Loyola Marymount University

Los Angeles, California

Frank R. Seaver College of Science and Engineering (SCSE) Boilerplate

History and Tradition of Loyola Marymount University (LMU)

LMU is the largest Catholic university on the West Coast and is comprised of seven schools and colleges. LMU is a National University / High Research (R2) putting LMU and ranks as one of the top universities in the U.S. In fall 2023, LMU enrolled a total of 10,256 students, comprised of 7,336 undergraduates (pursuing 56 majors and 56 minors), 1,799 graduate students (pursuing 46 master's degree programs), and 1,121 law students (LMU IRDS, February 2024). In addition, LMU offers three doctorate programs, and 14 credential programs.

LMU offers a unique and rigorous liberal arts education within a comprehensive university setting in the backyard of one of the nation's most diverse urban communities. Ranked in the top 15% of universities in the United States by the Wall Street Journal, LMU has a long-standing commitment to recruit and enroll high-achieving students from across the region and the state of California, providing an educational experience that is rigorous, inclusive, engaging, socially sensitive, inter-disciplinary, and global. LMU is rated as "more selective" by U.S. News and Report (a 3.0 GPA is required for admittance). It is the *University of Silicon Beach*, next door to 1 of Google, YouTube, BuzzFeed, Facebook, and other high-tech startup firms. At LMU, the city becomes an extension of the classroom, offering a rich diversity of culture, interests, access, and opportunities.

Fall 2023 data shows that the LMU undergraduate student body is diverse and comprised of 53 percent minority students: 27.29 percent Hispanic / Latino, 8 percent African American, 7.47 percent two or more races, 9.85 percent Asian American, and less than one percent Native Hawaiian and American Indian / Alaska Native students; with White student enrollment at 36.93 percent of the undergraduate students. (LMU IRDS, February 2024). Gender distribution is 44 percent male and 56 percent female (IBID).

The Hispanic Association of Colleges and Universities (HACU) has recently designated LMU as a Hispanic Serving Institution (HSI) (https://www.hacu.net/hacu/HSIs.asp). Previously, LMU was designated as an Emerging Hispanic Serving Institution. Although LMU meets HACU's definition of HSI with 26.8 percent combined undergraduate and graduate enrollment Hispanic student enrollment, the federal eligibility for HSI uses a narrower definition of full time equivalent (FTE) degree seeking undergraduate students for this distinction, which places LMU

at 24.5 percent Hispanic undergraduate student enrollment.

The mission of LMU is the *encouragement of learning, the education of the whole person, and the service of faith and the promotion of justice.*[1]

Seaver College of Science and Engineering

The Frank R. Seaver College of Science and Engineering (SCSE) enrolled a total of 1,519 students comprised of 1,328 undergraduate students pursuing 15 majors and 8 minors, and 191 graduate students pursuing 8 master's and 18 certificate programs in fall 2022 (LMU IRDS, February 2024). The average class size is 21.8 and faculty to student ratio is 10:1. Seaver is ranked highly among engineering programs in the United States, as the 23rd Best Undergraduate Engineering Program (where no doctorate is offered), U.S. News and Report 2024; and, 23rd Best Science Lab Facilities, Princeton Review, 2024. SCSE defines itself by its dedication to serving students through transformative teaching, hands-on mentoring, opportunities for undergraduate research, professional internships, service, and community engagement. SCSE offers a rigorous academic experience to ambitious STEM students committed to lives of meaning and purpose.

Los Angeles County's Top Industry Sectors: Los Angeles is "one of the most dynamic economies in the world" according to the Los Angeles County Economic Development Corporation (LACEDC) which has identified the region's top key growth industry clusters in 2020 to be Aerospace and Defense, Biosciences, and Advanced Transportation and CleanTech. Each of these sectors is a natural fit for LMU STEM graduates. LMU is known as the "University of Silicon Beach," due to the main Westchester Campus location overlooking "Silicon Beach," the area where the corporate offices of Google, YouTube, BuzzFeed, Facebook, and other high-tech firms and start-up companies are headquartered. Not far away are the aerospace titans Northrup Grumman, Raytheon, and Space X. This proximity lends itself to LMU/industry partnerships, such as the Google Computer Science Summer Institute (CSSI) Extension program, a 3-week campus summer experience for first-year students for low-income, first-generation backgrounds studying computer science and related STEM fields.

[1] ***Note:*** Please see LMU Boilerplate for institutional history, mission, and governance information about the university.

Seaver Student Characteristics

By virtue of having been accepted into LMU's highly competitive, nationally ranked Seaver College of Science and Engineering, students are high achieving, in the top percentiles of their high school classes, and have high scores on the SAT or ACT exam. The total fall 2023 enrollment is 1,519 (n = 1,328 for undergraduates and n = 191 for graduates). Approximately 60 percent of the students in Seaver are from racial/ethnic student groups; Asian 14 percent; Black or African American 10 percent, Hispanic 27 percent, and two or more races 9 percent. Gender distribution is 57 percent males and 43 percent females (LMU IRDS, 2024). The top five majors by highest number of students enrolled is Biology, Health and Human Sciences, Mechanical Engineering, Civil Engineering, and BioChem. In fall 2023, 12 percent of LMU STEM majors were first generation[2] college students (LMU IRDS, February 2024).[3] Seaver student fall-to-fall retention shows is high with fall-to-fall retention within Seaver for first time undergraduate students at 83 percent. African American students (91 percent) and Asian students (88.5 percent) have the highest retention rates in Seaver.

