

TranSMission

News from the College of Natural Sciences & Mathematics

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A STORIED LEGACY & A BRIGHT FUTURE

The early days of McCarthy Hall.

A \$40 MILLION RENOVATION WILL HELP MODERNIZE McCARTHY HALL

When the building that would eventually become McCarthy Hall was first envisioned, Cal State Fullerton was not much more than a few temporary classrooms surrounded by orange groves. Now, with 110 permanent buildings, over 4,100 full- and part-time faculty and staff, an enrollment of over 40,000 students, and 110 degree programs, CSUF is one of the largest, most diverse, and most innovative universities in the California State University system.

Started in late 1959 and completed in 1963, the Science Building was truly a marvel of its time. Its six floors were nearly an acre each, and with a full basement, the structure boasted around 300,000 square feet of classroom, office, lab, and multipurpose space. This made it the largest building in the state college system at the time, and purportedly one of the largest in the nation, as well as the biggest structure in the Fullerton area. All for a price tag of just over \$5.7 million, which was a relatively modest budget even back then.

Designed by the State Division of Architecture, the façade represented a major departure from the “prison-style architecture” that had dominated state college buildings in the previous decades. With continuous six-story windows on two sides and hexagon-shaped grillwork on the other two,

the building quickly became an icon. Its motif was incorporated into the designs of other campus buildings over the next two decades, and it also set a precedent for buildings in the state university system.

BUILT TO GROW WITH THE CSUF COMMUNITY

While the architects were focused on creating something that would stand up and stand out, Miles McCarthy, who had been hired as one of the first five permanent professors and was the dean of science, math, and engineering at the time, spent the better part of 1960 in his shared temporary office creating plans for what would go inside.

MESSAGE FROM THE DEAN:

How Space Matters to Learning



Few, if any, have had a greater impact on the growth of Cal State Fullerton than Miles McCarthy. The first head of science and mathematics at CSUF, Professor McCarthy had a vision that transformed CSUF from a small regional college to a nationally recognized university that attracts top talent from across the globe.

Every day, we see Professor McCarthy's vision in action as faculty and students conduct original research in biology, physics, geology, chemistry, biochemistry, and mathematics. We also see it in the impact our alumni make in our community and on the world as they go on to distinguished careers in their chosen fields.

Now, with a \$40 million renovation budget approved for McCarthy Hall by the state of California and the university, we enter a new period of transformation as we look to build on Professor McCarthy's legacy. This is the time to dream and partner with the large and growing network of alumni, donors, companies, and community members so we can create an inspirational space that showcases our mathematics and science programs.

Building a space that gives our faculty and students access to the most advanced resources and best teaching practices is vital to our mission. With your support, we can continue to grow our leadership in research and education, and propel our students and faculty to reach their full potential for decades to come.

Marie Johnson, Ph.D.
Dean, College of Natural Sciences & Mathematics



McCarthy Hall in its current form.

"Our faculty and students do amazing work and we are very much looking forward to renovating MH space to put math and science on display and to create informal student learning spaces. Miles McCarthy's vision created an ideal building and we hope to continue and renew his legacy with the renovation work we are undertaking."

Marie Johnson, Ph.D., Dean, College of Natural Sciences & Mathematics

"Miles had a definite vision for what the school would become, and that helped shape what went into the Science Building," says Lawrence de Graaf, who was also one of the first professors at CSUF, and shared an office with McCarthy in those early days. "I often saw him with blueprints sprawled out on his desk, laying out the plumbing, electrical, and other equipment needed for the biology, chemistry, and physics labs."

A lot of factors went into designing the building's functionality, says de Graaf, because the plan called for it to house just about everything the faculty and students needed at first, with departments and services outside the sciences moving out as other buildings were built. The school's library was in the basement for a time, and the building was also home to a theater, an art gallery, the student affairs center, and student government offices,

among other things. Partial walls and cubicles divided many of the rooms, and faculty often shared offices.

The budget didn't stretch as far as McCarthy would have liked, however - as any CSUF student or alum knows, the school ran out of funding to add escalators past the fourth floor, and only one of the proposed second-floor walkways connecting to other academic buildings was ever built.

EXPANDING ON MILES MCCARTHY'S VISION

When Professor McCarthy joined the CSUF faculty, he brought a strong background in scientific research with him. And during much of his time at CSUF, he remained active in research as well, working on several federally

funded projects. "At the time, most of the other schools in the state university system were geared toward preparing people to become teachers," says de Graaf. "Professor McCarthy's focus on research laid an important foundation for CSUF that wasn't true of other state colleges, helping to turn CSUF into a true liberal arts college and attracting more professors and students interested in research opportunities."

