and is sought regularly by decision-makers at the local, state, federal and international level as an essential resource for non-partisan, credible, relevant, and timely information to inform better energy and environmental policy.



Interdisciplinary Research: Research Instruments and Central Facilities

Campus Mass Spectrometry Facilities

The UC Davis Campus Mass Spectrometry Facilities is dedicated to providing open access, high quality, and cost-effective resources in mass spectrometry to meet the research needs of the UC Davis community. Its focus is to provide training in the fundamentals of mass spectrometry and the operation of mass spectrometry instrumentation to enhance the scientific training and competitiveness of UC Davis graduate students, postdoctoral scholars, and staff. The facilities provide mass spectrometry services to faculty members in all the colleges on the UC Davis campus as well as both the schools of Medicine and Veterinary Medicine through its open-access program and operator performed analyses. Approximately 15,000 samples are analyzed in the facilities annually. Open-access mass spectrometry is uncommon in the academic setting but has proven to be very successful.

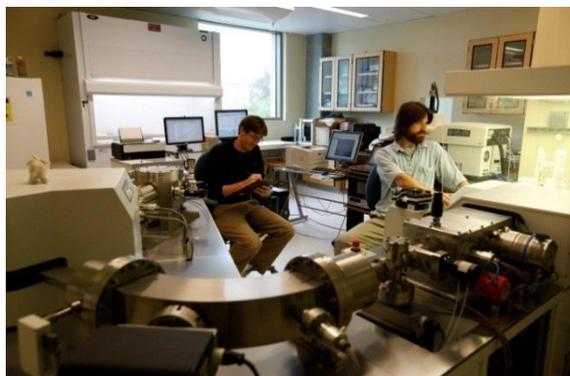
Controlled Environment Facility

The Controlled Environment Facility is dedicated to providing campus researchers from a variety of disciplines with a world-class facility to propagate experimental material under highly reproducible controlled environmental conditions. The facility maintains a total of 160 plant growth chambers in two separate locations on the UC Davis campus. Chamber controls include light intensity, temperature, relative humidity, photoperiod and irrigation systems. Among its many specialized units, there are 15 for precise control of carbon dioxide levels and a chamber for low temperature (-10C) experiments. The facility is used, on average, by more than 50 faculty laboratories each month.



Interdisciplinary Center for Plasma Mass Spectrometry

The Interdisciplinary Center for Plasma Mass Spectrometry is dedicated to the precise and accurate determinations of inorganic trace element and isotope abundances in geological, biological, agricultural, nuclear, environmental and engineering materials aimed at understanding the composition, rates and pathways of chemical transport and evolution in natural and laboratory systems. The center developed cutting edge analytical protocols to measure low-level mercury in infant hair and blood in the search for links between autism and metal toxicity, conducted analysis of metalloproteins and nanoparticles for cutting edge cancer research, and integrated high-pressure liquid chromatography and inductively coupled plasma mass spectrometry to determine selenium, chromium and arsenic speciation in ground and surface waters, and food products. The center continued its analytical efforts to characterize strontium isotopes in otoliths of salmon, trout, Delta smelt, and other fish species, to track fauna habitat and migration in California and coast regions of western and eastern U.S. These methods are also being used to characterize (fish) fin rays, tooth enamel and phosphates from a wide variety of geological environments. The facility is used by more than three-dozen non-UC entities, including ExxonMobil, Harvard Medical School, Lawrence Livermore National Laboratory, Stanford University and the U.S. Fish and Wildlife Service.



McClellan Nuclear Research Center

The McClellan Nuclear Research Center, one of the most productive university research reactors in the nation, provides nuclear reactor services and associated support to the constituent research, education, and public service communities (academic, government, and private sector). A Designated Emphasis in Nuclear Sciences has been established to enhance opportunities for students to be educated at UC Davis in the different research fields involving nuclear sciences. The role of radioisotope research and development is expanding with the establishment of new radioisotope laboratory resources, namely a new Radioisotope Science Facility, which includes two 5-year full scholarships assigned to the Radioisotope Sciences & Development Program at McClellan; a grant awarded from the National Nuclear Security Agency. The center also provides hands-on experience for students from UC Berkeley, Idaho State University, and the California State University to participate in research and educational programs, and to complement their classroom learning. Research at the facility includes neutron imaging of fluidized beds used as reactors for biofuel combustion and for studies on developing improved fuel cells; production of radioisotopes for research and for medical therapies; analysis of contaminants in detector systems; seed mutagenesis studies to develop crops that are disease and drought resistant, and radiation hardness studies for electronic parts.



