

FAST FACTS FOR POLICY MAKERS

NATIONAL SCIENCE FOUNDATION AND THE UO

The National Science Foundation is an independent federal agency established in 1950 by Congress to promote the progress of science, advance the national health, prosperity, and welfare, and secure the national defense. The agency fulfills its mission chiefly by making grants to support solutions-oriented research with the potential to produce advancements for the American people.

FY2022 FAST FACTS AROUND THE STATE

\$148.8 Million

TOTAL NSF AWARDS TO OREGON

\$27.6 Million

INVESTED IN STEM EDUCATION IN OREGON

\$83.7 Million

INVESTED IN FUNDAMENTAL RESEARCH IN OREGON

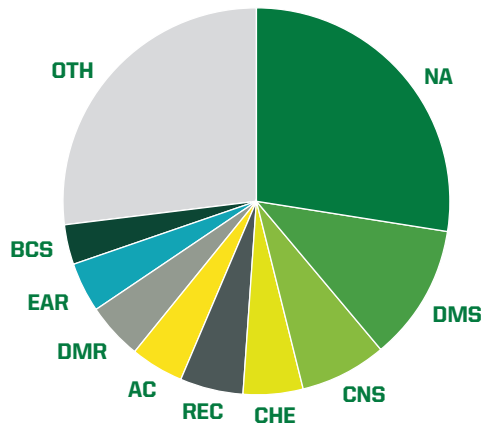
\$4 Million

INVESTED IN OREGON BUSINESSES

\$25.6 Million

FY2022 NSF AWARDS TO UO RESEARCHERS

93
TOTAL ACTIVE NSF GRANTS AT THE UO



GRANTS BY DIRECTORATE

NA	..... Not assigned to directorate.....	\$6.9 million
DMS	.... Mathematical Sciences.....	\$2.9 million
CNS	.... Computer and Network Systems.....	\$1.8 million
CHE	.... Chemistry.....	\$1.4 million
REC	.... Research, Evaluations, and Communications...	\$1.4 million
AC	.... Office of Advanced Cyberinfrastructure	\$1.2 million
DMR	.... Materials Research.....	\$1.2 million
EAR	.... Earth Sciences.....	\$1.1 million
BCS	.... Behavioral and Cognitive Sciences	\$1.0 million
OTH	.... All other directorates.....	\$6.7 million

NSF EARLY CAREER AWARD FOCUS: GLOBAL HEALTH RESEARCH OPPORTUNITIES FOR UNDERGRADUATES



Melissa Graboyes, associate professor of history, focuses on African and Medical History. In 2019 she received a five-year NSF Career Award to pursue her research examining the history of malaria eradication attempts in Africa over the past century.

Graboyes' findings are contributing to global health discussions about malaria elimination attempts in Africa and share information about historical case studies and often-overlooked ethical questions. Her research is based on archival work on three continents, more than 100 interviews with Africans, and months of ethnographic observation. A range of publications will infuse history into contemporary conversations about malaria eradication, and to speak to global health practitioners and students and scholars in fields such as African studies, history, and science and technology studies.

Undergraduate students provide key research support:

The NSF Career award has allowed Graboyes to involve more than a dozen UO undergraduate students in every step of the research process. Student research assistants are working closely with Graboyes to conduct archival research, work with oral interview data, and learn new forms of qualitative and quantitative analysis. Undergraduates are also co-authoring journal articles that appear in history, global health, and social science journals. The opportunity for students to be involved in all stages of the research projects have allowed them to gain valuable experience for graduate school and future careers and made them highly competitive for national and international fellowships.

*Since 2019,
18 UO
researchers
have received
prestigious
NSF Early
Career
Awards*

CONNECTIONS BETWEEN OCEANS AND CLIMATE CHANGE

Associate Professor **David Sutherland**, a member of UO's Department of Earth Sciences faculty since 2011, is an expert in coastal oceanography and the ocean's role in climate change. With support from an NSF early career award in 2016 and multiple additional NSF grants since then, he has studied the impact of melting glaciers on

the ocean and vice versa as far away as Antarctica and Greenland and as close as the southern Oregon coast. Sutherland's Oceans and Ice Lab has collaborated with colleagues at many other universities, including Oregon State University, and over the last dozen years has employed more than 30 undergraduate, graduate, and postdoc students.



FROM RENEWABLE ENERGY TO SEMICONDUCTORS AND BEYOND: THE UO AND COMMUNITY COLLEGES PROVIDE A PATH TO RESEARCH CAREERS

A **\$4.3 million National Science Foundation grant** is helping to establish a conduit from community college to the UO to the workforce for up to 64 talented students in the physical sciences. The grant is providing financial and mentorship support to low-income community college students pursuing industrial research careers, which the US Bureau of Labor Statistics projects to be among the fastest growing employment sectors this decade, with even higher growth projections

seen within the state of Oregon. The program addresses a pressing need for scientists and engineers with expertise in renewable energy storage technologies, chip manufacturing, optical-computational applications, biological data science, and molecular sensors.

