

2006-07 College of Science related RESEARCH websites

The College of Science



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<http://www.science.oregonstate.edu/>

*The College of Science makes a difference in the lives of the people we serve in Oregon, the nation, and the world. The College helps students in all disciplines **experience** how important science and mathematics are to global issues affecting their lives. Learning in our classrooms leads students in our majors and in the professional schools to **explore** new ideas. Our faculty and students work together in the field and in the laboratory to **discover** new knowledge for solving the economic, social, and environmental challenges facing our communities. The faculty, students, and staff of the College of Science **achieve** results that change the world.*

The College is committed to providing outstanding education and training to graduate students in science; pursuing basic and applied research to advance the frontiers of scientific and technical knowledge, and advancing the health, environment, and economic welfare of the citizens of Oregon and the nation.

Faculty members of the College of Science engage in basic and applied research in biological sciences, physical and mathematical sciences, earth and environmental sciences, and education. The college includes over 200 faculty, about 400 graduate students, and generates about \$30 million annually in external grant and contract support. Our faculty play key roles in eleven of the university's centers, institutes, and interdisciplinary programs. These faculty lead or contribute to all six of the university's research and teaching initiatives, and they collaborate with colleagues in virtually every other college at Oregon State University.

The College maintains diverse and vibrant research programs and has developed particular strengths in several areas. These include ecology and evolutionary biology; applied mathematics and numerical analysis; computational physics; cellular and molecular biology (including biochemistry and microbiology); materials sciences; and earth and environmental sciences (including environmental chemistry, natural resource policy, global change, and active geologic processes).

The College has supported a strong commitment to research in the theory and pedagogy of science and mathematics education, including free choice learning, as evidenced by the nationally recognized Department of Science and Mathematics Education.

[BIOCHEMISTRY & BIOPHYSICS](#) **[MICROBIOLOGY](#)**

[BOTANY & PLANT PATHOLOGY](#)

[PHYSICS](#)

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INSTITUTES, CENTERS, INTERDISCIPLINARY PROGRAMS, INITIATIVES
(LINK TO THESE BELOW)

BIOCHEMISTRY & BIOPHYSICS

<http://oregonstate.edu/dept/biochem/>

Research areas are listed by faculty at

<http://oregonstate.edu/dept/biochem/faculty/faculty.html>

Biochemistry and Biophysics investigates life processes at the molecular level, using the methods of chemistry and physics. Major research programs in the department, conducted by the fourteen regular and two emeritus faculty members, include: crystallographic structural analysis of nucleic acids and proteins; nuclear magnetic resonance spectroscopic analysis of protein-nucleic acid interactions and of protein and nucleic acid structures; rapid kinetic analysis of enzyme reaction mechanisms and neurotransmitter-receptor interactions; molecular mechanisms in signal transduction; amyotrophic lateral sclerosis (Lou Gehrig's disease); protein-protein interactions in metabolic regulation; DNA replication and its coordination with DNA precursor metabolism; nucleotide and coenzyme metabolism; genetic regulation of the cell cycle; protein phosphorylation and the control of energy metabolism; antioxidant compounds and their effects on human health and aging; biochemical control of cell pigmentation; biochemistry of cell aging; DNA damage, mutagenesis, DNA repair, and carcinogenesis; neuronal development in mammals; epigenetic control of gene expression; computational biology.

The department maintains strong research ties with other departments and research centers on campus. Three faculty members in the department hold their primary appointments in the Linus Pauling Institute, and one in the department of Environmental and Molecular Toxicology. Most of the faculty are members of the Center for Genomic Research and Biocomputing, and about half are Center Investigators in the Environmental Health Science Center. Fifteen faculty members in other departments hold adjunct appointments in Biochemistry and Biophysics, allowing them to supervise research students in the department.

Although the principal focus of the department is basic research, members of the faculty are involved as collaborators or consultants with faculty and students in applied and health related life science units, as well as in other basic science departments. Close research relationships are maintained with faculty in Environmental and Molecular Toxicology, Food Science and Technology, Animal Sciences, Pharmacy, and Veterinary Medicine, as well as in other departments in the College of Science.

