



Solving the big problems

Oak Ridge National Laboratory is the largest US Department of Energy science and energy laboratory, conducting basic and applied research to deliver transformative solutions to compelling problems in energy and security.

ORNL's diverse capabilities span a broad range of scientific and engineering disciplines, enabling the Laboratory to explore fundamental science challenges and to carry out the research needed to accelerate the delivery of solutions to the marketplace. ORNL supports DOE's national missions of:

- **Scientific discovery**—We assemble teams of experts from diverse backgrounds, equip them with powerful instruments and research facilities, and address compelling national problems;
 - **Clean energy**—We deliver energy technology solutions for energy-efficient buildings, transportation, and manufacturing, and we study biological, environmental, and climate systems in order to develop new biofuels and bioproducts and to explore the impacts of climate change;
 - **Security**—We develop and deploy “first-of-a-kind” science-based security technologies to make the world a safer place.
- ORNL supports these missions through leadership in four major areas of science and technology:
- **Neutrons**—We operate two of the world's leading neutron sources, which enable scientists and engineers to gain new insights into materials and biological systems;
 - **Computing**—We accelerate scientific discovery through modeling and simulation on powerful supercomputers, advance data-intensive science, and sustain US leadership in high-performance computing;
 - **Materials**—We integrate basic and applied research to develop advanced materials for energy applications;
 - **Nuclear**—We advance the scientific basis for 21st century nuclear fission and fusion technologies and systems, and we produce isotopes for research, industry, and medicine.

Contact

Ben Thomas, Ph.D.
 Program Manager
 Global Security
 Directorate
 Oak Ridge National
 Laboratory
 865.574.5438
 thomasbjr@ornl.gov

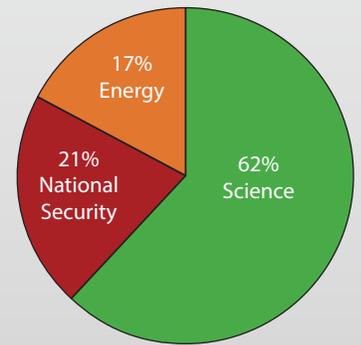
September 2016

ORNL is managed by
 UT-Battelle for the
 US Department of Energy



Lab at a glance

- **Director:** Thomas E. Mason
- **Staff:** 4,559, including scientists and engineers in more than 100 disciplines
- **Users and visiting scientists, annually:** 3,200
- **Budget:** \$1.5 billion
- **Location:** In eastern Tennessee, near Knoxville
- **Established:** 1943 as part of the Manhattan Project
- **US patents issued since Sept. 30, 2005:** 649
- **Active licenses as of Sept. 30, 2015:** 135
- **Management and operating contractor:** UT-Battelle LLC



Composition of ORNL's research portfolio.

Collaborating across the nation and around the world

ORNL works with industry to move research to the marketplace and collaborates with other research institutions, universities, and the state of Tennessee to expand its capabilities, increase the availability of its facilities and expertise, and create research and educational opportunities for students and teachers. ORNL leads two major multi-institutional partnerships: the BioEnergy Science Center (one of three DOE Bioenergy Research Centers) and the Consortium for Advanced Simulation of Light Water Reactors, a DOE Energy Innovation Hub. ORNL also hosts two DOE Energy Frontier Research Centers and manages the US contributions to ITER, the international fusion project.

Advancing science through university partnerships

ORNL collaborates with more than 250 universities and includes several major Southeastern research universities on the UT-Battelle management team. Those core university partners—Duke, Florida State, Georgia Tech, North Carolina State, Vanderbilt, the University of Virginia, and Virginia Tech, in addition to the University of Tennessee (UT) and Oak Ridge Associated Universities (ORAU)—ensure broad engagement of faculty and students in ORNL's science programs.

Joint institutes and special programs under partnerships between ORNL, UT, Vanderbilt, and the state of Tennessee combine distinct, complementary resources in select, high-priority scientific and engineering fields.

- Joint Institute for Biological Sciences
- Joint Institute for Computational Sciences
- Joint Institute for Nuclear Physics and Applications
- Joint Institute for Advanced Materials
- Shull Wollan Center—A Joint Institute for Neutron Sciences
- Governor's Chair program
- Bredesen Center for Interdisciplinary Research and Graduate Education

Providing access to unique research facilities

Several thousand scientists and engineers come to Oak Ridge each year to conduct experiments at nine major lab facilities with the support of ORNL research and development staff.

- Building Technologies Research and Integration Center
- Carbon Fiber Technology Facility
- Center for Structural Molecular Biology
- Center for Nanophase Materials Sciences
- High Flux Isotope Reactor
- Manufacturing Demonstration Facility
- National Transportation Research Center
- Oak Ridge Leadership Computing Facility
- Spallation Neutron Source

Providing STEM workforce development opportunities

The Science Education Programs at ORNL—managed by Oak Ridge Associated Universities (<http://www.ornl.gov/about-ornl.htm>)—provide education and research experiences for students and faculty at all levels. Included among these programs is ORNL's partnership with the US Department of Homeland Security to offer summer internships to undergraduates (rising juniors and higher) and graduate students pursuing degrees in homeland security related to science, technology, engineering, and math (HS-STEM) disciplines. ORNL is excited to offer research opportunities and to host and mentor students through the HS-STEM internship program. At ORNL, students participating in the DHS HS-STEM internship program can expect the following:

- **Research mentors:** Each DHS-approved research project has a principal investigator who serves as a mentor to provide technical guidance and advice to each student working on the project. Mentors may provide reading materials, website links, and other communications to help students prepare for the internship.
- **Research presentations:** All students are expected to present an oral, poster, and/or written summary of their research project.
- **Work resources:** All students are provided computing resources, a designated work area, and access to research databases, the ORNL network, and other resources necessary for research.
- **Extracurricular activities:** Students are encouraged to attend scientific lectures, social activities, and networking opportunities with other students and lab employees during the internship.
- **40-hour weekly work schedule:** Interns typically work 40 hours per week for 10 consecutive weeks with schedules set by mentors. Start dates will be on Mondays between mid-May and early June but are flexible based on student availability.
- **Orientation and training:** The first full day will be dedicated to mandatory orientation. During the first week students should complete all project-specific training and all required safety and security training.
- **Housing stipend:** ORNL provides a standard housing stipend, currently \$150 per week, for students whose permanent address is more than 60 miles from ORNL.
- **Casual attire:** Mentors will provide specifics on appropriate attire; jeans or khakis and a nice shirt are generally acceptable.
- **On-site dining:** ORNL has an on-site cafeteria that serves breakfast (6:30–9:30 a.m.) and lunch (10:45 a.m.–1:15 p.m.).

For more information about the DHS HS-STEM Internship Program, visit <http://www.ornl.gov/dhseducation/internships/>.