Nuclear Magnetic Resonance Facility

The UC Davis Nuclear Magnetic Resonance Facility is dedicated to providing campuswide access to sophisticated NMR spectroscopy and imaging instrumentation. The facility's focus is to provide technical nuclear magnetic resonance expertise and support, and engage in collaborative research and consultation, promoting interdisciplinary discovery and innovative thinking within the UC Davis community. The facility was used, on average, by 170 people each month (approximately 10 faculty, 155 students, and 5 members of the public). The availability of the instrumentation has enabled our faculty to bring in at least \$18 million and up to \$36 million in grants, which brought at least \$5.4 million, and arguably \$10.9 million in indirect costs to UC Davis. The facility is utilized by several non-UC Davis clients including Lawrence Berkeley National Lab, Marrone Bio Innovations, Micromidas, U Nevada—Reno, U Arkansas—Little Rock and U Wisconsin—Madison. Research at the facility includes several subject areas: the structure and dynamics of olfactory proteins involved in the detection of attractants (Entomology); critical light-harvesting and light-sensing roles in oxygenic photosynthetic organisms (Molecular and Cellular Biology); precise diagnosis of the cause of pneumonia (Nutrition); the effects of environmental pollutants on aquatic life (Environmental Toxicology); the mechanisms and physiologic functions of retinal membrane-targeting proteins that regulate photo transduction in vision and other signal transduction processes (Chemistry); imaging of cerebral vasculature (Physiology); structural parameters of amorphous solids (Chemical Engineering); and structure of unique phytoestrogen agonists (Plant Sciences).



Interdisciplinary Research: Future Strategic Initiatives

Coastal and Marine Sciences Institute

UC Davis is a world-class institution for developing solutions-based, outcome-oriented research in integrative environmental science and has been extremely successful in competing nationally for research funding in this arena. Our campus community is uniquely positioned to address the hardest and most controversial environmental problems that cross physical and disciplinary boundaries, including climate change, pollution and resource management.



To this end, the Office of Research is supporting exploration for a Coastal and Marine Sciences Institute to catalyze UC Davis' ability to develop and implement large-scale research programs in coastal and marine sciences, and vastly expand opportunities for external funding of research and academic programs in marine sciences. In addition, the establishment of a formal institute would chart a course for the future of the Bodega Marine Laboratory, one of the university's most valuable resources.

A Coastal and Marine Sciences Institute would foster innovative partnerships to discover, understand and communicate science for effective stewardship of ocean and coastal environments in California and beyond. With research expertise spanning from the Sierra Nevada and high altitude lakes, down California's watersheds, across the Central Valley, through the delta and estuary of San Francisco Bay, and out through the Golden Gate to the ocean, UC Davis is poised to be a major player in addressing the economic, ecological and social challenges of California, and on the rapidly changing and increasingly crowded coastal and ocean environments.

