

UC Davis College of Biological Sciences

Transforming Life in the 21st Century





A Message From the Dean

The 21st century has been heralded as the century of biology, and within its first two decades we've seen spectacular discoveries and technologies emerge from the laboratory. There is so much more to do, and I am proud of our college's work at the forefront of understanding the life on our planet and ensuring its sustainability well into the future.

Answering life's biggest questions requires life scientists to collaborate across disciplines and develop innovative solutions to our world's most pressing issues. As a research powerhouse within a top-tier university dedicated to improving human health and global sustainability, the UC Davis College of Biological Sciences is prepared to meet those challenges. With its origins in the earliest days of UC Davis, our college has been a leader in cultivating generations of interdisciplinary life sciences researchers.

From an undergraduate's first biology lab to a postdoctoral scholar's patent application, the curious and creative find a thriving ecosystem of research excellence here. The experiential learning at the core of our educational approach fuels discoveries about the foundations of life and leads to technologies that improve well-being for all species.

We have a vision to lead the way in this century of biology. Through the translational research we conduct and the future scientists we prepare, we drive change from cancer-fighting research and advances in COVID-19 testing to sustainable energy and ocean conservation.

Our alumni, donors and friends are key to realizing this vision. Your generosity and commitment to building an inclusive community of world-class life scientists inspires us. I invite your partnership in advancing our mission to accelerate scientific knowledge and expand innovative educational experiences.

Together, we will reimagine the horizons of research and discovery toward the greater health and well-being of life everywhere.

A handwritten signature in black ink that reads "MARK". The signature is stylized and includes a long, sweeping underline that extends to the right.

Mark Winey

Dean, College of Biological Sciences

A Bolder Vision

From life's molecular foundations to its biggest questions, the biological sciences seek new knowledge to improve life on our planet and innovate solutions we haven't yet imagined. Life scientists bring their unique toolsets and perspectives to the lab bench and beyond, asking the questions and advancing the innovations that will solve our world's most urgent problems:

- Advancing affordable therapies, treatments and cures for human diseases and disorders
- Detecting and managing the impacts of global climate change
- Optimizing human and animal health
- Protecting and restoring ecosystems
- Cultivating climate-resilient crops for global food security
- Supporting evidence-based research through science outreach

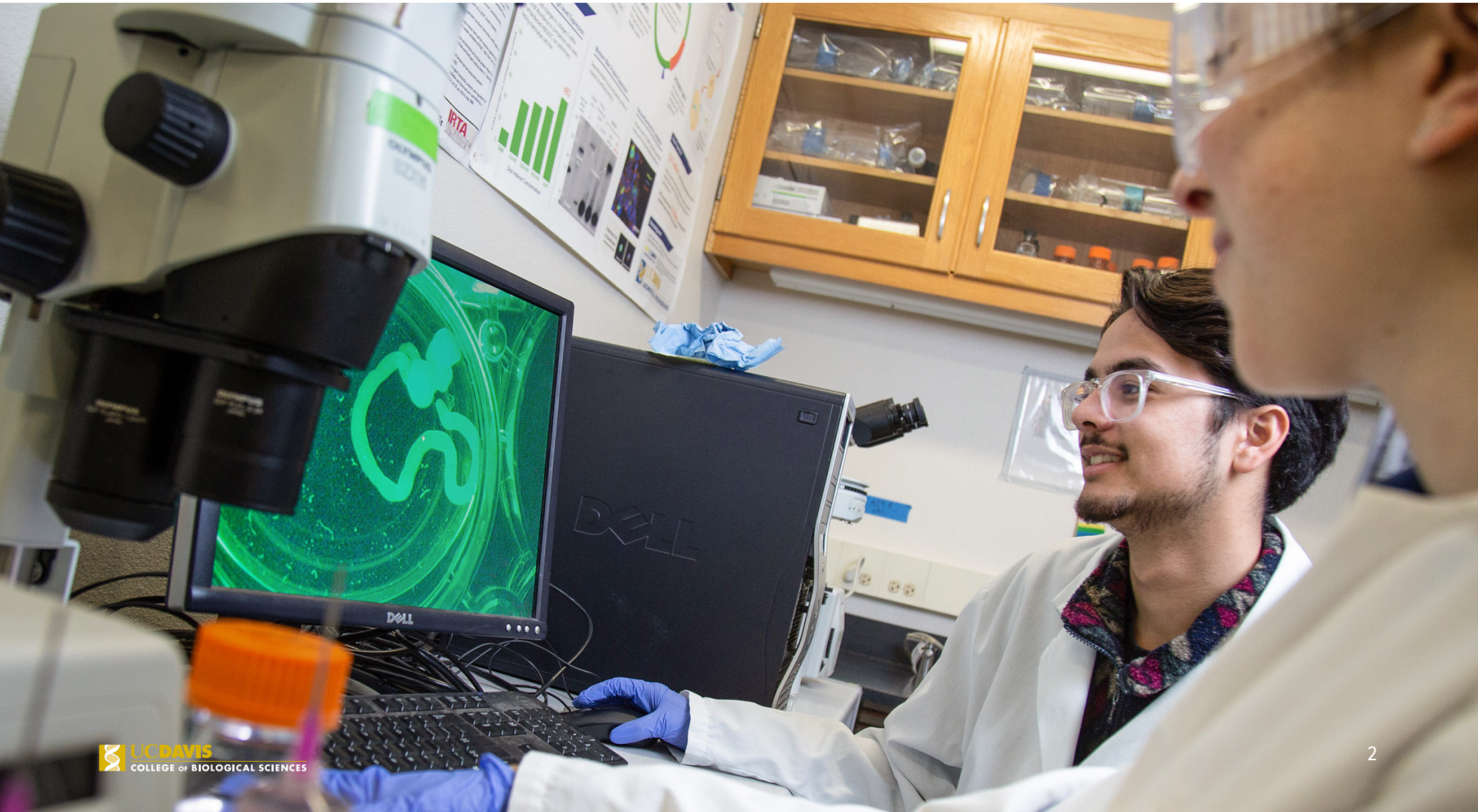
The College of Biological Science is shaping a future of biology that is characterized by excellence, equity and innovation. Building a more sustainable, healthier world will require a multidisciplinary approach that draws insights from all perspectives. **We invite you to join us in pursuing our bold vision for biology in the 21st century.**



