

FACILITIES AND RESOURCES

University of California San Diego (UC San Diego)

The University of California San Diego (UC San Diego) is nationally recognized for its high caliber research, educational and clinical efforts, and its local environment, which is excellent to support the academic success of potential hires. The UC San Diego Campus was established in 1959 and is now one of the nation's leading research universities, with a faculty that includes seven Nobel laureates and eight recipients of the National Medal of Science. The campus is first in the 10-campus University of California system in federal research dollars, and reached a new milestone for the fifth consecutive year by receiving \$1.4 billion in sponsored research funding for FY2020 (July 1-June 30). UC San Diego was also named the best public university in the nation for contributions to social mobility, research and public service by *Washington Monthly*, and was ranked 4th among public research institutions in the U.S. by *Nature Index* for "high-quality science."

Equity Diversity and Inclusion

UC San Diego is committed to cultivating a diverse and inclusive university community and has developed and continually implements the Strategic Plan for Inclusive Excellence. The plan is focused on three core tenets of increasing access and success of all students, staff, and faculty members, creating a welcoming climate, and ensuring institutional accountability. These efforts are led by Dr. Becky Petitt, the Vice Chancellor of Equity, Diversity, and Inclusion, and her office, which has developed educational resources and annual review processes for improving EDI efforts on campus.

Scientific Environment

The UC San Diego campus provides an ideal environment for the sharing of information, including easy to reach consultation with colleagues, access to the library facilities, and many shared resources and core services. The environment at UC San Diego is multidisciplinary and academic. To support the development of early stage investigators, UC San Diego provides comprehensive academic and research ethics training opportunities free of charge. UC San Diego maintains the Young Investigator Fund Opportunities website, which provides up-to-date information on relevant funding opportunities and deadlines, workshops and other resources to facilitate and support the investigators transition towards independence. The UC San Diego Altman Clinical and Translational Research Institute (ACTRI) provides additional mentored research career development opportunities (e.g., KL2 funding, community engagement pilot grant funding and courses, and related resources).

- **Animal:** UC San Diego is fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care, International (AAALAC), and holds an approved NIH Assurance and USDA License. There are currently approximately 204,000 square feet of animal facilities at 32 locations. Support includes quarantine rooms, sterile operating rooms, post-surgical recovery rooms, and radiology and diagnostic laboratory services. There is also a farm facility that provides indoor and outdoor housing for farm animals and other species. Veterinary care is provided on a 24-hour basis, including weekends and holidays, by a staff comprised of veterinarians and animal health technicians. Research support services, including training classes, seminars, and wet labs, are offered throughout the year.

Resources

- **Biomedical Library:** UC San Diego faculty members and staff have access to the Biomedical Library on campus. The largest library of its kind south of Los Angeles and a designated National Library of Medicine Resource Library, the Biomedical Library serves as the quintessential intellectual resource for San Diego's dynamic life sciences and biotech industries, area physicians, and healthcare professionals. The state-of-the-art facility includes an impressive collection of printed books and journals, and provides wired and wireless access to hundreds of specialized databases. The UC San Diego Libraries—the first academic library in Southern California to partner with Google in its efforts to build a global digital library—are widely recognized as innovative leaders in the development, management, and delivery of digital resources to support the university's world-class research and instruction.

- San Diego Supercomputer Center (SDSC): The San Diego Supercomputer Center, a leader in data-intensive computing and cyberinfrastructure, provides resources, services, and expertise to UC campuses as well as the national research community including academia, industry, and government. Core services available via recharge to UC researchers include high performance research computing and data storage; IT equipment co-location services; grant and proposal support; and advanced user support including scientific and application programming, parallel programming, code optimization, etc. User support staff have domain expertise in astronomy, bioinformatics, computational chemistry, computer science, data mining, engineering, genomics, geophysics, machine learning, physics, simulation and other areas. High Performance Computing systems range from the large-scale “Comet” and “Expanse” systems to the medium-scale “Triton Shared Computing Cluster.” Storage recharge services include Universal Scale Storage (Qumulo) for open data and Sherlock for compliance data management (CUI, FISMA, HIPAA). Many services are available to industry and other external entities via service agreement (commercial contract).
- Telecommunication and Computer Network Service Support: Infrastructure is in place to support high-volume recruitment calling and electronic coordination and facilitation of recruitment and coordination of study visits. Through the UC San Diego telecommunications system, faculty and staff have access to equipment lines, voicemail, computers, local and long distance calls, and computer support and IT Help Desk services. Access is made possible by hard wire connections to the hospital and university mainframes. Meetings are also routinely conducted by Zoom, with capabilities for video and/or phone conferencing.

