Cutting-edge research at a world-class facility

The Oak Ridge National Laboratory has been at the forefront of scientific research for decades, especially in energy-related areas. A list of research areas at ORNL is at www.ornl.gov. For examples of student research at the Laboratory, go to www.orss.denison.edu/studentresearch.html.

Some highlights of the research areas at ORNL are listed below.

At right: ORNL’s Holifield Radioactive Ion Beam Facility.

Biology The emphasis is on the genetic, cytological, biochemical, biophysical, pathological, and physiological effects of radiation.

Chemistry In nuclear chemistry, most work is aimed at understanding nuclear properties in terms of current theoretical models. The emphasis in inorganic chemistry is on the actinides. Organic chemistry studies are devoted to reaction mechanisms and isotope effects.

Physics ORNL’s basic research programs in physics include fission and reactor physics, high energy physics, nuclear physics, solid state physics, engineering physics, and plasmas. Two of the most advanced neutron scattering scientific research facilities in the world are at ORNL: the High Flux Isotope Reactor (HFIR) and the Spallation Neutron Source (SNS), which draw scientists from around the globe to conduct basic research.

Interdisciplinary studies Current research programs include studies in geology, materials science, health physics, biochemical and biophysics activities, energy use and development studies, and the environmental sciences.

Social sciences Such diverse activities as electrical generator sitings, environmental impact statements, urban development programs, attitudinal surveys, and energy resource supply-and-demand analyses take place in the Energy Division.

Oak Ridge Science Semester

The Oak Ridge Science Semester is managed by Denison University and recognized by the member colleges of the Great Lakes Colleges Association (GLCA) and the Associated Colleges of the Midwest (ACM).

For more information contact:

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Oak Ridge Science Semester
Denison University
Granville, OH 43023
Phone 740.587.6304
or 740.587.5705
www.orss.denison.edu

Students from ACM colleges may also contact the ACM office at the address below.

Staff

N. Daniel Gibson, Director, Professor of Physics, Denison University.
Christie Kasson, Administrative Assistant.
Cheryl Terry, University Programs Administrator, Oak Ridge Institute for Science Education.

Resident Faculty Each year one or two faculty members from GLCA and/or ACM colleges are selected to serve as Resident Faculty for the program.
The Oak Ridge Science Semester is an exceptional opportunity for undergraduates to conduct research and work alongside career scientists at a premier facility, the Oak Ridge National Laboratory (ORNL). Students often find that this is the most demanding and rewarding experience of their college careers.

- Each student joins an ongoing research project at ORNL in an area related to the student’s interests.
- A scientist from the ORNL staff serves as the student’s mentor and provides guidance throughout the semester.
- Research is the core of the program, as students are expected to devote at least 35 hours per week to the project.
- Participants are members of the research team and are expected to contribute significantly to the design and methodological approach of their research activity.
- Students use the sophisticated resources available at the Laboratory, including supercomputers and state-of-the-art electron microscopes, lasers, and analytical instruments such as a Fourier Transform Mass Spectrometer and a scanning tunneling microscope.
- The academic program is enriched in informal ways by guest speakers, department colloquia, and the special interests and expertise of the ORNL staff.

What past participants say ...

“It was amazing to be doing what I was doing. It was really cool to have that experience. I really feel like I learned something!”

— Earlham College student

“First and foremost, I learned a lot — I wasn’t just applying knowledge from years of classes, I was gaining exposure to new techniques and cutting edge technologies. Second, I established relationships and contacts with many incredible people.”

— St. Olaf College Student

Eligibility

Upperclass majors in astronomy, astrophysics, biology, chemistry, computer science, engineering, environmental science, geology, mathematics, and physics are eligible. The program is primarily designed for seniors, but juniors who give evidence of the capacities demanded at Oak Ridge are encouraged to apply. Applicants should have grade-point averages of at least 3.0 on a 4.0 scale, both overall and in their majors.

Costs

Unlike many off-campus programs, most students keep their current tuition arrangement with their home institution. In addition, students receive a separate stipend of $6,800 (contingent on funding from the U.S. Department of Energy and/or ORNL) and are provided with an apartment which is paid for by the ORSS Program. For complete cost information, go to www.orss.denison.edu.

Housing and transportation

Housing is provided in an apartment complex in Oak Ridge or nearby. Students are responsible for travel to and from Oak Ridge and local travel to and from ORNL. Carpools are common since there is no local bus service.

How to apply

- For more information about applying, go to www.acm.edu/oakridge.
- The Oak Ridge Science Semester office at Denison University must receive completed applications (having gone through all on-campus procedures) by March 1.