One of the best parts about my position is the front row seat to all of the incredible research, scholarly activity, and creative endeavors happening at the University of Oregon. Sponsored and nonsponsored activity happens every day in every department on this campus, and the sheer scope and volume is astounding. Our researchers were very busy in FY 2015, examining everything from substance abuse prevention to carbon nanotubes to disappearing languages, securing grants and contracts to the tune of $114.6 million.

In a year in which overall federal research funding continued to decline nationally, our faculty members increased their federal funding by 6.3 percent. Proposal submissions remained high, federal awards increased, and so did overall award funding—a testament to the talent and determination of our faculty.

Our faculty makes up the heart of a thriving academic community in which teaching and service go hand in hand with research and innovation. We are fulfilling our commitment to our graduate student researchers through the exceptional training and mentorship our faculty members provide, as well as through innovative offerings like the biology master’s degree with a focus on bioinformatics and genomics. That program is one of several graduate tracks that follows the successful model of our flagship Graduate Internship Program—providing a path to a master’s degree that offers a blend of real-world training and graduate-level instruction, fast-tracking students into scientific careers.

The bioinformatics program is designed to meet the needs of industry, the medical field, and academic-government institutions in the new genomic era, and boasts an internship placement rate of 96 percent. It’s a win-win for our students and for our industry partners, and the relationships we are building with biotechnology companies are serving to advance our research enterprise in countless ways.

And for our undergraduate student researchers—who now make up a growing percentage of the undergraduate population—we are offering new opportunities, like the Undergraduate Research Opportunities Program and the Presidential Undergraduate Research Scholars Program. We are proud to be a partner in the campus-wide effort to expand undergraduate research opportunities—all told, the UO now provides 30 distinct programs for undergraduate opportunities.

These kinds of partnerships allow us to strengthen and diversify our research portfolio. Continued investment in our enterprise is key to our future as a comprehensive public research university. As the state’s only Association of American Universities member, we must continue to push for new ways to advance transformative excellence in research and innovation.

We are fortunate to have the full support of our president, provost, and board of trustees. I thank them for working so hard to set us on the course toward future research successes.

Brad Shelton
Interim Vice President for Research and Innovation
Vice Provost for Budget and Planning
shelton@uoregon.edu
541-346-2090
Grant Writing Seminar Breeds Success
Seventy percent of UO faculty members who participated in a previous version of the Write Winning Grant Proposals seminar offered by the Research Development Services (RDS) unit obtained funding through competitive external programs within two years. RDS helps faculty members find and secure funding for research, scholarship, creative activity, and public service.

The workshop returned to the UO in 2015 and drew more than 50 faculty members and postdocs. The focus was on NIH and NSF grants, and attendees learned simple strategies for improving their success rates. Although researchers face an increasingly competitive funding landscape, the availability of extensive agency databases and other online resources puts more information in the hands of researchers than ever before.

Accelerating a Colorful Collaboration
When Trygve Faste and Jessica Swanson first heard about the internal UO grant funding opportunity known as the Idea Award, they had just begun to experiment with a new artistic method for making their work—one in which ceramics are deliberately submerged in the ocean to attract and support barnacles, mussels, and other marine life.

Faste, an assistant professor in the UO Product Design Program, applied for and won the Idea Award, which allowed Faste and Swanson to accelerate and expand the project. The award supported a collaboration with UO marine biology professor Richard Emlet at the Oregon Institute for Marine Biology (OIMB).

Swanson, an instructor in the Department of Art, served as the ceramics lead on the project. The work was exhibited to favorable reviews during Design Week Portland as part of a UO student and faculty art show and was part of an exhibition at the Bellevue Arts Museum.

Research Spotlight
The recent work of Marian Smith, a professor of musicology and music history, is one example of vital, nonsponsored research that flourished in 2015. Smith was part of a team that painstakingly pieced together a historically informed reconstruction of the 1881 Marius Petipa ballet Paquita. Smith earned a mention in the New York Times, which called the production “fascinating, charming, surprising.”