The Herbert Wertheim School of Public Health and Human Longevity Science

Overview

The Herbert Wertheim School of Public Health and Human Longevity Science is dedicated to health and social equity, and has over 80 primary salaried faculty, 25 secondary faculty, 200+ personnel, 175 postgraduate students, and 500 undergraduate majors. Dr. Cheryl Anderson is the Founding Dean of the school, which commenced its first year in Fall 2020. The school includes activities in the public health disciplines of Behavioral Medicine, Biostatistics & Bioinformatics, Epidemiology, Global Health, Health Policy, Health Equity, Public Mental Health, and Environmental and Climate Health. The founding vision of the school is focused on wellbeing and social justice.

Culture and Core Values

The Herbert Wertheim School of Public Health has established institutional culture and core values of: 1) respect, humility, and compassion; 2) integrity and trust; and 3) diversity, equity, and inclusion. All faculty, staff, and academics in the school take a 12-hour racial resilience anti-racism training seminar over the course of six weeks to further our commitment to building an anti-racist and compassionate environment in all aspects of the school.

Education

The Herbert Wertheim School of Public Health provides students with a leading-edge curriculum that addresses 21st century public health issues, with access to UC San Diego Health, the region's only academic health system and a living laboratory to study population health, care inequalities, and the development of efficient preventive health strategies. Challenges in public health create opportunities in which diversity in students, faculty, and research are not just vital, but supported and encouraged. The school has and administers two PhD programs (Public Health and Biostatistics), a Master of Public Health (MPH) professional degree program, an MS in Biostatistics, an MAS in Leadership of Healthcare Organizations run in conjunction with Extension, the only Health Sciences undergraduate program (Bachelor of Science in Public Health), and a Preventive Medicine Residency Program. Health equity, social justice, and anti-racism are a purposefully imbedded thread throughout our curriculum. Our faculty and degree programs hold and are involved in multiple programs to increase underrepresented minority (URM) students in our programs. Our BSPH has high rates of first-in-family, URM, and Pell-eligible students.

Research

The Herbert Wertheim School of Public Health has strong collaborative research programs facilitated by three Research Centers of Excellence focused on Health Promotion and Equity, Women's Health, Wireless and Population Health Systems, and Tobacco Control (detailed below). In addition, the school has extensive collaborations with the School of Medicine, Skaggs School of Pharmacy and Pharmaceutical Sciences, Jacobs School of Engineering, the Scripps Institution of Oceanography, Moores Cancer Center, the Altman Clinical and Translational Research Institute, and with other partners across the UC San Diego campus. Partnerships with the community and health agencies are fundamental to the school.