BIOLOGY (Remove section—no research supported through this program)

BOTANY & PLANT PATHOLOGY

<http://www.science.oregonstate.edu/bpp/>

The Department of Botany and Plant Pathology conducts research that addresses a wide range of fundamental and applied problems in plant biology, from molecular to ecosystem levels of biological organization, with special consideration given to plant-microbe interactions. Major areas of research emphasis and strength within the department include:

- Plant molecular, cellular, and genomic biology: Research in these areas focuses on the molecular mechanisms regulating plant growth and development and on the molecular basis of plant-microbe interactions. The programs dealing with plant-microbe interactions have strong links to plant pathology and environmental science and include cutting-edge research on the molecular basis of host-pathogen interactions, the role of microbes in nitrogen cycling and bioremediation and systems biology.
- Plant pathology: The department has a mandate to meet statewide needs for research on plant diseases, and the strengths of the Department include strong programs that focus on plant disease epidemiology and disease management, including problems directly affecting agriculture and forestry in the State of Oregon.
- Plant systematics: Active research programs in plant and fungal systematics employ modern molecular approaches and are part of a campus-wide strength in evolutionary biology. Along with these programs, the department houses the OSU Herbarium, which is an important research resource that contains one of the largest collections of plant and fungal specimens in the Pacific Northwest.
- Plant ecology: Ecological research in the department currently focuses on the ecology of plant terrestrial communities and on the responses of plants to environmental and human stresses. These programs give special attention to ecological questions directly related to the ecosystems of the Pacific Northwest and are part of the campus-wide strength in ecology and environmental science.

CHEMISTRY

<http://www.chemistry.oregonstate.edu>

Research in the Department of Chemistry is focused on areas of chemistry important to biology, materials, and the environment. In addition, the department offers research and graduate courses in the traditional areas of analytical, inorganic, nuclear, organic, and physical chemistry.

Active research areas in organic and biologically related chemistry include theoretical organic chemistry and reaction mechanisms, synthesis, natural products isolation, mechanisms of biosynthesis, and analytical separations of biologically active compounds. Projects which are under investigation at present include: the isolation and biological evaluation of anticancer compounds from marine sources; the study of novel reactions of heterocyclic compounds with application to alkaloid and antibiotic synthesis; the biosynthesis of microbial metabolites (especially antibiotics); the mechanisms of enzyme-catalyzed reactions; the synthesis of complex terpenoids, plant and fungal hormones, and macrolide antibiotics; carbene reactions; the influence of structural changes on the rate of certain thermal rearrangements; mechanisms of free radical reactions; and correlation of chemical reactions with molecular orbital calculations

by high speed computers. Interdisciplinary programs involve collaborative research with other departments, such as biochemistry and pharmaceutical chemistry.

Research in materials chemistry encompasses preparation and structural characterization of new oxides, oxide halides, and fluorides; intercalation chemistry and the formation of nanoscale composites with layered hosts; design and synthesis of new oxide structures and exploration of properties such as superconductivity, thermal expansion, and catalytic activity. These materials have applications as new nonlinear optical crystals and laser hosts, and as charge-storage and other electrochemical devices. Research involves collaboration with Physics, Electrical and Computer Engineering, and Chemical Engineering.

Research in environmental and analytical chemistry covers chemical sensors and field instrumentation, chemical speciation, environmental transport of metal- and organic-contaminants, ICP emission and molecular luminescence spectrometry, electrochemistry, mass spectrometry, analytical extractions, biological and clinical chemistries, and microscale & high selectivity separations. Interdisciplinary programs involve collaboration with Environmental Engineering, Chemical Engineering, Biochemistry, and Toxicology.

Physical chemistry research encompasses such fields as molecular and crystal structure, linear and non-linear forms of laser spectroscopy, photoelectron spectroscopy, and surface chemistry and catalysis. Electronic structure theory is an important component in these studies, and its development is a major goal of research programs in quantum chemistry. Other theoretical work deals with reactive scattering and time-dependent properties of condensed systems and liquid crystals. Nuclear chemistry research involves the synthesis of new heavy elements and new n-rich isotopes of the heavy elements, and the characterization of intermediate energy reactions involving heavy projectiles such as Xe, Au and heavy target nuclei.

Unique facilities in the Department of Chemistry include advanced instrumentation for mass spectrometry, nuclear magnetic resonance spectroscopy, laser spectroscopy, surface analysis, x-ray crystallography, and a TRIGA research reactor.

ENTOMOLOGY: delete section; Entomology Graduate Program is below.

