

# 2019-2020 Strategic Fact Sheet



## College of Natural Sciences & Mathematics

Marie Johnson, Dean

**Mission.** *The College of Natural Sciences & Mathematics is dedicated to the principle that teaching and research are intricately mixed and undergraduate research is an integral part of education. By combining quality classroom instruction, student involvement in research, and strong academic advising, we transform the student experience.*

### A COMMITMENT TO EXCELLENCE

- **Student-centered faculty** are recognized for their outstanding teaching and cutting-edge research.
- Well-equipped, **state-of-the-art laboratories and classrooms** support student learning.
- Highly regarded degree programs provide **meaningful career opportunities** in essential areas of need.

**Key Points.** The College of Natural Sciences and Mathematics (NSM) is one of eight Colleges on the campus of Cal State Fullerton. Where given, numbers are for Spring 2019.

- Approximately 2,798 students are enrolled in undergraduate and graduate degree programs.
- Our students are 56.9% female and 43.1% male.
- The ethnic distribution of our student body is 0.2 % American Indian, 2 % Black, 25.9% Asian, 0.2% Pacific Islander, 42.9 % Hispanic/Latinx, 17.3% White, 3.3% Unknown, 3.9% Multi-race, and 4.7% International.
- A total of 402 undergraduate students and 70 graduate students received degrees in 2018-2019.
- NSM has 69 tenured professors, 28 tenure-track professors, and 15 full-time lecturers.
- NSM offers eight undergraduate and seven graduate degree programs.
- NSM offers a minor in Natural Sciences and NSM Departments offer six discipline specific minors.
- Discipline-based education researchers are embedded in each department. These researchers study how students learn and they disseminate this information so our classrooms employ the most advanced teaching techniques known.
- NSM provides future teachers advanced coursework in science curriculums, research and seminar opportunities, and enables teachers to increase proficiency in science disciplines appropriate to their academic teaching assignments.
- NSM supports student success with a robust Supplemental Instruction program.

**Organizational Structure.** The College of Natural Sciences and Mathematics is comprised of five departments.

- **The Department of Biological Science** is dedicated to educating the individual student using active-learning, inquiry-based educational approaches. Our program is distinctive in the region in the number of excellent opportunities available for faculty-mentored undergraduate research. Our mission is to guide students to acquire skills, develop attitudes, and master information necessary to continue their education, obtain desirable employment in biology-related careers, and be productive citizens.  
**Degrees offered:** BS Biology, MS Biology, Cell and Molecular Biology Minor, Environmental Biology Minor
- **The Department of Chemistry and Biochemistry** provides thorough and innovative instruction in the theory and practice of chemistry and biochemistry for students who will advance to graduate work, teaching careers, health professions, and positions in industry and government. From basic lectures and laboratories to specialized courses, our students are exposed to a wide and interdisciplinary knowledge base. Students also engage in capstone independent research projects with faculty mentors.  
**Degrees offered:** BS Chemistry, BS Biochemistry, BA Chemistry, Chemistry Minor, MA Chemistry, MS Chemistry
- **The Department of Geological Sciences** is one of the largest undergraduate geoscience programs in the state, and provides a field intensive, research-based curriculum that trains students to be effective citizen-scientists. Our students are well-prepared for employment in industry or government; teaching at the elementary, high school and community college level; and further graduate studies in the geological sciences.  
**Degrees offered:** BS Geology, BA Earth Sciences, MS Geology, Geology Minor
- **The Department of Mathematics** offers programs with sufficient breadth and depth in the study of mathematics to prepare students for subsequent graduate study in mathematics or related areas.  
**Degrees offered:** BA Mathematics, MA Mathematics, MS Statistics, Minor Mathematics
- **The Department of Physics** takes pride in mentoring students towards career paths in our classrooms and our research labs. Physics teaches a wide range of scientific skills and technologies while developing solid critical-thinking tools that bridge industries, such as engineering, electronics, communication, defense, and life sciences. Faculty work hard helping our students

develop resumes and statements of purpose and writing personalized letters of recommendation.