“By restoring the mime scenes and the choreography that constitute the original Paquita, we in the audience can find beautiful and interesting qualities in this ballet that we otherwise miss,” Smith said. “The story and the characterizations are stronger. You have a deeper, more thrilling experience.”

Smith credits the School of Music and Dance’s dean, Brad Foley, and the Oregon Humanities Center with supporting her research. Earlier this year, the UO hosted a live web broadcast of the Bavarian State Ballet’s performance of Paquita with Smith offering opening remarks about the project.
Our researchers remained very busy in FY 2015, securing grants and contracts that contributed millions of dollars to the Oregon economy. We will continue to build on the successes we have seen this year and stretch our research portfolio to explore new approaches to funding research.”

—BRAD SHELTON
INTERIM VICE PRESIDENT FOR RESEARCH AND INNOVATION
Research Inspires Patents and Spinoffs

Research universities are catalysts of innovation and interdisciplinary collaboration. The UO continues to generate research that feeds innovation, including new spinoff companies, patent applications, and licensing revenue. In FY 2015, the UO applied for 21 new patents and received more than $8 million in licensing revenue. The UO’s return on research through licensing income—licensing income divided by research expenditures—was 10.9 percent in FY 2015, which puts the university among the top performing research institutions nationally. A $7.2 million portion of the UO’s FY 2015 licensing income was reinvested into academic units, innovators, and the State of Oregon. The UO family of startup companies, currently 22 strong, provided 262 jobs and generated $38.8 million in company income during 2014.

“UO research continues to generate innovative solutions that are contributing to the growth and diversification of our state’s economy. In FY 2015, the return on research investments was strong, and we remain among the top universities nationally for return on investment.”

—CHUCK WILLIAMS
ASSOCIATE VICE PRESIDENT FOR INNOVATION
RESEARCH EXCELLENCE

UO Researchers Exelled in Fiscal Year 2015

UO faculty members received numerous honors and awards in 2014–15. Younger faculty members performed particularly well, securing an abundance of early career grants and fellowships. The following is a selection of those awards:

- **Shannon Boettcher**, Department of Chemistry and Biochemistry, Camille Dreyfus Teacher-Scholar Award, Sloan Research Fellow, Cottrell Scholar
- **Michael Harms**, Department of Chemistry and Biochemistry, Pew Scholar in the Biomedical Sciences, Sloan Research Fellow
- **Adrienne Huxtable**, Human Physiology, Parker B. Francis Fellowship
- **Ramesh Jasti**, Department of Chemistry and Biochemistry, Camille Dreyfus Teacher-Scholar Award
- **Vera Keller**, Robert Donald Clark Honors College, American Council of Learned Societies Charles A. Ryskamp Research Fellowship
- **Diana Libuda**, Department of Biology, National Institutes of Health Pathway to Independence Award
- **Daniel Lowd**, Department of Computer and Information Science, Army Research Office Young Investigator Program
- **Stephanie Majewski**, Department of Physics, Department of Energy Early Career Award
- **Kent McIntosh**, Department of Special Education and Clinical Sciences, Council for Exceptional Children, Distinguished Early Career Research Award
- **George Nazin**, Department of Chemistry and Biochemistry, National Science Foundation Faculty Early Career Development Program (CAREER) Award
- **Michael Pluth**, Department of Chemistry and Biochemistry, National Science Foundation Faculty Early Career Development Program (CAREER) Award, Sloan Research Fellow
- **Anne Powell**, Department of Biology, National Institutes of Health Mentored Research Scientist Development Award

**Daniel Tichenor Awarded Andrew Carnegie Fellowship**

In 2015, Daniel Tichenor, a political scientist who serves as one of the University of Oregon’s Phillip H. Knight Professors and as a senior faculty fellow at the Wayne Morse Center for Law and Politics, was named an Andrew Carnegie Fellowship recipient by the Carnegie Corporation of New York. The $200,000 prize, which is awarded to researchers in the humanities and social sciences pursuing challenges facing US democracy and international order, allowed Tichenor to finish researching and writing a book examining the future of undocumented immigrants residing in the United States.
Supporting Research at the Intersection of Biology and Big Data

The Genomics and Cell Characterization Core Facility received two major instrumentation upgrades that will support campus research at the intersection of biology and big data. A new Illumina NextSeq 500 DNA sequencer will deliver whole genome sequence data more rapidly and at a lower cost than previous instruments, and a Sony SH800 cell sorter will analyze and isolate specific populations of cells based on their size, shape, and as many as six different fluorescent labels.