GEOSCIENCES

<http://www.geo.oregonstate.edu/>

<http://www.geo.oregonstate.edu/research/deptresearch.htm>

The Department of Geosciences does research relating to geology, geography, natural resources and environmental sciences. The program integrates topics ranging from geochemistry of the Earth's interior to environmental policy on the earth's surface. There is a strong interest in environmental systems, surface and subsurface earth processes, the utilization of advanced techniques for measuring or mapping the earth, and applying the findings to answer policy relevant questions. The department has active research groups focusing on six broad areas:

Resource geography – the human use of earth resources

Volcanic petrology and geochemistry – the study of the processes and products of volcanic systems

Geographic information science – cartography, remote sensing, spatial analysis, visualization, and geographic information systems.

Water resource science and policy – Eco-hydrology, Fluvial Geomorphology, Hydrogeology, and Snow Hydrology

Active tectonics and earthquake geology – tectonic geomorphology, subduction zone dynamics, extensional tectonics, and orogenic belt development

Ecosystem informatics – interface between biogeography, computer sciences, mathematics and geosciences

Climatology and climate change – the spatial distribution of weather patterns and their relationship to time and natural and human factors

MATHEMATICS

<http://www.math.oregonstate.edu>

http://www.math.oregonstate.edu/?q=research_intro

The Department maintains basic strength in pure mathematics and mathematics education and continues to develop its research focus in applied and interdisciplinary mathematics. This brings a synergistic research environment that is unique within the State of Oregon, and it enables contributions of expertise to such diverse applied areas as inverse problems, tomography, ocean and climate modeling, fluid mechanics, cryptography, mathematical physics, neural networks, risk management, and problems of transport and flow in porous media. Our strengths in applied and computational mathematics are recognized throughout the world.

MICROBIOLOGY

<http://microbiology.science.oregonstate.edu/>

Research areas are listed by faculty at

<http://microbiology.science.oregonstate.edu/faculty/index.html>

The Department of Microbiology conducts basic and applied research on a wide range of problems that involve microbes: bacteria, viruses and parasites.

Microorganisms are ubiquitous, and microbiology is prominent in the daily news, reflecting the ubiquity of microorganisms and their involvement in the health of the Earth and its inhabitants.

The broad scope of research in the department includes

- **Molecular studies of viruses and bacteria** that are aimed at understanding these infectious entities so that they can be managed to ameliorate their involvement in disease and maximize their beneficial properties. Our studies involve vaccinia virus, baculoviruses, dengue virus, plant positive strand RNA viruses; *Agrobacterium*, mycobacteria, *Pseudomonas*, *Clostridium*, bacteria of the oceans and soils.

- **Studies of the ecology and physiology of bacteria and parasites** that are aimed at understanding the roles of these organisms in shaping the environment (bioremediation, contribution to biogeochemical cycles) and causing disease. Our studies involve genomic-based analyses of the contributions of bacteria to nutrient fluxes in the oceans and soils, and studies on diseases of fish.
- **Applied studies aimed at vaccine production and the development of biosensors** capable of detecting pathogenic bacteria.

PHYSICS

www.physics.oregonstate.edu

http://www.physics.oregonstate.edu/PhysicsWeb_2001/Research/research.html

Physics is the study of the fundamental structure of matter and the interactions of its constituents. Physicists are concerned with the development of concepts needed for a precise description of nature and with experiments to test such concepts. Consequently, the science of physics is at the core of many new advances in engineering and technology.

Research characteristics of the department include:

- The Department of Physics has joint programs with several departments on campus: chemistry, mathematics, science & mathematics education, and departments in the College of Engineering.
- A new effort in femtosecond spectroscopy studies the high speed dynamics and nonlinear response in semiconductor nanostructures.
- An interdisciplinary program in physics, chemistry, and electrical & computer engineering encompasses wide-ranging research on transparent conductors with a view to building a new generation of transparent opto-electronic devices.
- Ultrafast spectroscopy and singlemolecule fluorescence microscopy are used to understand fundamental, light-matter interactions in organic optical materials and to develop high-performance materials for electronic and photonic applications.
- Theoretical and computational research is performed to understand the electromagnetism of nano- and micro-structured composites and to design metamaterials with tailored optical properties for ultra-compact waveguides, high-performance sensing, negative refraction, and other photonic applications.
- Diode lasers are used in laser cooling and trapping of rubidium atoms and nanoparticles, in experiments to study laser noise properties, and to develop new spectroscopic techniques.
- OSU's reactor is used to measure neutron capture cross sections, including some that are needed for producing radioisotopes employed for medical diagnosis and therapy.