With the partnership of visionary philanthropists who share our commitment to sustaining a home for excellence in foundational research and experiential learning, now is the time to address the world's most pressing issues together.

We will ensure that every future life sciences student has access to hands-on research experience, preparing them for leadership in fields from health care and environmental conservation to biopharmaceuticals and academia.

Together, we will forge a path forward shaped by our spirit of collaboration, our pursuit of excellence in life sciences research, and our commitment to education that improves quality of life for all.





UC Davis: Home of a Paradigm Shift in Biology

The biggest discoveries of this century of biology have been and will continue to be made by life scientists. To ensure that the technology and therapies derived from these discoveries are sustainable, equitable and beneficial for both people and planet, we will continue to empower life scientists who understand that service to society is

the ultimate aim of research. Fusing our innovative spirit with our mission of public good, the College of Biological Sciences is ideally positioned to lead this approach.

As one of the few colleges of biological sciences in the nation, **we are a beacon for the role of the life sciences in advancing a university's research enterprise.**

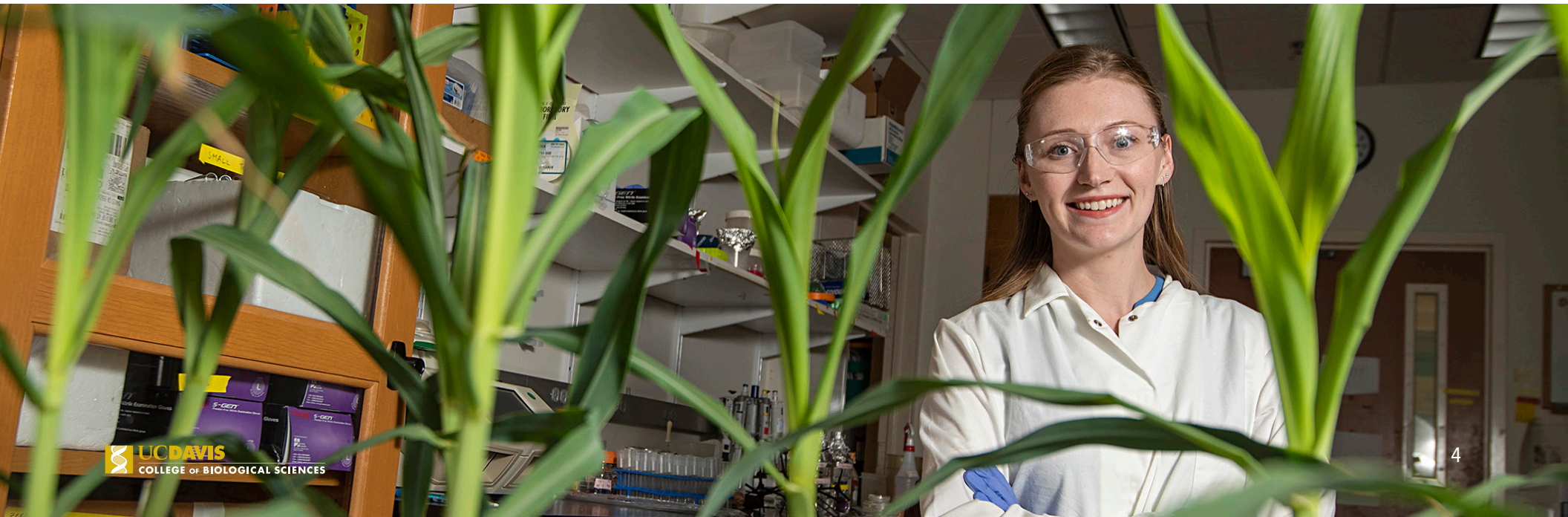
Here, outstanding biologists maximize the strengths of the West Coast's most comprehensive university and unite around shared approaches in order to drive scientific discovery forward. Researchers in our college forge partnerships beyond academic and geographic boundaries—and prepare our students to do the same.