In addition to helping design the building that now bears his name, McCarthy oversaw much of the initial hiring for the school. "Whether it was developing a pre-med program or finding ways to involve students in research opportunities, Miles McCarthy left a huge imprint on CSUF, and on the sciences here in particular," says biology professor and former colleague Steve Murray.

"I don't know if the long-awaited elevator to the sixth floor is in the cards or not... but we are excited about this renovation."

Steve Murray, dean and biology professor emeritus and former colleague of Professor McCarthy

In 1984, the Science Building was renamed McCarthy Hall, and over the years, it has seen numerous transformations. "Keeping up with advances in science and technology, and making sure our students have access to state-of-the-art equipment and facilities has always been a priority, but can sometime be challenging," says Murray.

Now, that opportunity presents itself once again, this time in the form of \$40 million in funding from the state of California. That may seem like a lot, but McCarthy Hall is also an immense

building that is long overdue for renovation, and \$40 million won't cover everything on the school's wish list.

"I don't know if the long-awaited escalator to the sixth floor is in the cards or not," quips Murray, "But we are excited about this renovation, which will give our students the kind of modern lab and classroom space they need to excel in cutting-edge scientific research, and to prepare them to be leaders in their fields."





NSM Inter-Club Council Clubs

- American Medical Student Association (AMSA)
- Beta Psi Omega (BPO)
- Biology Graduate Student Club (BGSC)
- Chemistry and Biochemistry Club (CBC)
- Data Visualization Club (DVC)
- Flying Samaritans
- Geology Club
- Latino Medical Student Association
- Pre-Medical Latino Undergraduate Society (LMSA Plus)
- Physician Assistants Coming Together (PACT) Club
- Physics Club
- Pre-Dental Society
- Pre-Veterinary Club
- Pursuing Research in Mathematical Endeavors (PRIME) Club
- Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)
- Spanish for Health Services (SHS) Club
- Student Health Professions Association (SHPA)
- SMART Girls – Sisters in Mathematics and Academic Relations in Teaching Club
- tEYEans Pre-Optometry Club

THE CASE FOR INVOLVEMENT

College clubs provide students with opportunities to make friends and socialize around shared academic interests, hobbies, or intended professions. They facilitate networking with peers, faculty, and alumni, and enable students to gain exposure to potential research, career, or advanced degree paths.

“Student development research shows that students with strong support systems are more likely to persist and obtain degrees than those who do not have such support,” explains Colleen McDonough, assistant dean for student affairs in the College of Natural Sciences & Mathematics, advisor to the NSM Inter-Club Council (ICC), and advisor to Beta Psi Omega, a biology service fraternity. “Included in these support systems are faculty and staff advisors who often advise not only the student clubs, but also become mentors and advisors to individual students.”

The NSM-ICC connects students to these opportunities in both NSM and the greater CSUF campus, allocating student funds for conference travel and hosting events throughout the academic year. “Conference travel funds, which go to 100-plus students each year, are particularly important because undergraduate research is such an integral part of the NSM student experience,” says McDonough. “The event budget allows our 18 clubs and organizations to host social and academic gatherings pertinent to their academic and professional pursuits.”

The NSM-ICC also hosts events to showcase clubs and encourage involvement. In October, its Fall Festivities, a Harry Potter-themed carnival where clubs and research groups hosted tables with activities to attract members, drew more than 1,000 students, faculty, and staff. The ICC-hosted Spring Research Symposium, part of NSM Week, had 130-plus presenters and drew one of the biggest turnouts to date. The ICC has also expanded its social media presence to effectively promote individual club and ICC events.



Students participate in the Harry Potter-themed Fall Festivities carnival.

CLUBS BECOME SUPPORTIVE COMMUNITIES

Britt Rhodimer, NSM-ICC chair and a senior majoring in ecology and evolutionary biology, has experienced the benefits of club involvement firsthand and tries to engage others through her role with the ICC.

Having just transferred to CSUF in fall 2017, Rhodimer has already been referred by a peer club member for jobs on campus and hired thanks to the same peer’s helpful resume feedback.

“Another club member was kind enough to provide me with a list of available environmental science jobs when I was starting to doubt my prospects,” she says. “And a third taught me skills I needed to excel in a molecular biology lab, including how to read and analyze complex research papers and use various lab equipment.” •

ALUMNI PROFILE



Dr. Calvin Lowe meets Cal State Fullerton students at the “Think Like Einstein” event.