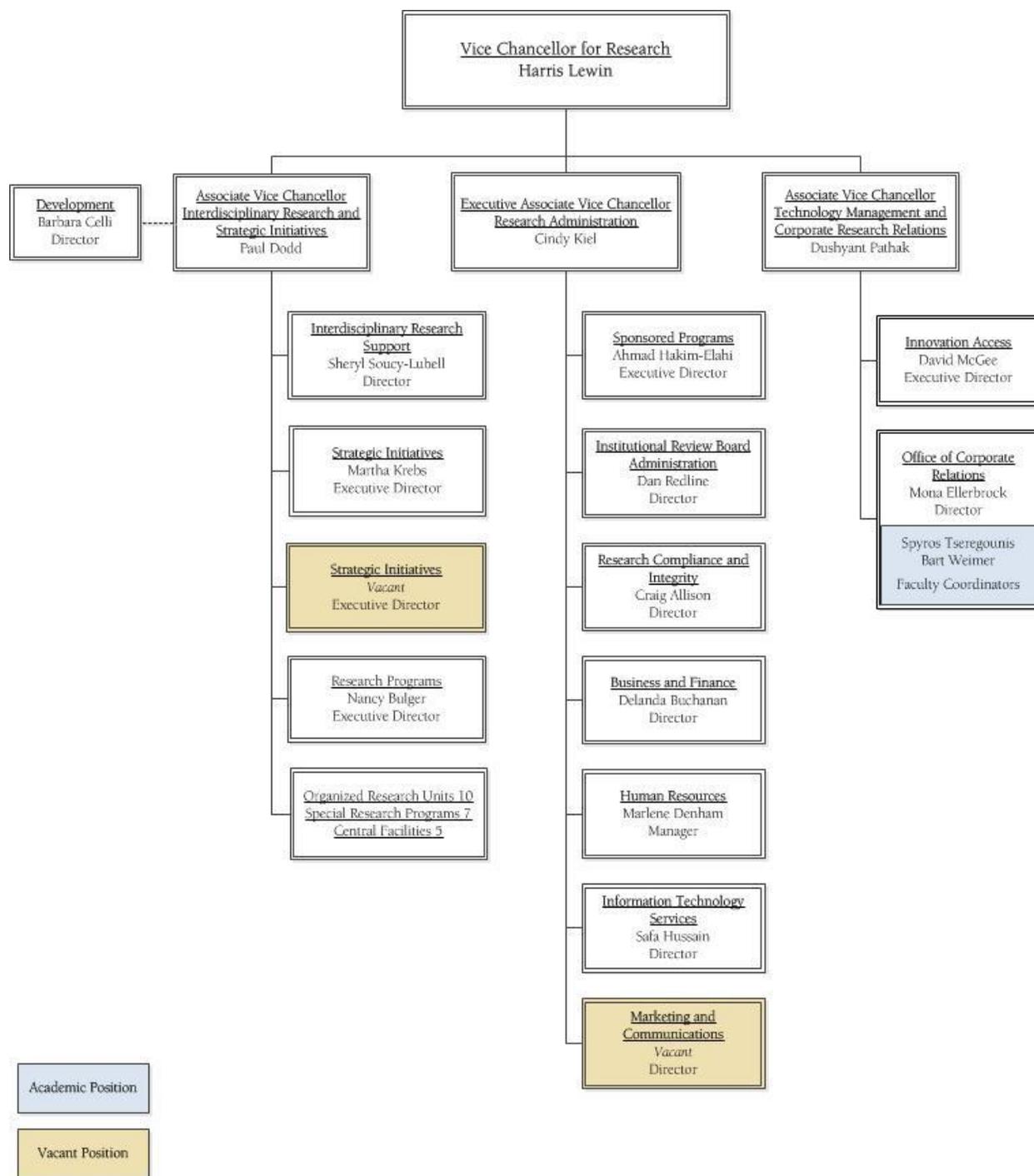
Appendix 1: Research Investments in Science and Engineering

The Research Investments in Science and Engineering (RISE) program, launched in the first half of 2012, was devised to fund interdisciplinary proposals up to \$1 million dollars over 3 years to support frontier investigations across disciplines that are essential to the intellectual and scientific growth of the campus, and the economic development of the region. RISE themes are expected to become self-supporting within a three-year time frame.

RISE Awardees		
Theme Leader	Theme Title	Theme Faculty
George Bruening Plant Pathology	Structural Biochemistry of Plant-Pathogen Interactions to Promote Healthy Crops and Enhance Global Food Security	Gitta Coaker, Plant Pathology; SP Dinesh-Kumar, Plant Biology; Andrew Fisher, Molecular & Cellular Biology; Ioannis Stergiopoulos, Plant Pathology; David Wilson, Molecular & Cellular Biology
Simon Cherry Biomedical Engineering	UC Davis Center of Excellence in Translational Molecular Imaging	Julie Sutcliffe, Biomedical Engineering/Oncology; Ramsey Bawdawi, Biomedical Engineering; Jinyi Qi, Pediatrics; Alice Tarantal, Cell Biology and Human Anatomy; Lars Berglund, Clinical and Translational Science Center; Karen Kelly, Comprehensive Cancer Center
Daniel Cox Physics	ANSWER: Amyloids for Nanoparticle Synthesis, Wiring, Engineering and Remediation	Rrajiv Singh, Physics; Xi Chen, Chemistry, Josh Hihath, Electrical and Computer Engineering, Gang-yu Liu, Chemistry, Michael Toney Chemistry, Ted Powers, Molecular and Cellular Biology, Gergely Zimanyi, Physics
Satya Dandekar Medical Microbiology and Immunology	Protecting the Fragile Intestine: Integrating Microbiota and Mucosal Health	Bruce German, Food Science & Technology; Mark Underwood, Pediatric Neonatology; David Mills, Viticulture & Enology; Ralph de Vere White, Comprehensive Cancer Center; Helen Raybould, Department of VM Anatomy, Physiology and Cell Biology; Richard Pollard, Infectious Diseases; Thomas Prindiville, Gastroenterology & Hepatology
Bryce Falk Plant Pathology	RNA-Based, Amplification Free, Pathogen Identification Using Nano-Enabled Electronic Detection (RAPID-NEED)	Paul Feldstein, Plant Pathology; Erkin Seker, Electrical and Computer Engineering; Maria Marco, Food Science & Technology; Josh Hihath, Electrical and Computer Engineering; Andre Knoesen, Electrical and Computer Engineering
Katherine Ferrara Biomedical Engineering	Center for Content Rich Evaluation of Therapeutic Efficacy (cCRETE)	Steven Currall, Graduate School of Management; Ralph de Vere-White, Comprehensive Cancer Center; Bruce Hammock, Entomology; Dawei Lin, Genome Center; Alexander Revzin, Biomedical Engineering; Clifford Tepper, Biochemistry and Molecular Medicine; Frederic Gorin, Neurology