Preparing for the Next ‘Really Big One’

The recent New Yorker magazine article “The Really Big One” addressed the possibility of a magnitude 9.0 earthquake in the Pacific Northwest, and sparked intense public interest in the Cascadia Subduction Zone—the most likely source of devastating earthquakes for the region. It also provided UO earthquake scientists with a “teachable moment” to talk about earthquake science and emergency preparedness.

The UO’s Douglas Toomey, a professor of geophysics in the Department of Geological Sciences, has been actively involved in regional efforts to develop an earthquake early warning system. In 2015, under Toomey’s direction, the UO took over 15 seismometers previously owned by the National Science Foundation. The earthquake sensors, which were purchased by the State of Oregon with a one-time appropriation of $670,000, allow the UO to play a larger role in contributing to an early warning system that will prepare West Coast residents for the next “really big one.”

Toomey is leading the UO’s involvement in the Pacific Northwest Seismic Network, a cooperative between the UO and the University of Washington. Sites set up by the group provide enhanced monitoring of the Cascadia Subduction Zone and can offer an early warning of up to several minutes to Portland and Eugene residents, depending on where the earthquake begins.

Reinvesting in Research

The launch of the Microbial Ecology and Theory of Animals (META) Center for Systems Biology at the University of Oregon—one of just 13 National Centers for Systems Biology sponsored by the National Institutes of Health—has prompted a multimillion-dollar reinvestment in research infrastructure. Devoted to understanding host-microbe systems with the aim of advancing human health, the META Center has inspired upgrades in imaging and genomics. This “biocore” of new resources is further augmented by a significant update of the UO’s aquatic animal facilities. The improvements include new tools such as a novel light sheet microscope developed by UO physicist and META team member Raghuveer Parthasarathy, and new capacities such as a high-powered computing system to process the petabytes of data generated by the Genomics and Cell Characterization Core Facility and other forms of data intensive research.
Supporting Doctoral Students

The UO’s Department of Biology and Department of Chemistry and Biochemistry have been approved for funding support from the Portland chapter of the Advancing Science in America (ARCS) Foundation, a national organization that funds scholars engaged in science, engineering, and medical research. The ARCS Portland chapter is made up of 110 individual donors who are passionate about supporting young scientists. At the UO, ARCS will help fund doctoral students in biology and chemistry.

Student Entrepreneurs Get a Boost

Thanks to the generosity of UO alum Paul Anthony Troiano, five student startups received $5,000 each as part of the RAINMaker Fund. The seed grants provide promising students the resources they need to launch their companies. The startups and founders recognized this year include the Common Ground Music Project (Peter Avelar and Justin Ralls), Cricket Flours (Omar Ellis and Charles Wilson), Lawger (Alec Hankins), Mingo.Me (Aurnik Islam and Anthony Troja), and PDX Space Finder (James Miller).

Doctoral Student Finds Her Niche at the University of Oregon

After visiting campus several years ago, Kate Karfilis knew that the UO was the place for her.

“I was introduced to a number of very enthusiastic young researchers,” Karfilis said. “They made it clear that the opportunity to embark on new and innovative research projects was well supported by a strong administration and a very distinguished faculty.”

Now a UO doctoral student in the Department of Biology and a member of the Stankunas Laboratory, Karfilis has long been interested in understanding how our bodies and organ systems develop and how our genes control that development. Her research combines developmental biology and genetics. A poster presentation of her thesis examining the biological mechanisms that underlie the development of the muscular wall of the heart won her first prize at last year’s Graduate Student Research Forum. Karfilis was one of 18 graduate students to win as much as $1,000 in donor-supported funds for her graduate research at the one-day conference, which is held annually to showcase research, scholarship, and creative expression in all of the UO’s graduate colleges and schools.