Dr. Calvin Lowe (BA '86): A HERO FOR SICK KIDS

“The track record at Cal State Fullerton for helping students get into medical school is exceptional.”

Dr. Calvin Lowe (BA '86)
Medical Director,
Children's Hospital Los Angeles

Every day, parents across Southern California put their children in Dr. Calvin Lowe’s hands. Having worked at Children’s Hospital Los Angeles for more than 20 years, he currently serves as the Medical Director of the Children’s Emergency Transport Team, as well as a Clinical Associate Professor of Pediatrics at the Keck School of Medicine of USC. He’s appeared on Larry King and BBC radio, and has been published in numerous medical journals. But it all started at Cal State Fullerton, where he graduated with a BA in Chemistry in 1986.

“When I first started college, I wasn’t sure what I wanted to do,” says Dr. Lowe. “I thought about accounting, but when I met with Dr. McCarthy about the possibility of pursuing a career in the medical profession, he gave me a lot of great counseling and encouragement. He was a wonderful mentor, and along with the Health Professions Committee, he helped me create a path that took me from Cal State Fullerton to medical school in Irvine, and then on to a career in pediatrics at CHLA. The track record at Cal State Fullerton for helping students get into medical school is exceptional.”

Along with McCarthy, Dr. Lowe credits chemistry professor Andrew Montana as playing a key role in his success. “I formed a special bond with Professor Montana,” says Dr. Lowe. “Our class sizes were small, so you got to know the professors and other students well. Professor Montana created a very relaxing environment in the chemistry department, and we shared a lot of interests. He helped teach me about creating a balance between my work and my life that has served me well ever since.”

When he isn’t saving kids’ lives, Dr. Lowe participates in triathlons, is active in his church, and can often be found rooting for the Titans whenever they’re on TV, and sometimes even at games. “I’m a very proud alumni, and I look forward to being more active in the alumni community.”

For those considering a career in the health professions, Dr. Lowe has this advice: “Do some volunteer work to see what it’s like. There are EMT courses where you get to ride in an ambulance and shadow medical professionals. Having real-life experience will help you decide if it’s the right path for you. And of course, take advantage of all the resources Cal State Fullerton has to offer.” •

Student Spotlight



Graduate student **Evelyn Bond**, who studies the reproductive physiology of surfperches, and physics alumna **Alyssa Garcia** (BS '17), who conducted groundbreaking gravitational-wave research as an undergraduate, have been awarded National Science Foundation Graduate Research Fellowships to support their master's or doctoral degree research and training in STEM.



Biology graduate student **Alexis Barrera** recently published an article in *The Orange County Register* detailing her research into links between sea anemones' environmental exposure and aggressive behavior, as well as her involvement in a monitoring and protection project for rocky intertidal sites.



Three young Cal State Fullerton physicists participated in the International Research Experiences for Undergraduates program, funded by the National Science Foundation, last summer. Alumnus **Paris Pijuan** (BS '17) studied how to modulate mechanical power using light at the Institut Néel in Grenoble, France. **Denyz Melchor** investigated primordial black holes at Monash University in Melbourne, Australia. And **Monika Tadrous** studied living cells in complex biological environments at the Université Grenoble Alps in France.

COLLEGE NEWS



Paleontologists **Nicole Bonuso** and **James Parham**, both associate professors of geological sciences, led Cal State Fullerton's efforts in the multi-institution Eastern Pacific Invertebrate Communities of the Cenozoic project. They collected fossil data on marine invertebrates and digitalized collections for use by scientists and the public. Graduate student **Crystal Cortez** and undergraduates like **Jolene Ditmar** (now a graduate student) supported the researchers, identifying, cataloging, and photographing Orange County specimens up to 66 million years old.



As a geological sciences undergraduate, **Isaac Magallanes** (BS '17) identified and studied the prehistoric *Titanotaria orangensis*, a 6 million- to 7 million-year-old tuskless walrus discovered in Orange County. His research with paleontologist James Parham, associate professor of geological sciences, has been published in *PeerJ – The Journal of Life and Environmental Science*. Geology alumnus **Gabriel-Philip Santos** (MS '18) and former postdoctoral scholar **Jorge Velez-Juarbe** are also co-authors.

Research into manta rays' unique food filtration system – and its potential applications in filtration system design – by graduate student **Raj Divi** and his research adviser **Misty Paig-Tran**, assistant professor of biological science, was recently published in the peer-reviewed scientific journal *Science Advances*.



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