Jay Han Physical Medicine and Rehabilitation	iWHW at UC Davis (Initiative for Wireless Health and Wellness At UC Davis)	Prasant Mohapatra, Computer Science; Thomas Nesbitt, Family and Community Medicine; Heather Young, School of Nursing; Lars Berglund, Clinical & Translational Science Center
Karl Levitt Computer Science	Cyber Security for Critical Infrastructures	James Bushnell, Electrical and Computer Engineering; Anna Scaglione, Electrical and Computer Engineering; George Barnett, Economics; Nicole Biggart, Graduate School of Management; Hao Chen, Computer Science
Kwan Liu Ma Computer Science	UC Davis Center of Excellence for Visualization	Fu-Tong Liu, Dermatology; Ramsey Badawi, Biomedical Engineering; Robert Faris, Sociology; Susan Verba, Design; Tom Turrentine, Institute of Transportation Studies
Nelson Max Computer Science	New Tools for Understanding, Monitoring, and Overcoming Plant Stress	Julin Maloof, Plant Biology; David Slaughter, Biological and Agricultural Engineering; Neelima Sinha, Plant Biology; Jinyi Qi, Biomedical Engineering
Kimberley McAllister Neurobiology; Neurobiology Physiology and Behavior	I-CAN SZ (Interdisciplinary, Collaborative, Analysis of Neuroimmune-Based Schizophrenia)	Cameron Carter, Psychiatry; David Amaral, Medical Microbiology and Immunology, Julie Sutcliffe, Biomedical Engineering; Simon Cherry, Biomedical Engineering; Judy Van de Water, Psychiatry and Behavioral Sciences; Paul Ashwood, Medical Microbiology and Immunology; Melissa Bauman, Psychiatry and Behavioral Sciences
Edward Pugh Physiology and Membrane Biology; Cell Biology and Human Anatomy	The UC Davis Eye-Pod: Functional Imaging of Single Cells in the Eyes of Living Animals under Normal, Pathogenic and Regenerative Conditions	Paul Fitzgerald, Cell Biology and Human Anatomy; Jon Werner, Neurobiology Physiology and Behavior; Jan Nolta, Center for Regenerative Cures; Susanna Park, Ophthalmology; Scott Simon, Biomedical Engineering; FitzRoy Curry, Physiology and Membrane Biology; Nadean Brown, Cell Biology and Human Anatomy; Hwai-Jong Cheng, Neurobiology, Physiology and Behavior; Marie Burns, Cell Biology and Human Anatomy; Larry Hjelmeland, Ophthalmology; Tom Glaser, Cell Biology and Human Anatomy
Thomas Turrentine Institute of Transportation Studies	Transforming Consumer Energy Use in Vehicles, Buildings and Appliances	Alan Meier, Institute of Transportation Studies; Ken Kurani, Computer Science; Kwan-Liu Ma, Computer Science; Nina Amenta, Computer Science; Glenda Drew, Design; Dan Sperling, Institute of Transportation Studies

Appendix 2: Senior Leadership Organizational Chart



Appendix 3: Office of Research Mission and Vision

Vision: To enable UC Davis to be a global leader in research and technology transfer.

Mission: The Office of Research is the catalyst for advancing the research mission at UC Davis.

We strive to achieve our mission and vision by:

- Providing service and resources that enhance research and other creative endeavors.
- Enhancing partnerships and collaborations with government, industry and other research enterprises.
- Developing infrastructure and policy that promote creativity and an entrepreneurial culture.
- Ensuring that policies and educational programs promote both a culture of innovation and compliance on the UC Davis campus.
- Communicating to the general public and state, national and international decision makers, the value of UC Davis research to the quality of life.

Note: Due to the timing of this report, quantitative data contained herein is considered preliminary and has not yet been fully reconciled for FY 11-12. Similarly, prior year data that has been reconciled since last year's annual report may result in apparent inconsistencies between this year's and last year's data. The Office of Research is also in the process of implementing new systems with business rules that may impact data and reporting in the future.

UCDAVIS

OFFICE OF RESEARCH

1850 Research Park Drive, Suite 300
Davis, CA 95618-6153

Phone: (530) 754-7679
Fax: (530) 754-7894

research.ucdavis.edu
facebook.com/UCDavisResearch