

COLLEGE OF SCIENCE

Overview

Home to the life, statistical, physical and mathematical sciences, the College of Science is a vibrant scientific community committed to expanding the nation's intellectual capital and preparing a scientifically literate public. The college is recognized as a global center for excellence in research and scholarship, teaching every OSU student and building future leaders in science. We bring unique capabilities to four key areas of interdisciplinary research with global distinction: Marine Science, Biomedical Science, Materials Science, and Data Science. These areas represent our impact in research vital to human and animal life health, the sustainability of our planet, a strong economy with start-ups and innovative market solutions, and scientific discoveries that solve the world's pressing problems.

Founding Year

1932



Dean

Roy Haggerty joined the College of Science as dean in 2017. He was the first in his family to attend college, earning a B.Sc. in geology from the University of Alberta. Haggerty earned his MS and Ph.D. from Stanford University, and built his research career on transport of pollutants and heat in streams and groundwater. He previously served as AVP for Research and Interim Dean of the College of Earth, Ocean and Atmospheric Sciences. He is co-founder of TRACE, an effort that has run nearly 80,000 COVID tests in Oregon, genetically sequenced a few thousand positive cases, and has brought in about \$8M in funding.

Metrics

NUMBER OF STUDENTS

Undergraduates: 2,585

Graduate: 445

OSU-Cascades: 1

Ecampus: 293

NUMBER OF ALUMNI

31,000+

NUMBER OF TENURED and TENURE-TRACK FACULTY

124

ANNUAL BUDGET (FY 2020)

\$43,172,070

FUNDING SOURCES (in order of magnitude):

National Science Foundation

National Institutes of Health

Department of Energy

Private Foundations

Industry

RESEARCH FUNDING (FY 2020)

New Grants \$16,177,992

Expenditures (w F&A) \$14,231,094

NRC RANKINGS-GRADUATE PROGRAMS (2020)

Biochemistry #90

Chemistry #84

Math #99

Microbiology #37

Physics #143

Statistics #49

Zoology #10

We are also significant contributors to OSU's high rankings in marine sciences and ecology.

Operating Units

Schools/Academic Departments

School of Life Sciences:

- Biochemistry and Biophysics
- Integrative Biology
- Microbiology

Departments:

- Chemistry
- Mathematics
- Physics
- Statistics

Additional Programs/Initiatives

- ATAMI (Advanced Technology and Manufacturing Institute) partnership – OSU’s institute for high-impact technology and manufacturing development.
- Math and Science Summer Institute hosted each summer for math and science teachers to help them support students across ethnicity, race, class and gender identity. Supported by the Oregon Department of Education.
- Biannual Genetic Code Expansion Conference – this first of its kind conference attracts scientists from around the world to campus to share their research at the frontiers of this rapidly growing interdisciplinary field.
- Faculty-Student Mentor Program (campus-wide) aims to improve student retention and graduation rates.
- LSAMP (Louis Stokes Alliance for Minority Participation) – partnership to increase the number of traditionally underrepresented students who successfully complete STEM degrees on campus.

Statewide/Community Presence

- Oregon Science and industry Museum (Portland) Partnership
- ONAMI (Oregon Nanoscience and Microtechnologies Institute) Partnership to grow the economic health of Oregon

through commercializing and monetizing scientific discoveries

- National Energy Technology Laboratory student internships

Centers, Institutes, and Programs

Partnerships for Interdisciplinary Studies of Coastal Oceans (PISCO)

Oregon State University Microbiome Initiative (OMBI)

Dynamics and Data Science Initiative (D2SI)

Cooperative Institute for Marine Resources Studies

Nuclear Magnetic Resonance Facility

Electron Microscope Facility

Unnatural Protein Facility

Materials Synthesis and Characterization Facility (MaSC)

Advanced Technologies and Manufacturing Institute (ATAMI)