Few institutions have the breadth of world-class interdisciplinary expertise—or the track record of innovation—of the College of Biological Sciences. Whether it's biodiversity researchers uncovering how ecosystems respond to climate change, cancer geneticists translating their findings into targeted therapies, plant biologists developing resilient traits in staple crops, or neurobiologists seeking the neural foundations of learning and memory, **our collaborations across UC Davis fuel the interdisciplinary work that makes decisive progress toward planetary well-being.**

With over 6,000 undergraduates enrolled in 10 majors and nearly 500 graduate students in eight graduate groups, the college sets a globally recognized benchmark for inclusive excellence. Committed to serving all students, we are proud to be **a national leader in advancing the careers of women and first-generation college students** in the life sciences. These leaders will shape the future of biology as they synthesize hands-on experiences in the field or at the bench with fresh perspectives and innovative ideas.

The College of Biological Sciences: A nucleus of research that changes the world

- #1 in the nation for women in STEM among top 50 U.S. universities and colleges
- #1 nationally for biological and biomedical Ph.D.s earned by underserved populations
- 45% of undergraduates identify as the first in their family to graduate college
- 28% of incoming students are from underrepresented groups
- \$61.6 million in research funding awarded in 2020-21
- 15 National Academy of Sciences members and 11 American Academy of Arts and Sciences members





The Opportunity

With the partnership of our alumni and friends, we will continue to foster an equitable, sustainable future of discovery and prepare tomorrow's life scientists to imagine new possibilities and create a better world for all.

We invite you to join us in:

Ensuring Sustainable Support for Tomorrow's Life Scientists

Powering World-Class Faculty Catalysts

Positioning the College for Leadership

Advancing Excellence in Cutting-Edge Research

Each opportunity detailed in the following pages is a powerful way for your gift to lay a foundation of excellence in biological education and research.

Ensuring Sustainable Support for Tomorrow's Life Scientists

The College of Biological Sciences is a leader in engaging undergraduates in innovative experiential learning programs and hands-on research, and in offering graduate students fellowships that enable them to focus on developing their research.

In the field or the laboratory, students can apply their life sciences toolsets firsthand or uncover problems in need of solutions. Such experiences help scholars use their knowledge to address real-world problems, develop crucial career skills and launch their own research projects.

Taking advantage of these opportunities, however, requires time and financial investment. Many students work to pay for their education, which limits their

flexibility to immerse themselves in research with a faculty mentor or at a facility like the Bodega Marine Laboratory. Undergraduate scholarships, graduate fellowships and fully-funded research opportunities enable these future leaders to focus on honing their career skills or conducting their own research projects.

Philanthropic support will sustain our work in making these valuable opportunities available to every student. **We envision a culture in which every student has the opportunity to apply their expertise in the career of their choice and bring their curiosity to life.**



Philanthropic Opportunities

Support student entrepreneurship through seed grants and funds for travel or competitions

\$2,500 ANNUALLY OR
\$50,000 TO ENDOW

Fund undergraduate scholarships

\$5,000 ANNUALLY OR
\$50,000 TO ENDOW

Expand access to undergraduate research experiences at UC Davis field sites and laboratories

\$6,500 ANNUALLY OR
\$100,000 TO ENDOW

Give graduate students the resources to focus on research through fellowship support