**Degrees offered:** BS Physics, MS Physics, Minor Physics

**College Centers.** The College houses five centers in support of its mission.

- **Center for Computational and Applied Mathematics (CCAM)**

CCAM encourages and facilitates research, education, and outreach in computational mathematics and science through interdisciplinary collaborations of faculty, students, and external partners. Goals include attracting and bringing together faculty, students and other researchers with related interests; providing research training to the next generation of students in an interdisciplinary environment; developing interdisciplinary research and educational products; positioning members to generate external funding unique to the Center's mission; and engaging in outreach and community building.

- **Center for Applied Biotechnology Studies (CABS)**

The mission of CABS is to provide research, educational and consulting opportunities and services to the local and state biotechnology/biomedical communities through its applied research programs and workforce-oriented curriculum. CABS' facilities support CSUF faculty in publication development and pursuit of CSU, intramural and extramural funding opportunities.

- **Catalyst**

The Catalyst Center for the Advancement of Research in Teaching and Learning Math and Science brings together science and math education experts across two colleges (NSM and College of Education) and seven departments to advance research and pursue external grant opportunities in teaching and learning across the entire spectrum of math and science education, from preschool through graduate education and including informal education.

- **Desert Studies Center (DSC)**

DSC is a field station of the CSU located among a haven of natural ponds, dry lakes, and foothills in the Mojave National Preserve east of Barstow. DSC is governed by a consortium of 7 CSU campuses. It provides opportunity for individuals and groups to conduct research, receive instruction, and experience the desert.

- **Gravitational-Wave Physics and Astronomy Center (GWPAC)**

GWPAC conducts research, education, and outreach in gravitational-wave astronomy, physics, and astrophysics. Gravitational waves provide new information about Nature's most violent astrophysical events, such as supernovae and collisions between black holes or neutron

stars. GWPAC scientists model sources of gravitational-waves, analyze the gravitational-wave signals they produce, measure signals in the LIGO detectors, and improve detector sensitivity. The Center faculty members are prolific publishers and bring in significant externally funded grants.

**Outside Funding.** *Faculty members were awarded \$4,909,268 for research and scholarly activities in 2018-19. During the same period, 67 proposals were submitted for total requested funding of \$12,981,094.*

Funded programs supporting undergraduate students:

- **Maximizing Access to Research Careers (MARC) Scholars Program**—\$1.8 million from NIH to increase the number of disadvantaged and URM undergraduates who enter and succeed in biomedically-related PhD programs.
- **Minority Health & Health Disparities Research Training Program (MHRT)**—\$1.2 million from NIH to increase the numbers of students belonging to health disparities populations or URM that pursue advanced degrees in basic sciences, biomedical or clinical research field.
- **California Institute for Regenerative Medicine (CIRM) Bridges to Stem Cell Research Scholars Program**—\$1.3 million from CIRM to train students to become stem cell biology researchers and to enter the careers in stem cell-oriented companies.
- **Louis Stokes Alliance for Minority Participation (LSAMP)** —\$49,994 from NSF to increase the number of targeted students who have faced or face social, educational, or economic barriers to graduate with degrees in the sciences, technology, engineering, or math (STEM).
- **Regional Alliance in STEM Education: Raising the Bar in Transfer Retention and Graduation Rates (Project RAISE)** —\$5.8 million from US Department of Education for a project partnering with eight regional community colleges to increase the number of Hispanic and low-income transfer students who complete bachelor's degrees in STEM and enter into these fields.

Funded programs supporting future teachers:

- **Fullerton Mathematics Teacher and Master Teacher Fellows Project**—\$2.53 million from NSF to develop a group of mathematics teachers and mathematics teacher leaders to serve as master/student teachers and college/university liaisons in high-need districts.