- Neutron diffraction is applied to the study of semiconducting magnetic superlattices.
- Optically active impurities in semiconductors are investigated with nuclear magnetic resonance combined with in-situ optical excitation.
- Optical waveguide surface coherent anti-Stokes Raman scattering is used for investigation of fundamental atomic processes occurring at surfaces.
- Physics education research is performed in the context of the “Paradigms in Physics” project and the CPUG program (computational physics for undergraduates).
- Theoretical research is performed to study basic electronic, magnetic, optical, and structural properties of metals, alloys and ceramics, magnetic anisotropy of transition metals, and properties of semiconducting magnetic superlattices.

SCIENCE & MATHEMATICS EDUCATION

<http://oregonstate.edu/research/multi/Science.html#SciMath>

The Department of Science and Mathematics Education is committed to the improvement of science and mathematics teaching and learning in schools and in free-choice learning environments. We have major foci on K-16 teacher education (preservice and inservice), development of practitioners and researchers in free-choice learning, and research on teaching and learning. Our faculty members are engaged in research in K-12 classroom settings, within our own courses, on science and mathematics college courses, and in free-choice learning environments for example in museums, zoos, aquariums, science centers, and national parks.

School-Based Research

Our faculty research and evaluate mathematics and science education leadership and professional development, focusing on improving math and science content for teachers in the state and across the nation. In conducting this research, faculty work in partnership with school districts, community colleges, businesses, and industry. For example, a partnership with central Oregon school districts and the High Desert ESD assures that middle school mathematics teachers meet the high qualifications of the No Child Left Behind federal initiative. Another project is built on a partnership among Portland Community College, Portland metropolitan area high schools, and the construction industry, in a program where students experience the value of science and mathematics in post-high school career pathways.

Researching Mathematics Leader Learning is an NSF-funded research project intended to study the understandings and practices of mathematics professional development leaders associated with developing mathematically rich learning environments. The project investigates the question: How can leaders cultivate professional development environments where teachers have a greater opportunity to grapple with and understand mathematics deeply?

Research partnerships are also created within the OSU community. Faculty members are collaborating with the Physics Department to design and evaluate a course for prospective elementary and middle school teachers. Research within this course will study how to improve the generalist teacher's understanding of physical phenomena and at the same time build an understanding of how students learn science.

A partnership with Vernier Software and Technologies and with Texas Instrument is leading to new understandings about the role of innovative technologies helping students understand key science and mathematics concepts.

Research on Free Choice Learning Environments

The newly created Free-Choice Learning graduate program, housed in the OSU Department of Science and Mathematics Education and a Center for Free-Choice Learning at the Hatfield Marine Science Center, in collaboration with the Oregon Sea Grant Program, has been a major milestone in a rapidly developing field. It is estimated that there are currently in excess of 100,000 free-choice learning professionals in the country, and thousands of additional students who would be interested in joining the field if they knew of an appropriate graduate program. Oregon State University is the first in the world to offer such a graduate program focused on research in free-choice learning environments.

Free-choice learning faculty members have done research and professional development in Ukraine, Australia, U.K., Japan, Taiwan, Brazil, and Chile. With NSF funding, free-choice learning faculty investigate the role of zoos and aquariums on the long-term impact of informal science experiences for girls. Faculty connected with OSU Hatfield Marine Science Center Visitors Center provide unique opportunities for research on free-choice learning as well as internship opportunities in informal science education for graduate students.

Collegiate Teaching

Faculty study the ways in which college students learn science and mathematics. Department faculty have teamed with the Physics Department to evaluate innovations in curriculum and teaching, funded by NSF in a program entitled Paradigm Physics. This research has examines the impact on learning in upper division physics students. The new course mentioned above involving physics learning in preservice teachers is another example research on collegiate teaching and learning. Other projects are studying how faculty reform teaching practices to meet higher achievement and retention standards even in large lecture-recitation courses. Finally, faculty are partnering with Electrical Engineering to evaluate curricular innovations involving the use of Tekbots® for integrating course content and emphasizing innovation and troubleshooting.