- Center for Wireless and Populations Health Systems: The Center for Wireless and Population Health Systems (CWPHS) focuses on how the health of individuals, families, communities, social networks, and populations can be improved through the creative use of wireless and networked technologies and ubiquitous computing. We also study how to promote health and prevent disease and disability through systems-level interventions in clinical and community settings. CWPHS collaborators come from the Herbert Wertheim School of Public Health, School of Medicine, School of Social Sciences, the Jacobs School of Engineering, the San Diego Supercomputer Center, and San Diego State University. Included are scientists with backgrounds in clinical and preventive medicine, computer science and engineering, social networks, political science, clinical and experimental psychology, electrical engineering, health behavior, systems science, behavioral genetics, exercise and nutrition science, public health, and evolutionary biology. CWPHS is housed within the UC San Diego Division of Calit2: The California Institute for Telecommunications and Information Technology. Health issues addressed in recent research have included pediatric and adult obesity and their comorbidities, depression, improving outcomes in cancer survivors, successful aging, the use of games to promote improved health behaviors, and the dynamics of health-related states within social networks.
- Health Promotion and Equity Center of Excellence: The mission of the Health Promotion and Equity Center of Excellence (COE) is to build and advance the science of health behavior change and to eliminate health disparities based on personal or environmental factors. The Health Promotion and Equity COE brings together UC San Diego researchers and community collaborators to facilitate scholarly exchange, obtain funding for large program projects and influential research, establish and operate a training program for the next generation of investigators, and promote community/academic partnerships for research and dissemination.
- Research and Intervention in Tobacco Control Center of Excellence: The mission of the Research and Intervention in Tobacco Control Center of Excellence (COE) is to create synergy among UC San Diego researchers investigating etiology of tobacco use, neurobiology of nicotine dependence, population patterns of tobacco use behavior, interventions to help tobacco users quit, and analysis of tobacco control policies. The COE emphasizes the translation of research to real-world interventions to prevent tobacco use uptake, to help current users quit, and to stimulate changes in tobacco control policies.
- Women's Health Center of Excellence: The mission of the Women's Health Center of Excellence (COE) is broad, and includes mandates to improve women's health across a lifespan ranging from reproductive and gynecologic issues to chronic diseases of aging. Of particular interest is to study conditions where there are significant biological differences between the sexes in rates of susceptibility, symptoms and response to treatment. The leader for this center, Dr. Andrea La Croix, is one of the principal investigators of the Women's Health Initiative Study, and former Professor of Epidemiology at the University of Washington and Fred Hutchinson Cancer Research Center.

In addition to many research support cores across the Health Sciences and the University, the school houses the following cores that provide services to both UC San Diego researchers and the external community:

- Health Services Research Center (HSRC): The HSRC is a comprehensive research center established in 1989 to provide practical solutions for real world health services problems in order to improve health outcomes and quality of life. HSRC resides in the Herbert Wertheim School of Public Health and Human Longevity Science. HSRC's diverse and multidisciplinary staff of over 30 researchers, programmers, and program evaluators have both rigorous academic training and in-depth experience in the fields of public

health, clinical and applied psychology, health outcomes measurement, program evaluation, medical research informatics, and health economics. The HSRC research team specializes in executing most aspects of research (except basic science and wet-lab services).

Services include, data collection, data processing and management, data analysis, program evaluation and implementation, health economic analysis, development of secure web-based informatics systems, clinical trial administration and management, sports and performance research, development and validation of measurement tools, dissemination of results, grant writing, study design and project planning. Since its beginnings, HSRC placed focus on using and developing technologies for gathering and analyzing research data, including electronic medical record integration and our Mental Health Outcomes Management System (mHOMS), a high-powered electronic data collection, analysis, and reporting system with a wide array of applications for projects in medical research and beyond.