Oregon State Arthropod Collection

Statewide/Community Presence

- [Oregon Museum of Science and Industry](#) (OMSI) Partnership
- [ONAMI](#) (Oregon Nanoscience and Microtechnologies Institute) Partnership to grow Oregon’s economy through commercializing and monetizing scientific discoveries
- Partnerships with Idaho National Laboratories and Pacific Northwest National Laboratories
- [National Energy Technology Laboratory](#) student internship
- Discovery Days, an outreach program that immerses elementary school students in the world of science
- Juntos Chemistry Camp for high school students

Advisory Council/Constituent Groups

College of Science Board of Advisors

Oregon Museum of Science and Industry

College of Science Industry and Innovation

Council

Mission

To advance science and build global leaders for a healthy people, living on a healthy planet, in a healthy economy.

Vision

Driven by unbridled curiosity, our students and scientists unlock how Life and the Universe work. Together we will ignite a passion for science in all learners; thrive in a data rich world; improve human and ocean health; and develop sustainable materials to power our planet, and move discoveries from the lab to people's lives.

Biennial Report, 2017-19

Our external biennial report highlighted our accomplishments and progress and provided context about who we are, where we have been, what we have accomplished and current momentum to carry us into the future. It is essentially a progress report on our five-year strategic plan and includes key metrics.

Dean's Priorities, 2021-22

1. Continue to invest in and to grow research and innovation.
2. Increase support for faculty and staff professional development.
3. Continue our work on equity, justice, and inclusivity, and implement a diversity action plan.
4. Continue to prioritize student recruitment, retention and success.
5. Increase our fundraising efforts.
6. Continue to make investments to grow revenue, with Ecampus being a major focus.

Top Three Challenges

Our biggest challenges are (1) making science diverse, inclusive, and successful for every student at OSU; (2) supporting our scientists with state-of-the-art equipment and facilities for 21st century science; and (3) growing our resources to support our research and education mission.

Student Success

The College played a lead role in developing the **Beaver Connect Program**. Co-founded by Dean Haggerty, the faculty-student mentor program is currently focused on providing mentors for underrepresented minority students, first generation and Pell-eligible students who are in their first year at OSU (both traditional and transfer students). The campus-wide program involves hundreds of faculty and peer mentors, and several hundred students. It has resulted in 7.4% increase in first-year retention of mentored students. Beaver Connect received the 2020 NWCCU Beacon Award for Excellence in Student Achievement and Success.

Our Department of Physics received a national award for improving undergraduate physics education. Started in 1995, our flagship Paradigms in Physics program is now the gold standard in physics education nationally.

The Science Success Center, which hosts over 2,500 visits throughout the school year, provides advising and academic support programs and career development opportunities and workshops. This space is a home base for many of our students, specifically transfer students.

Our award-winning Learning Assistants Program trains top undergraduates to facilitate peer discussions and class activities. The in-class learning with individualized feedback has drastically lowered DFW rates.

We are part of a five-year \$1 million grant from Howard Hughes Medical Institute to improve instruction in undergraduate STEM classrooms. OSU was one of 33 colleges and universities that HHMI selected to produce sweeping cultural changes in post-secondary institutions through a variety of pedagogical approaches to increase diversity and inclusion of underrepresented minority students in science programs.

Research and Innovation

The College of Science is a global center of excellence in research and innovation, with areas of distinction in the marine, biomedical, materials and data sciences. Faculty and students focus on research that informs public policies on climate change, identifies cost-effective sources of renewable energy and sustainable technology, advances understanding of disease mechanisms to improve animal and human health, and employs data science to enhance the quality of our research and spur economic development.

In addition, we have nationally and internationally recognized researchers in mathematics education supported by NSF and Fulbright grants.

Many of our scientists bring high-value solutions to bear in the pharmaceutical, biotech and agrochemical industries. In the spirit of our hallmark collaboration, our faculty are honing in on critical block-building discoveries from their colleagues. For example, our physics research focused on more efficient conversion of solar energy and light emission for a new kind of semiconductor that paved the way for the development of Apple's newest retina display monitor by engineering faculty at OSU and elsewhere.