STATISTICS

<http://www.stat.oregonstate.edu>

The Department of Statistics combines a program of research in statistical theory and methods with a broad range of multidisciplinary, more applied research. Areas of research interest include linear and generalized linear models, sampling methodology, biostatistics/biometrics, spatial statistics, and operations research. The primary areas of multidisciplinary research are environmental and ecological statistics, natural resources, and environmental health. Collaborators in this research include faculty from the Colleges of Science, Agricultural Sciences, Forestry, and Health and Human Performance, as well as investigators from the Environmental Protection Agency, the U.S. Forest Service, and the U.S. Fish and Wildlife Service. Questions addressed by this research concern assessment and mitigation of environmental health hazards for humans and other species, in particular water quality; and population dynamics of numerous species.

Statistics also operates the Survey Research Center, <http://oregonstate.edu/research/shared/facilities.htm#SurveyCenter> , which conducts and analyzes surveys for the university and for state and local government agencies.

ZOOLOGY needs approval from chair

<http://zoology.science.oregonstate.edu/?q>

<http://zoology.science.oregonstate.edu/?q=research>

The research programs in the Department of Zoology are nationally recognized and internationally acclaimed. Faculty members serve as editors of the most prestigious journals in their fields and as officers of major academic societies (e.g., AAAS, American Society of Naturalists, Ecological Society of America, International Society of Developmental and Comparative Immunology, Society for the Study of Evolution). In a recent ranking of research programs in ecology, evolution and behavior, Oregon State University placed in the top 18% of programs in the United States and was the highest ranked scientific program in the State of Oregon. Research in the Department focuses on three areas: Ecology & Evolutionary Biology, Physiology & Behavior, and Development & Cell Biology. Individual research projects are described within each faculty's particular research areas.

CENTERS & INTERDISCIPLINARY PROGRAMS affiliated with Science departments and faculty

- Center for Genome Research and Biocomputing (CGRB)
<http://www.cgrb.orst.edu/>
CGRB Core Labs: <http://corelabs.cgrb.oregonstate.edu/>
- Interdepartmental Molecular and Cellular Biology Program (MCB)
<http://www.mcb.oregonstate.edu/>
The interdepartmental Molecular and Cellular Biology Graduate Program strives to thoroughly prepare its students for careers in forefront areas of biomedical, environmental, and agricultural science by focusing on research and education in fundamental aspects of mechanistic biology. More than 95 faculty in 16 departments and 6 colleges participate in the program. The goal of the program is to provide high-quality instructional opportunities for graduate students interested in molecular, cellular and genome biology. This goal is achieved through a core curriculum (including an intensive molecular biology techniques workshop), three research rotations, teaching experience, public seminar presentations, and individualized research efforts leading to preparation of a thesis. Graduate students in the program are engaged in the research efforts of their research advisors. Systems under investigation include most levels of biological diversity (viruses, bacteria, fungi, insects, plants, and animals). Student research focuses include:
 - The basic elements of molecular biology (replication, transcription and translation) and cellular biology (cell cycle, structure and development);
 - The specific problems or processes using a molecular biological or cellular approach;
 - The use of the tools of molecular and cellular biology to probe complex systems and analyze organismal differences and similarities;
 - The application of molecular biology for the development of products and solutions to problems.
- Entomology Graduate Program
<http://agsci.oregonstate.edu/entomology/gradprgm.htm>

- Environmental Health Sciences Center (EHSC)
<http://www.ehsc.orst.edu/>
- Institute for Natural Resources (INR)
<http://oregonstate.edu/research/multi/InstNatRes.html>
- Institute for Water & Watersheds
<http://water.oregonstate.edu/>
- Linus Pauling Institute
<http://lpi.oregonstate.edu/>
- Marine and Freshwater Biomedical Research Institute
<http://oregonstate.edu/research/multi/Marine.html>
<http://www.science.oregonstate.edu/mfbsc/>
- Oregon Nanoscience and Microtechnologies Institute (ONAMI)
<http://www.onami.us/>
- Partnership for Interdisciplinary Study of Coastal Oceans (PISCO)
<http://www.piscoweb.org/>
- Survey Research Center (description in Facilities section below)
<http://oregonstate.edu/research/multi/SRC.html>

**SHARED FACILITIES SECTION OF OSU RESEARCH OFFICE WEBSITE
(Links to Sites hosted by College of Science)**

Revisions under Chemistry Facilities:

Facility Crystallographic Laboratories

Location Department of Chemistry
020 Gilbert Hall

Consultants Lev Zakharov, Douglas Keszler

Email lev@uoregon.edu, douglas.keszler@oregonstate.edu

Phone 541-346-4620, 541-737-6736

Fax 541-737-2062

Website

- Services**
- Single crystal, powder, and thin-film X-ray diffraction
 - Phase identification
 - Structure determination

- Instruments**
- Siemens (Bruker) D5000 powder X-ray diffractometer (Cu radiation)
 - INEL high/low temperature X-ray diffractometer (Cu radiation)
 - Rigaku/MSR Rapid multipurpose diffractometer with low temperature attachment (Cu and Ag radiation, rotating anode)

Facility Nuclear Magnetic Resonance Spectrometry Laboratory

Location Department of Chemistry
228 Gilbert Hall

Consultant Rodger Kohnert

Email rodger.kohnert@oregonstate.edu

Phone 541-737-6752

Fax 541-737-2062

Services Nuclear magnetic resonance spectrometry

- Instruments**
- Bruker DPX300 MHz FT Nuclear Magnetic Resonance Spectrometer
 - Bruker DPX400 MHz FT Nuclear Magnetic Resonance Spectrometer
 - 5 Linux-based NMR Work Stations

Revisions under Life Sciences (suggested instead of “Agriculture & Biology”):

Facility Electron Microprobe Facility

Location College of Oceanic & Atmospheric Sciences
150 Burt Hall

Consultant Dr. Frank Tepley

Email tepleyif@geo.oregonstate.edu

Phone 541-737-3023 or 541-737-8199

Fax 541-737-1200

Website <http://www.coas.oregonstate.edu/index.cfm?fuseaction=content.display&id=371#>

- Services**
- Electron microprobe spectrometry
 - X-ray wavelength spectrometry
 - X-ray energy spectrometry
 - Epi-illumination light microscopy
 - Microprobe specimen preparation

- Instruments**
- CAMECA SX-50 Electron Microprobe with X-ray Wavelength Spectrometers (4)
 - X-ray Energy Spectrometer

Facility Electron Microprobe Facility

Location Department of Botany & Plant Pathology
1073-1078 Cordley Hall

Consultant Al Soeldner

Email soeldnea@science.oregonstate.edu

Phone 541-737-5645

Fax 541-737-3573

Website <http://www.science.oregonstate.edu/bpp/EMfacility/index.htm>

- Services**
- Transmission/scanning transmission electron microscopy

- Electron diffraction by TEM
- Scanning electron microscopy
- X-ray energy spectrometry
- Image metrology
- Specimen preparation for TEM, SEM, XES
- Educational services

- Instruments**
- PHILIPS CM12 TEM/STEM Transmission Electron Microscope
 - AmRay 3300 FE Scanning Electron Microscope
 - IXRF X-ray Energy Spectrometer

Facility The OSU Plant Disease Clinic

Location Department of Botany & Plant Pathology
1089 Cordley Hall

Consultant Melodie Putnam

Email putnamm@science.oregonstate.edu

Phone (541)737-3472

Fax (541) 737-2412

Website http://www.science.oregonstate.edu/bpp/Plant_Clinic/index.htm

Services Provides disease diagnosis and recommendations for disease prevention and management, to OSU extension field faculty, growers, agricultural, industries, and home gardeners in the Pacific Northwest and Alaska. Fees for services are listed on the website. The Plant Clinic also provides identifications of insects and other arthropods to all people at no charge.

Facility The OSU Herbarium

Location Department of Botany & Plant Pathology
1045 Cordley Hall

Consultant Richard Halse

Email halserr@science.oregonstate.edu

Phone (541)737-5297

Fax (541) 737-3573

Website <http://www.science.oregonstate.edu/dept/botany/herbarium/>

Services The world's most comprehensive collection of Oregon plants and fungi, with over 400,000 preserved specimens. Extensive specimen information is available via our website. Some identification services are provided. Will accept voucher specimens from OSU research projects.

Facility The Survey Research Center

Location Department of Statistics
44 Kidder

Consultant Virginia Lesser, Director

Email lesser@science.oregonstate.edu

Phone 541-737-3584

Fax (541) 737-3489

Website <http://www.stat.oregonstate.edu/src>

Services Provides research support in survey design, sample selection, questionnaire construction, data collection and reduction, statistical analysis, and the reporting of results.