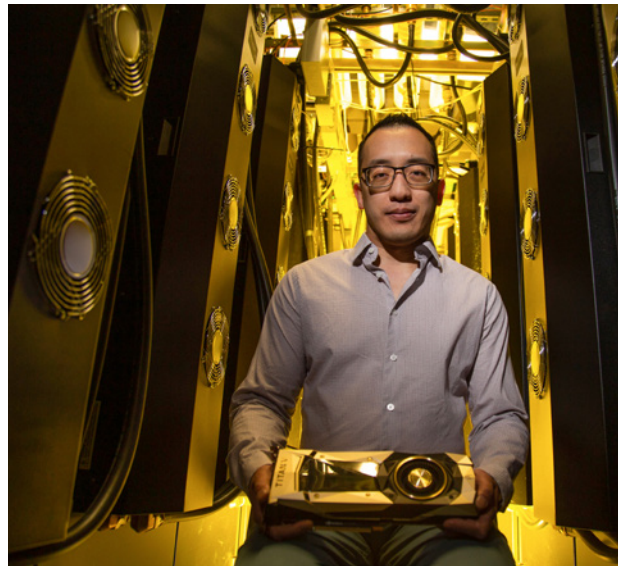
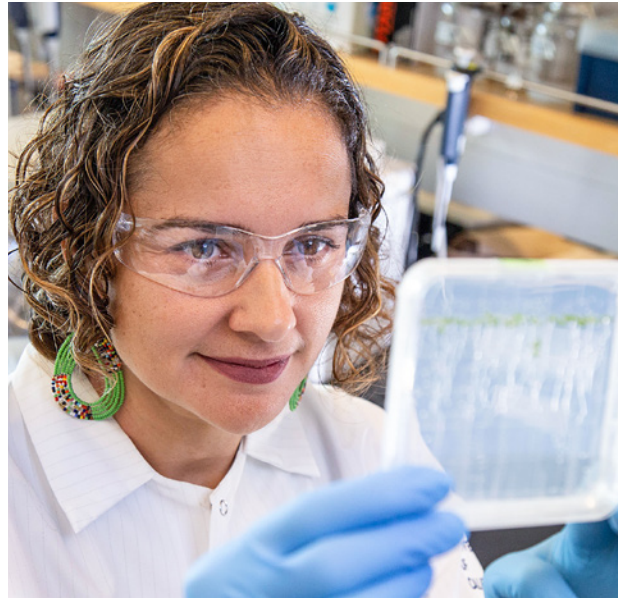
\$20,000 ANNUALLY OR
\$100,000 TO ENDOW

Powering World-Class Faculty Catalysts

Cutting-edge research that leads to discovery and translational technologies starts with world-class faculty and postdoctoral scholars. College of Biological Sciences faculty are globally recognized for their work—and they need a solid foundation of scientific support, including the infrastructure to sustain thriving research in each of our departments:

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

Endowed positions are critical to recruiting and retaining stellar faculty who strengthen the prestige of our research enterprise and amplify the impact of UC Davis innovation. As scholars of international standing, endowed faculty attract research funding that ignites bold ideas, and supports top postdoctoral scholars and graduate students from around the world. Early career faculty and graduate students who are mentored by endowed chairs become leaders in their fields, launch businesses to bring their work to the public and drive research in new directions.



Philanthropic Opportunities

Endow chairs in each department to recruit and retain world-class faculty
\$2 MILLION EACH

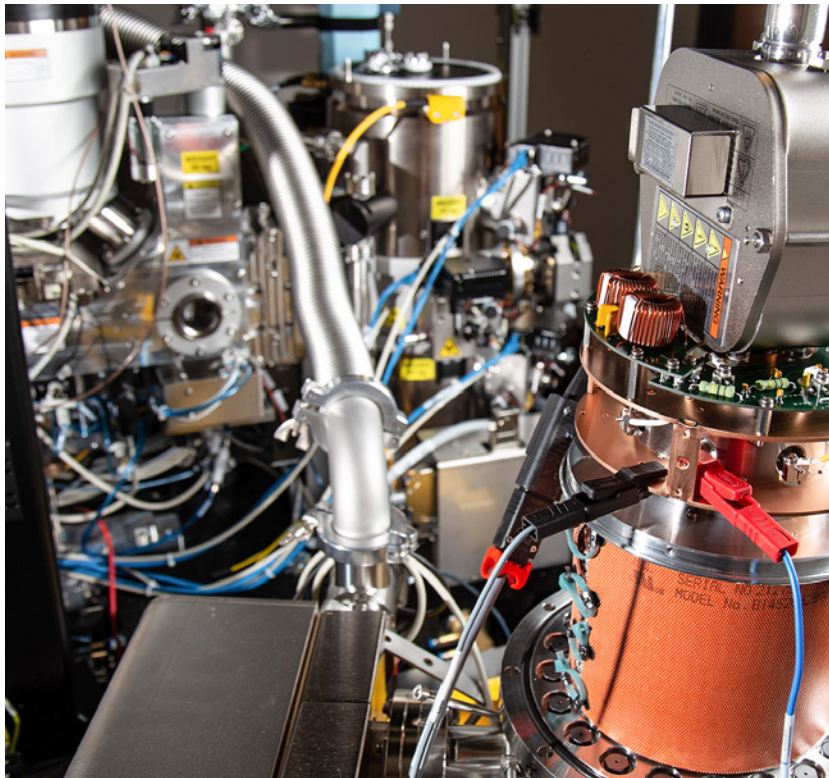
Endow professorships in each department to launch new research and support postdoctoral scholars
\$1.5 MILLION EACH

