Research and innovation are on the rise at the UO. This past year we wrapped up a successful season of recruiting by hiring a significant number of talented faculty members, reported a record increase in the number of research proposals submitted, and celebrated the opening of a new, world-class zebrafish facility. We established new partnerships with private industry, created new outlets for students and faculty members seeking to translate promising ideas into products and companies, and streamlined and solidified our crucial core research facilities. All of these gains are evidence of our commitment to provide our faculty and students with access to cutting-edge tools and facilities, and offer the support they need to achieve successful outcomes.

UO researchers created their own opportunities in 2014, recording 1,070 submissions—a 16.3 percent increase from 2013—and securing $110.3 million in grants, contracts, and other competitive awards. Funding grew by 13 percent from the previous year, and awards contributed millions of dollars to the Oregon economy, providing untold benefits to Oregonians.

Looking ahead to 2015, our office will be working hard to create new opportunities for researchers and striving for competitive excellence on all fronts. Priorities include improving our campus infrastructure to increase our capacity for big data, boosting internal funding to support the faculty across schools and disciplines, and adding depth and expertise to an already-talented faculty through the Clusters of Excellence hiring initiative. In addition, we will be shoring up support for graduate student fellowships, launching an undergraduate research program, and expanding the offerings of our research service divisions.

As the tide continues to rise at the University of Oregon, it is an exciting time to be a part of this growing research enterprise. The year ahead holds exciting challenges and opportunities for UO researchers and for the generation of new knowledge, the evolution of transformative research, and the innovation that will benefit generations to come.

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IN THE COMMUNITIES

Researchers Provide Benefits to Communities throughout Oregon in 2014

Prevention Science Institute

The UO’s Prevention Science Institute (PSI) brings together faculty members in psychology, social and affective neuroscience, development, education, and other areas across disciplines to develop and implement effective interventions in community settings. The interdisciplinary institute collaborates with a range of local, state, national, and international organizations and researchers to understand and promote healthy adaptation in children and families. PSI integrates the understanding of basic developmental processes into models of risk and adaptation that predict behavior. The impact can be felt in communities throughout Oregon where PSI interventions have improved the lives and well being of at-risk children, individuals, and families.

MIT Talbot Seminar for graduate students and postdoctoral researchers, and his K–12 work appears in the online resource Illustrative Mathematics.

A True K–20 Educator

Associate Professor of Mathematics Dev Sinha is a research-active faculty member who teaches, publishes papers, supervises PhD students, edits a journal, is awarded grants—and is also a nationally recognized expert on the Common Core mathematics standards. In this role, he trains local K–12 teachers, consults with district leaders, and provides guidance to states.

One of a handful of people active in the research mathematics and education communities, Sinha says he finds both areas deeply satisfying. His mathematical research will be featured at the upcoming

Master of the Beetle Empire

How does climate change contribute to the mountain pine beetle epidemic that is ravaging the West? What role do forest management policies play in contributing to the problem?

Chris Bone, assistant professor of geography, aims to find out. He is the lead investigator in a project awarded $1.3 million in funding from the National Science Foundation’s Coupled Natural and Human Systems program.

The team led by Bone includes faculty members Patrick Bartlein and Daniel Gavin, geography; Allen Malony, computer and information science; and Cassandra Moseley and postdoctoral researcher Jesse Abrams, Institute for a Sustainable Environment. The project grew out of a winning research proposal for the UO’s Incubating Interdisciplinary Initiatives (I3) Award, a program sponsored by the Office of the Vice President for Research and Innovation. It uses high-performance parallel computing coupled with uncertainty analysis to model and analyze how human decision-making and nature interact to influence the location and timing of pine beetle outbreaks. The resulting knowledge can assist in developing forest management policies that adapt to climate change and mitigate future epidemics.
Researchers at the University of Oregon submitted a record number of proposals for research funding during the 2014 fiscal year. A total of 1,070 research proposals were submitted, a 16.3 percent increase from the previous year. Increases in proposal activity evidence an increasingly complex research portfolio and a dedicated and talented faculty that is making important contributions across a growing number of fields.

The UO received $110.3 million in grants, contracts, and other competitive awards—a 13 percent increase from fiscal year 2013. The federal funding climate is increasingly competitive. UO faculty members have responded to this climate by increasing their research activity and submitting more proposals for funding than ever before. The high volume of proposal activity is matched by the increasing sophistication and professionalization of UO staff and support staff in UO research units.