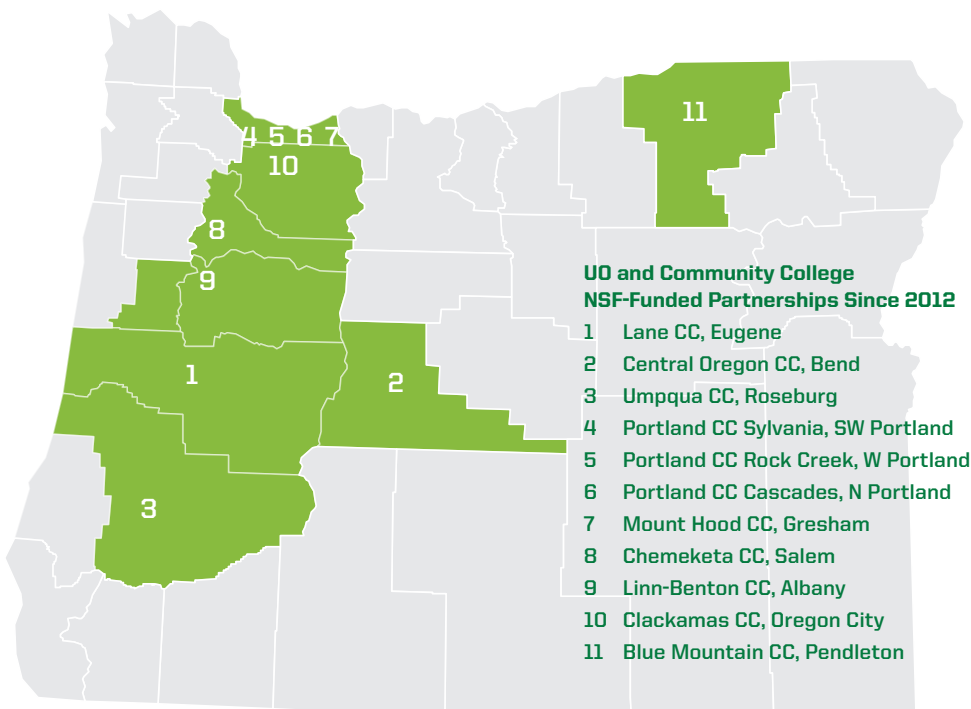
UO's new Oregon Pathways to Industrial Research Careers program recruits students in their final year at Lane, Umpqua, and Central Oregon Community Colleges to

receive cross-institutional training, mentorship and scholarships for four years as they make progress toward their bachelor's and master's degrees from the UO. It culminates with master's degree training through the Phil and Penny Knight Campus for Accelerating Scientific Impact and its Knight Campus Graduate Internship Program. The accelerated master's degree program includes a required nine-month paid internship, which provides graduates with strong work experience, paving the path for a long-term industrial career.

The program builds on three previous NSF-funded scholarship programs for community college students:

- Scholarships for Oregon Scientists I
- Scholarships for Oregon Scientists II
- Undergraduate Catalytic Outreach and Research Experience (UCORE) program

These grants have successfully boosted the number of and diversity of community college students from more than half a dozen Oregon community colleges transferring to the UO, and demonstrates that UO physical science programs are successfully collaborating with community college partners.





NSF REGIONAL ENGINE DEVELOPMENT AWARDS LAY THE FOUNDATION FOR CATALYZING AND FOSTERING INNOVATION

The UO is involved in all three grants awarded to university and industry partners in Oregon; only 44 were awarded by NSF nationwide.

Mass Timber Technologies

Mass timber uses state-of-the-art technology to create layered wood products that have greater strength and versatility than earlier products. They can be used as panels, posts, beams and other structural components, allowing wood to be used in new ways and expanding the market for timber products.

The materials include engineered construction materials made from small pieces of wood that can be sourced from selectively harvested logs. It is a sustainable alternative to concrete and steel, and its use in buildings can reduce the carbon footprint of the US building industry. At the same time, mass timber buildings can help to improve forest health and reduce catastrophic wildfires by using wood fiber from forest restoration projects.

The grant enables researchers to comprehensively analyze what needs to be done to make a much more robust mass timber ecosystem from forests to buildings. The research is applied and interdisciplinary, and it addresses themes such as structural, seismic and fire performance, durability, sustainability, the timber

supply chain, design research and human health, along with the economics of the timber industries.