New: Physics Facilities

Facility	kHz Ti:Sapphire Femtosecond Laser System
Location	Department of Physics 108 Weniger Hall
Consultant	Prof. Yun-Shik Lee
Email	leeys@physics.oregonstate.edu
Phone	541-737-5057
Fax	541-737-1683
Website	http://www.physics.oregonstate.edu/~leeys
Services	Femtosecond Laser Spectroscopy
Instruments	kHz Ti:Sapphire Regenerative Amplifier System (Legend, Coherent Inc.)

Facility	Pulsed Laser Deposition
Location	Department of Physics 475 Weniger Hall
Consultant	Prof. Janet Tate
Email	tate@physics.oregonstate.edu
Phone	541-737-1700
Fax	541-737-1683
Website	http://www.physics.oregonstate.edu/~tate/PLD
Services	Pulsed laser deposition
Instruments	Neocera PLD chamber & Thermionics PLD chamber with shared Lambda Physik ComPeX KrF excimer laser

**RESEARCH OFFICE WEBSITE: JOURNALS EDITED BY COLLEGE OF SCIENCE
FACULTY**

<http://oregonstate.edu/research/multi/journfac.html>

Berg, Craig A. and **Larry G. Enochs**. Editors. 2003. *Journal of Science Teacher Education*. Association for the Education of Teachers in Science. Quarterly. Tom Dick, Larry G. Enochs, and Dianne K. Erickson are also listed as Associate Editors on this journal for 2003.

Enochs, Larry G. Editor. 2003. *The Oregon Science Teacher*. Oregon Science Teachers Association. Five issues per year.

Flick, Lawrence B., and Norman G. Lederman. Editors. 2003 (2001-2006). *School Science and Mathematics*. School Science and Mathematics Association. Eight issues per year.

Grant, Gordon, Deputy Editor. 2003. *Water Resources Research*. v. 39, no. 1-12. Monthly.

Lajtha, Kate (Katja) (Oregon State University). Editor-in Chief. 2004, 2005. *Biogeochemistry*. ISSN 0168-2563.

Mundt, Christopher C. Editor-in-Chief. *Phytopathology*. International Journal of the American Phytopathological Society. 2003. Virginia O. Stockwell, COS-BPP/USDA/ARS is an associate editor on this journal.

Rohrmann, G. *Virology*. March 15, 2005; v. 333, no. 2. Elsevier, Science Direct. ISSN 0042-6822.

White, James D. Associate Editor. 2002-3. Organic. *Chemical Communications*.

RESEARCH OFFICE WEBSITE: CURRENT BOOKS PUBLISHED BY COLLEGE OF SCIENCE FACULTY—2003, 2004, 2005

<http://oregonstate.edu/research/multi/authfac.html>

2003

Athreya, Krishna, Mukul Majumdar, Madan Puri, and **Edward Waymire**. Editors. 2003. *Probability, Statistics, and their Applications: Papers in Honor of Rabi Bhattacharya*. Lecture Notes-Monograph Series Volume 41. Beachwood, OH: Institute of Mathematical Statistics. 292 p.

Higdon, Jane. 2003. *An Evidence-Based Approach to Vitamins and Minerals: Health Implications and Intake Recommendations*. New York: Thieme Medical Publishers. 253 p.

Jackson, Philip L., and **A. Jon Kimerling**. 2003. *Atlas of the Pacific Northwest*, 9th ed. Corvallis, OR: Oregon State University Press. 152 p.

O'Connor, Jim E., and Gordon E. Grant. Editors. 2003. *A Peculiar River: Geology, Geomorphology, and Hydrology of the Deschutes River, Oregon*. Water Science and Application 7. Washington, D.C.: American Geophysical Union. 219 p.

Ream, Walt, Bruce Geller, **Janine Trempy**, and Katharine Field. 2003. *Molecular Microbiology Laboratory: A Writing Intensive Course*. New York: Academic Press, Elsevier Science. 268 p.

2004

Flick, Lawrence B. (Oregon State University), and Norman G. Lederman (Illinois Institute of Technology). Editors. 2004. *Scientific Inquiry and Nature of Science: Implications for Teaching, Learning, and Teacher Education*. Science & Technology Education Library, vol. 25. Boston, MA: Kluwer Academic Publishers. 453 p.