“Researchers at the University of Oregon secured grants and contracts that contributed millions of dollars to the Oregon economy and provided untold benefits. UO faculty research activity grew even in a year that saw a number of challenges, including the impact of a federal government shutdown and research funding cutbacks. New knowledge and exciting discoveries are generated every day on this campus, where research is built on a strong foundation of bold ideas, innovative solutions, and a long-standing tradition of interdisciplinary research.”

—BRAD SHELTON
INTERIM VICE PRESIDENT FOR RESEARCH AND INNOVATION
UO researchers found new ways to bring their projects to the marketplace. The UO’s return on research through licensing income—licensing income divided by research expenditures—was 9.2 percent in 2014, putting the university among the top performing research institutions nationally.

The work of UO researchers increasingly crosses disciplinary boundaries, allowing the university to pursue a growing number of funding opportunities.

“The UO saw strong returns on research investments in fiscal year 2014. Discoveries made at the University of Oregon continue to fuel innovations that bring benefits to society and help power the Oregon economy.”

—CHUCK WILLIAMS
ASSOCIATE VICE PRESIDENT FOR RESEARCH AND INNOVATION
Making up the image of the zebrafish is a selection of portraits from UO faculty members who received honors and awards in fiscal year 2014. The UO is renowned worldwide for its longstanding program of pioneering zebrafish research, which began with George Streisinger in the early 1970s. For a list of selected faculty members featured in this photo, visit uoresearch.uoregon.edu/content/2014-selected-faculty-honors.

NEH SUMMER STIPENDS SPELL SUCCESS

Forty-three University of Oregon faculty members have received Summer Stipend Awards from the National Endowment for the Humanities since 1980. The program funds only 8 percent of the nearly 1,000 applications it receives. The UO’s most recent awardee, Maram Epstein, was granted a 2014 NEH Summer Stipend Award for her interdisciplinary book project, which traces the practices and representations of “filial piety” in China from the 18th century to the 20th century.
EXPANDING CAPACITY

CAMCOR Acquires New Dual-Beam Focused Ion Beam

The Center for Advanced Materials Characterization in Oregon (CAMCOR) recently acquired a new FEI Helios 600i dual-beam focused ion beam (FIB) instrument. Designed for imaging, nanofabrication, analysis, and sample preparation, the FIB is the final piece in a suite of tools secured through UO’s partnership with FEI. Housed in the Lorry I. Lokey Laboratories, it is available to more than 100 industry users of CAMCOR and used in UO classes, trainings, and outreach activities.

Climate Chamber Aids in Assessment of Comfort

Inside the University of Oregon’s White Stag Block in Portland, a walk-in refrigerator has been repurposed into a new tool that is helping researchers improve human comfort and reduce energy use in millions of square feet of building space. The “thermal comfort prototyping chamber” simulates the interaction between a human user and temperature, relative humidity, air movement, and other variables. Designed by G. Z. “Charlie” Brown and his colleagues in the Energy Studies in Buildings Laboratory, the chamber facilitates the research of architects, designers, engineers, utilities, and product manufacturers who seek detailed, quantifiable data on human comfort evaluation and product testing. The lab has secured more than $20 million in research funding.

Reinvesting in Campus Research

Walking around the UO campus today, it is hard to remember that just 10 years ago the Center for Advanced Materials Characterization in Oregon was just an idea and the Lorry I. Lokey Laboratories were not even blueprints. The Lewis Integrative Science Building, today a state-of-the-art facility entirely dedicated to interdisciplinary research, had yet to be imagined. The powerful new Siemens MRI that resides in the Lewis Center for Neuroimaging is now one of the most powerful in the region. The UO’s new mouse and updated zebrafish facilities, once a distant dream, are now supporting the research of some of our most prominent faculty members. The computing power of a decade ago is dwarfed by the ACiSS (Applied Computational Instrument for Scientific Synthesis) supercomputer, which provides UO scientists with thousands of processing cores, high-performance computational accelerators, hundreds of terabytes of storage space, and high-speed integrated network interfaces. Today, UO faculty members use these advanced facilities to undertake interdisciplinary research that seeks the answers to questions that were, at one time, unimaginable in fields that did not exist a decade ago.
BUILDING PARTNERSHIPS

New partnerships with industry sponsors are creating vital opportunities for graduate students and faculty members at the University of Oregon.