In addition, Karfilis serves as president of the UO Women in Graduate Science student group and is working to enable women in all disciplines to become successful contributors in their fields. Her advice to incoming graduate students boils down to two words, “flexibility and confidence.” In her own career, Karfilis hopes to conduct clinical and translational research with the long-term goal of being part of a research team investigating novel treatment strategies for disease, such as drug discovery and validation.
LOOKING FORWARD

New Innovation Hub in Downtown Eugene

Eugene was recently named one of the “top 10” emerging tech cities in the country by the media outlet Fast Company. With its involvement in the state-sponsored Regional Accelerator and Innovation Network (RAIN), the UO has been an active player in the fast-emerging tech scene. In FY 2016, the university will open an “innovation hub” at 942 Olive Street. The renovated space will house the RAIN Eugene startup accelerator, the Tyler Invention Greenhouse, and workshop space for the School of Architecture and Allied Arts.

Amplifying Excellence

The UO has embarked on an ambitious campaign to amplify its research strengths. The Clusters of Excellence hiring program, seeks to strategically hire outstanding faculty members in 10 specific areas of expertise. Hiring and recruitment is underway for nearly a dozen top-flight researchers to join the UO in three of those areas, including the Health Promotion and Obesity Prevention (HPOP) Initiative.

The UO has provided internal seed funding for hiring in two other areas of expertise, the Energy and Sustainable Materials cluster and the Center for Genome Function.

“There is no more important priority for the University of Oregon than building the school’s academic and research strengths,” said UO president Michael Schill.

Expanding Undergraduate Research Opportunities

A new research program for undergraduate students in the humanities, the Humanities Undergraduate Research Fellowship Program, will fund up to eight students to conduct research under the guidance of a faculty member for 16 weeks during the winter and spring terms. The program is open to all UO undergraduate students.

Centers and Institutes Lead the Way

The recently launched Center for Cybersecurity and Privacy will address the continuing threat of security breaches and violations of online privacy and serve as the university’s primary hub for cybersecurity research and education. The center is led by Jun Li, associate professor of computer and information science. The UO was designated by the National Security Agency as a National Center of Academic Excellence in Cyberdefense Research. The UO will host the 2016 Oregon Cybersecurity Day, which will draw speakers and participants from academia, industry, and government.

The UO’s new Center for Translational Neuroscience will focus on research examining brain structure, function, mental health, and well-being, and will seek to translate this knowledge into clinical applications and novel therapies. The center also seeks to inform public policy and programming related to healthy development across the lifespan, informed by the confluence of prevention science and cognitive neuroscience. The center has a particular interest in applying scientific knowledge in community settings with high levels of economic disadvantage, discrimination, and other forms of adversity. Leadership includes director Philip Fisher, who is a Philip H. Knight Chair, as well as associate director Elliot Berkman—both are professors in the Department of Psychology.
RESEARCH EXCELLENCE AWARDS

UO faculty members, staff members, and students gathered to celebrate the recipients of the 2015 Research Faculty Excellence Awards and the Distinguished Teaching Awards. The ceremony marked the first time the UO’s teaching and research awards had been handed out together, emphasizing the UO's role as a comprehensive public research university committed to exceptional teaching, discovery, and service.

2015 Outstanding Research—Career
SANDRA MORGEN, professor of anthropology
MICHAEL RAYMER, professor of physics

2015 Outstanding Research—Early Career
HANK CHILDS, associate professor of computer and information sciences
CHRISTOPHER CHÁVEZ, assistant professor of advertising

2015 Outstanding Non-Tenure-Track Faculty Independent Researcher
DEANNE UNRUH, senior research associate

2015 Innovation and Impact

SCIENCE AND MEMORY TEAM
(climate change reporting project in the School of Journalism and Communication): Mark Blaine, Torsten Kjellstrand, Dan Morrison, and Deborah Morrison

SUPRASENSOR TECHNOLOGIES
(startup company spun off of UO research in the Department of Chemistry and Biochemistry): Mike Haley and Darren Johnson

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