Faculty Characteristics

SCSE faculty are academic scholars who are driven by the university's mission and values, and in fall 2023, the faculty body was comprised of 97 full-time and 32 part-time faculty. Gender distribution of faculty in Seaver are 41 percent female and 59 percent male. (LMU IRDS, February 2024).

Seaver Programs to Support Meritorious Research

SCSE provides a variety of programs designed to give undergraduate students an opportunity to gain research experiences through active involvement in research throughout their academic career at LMU.

First Year Experiences and Advising

The SCSE First-Year Advising Committee, whose charge is to identify and review issues surrounding the first-year academic experience in SCSE, helps to coordinate support for

[2] First generation is defined as neither of the student's parents attaining a baccalaureate degree as per 402A HEA.
[3] First generation status is based on self-reported data retrieved from students LMU application. Values are not reported for race/ethnic groups with fewer than five students, inclusive of 0 enrollment.

struggling first year students. All STEM students are assigned a SCSE faculty member in the student's major who serves as the student's primary academic and professional development advisor. The college's Center for Student Success and the University Advising housed in the Academic Resource Center provides general advisors who serve as a supplement to SCSE faculty advisors. STEM majors who aspire to attend a health professional school after graduation are connected to services and guidance through SCSE Health Professions Advising.

The SCSE Center for Student Success is centrally located within the college for students to access important information and resources designed to enhance student's academic professional and personal development. This includes all first-year programming and coordinating academic support, linking them to free, drop-in tutoring for most lower division STEM coursework (Mathematics, Biology, Physics, Engineering, Chemistry, including Organic Chemistry), offered through the academic departments and the Academic Resource Center. The Center for Student Success also links students to experiential learning opportunities such as undergraduate research, internships, and alternative breaks (such as those provided by the university's Center for Service and Action). It also connects STEM students to resources related to preparation for graduate and professional school.

Learning and Living-Learning Communities within the SCSE for first year students include:

- Seaver College Living Learning Communities (LLC): A living learning community program for all first-year students in the Seaver College of Science and Engineering. Students majoring in any of the fields of study within the Seaver College are eligible.
- **A Community Committed to Excellence in Scientific Scholarship (ACCESS)** is an invitation-only, three-week summer residential program for first year students focusing on critical thinking in the sciences. The overall goal of the program is to build community and prepare students for academic success through collaborative engagement in engineering and scientific scholarship. The program, which is comprised of 19 students each year, recruits students who are first in their families to pursue a college degree or come from an underserved community. The summer immersion component begins before schools starts and includes hands-on experiments and excursions. The program continues through the following fall semester with all ACCESS students enrolling in a common First Year Seminar.
- **LMU Seaver Computer Science Summer Institute (CSSI)** is a no-cost, 3-week on-campus summer experience for first-year students from groups underrepresented in computing (i.e., women, historically underrepresented racial/ethnic groups in STEM, and first-generation or low-income college students). In partnership with Google, the program includes soft and technical skill development, group project work

culminating in app creation, opportunities to interact with Google engineers, and a field trip to Google's LA office.

Undergraduate Research Experiences

University and College programs and opportunities for STEM undergraduate students include:

- **Summer Undergraduate Research Program (SURP)** is a six-week program designed to provide students with insight into the research process. Further, it provides students an academic alternative to nonacademic summer employment. SURP participants are involved in an intellectual community of learners in which leadership, critical inquiry, and communication (written and oral) skills are emphasized.
- **Independent Undergraduate Research Program (IURP)** supports student-initiated, student-led endeavors that are mentored by one or more faculty in a year-long independent research paid via work-study and academic credit.
- **Seaver Summer Opportunities for Advanced Research (SOAR)** provides funded opportunities for Seaver College undergraduate students to participate in faculty-mentored, hands-on research that deepens their academic experience and analytical skills. Preference is given to students that have prior research experience, interdisciplinary and/or rigorous projects and potential for significant productivity during the six-week period.
- **Seaver's Coastal Research Institute** offers students paid internship and research assistantship opportunities to participate across different research programs that typically begin in the summer and continue through the academic year.
- **McNair Scholars Program** prepares undergraduate students for graduate studies through involvement in research and related scholarly activities. The program is aimed at first-generation college students with financial need and members of groups that are traditionally underrepresented in graduate education and have demonstrated strong academic potential.
- **Research Learning Community (RLC)** is a paid eight-week interdisciplinary opportunity that introduces students to the research writing process, including research writing techniques and effective search strategies. RLC graduates receive priority for SURP applications.
- **Rains Research Assistant Program** supports faculty research by providing financial support for faculty to hire a student research assistant. In addition, the program allows students to develop research experiences and close collaborations with their faculty and other members of their research group.
- **Undergraduate Research Symposium** provides an annual opportunity for students to present their research through an arts showcase, poster sessions, and presentation sessions by students from all academic disciplines.

In addition, SCSE majors have a number of opportunities to participate in either external summer research experiences through partnerships with other organizations and institutions

that offer National Science Foundation, Research Experiences for Undergraduates.

SCSE Student Organizations

- American Society of Civil Engineers (ASCE)
- American Society of Mechanical Engineers (ASME)
- Engineering for Humanity
- Institute of Electrical and Electronic Engineers (IEEE)
- Minority Association of Pre-Medical Students (MAPS)
- National Society of Black Engineers (NSBE)
- Society of Hispanic Professional Engineers (SHPE)
- Society of Industrial and Applied Mathematics (SIAM)
- Society of Physics Students
- Society of Women Engineers (SWE)

Accreditations

LMU is accredited by (WASC) Senior College and University Commission. In addition, Seaver program specific accreditation includes the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

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