Empower faculty to respond strategically to emerging research priorities through Faculty Research Funds
UP TO \$2.5 MILLION

Enhance facilities and acquire cutting-edge tools to fully support researchers
OPPORTUNITIES TO NAME FACILITIES UPON REQUEST

To complement the innovation and creative scholarship of faculty in the College of Biological Sciences, UC Davis has invested in core facilities. Many of these facilities are housed within our college, yet support the work of researchers across the university. These laboratories, greenhouses and sequencing facilities have launched many discoveries, and we want to do more to support faculty and staff as they advance excellence in research.

Our goal is to promote world-class research and interdisciplinary innovation by providing robust support and state-of-the-art facilities for scientists in the college.



Freeze Frame: The Cryo-Electron Microscope

The College of Biological Sciences' Electron Microscopy Facility is home to a state-of-the-art cryo-electron microscope. This tool allows researchers to see more detailed views of molecules than ever before—and it's particularly good at producing 3-D images of biomolecules, which tend to degrade in electron microscopes.

Cryo-electron microscopy addresses an ongoing problem in microscopy: high-energy electron beams used in traditional transmission electron microscopy evaporate water in biomolecules and then burn the remaining proteins. Crystallizing the biomolecule sometimes helps produce a clearer image, but many proteins don't crystallize well, leaving molecular biologists with indistinct images of the molecules they study.

Cryo-electron microscopy instead uses rapidly frozen samples and an exquisitely sensitive camera to produce high-resolution images. By piecing multiple scans together, researchers can even create videos of molecules in action.

Through their work with the cryo-electron microscope, UC Davis biologists have already realized that molecular systems are far more nuanced than previously thought. For example, James Letts, an assistant professor of molecular and cellular biology, recently discovered that two mitochondrial electron transfer complexes in the respiratory system can “talk” to each other, relaying information about their cellular structures through ubiquinone molecules. The cryo-electron microscope produced high-resolution 3-D images of these proteins, showing how the two complexes work together.

Game-Changing Microscopy



Michael Paddy is the technical scientific advisor for the Light Microscopy Imaging Facility, where he helps researchers achieve clear views of live cells. The facility is driving innovation in microscopy technology as well as cutting-edge cell research: the LMI is beta-testing the only lattice light sheet

microscope in the western United States.

Paddy holds a Ph.D. in biochemistry from the University of Oregon and completed postdoctoral work at the University of California, San Francisco, in cell biology. His Ph.D. demonstrated that the boundary lipid on integral membrane proteins was just a trick of the light—an effect produced by the imaging methods used to analyze these proteins.

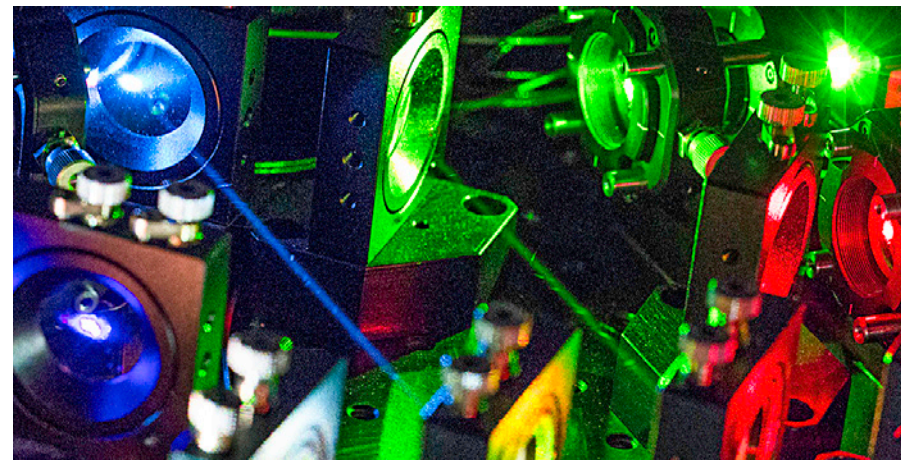
Drawing on his expertise in cell and tissue imaging, Paddy trains and consults with researchers as they use the facility's microscopes and flow cytometers. He manages the LMI's instruments as well as the imaging and analysis resources necessary to create meaning from the data.