- Integrative Health and Mind-Body Biomarker Laboratory (IH-MBB Lab): The IH-MBB Lab provides assay consultation, performance, data processing, and interpretation services for diverse biospecimens from human and animal research studies. Currently, the IH-MBB Lab performs immuno-assays that are validated in human blood, urine and saliva specimens, and welcomes inquiries for other specimen types. The IH-MBB Lab also provides assay services for cellular immune investigations using flow cytometry.
- California Smoker's Helpline: The California Smokers' Helpline – a partnership between Dr. Shu-Hong Zhu, other investigators at the Herbert Wertheim School of Public Health, Moores Cancer Center, and the California Department of Health – offers telephone counseling assistance and a range of other free services, such as self-help materials and opportunities to participate in ongoing research projects.
- Exercise and Physical Activity Resource Center (EPARC): EPARC maintains a fully equipped laboratory to support the research community, train medical students and residents, and conduct comprehensive health-related fitness and performance assessments for the general public. EPARC also serves as an independent testing laboratory for the commercial health and fitness sector. The center provides opportunities to assess and validate new technologies under nondisclosure agreements, and also offers a laboratory-loan program for R&D departments.
- Biostatistics Research Center (BRC): The BRC is under the supervision of Dr. Sonia Jain, and provides statistical design and analysis support to projects. Statistical collaboration is performed with Dr. Jain, a faculty biostatistician, working jointly with experienced staff principal statisticians. The advantages are that the team approach brings knowledge and skill in the application and interpretation of biostatistical tools to the study group, while the statisticians provide a high level of skill in the implementation of required data analysis. BRC offers expertise in applied and methodological biostatistics collaborative research. Methodological collaborations include Bayesian methods, adaptive clinical trial design, N-of-1 trial design, and other novel clinical trial designs.
- Biostatistics and Bioinformatics Laboratory (BLL): The BLL Shared Resource provides two distinct services: 1) biostatistical consulting, including advice on methodologic issues, sample size calculations, clinical trials design, protocol review and planning, mathematical modeling and advanced analysis of complex problems for investigators submitting proposals and/or engaged in research and clinical trials; and 2) informatics services including design and development of complex data bases.

Laboratories

Most laboratories in the Herbert Wertheim School of Public Health are “dry-lab” office space. Wet labs and clinical research labs support our related researchers with appropriate BSL labs with ancillary equipment and support, such as sterilization, flammables storage, cold rooms, long-term storage freezer farms, glass wash, fume hoods, human study participant exam, and phlebotomy rooms.

Office Space

The Herbert Wertheim School of Public Health faculty, staff, and academics have dedicated office space and dry-lab office space on campus and off campus as appropriate for their program. Ample meeting room and communal support spaces exist to facilitate active collaboration. Studies have space for the storage of general

and sensitive project information, data, and files. Conference rooms include built-in teleconference and presentation AV equipment. For large meetings, faculty and staff have access to conference rooms and auditoriums.

Computer and Technology Services

UC San Diego Health Information Services provides uniform Information Technology Services to all of Health Sciences personnel and investigators, including desktop/laptop and peripherals support, security software and protocols, data storage, and website hosting. To mitigate the specific risk profile of a highly connected environment, Health Information Services ensures that all PIs and personnel who IS service operate in a highly secure desktop, application, and server environment with dedicated and highly trained support, including a 24/7 helpline. The Herbert Wertheim School of Public Health provides website services for faculty and their research groups. Personnel and programs have access to software via licensing agreements at UC San Diego, including ArcGIS, SPSS/PASW, SAS, Stata, MS Office, Photoshop, etc. UCSD Profiles is UC San Diego's version of the ground-breaking, open source "Profiles Research Networking Software" that was developed at Harvard (funded by UL1 RR025758), and is a multi-variate searchable web-based platform for researcher profiles, publications, areas of research, and funding for facilitating collaboration among academic researchers.

Additional Facilities & Resources for Research Training and Education

The Altman Clinical and Translational Research Institute (ACTRI)

The Altman Clinical and Translational Research Institute at UC San Diego is a major resource that provides research resources, training, and collaboration opportunities for affiliated scientists, health care providers, and the community to obtain the education, resources, and collaborations necessary to translate discoveries into practice. The Institute is a partnership among UC San Diego and other local institutions dedicated to improving human health. Any researcher or individual interested in translational research is invited to become a member of the ACTRI. This provides an extensive network of researchers, many of whom are involved in the analysis of patient healthcare data. The ACTRI has a community engagement services division, which consults with investigators on recruitment and retention enhancement, methods for addressing health equity and health disparities during study design, introductions to key community agency personnel and venues to solicit input from end-users of research. The ACTRI is also part of a national consortium, the Clinical and Translational Science Awards (CTSA), and is partially funded under grants from the National Center for Advancing Translational Science (NCATS), a new Center in the National Institutes of Health. Through ACTRI, research studies have access to REDcap services for survey instrument design, offline data collection via mobile devices, and secure data transfer and storage. In addition, the ACTRI Biostatistics Unit (lead by HWSPH faculty) supports the mission of the ACTRI to provide research resources, training, and collaboration opportunities for ACTRI scientists, health care providers, and the community. The Unit is supported by six part and full time statisticians, and provides statistical support in experimental design and analysis. ACTRI provides up to four hours of statistical support free of charge to UC San Diego faculty members. The ACTRI is housed in a state-of-the-art facility conveniently located on an interstate that transverses the San Diego area, facilitating accessibility for study participants.