Principal investigator for the UO is **Judith Sheine**, a professor in the UO's Department of Architecture, part of the College of Design, and director of design of the TallWood Design Institute. The institute is a collaboration between the UO and OSU that unites faculty across the disciplines of architecture, structural engineering, and wood science to advance mass timber and other wood product building solutions. The NSF Regional Innovation Engine Development Award is a collaborative effort between the UO, OSU, and the University of Washington.

UO researchers are also involved with two additional NSF Innovation Engine Development awards:

Semiconductor Ecosystem

A \$1 million award focused on creating a semiconductor ecosystem in the Pacific Northwest is being led by OSU and includes partnerships with the University of Washington, Boise State University, the Oregon Business Council, the

City of Hillsboro, Intel, Micron, Meta, American Semiconductor, Pacific Northwest National Laboratory, and other organizations. The semiconductor ecosystem encompasses use-inspired research related to the semiconductor industry, expands innovation and entrepreneurship, creates training programs to enable a workforce that includes associate to graduate degrees, and increases access and awareness of diverse groups leading to recruitment into STEM fields.

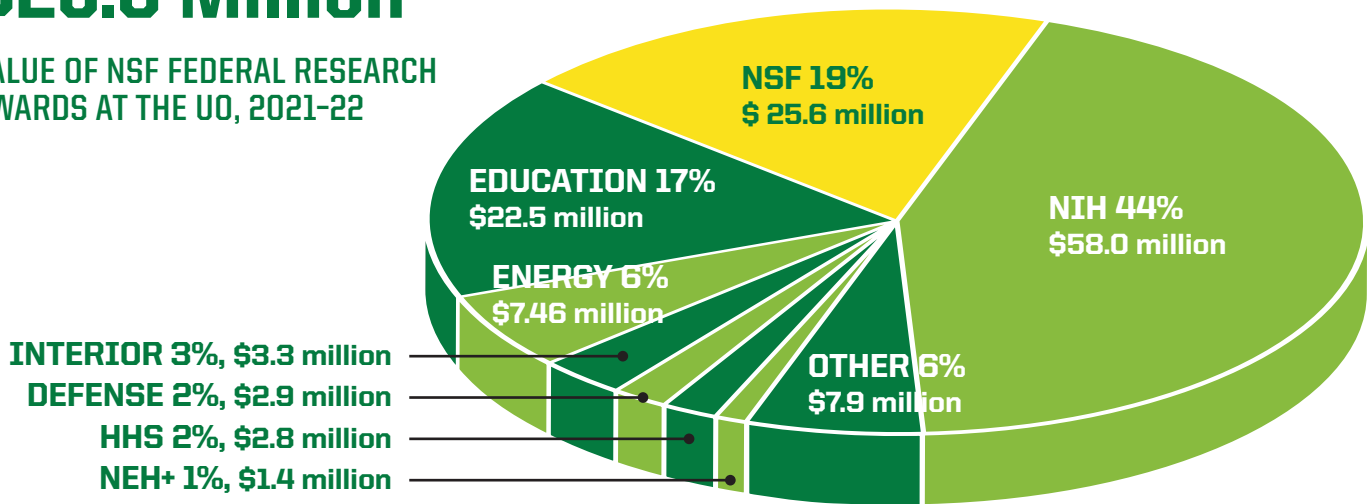
Smart Grid Technologies

A \$1 million award advancing smart grid technologies in the Pacific Northwest is being led by Portland State University. The leadership team includes the UO, OSU, QualityLogic, Galois, and the Pacific Northwest National Laboratory. The research is focused on achieving energy equity and prosperity through an ecosystem characterized as smart, equitable, interoperable, and secure, with a mission of becoming a hub of regional innovation by coordinating and connecting the activities of academic institutions, new and established businesses, risk capital, and governments across the Pacific Northwest.

VALUE OF NATIONAL SCIENCE FOUNDATION RESEARCH AWARDS AT THE UO, 2021-22

\$25.6 Million

VALUE OF NSF FEDERAL RESEARCH AWARDS AT THE UO, 2021-22



UO RESEARCH BY THE NUMBERS FY22

\$180 Million

TOTAL AWARDS, FEDERAL AND OTHER

\$131.9 Million

73%

FEDERAL AWARDS

~1,000

STEM UNDERGRADUATE DEGREES CONFERRED

354

MCNAIR SCHOLARS SINCE 1999

\$10.3 Million

IN LICENSING INCOME

54

LICENSE-BASED INVENTION DISCLOSURES

#1 • #5

NATIONALLY IN APPLIED PHYSICS, CHEMISTRY MS DEGREES

319

FULBRIGHT SCHOLARS SINCE 1950

Our legacy of **TRANSFORMATIVE RESEARCH**

is built on nearly 150 years of inspired collaborations.

We've gathered our collective strengths to answer the call of tomorrow. Our research

ADVANCES SOCIETY

SERVES HUMANITY

DRIVES INNOVATION

and

BUILDS A BETTER FUTURE