Dixon Awards Create Connections, Opportunities

The Julie and Rocky Dixon Graduate Student Innovation Award prepares doctoral students for careers outside of academia and builds new connections among the University of Oregon and nonprofits, private companies, national laboratories, and other partners. One of this year’s recipients, chemistry PhD candidate Andrew Ritenour, credits his decision to come to the UO to his outstanding advisor, Assistant Professor Shannon Boettcher. The Dixon Award is allowing Ritenour to plug into Oregon’s network of entrepreneurial resources. In addition to working in Boettcher’s lab on scalable materials for solar energy conversion, he is working with Nathan Lillegard, program manager of the Lundquist Center for Entrepreneurship in the UO’s Lundquist College of Business, to determine the commercial viability of a solar cell technology he developed. Ritenour’s hope is to launch his own startup company after graduation in the spring of 2015.

New Graduate Internship Program in Bioinformatics

Recent technological breakthroughs in DNA sequencing allow researchers to decode an organism’s genome in a matter of days, fundamentally changing the way that nearly every study in biology is being performed—from determining the levels of gene activity in developing tissues to identifying individual mutations in cancerous tumors.

The Graduate Internship Program in Bioinformatics is designed to meet the needs of industry, the medical field, and academic institutions in this new genomic era. Six graduate-level courses are enriched with opportunities for experience in the field, providing training in all aspects of acquiring and analyzing next-generation sequencing, including laboratory techniques, programming skills, and inferential genomic analysis.

Developing the Local Startup Ecosystem

The Eugene Regional Accelerator and Innovation Network (RAIN) launched in 2014 with eight startup companies, including four with ties to the University of Oregon. Part of Oregon RAIN, the Eugene node is a unique partnership between the UO Office of the Vice President for Research and Innovation and the Eugene Chamber of Commerce to support the development and creation of startup companies. By leveraging research and intellectual innovations at the University of Oregon and community business resources, Eugene RAIN and the research and innovation office are turning research discoveries into opportunities that will transform our region.
LOOKING FORWARD

The following major initiatives are just a few of the ways the Office of the Vice President for Research and Innovation is working to shape the future of research at the University of Oregon.

Increased Faculty Hiring

The Faculty Excellence Cluster Hiring program will add 12 to 15 promising new faculty members to the UO campus over the next three to four years, and more over the coming decade. These new researchers and scholars will add depth and expertise to an already talented faculty, building on areas of strength and potential impact and extending research programs into new and promising areas. The UO’s commitment to this program extends not only to hiring new faculty members, but to ensuring them the resources and support to be successful. The first hires will arrive on campus by the fall of 2015.

New Science Library

The Price Science Commons will create a modern academic and social center designed to spark new research and learning opportunities by bringing together students and faculty members in all scientific disciplines. Since 2000, the University of Oregon has had a 72 percent increase in science majors. Groundbreaking will take place in 2015. Plans include a “big data” visualization center and a space devoted to tools such as 3-D printing.

Expanding Undergraduate Research Opportunities

The Office of the Vice President for Research and Innovation will work with campus leadership and faculty members to reaffirm our commitment to the integration of teaching and research through the creation of the Undergraduate Research Opportunity Program. The program will support our current scholars and faculty mentors while working to expand the number of research experiences available to students, and serving as a central information hub and resource center. It will enable partnerships to leverage resources and inspire collaborations with academic leaders to reimagine the ways in which faculty members and graduate and undergraduate students can share in the adventure of inquiry.
RESEARCH EXCELLENCE AWARDS

The UO Research Excellence Awards are intended to recognize the significant impact and reach of University of Oregon researchers and the outstanding research activities taking place at the UO.

2014 Outstanding Career Award
ERIC SELKER, professor of biology
JON ERLANDSON, professor of anthropology

2014 Early Career Award
COURTNEY THORSSON, assistant professor of English
SHANNON BOETTCHER, assistant professor of chemistry and biochemistry

2014 Non-Tenure-Track Faculty—Outstanding Accomplishment Award for Independent Researcher
RICHARD CHARTOFF, research professor of chemistry and biochemistry

2014 Non-Tenure-Track Faculty—Outstanding Accomplishment Award for Technical Research Support
CRAIG RASMUSSEN, scientific software consultant

2014 Innovation and Impact Award
ROB HORNER, professor of special education and clinical studies

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