Moore's Cancer Center

The UC San Diego Moore's Cancer Center is an NIH-designated Comprehensive Cancer Center, conveniently located on an interstate transverses the San Diego area, facilitating accessibility for study participants and enhancing researchers' ability to collect the data needed to successfully carry out research projects. Moore's Cancer Center unites cancer-related research laboratories, clinical trials, prevention and outreach programs, and patient care under one roof. The cancer center building comprises two structures that share a common base: a three-story facility for clinical services and administration, and a five-story research tower. This design encourages interaction and intellectual exchanges between world-renowned clinicians and researchers. The third floor of the building houses 15,000 asf of office and computing space for the Population Sciences Division of the Moore's Cancer Center, led by HWSPH faculty. This research space is dedicated to projects in behavioral epidemiology, biostatistics, and community outreach and is equipped to conduct large-scale telephone coaching, data collection, management, and analysis.

UC San Diego Design Lab

The UC San Diego Design Lab is a multidisciplinary research hub working across the UC San Diego campus, the greater southern California region, and with global partners. The Design Lab champions human-centered Design as a way of thinking in all arenas of life, business, education, and entertainment. The Design Lab explores the interface between technology and people, building upon UC San Diego's leadership in the cognitive sciences, healthcare, engineering, business, arts, and humanities. Its philosophy is to use technology to empower people through human-technology teamwork.

The UC San Diego Design Lab consists of works on major societal issues, such as large-scale education, automation, healthcare, visualization of complex phenomena and data, social interactions, citizen science, and the ethical issues that are of ever-increasing importance. For the Design Lab, design is a way of thinking, addressing the core issues, always taking a systems point of view, emphasizing the role of people in the complex systems of the modern world. People-centered design means four things: 1) Focusing on people; 2) Taking a systems point of view, realizing that most complications result from the interdependencies of the multiple parts; 3) Ensuring that core, root issues are solved rather than just the problems presented (which is often the symptom, not the cause); and 4) Continually testing and refining proposals, ensuring they truly meet the needs of the people for whom they are intended. Research at the UC San Diego Design Lab focuses on building a substantive body of theory and evidence-based insights to establish a scientific basis for design. Researchers in the Design Lab strive to distill best practices in design, across a range of domains from health and autonomous vehicles, to online education and civic engagement.

Office of Innovation and Commercialization

The Office of Innovation and Commercialization aligns resources to encourage and support an innovative community comprised of students, faculty, staff, alumni, and community advocates. The mission of the Office of Innovation and Commercialization is to accelerate the commercialization of UC San Diego innovations, and contribute to a sustainable society by empowering a diverse entrepreneurial culture on campus and strengthening a dynamic innovation ecosystem.

San Diego Mesa Scientific Environment

San Diego in general and specifically the immediate UC San Diego vicinities of La Jolla and Sorrento Valley are one of the nation's leading foci of biomedical, biotech, tech, and pharmaceutical research and innovation, offering Herbert Wertheim School of Public Health faculty and researchers incredible opportunity for collaboration. Institutions adjacent to campus include the Salk Institute for Biological Studies, Sanford Burnham Prebys Medical Discovery Institute, The Scripps Research Institute, La Jolla Institute for Immunology, West Health Institute, General Atomics, Pfizer, Sequenom, and Lilly.