McCune, Bruce, and M.J. Mefford. 2004. *HyperNiche™: Multiplicative Habitat Modeling*. Version 1. Gleneden Beach, OR: MjM Software. Manual and CD; ISBN

Trun, Nancy and **Janine Trempy**. 2004. *Fundamental Bacterial Genetics*. Malden, MA: Blackwell Science Ltd. 287 p.

Woods, Alan J. (Oregon State University), T.L. Foti (Arkansas Natural Heritage Commission), S.S. Chapman (Dynamac Corporation), J.M. Omernik (U.S. Environmental Protection Agency, retired), J.A. Wise (Arkansas Department of Environmental Quality), E.O. Murray (Arkansas Multi-Agency Wetland Planning Team), W.L. Prior (Arkansas Geological Commission), J.B. Pagan (U.S. Department of Agriculture-Natural Resources Conservation Service), J.A. Comstock (Indus Corporation), and M. Radford (Arkansas Soil and Water Conservation Commission). 2004. *Ecoregions of Arkansas* (Color poster with map, descriptive text, summary tables, and photographs). Reston, VA: U.S. Geological Survey (map scale 1:1,000,000).

Yeats, Robert S. 2004. *Living with Earthquakes in the Pacific Northwest: A Survivor's Guide*. 2nd Ed., Revised and expanded (1988). Corvallis, OR: Oregon State University Press. 390 p.

2005

Burton, Robert, and **Dennis Garity**. 2005. Study Guide for Stewart's Multivariable Calculus Concepts and Contexts, 3rd Ed. [vol 1] Belmont, CA: Thompson Brooks/Cole. o. 1-429.

Burton, Robert, and **Dennis Garity**. 2005. Study Guide for Stewart's Multivariable Calculus Concepts and Contexts, 3rd Ed. [vol 2] Belmont, CA: Thompson Brooks/Cole. o. 380-713.

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RESEARCH OFFICE WEBSITE: PATENTS RECEIVED BY OSU FACULTY

<http://oregonstate.edu/research/multi/patentsfac.html>

Office of Technology Transfer should update this site—COS patents do not go beyond 2003.

**Oregon State University
Office Of Technology Transfer**

College of Science Patents, 2001-2005

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Country	Docket No.	Patent Title	Applic Type	Inventor	Dept.	Iss Da
U.S.	96-22	Bioremediation Of Xenobiotics Including Methyl Tert-Butyl Ether	Parent	Ciuffetti, Lynda Hyman, Michael	Bot & Pl Path Microbiology	02/27
U.S.	97-03	Solution Method For Making Molybdate And Tungstate Negative Thermal Expansion Materials And Compounds Made By The Method	Parent	Closmann, Claire Haygarth, John Sleight, Arthur	Chemistry Physics Chemistry	02/06
U.S.	98-30	Method For Making Debromohymenialdisine And Analogs Thereof	Parent	Horne, David Yakushijin, Kenichi	Chemistry Chemistry	04/03
U.S.	00-20	Set Of Raised Symbol Elements	Design	Gardner, John	Physics	04/16
U.S.	98-04	Phosphor System	Parent	Keszler, Douglas Li, Dong Wager II, John	Chemistry ???? EECS	07/16
U.S.	98-19	Tandem Time-of-Flight Mass Spectrometer	Parent	Barofsky, Douglas Hakansson, Per Katz, Daniel Piyadasa, C.K. Gamini	Chemistry Physics Physics Physics	12/03
U.S.	99-01	Method For Synthesizing Epothilones And Epothilone Analogs	CIP	Carter, Rich Sundermann, Kurt	Chemistry Chemistry	07/22

				White, James	Chemistry	
U.S.	97-24	Chlamydia Proteins And Their Uses	PCT	Bannantine, John Rockey, Daniel	Microbiology Veterinary Medicine	06/08
U.S.	96-15	Plants Having Enhanced Gall Resistance and Methods And Compositions For Producing Same	Parent	Lee, Hyewon Mok, Machteld Ream, L.Walter	Microbiology Horticulture Microbiology	07/06
U.S.	00-09	Synthesis Of Bis-Heterocyclic Alkaloids	US Prosecution	Horne, David Yakushijin, Kenichi	Chemistry Chemistry	01/11

*The last patents are so new, they just issued.