Paddy helped establish the LMI in 2001 with two microscopes, and since then has added seven more advanced instruments to the facility. Currently, the LMI offers low-light live, super-resolution, fixed and high-volume imaging to researchers across UC Davis.

Spaces for Research-Driven Collaboration

In addition to the Electron Microscopy Facility, the College of Biological Sciences is home to:

- The **Light Microscopy Imaging Facility (LMI)**, which uses advanced fluorescence microscopy to produce images at super-resolutions, giving researchers a high-definition view of living cells.
- The **24 Research Greenhouses**, which house over 3,000 plant species from every major climate region and serve as an educational beacon, a research resource and a genetic diversity preserve.
- The proficient and efficient **DNA Sequencing Facility**, which can process over 1,100 DNA template samples in a 24-hour period, rapidly producing high-quality results.
- The enhanced **Zebrafish Core Facility**, where researchers study this model organism's development from embryo to adult. More than 1,500 tanks hold roughly 20,000 zebrafish at various stages of their lifecycles.



Positioning the College for Leadership

Flexible, unrestricted support allows the college to power sea change in the life sciences. These funds enable the college to develop experimental outreach programs, study abroad or research opportunities, and other priorities that might not otherwise receive support. These resources bolster our mission to provide transformative educational experiences to every interested student and develop the next generation of life scientists.

For example, the Young Scientist Program was founded by a graduate student who wanted to make STEM careers accessible for students with limited access to STEM fields. A seed grant from Dean's Circle funds helped the Young Scientist Program develop from an idea into an initiative that now connects K-12 students from communities throughout the San Joaquin Valley with quality science education.

Unrestricted support has also led to the development of two new majors that will prepare undergraduates for interdisciplinary careers. Students who major in quantitative biology will have foundational training in bioinformatics and computational analysis. Human biology majors will gain an understanding of how the body's systems work in concert with the larger environment,

from genetic foundations to social relationships.

These programs and other professional development initiatives—including study abroad, AvenueB, the BioLaunch First-Year Experience Program and more—are visible markers of the ways the College of Biological Sciences equips its students with the tools and educational foundation they need to change the world.

By enhancing existing programs and seizing new opportunities, we are investing in current and future visionary leaders who will transform how biology improves life for people, animals and the environment.

Philanthropic Opportunities

Give unrestricted support to the Dean's Circle fund, positioning the college to respond to new opportunities and immediate challenges

\$1,000+

Enhance new majors such as human biology, quantitative biology and systems biology

\$50,000 ANNUALLY OR \$1 MILLION TO ENDOW

Support AvenueB to help community college transfer students transition smoothly into UC Davis experiential learning and career development opportunities

VARIOUS OPPORTUNITIES TOTALING \$285,000



Advancing Excellence in Cutting-Edge Research

Cross-disciplinary collaboration is at the heart of UC Davis' public impact, and the College of Biological Sciences is home to three interdisciplinary centers that propel innovative research and translational outcomes: the Center for Neuroscience, the Genome Center and the Center for Population Biology.

Scholars at all levels benefit from these unique environments of cross-disciplinary interaction. Alongside the brightest minds across campus, undergraduate and graduate students investigate the most important scientific challenges of our time and gain real-world experiences to fuel their career development.



The Center for Neuroscience: Philanthropic Opportunities

Researchers have made great advances in learning about the brain and mind, but there is still so much to discover. The Center for Neuroscience leads the way in cutting-edge research of the nervous system, across the lifespan and from genes to behavior. The center convenes world-class researchers from all colleges and schools to understand brain development, advance discoveries and treatments that promote health, and transform next-generation technologies.