Other groundbreaking research includes the discovery of a new molecule fragmentation technology, a new method for making anti-leukemia compounds previously only available from an Asian tree; a biophysics breakthrough that moves us closer to more effective metastatic cancer treatments; discovery of a chemical mechanism first described over two centuries ago that can revolutionize energy storage; protein modifications that may lead to new cancer therapies that spare healthy cells; a new mathematical model that predicts the evolution of our beaches; discovery of a novel process that allows chemical manufacturers to readily add fluorine to other molecules, enabling pharmaceutical manufacturers to cost-effectively produce high-value product lines, among many [other discoveries](#).

Oregon State University is the lead institution for a \$17 million National Science Foundation center devoted to pushing the boundaries of physics knowledge by studying the universe through low-frequency gravitational waves, ripples in the fabric of time-space. Funded by the NSF as a Physics Frontiers Center, the [North American Nanohertz Observatory for Gravitational Waves](#), or NANOGrav, research group at OSU operates under the direction of Xavier Siemens, professor of physics in the OSU College of Science.

Equally vital, the College moves discoveries into people's lives through faculty and student innovation. Companies emerging from our research include [Inpria](#), [Valliscor](#) and [eMSion](#). An incubator for innovation, the College is strengthening pathways for faculty to develop their ideas into solutions that meet marketplace needs to address the world's pressing challenges and drive economic growth. In 2018, we launched the Science Research and Innovation Seed ([SciRIS](#)) Program to strengthen and build a culture of innovation. This year the College is again investing more than \$1M for the Research and Innovation Seed ([SciRIS](#)) program, startup funds, matching funds and professional development. The

program provides seed funding to research projects that are high-impact, collaborative, that cut across disciplines, and that address societal and marketplace needs.

Notable Alumni and Key Stakeholders

George Andrews ('64), mathematician, National Academy of Sciences member and the world's leading expert in the theory of integer partitions, is known for discovering Ramanujan's Lost Notebook in 1976.

John Blankenberger ('52) is credited with developing the first commercially available personal computer, pre-dating the Apple 1 by five years.

[Knute Buehler](#) ('86) was OSU's first Rhodes Scholar and was a candidate for Oregon governor in 2018. He is an orthopedic surgeon and is currently running to be the Republican candidate in Oregon's 2nd Congressional District.

[Peggy Cherng](#) ('72) is co-founder of the restaurant chain Panda Express and is listed #12 on Forbes list of self-made women.

Jon DeVaan ('85) is the former senior vice president for Windows Development at Microsoft who led teams that developed Microsoft Office, Excel, and other products.

MC Kang ('84) led the development and commercial launch of Fuzeon, the first of a novel class of drugs to treat HIV infection.

Chung Kwai Lui ('41) is the first woman Ph.D. in physics at OSU and worked on the top-secret Manhattan Project to develop the atomic bomb.

[The Honorable Jane Lubchenco](#), Distinguished University Professor and Wayne and Gladys Valley Professor of Marine Biology was Under Secretary of Commerce and Administrator of the National Oceanic and Atmospheric Administration (NOAA), 2009 – 2013, and is currently serving as deputy director for climate and environment at the Office of Science and Technology Policy.

[Linus Pauling](#) ('22, when Chemistry was part of Chemical Engineering) is the only person ever to have won two Nobel Prizes unshared by anyone else (Chemistry, '54; Peace '62).

[Warren Washington](#) ('58, '60), who won a Tyler Prize for Environmental Achievement and the National Medal of Science, was one of the first climate scientists to develop groundbreaking global climate models.

David Wong ('64) was one of three scientists credited with discovering the game-changing antidepressant Prozac at Eli Lilly.

Organizational Chart