Philanthropic support for key priorities will accelerate discoveries with immediate impact on brain health:

- Name the Center for Neuroscience
- Expand the neuroscience dry lab with state-of-the-art technology
- Endow a Center for Neuroscience research fund to launch new, experimental investigations
- Endow chairs in developmental neuroscience and learning, memory and plasticity

The Center for Neuroscience is also a driving force behind the Healthy Brain Aging Initiative, which unites our neuroscience, medical and translational strengths to advance novel therapies and technologies to optimize brain health. We invite the partnership of philanthropists to:

- Fund innovation seed grants for research and technology development at the cutting edge of brain science
- Sponsor a signature outreach initiative to change how the public views brain aging
- Prepare the next generation of brain health leaders through fellowships and enhanced clinical opportunities



The Genome Center: Philanthropic Opportunities

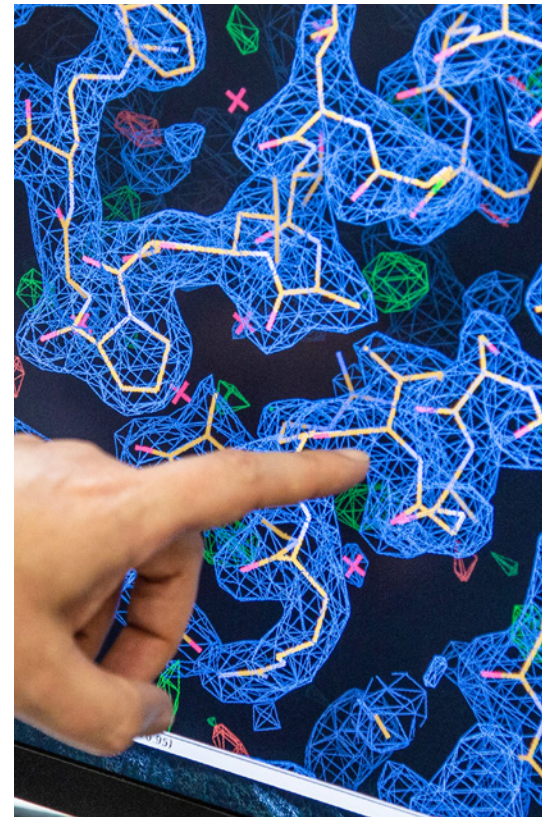
Understanding the language of genes is the key to unlocking life's blueprint. The Genome Center provides researchers across the university with cutting-edge technology to investigate genes, organisms and populations, and to translate these insights into advances in medicine, agriculture and sustainability.

As just one timely example of the far-reaching impact of this work, the Genome Center developed and runs UC Davis' renowned asymptomatic COVID-19 rapid testing program. Funded with a combination of state and federal grants and philanthropic donations, this highly successful program is a central component of the Healthy Davis Together partnership, which is nationally recognized as a model for how universities and communities can join together in advancing vital, equitable public health solutions.

The Genome Center is home to several key research facilities:

- The **Bioinformatics Facility** has the expertise and infrastructure necessary to analyze large swaths of genome sequence data.
- The **DNA Technologies and Expression Analysis Facility** provides high-throughput sequencing and genotyping technologies as well as RNA sequencing and genome analysis to help researchers answer life's biggest questions.
- The **Metabolomics Facility** offers researchers technologies to analyze metabolites (small molecules that are the foundation of all life) produced by a variety of biochemical pathways.
- The **Proteomics Facility** provides affordable state-of-the-art protein analysis that gives researchers insights into cellular development, the mechanisms of disease and much more.
- The **Targeting Induced Local Lesions in Genomes (TILLING) Facility** offers genetic mutations of rice, tomato and other model organism species and high-throughput sequencing technologies that allow researchers to pinpoint mutations in plant genomes.

A gift to name the Genome Center will sustain cutting-edge research and enable its director to further a thriving ecosystem of researchers dedicated to solving the inner workings of our genes.





The Center for Population Biology: Philanthropic Opportunities

The Center for Population Biology (CPB) is a hub of research that advances our understanding of diversity in biological systems.

The center fuels a culture of creativity, productivity and research with global impact by supporting graduate student mentorship, postdoctoral training and interdisciplinary research projects. The CPB's broad mentor network promotes independence in postdoctoral scientists and cultivates an environment where graduate students work as collaborators rather than assistants.

In the face of rapid environmental change, CPB scientists integrate the most advanced experimental, molecular, genomic and mathematical approaches in order to solve our most urgent collective challenges. CPB researchers investigate problems in conservation biology, biodiversity research, global food production and human

health, and species' responses to human-induced environmental change—with significant applications for the management of natural resources and the preservation of biological diversity.

Harnessing the strengths of nearly 50 faculty from eight departments across three colleges, plus a prestigious postdoctoral fellowship, the Center for Population Biology delivers transformational insights into the ways organisms and ecosystems adapt to a rapidly changing world and cultivates the next generation of leaders in ecology and evolution.

Philanthropic support for key priorities will accelerate cutting-edge research with global impact:

- Sustain the postdoctoral fellow program
- Fund seed grants to launch cutting-edge, collaborative graduate projects
- Catalyze new research initiatives on campus



An Invitation

Philanthropy will play a vital role in fulfilling our bold vision for the College of Biological Sciences. We invite you to join us in advancing leading-edge interdisciplinary research with transformative impact and inclusive biological education that transforms the world.

This century of biology holds infinite possibilities for improving quality of life—and our approach galvanizes life scientists to transcend disciplinary boundaries and reimagine what is possible. The partnership of alumni and friends who share our deep commitment to excellence in life sciences research makes all the difference in bringing our vision to life.

Together, we will uphold UC Davis as a global nucleus of innovation and as the home of discoveries that ensure a sustainable future for all.

For more information please contact:

Shari Kawelo

Executive Director

Development and External Relations

College of Biological Sciences

Phone: (530) 752-2097

Email: sekawelo@ucdavis.edu

Website: biology.ucdavis.edu

Opportunities for Impact

Your gift can create impact in a number of ways, depending on your philanthropic goals and priorities. If you wish to create a named fund, we would be pleased to work with you to determine a name of your choosing that may honor a loved one, family member, mentor or professor.

Immediate-use funds

- Are expended during a short, defined period of time
- Provide immediate impact to the benefiting unit
- Offer the benefiting unit the flexibility to quickly respond to urgent priorities

Endowed funds

- Are invested and maintained in perpetuity for long-term impact
- Provide stable, self-sustaining support to the benefiting unit
- Continue to grow in value, since every year a portion of the income is reinvested in the principal
- Offer UC Davis the ability to seize new opportunities as they arise
- Leave a legacy of excellence for generations to come

Immediate-use funds

	\$1-\$999	\$1,000-\$4,999	\$5,000-\$49,999	\$50,000	\$100,000	\$250,000	\$1M	\$2M	\$5M+
New opportunities and emerging priorities	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dean's Circle funds		✓	✓	✓	✓	✓	✓	✓	✓
Faculty research or teaching award			✓	✓	✓	✓	✓	✓	✓
Undergraduate scholarship or graduate fellowship			✓	✓	✓	✓	✓	✓	✓
Research or program fund				✓	✓	✓	✓	✓	✓

Endowed funds

	\$50,000	\$100,000	\$250,000	\$1M	\$1.5M	\$2M	\$5M+
Undergraduate scholarship or graduate award	✓	✓	✓	✓	✓	✓	✓
Graduate fellowship		✓	✓	✓	✓	✓	✓
Research fund			✓	✓	✓	✓	✓
Program				✓	✓	✓	✓
Professorship					✓	✓	✓
Faculty chair						✓	✓
Deanship, center or institute						✓	✓

If you have a specific interest or philanthropic goal that is not represented here, please contact us to discuss how we might help realize your vision.



Ways of Giving

We respect that, for each donor who wishes to provide significant philanthropic support, there are personal, financial and gift planning aspects to consider. We will work with you to realize your philanthropic vision and develop the gift plan that best meets your needs. At your request, we can also work with your tax and financial advisors.

Following are various gift types and their associated benefits. You may wish to consider a mix of gift types to help you achieve both your philanthropic and financial objectives.

Cash Gifts

- Are the simplest and most popular giving method
- Can be tax deductible in the year they are given

Gifts of Securities

- Include stocks, mutual funds and bonds
- Can avoid capital gains taxes
- Can provide an income tax deduction for the full fair market value of long-term, appreciated securities

Gifts of Real Property

- Include land, farms, personal residences, and rental or commercial property
- Can avoid capital gains tax on appreciated assets
- Can provide an income tax deduction for the full fair market value of long-term, appreciated property
- Can eliminate property expenses and taxes
- Can provide continued use for life through a retained life estate gift

Bequests and Living Trusts

- Establish the UC Davis Foundation as a beneficiary of your estate
- Can provide an estate tax deduction equal to the value of the gift
- Offer flexibility by allowing you to provide for family first

Retirement Plan Gifts

- For current gifts, utilize the IRA Charitable Rollover provision (for donors aged 70½ and older)
- Name the UC Davis Foundation as a beneficiary
- Can eliminate income tax on the plan distributions
- Preserve the plan's full value for gift purposes

Life Income Gifts

- Include charitable remainder trusts and gift annuities
- Can provide potential tax savings on income, estate and capital gains
- Generate income for you and/or your loved ones for a fixed period of time or until your passing
- Distribute the remaining assets to the UC Davis Foundation