

## TARGET: Science & Engineering Program

### 2011 FACT SHEET

Fermilab's **TARGET: Science and Engineering Program** is a highly competitive paid summer internship opportunity for high school sophomores and juniors who have strong interest and demonstrated aptitude for mathematics and the sciences, physics, in particular. The program's goals are to encourage high school students to undertake college study and pursue careers grounded in physics, mathematics, engineering, and technology. Additionally, TARGET aims to grow representation of underrepresented groups (Black, Hispanic, Native American and women) in the sciences and engineering at the college level and consequently the workforce. Lastly, the program affords high school students the opportunity to interface with and learn from a cross-section of professionals with varied areas of specialization including, administration, computing, and communications, in addition to engineering, science, and technology. Students gain first-hand exposure to the world of work and also have low student – teacher ratio classroom experiences.

#### Duration

**TARGET** incorporates both classroom and work experiences five days per week for six weeks. Held at the Fermilab campus in Batavia, the program **begins on Monday, June 20<sup>th</sup>** and **ends on Friday, July 29<sup>th</sup>, 2011**. Students are **required** to participate for the *entire duration* of the six (6) week program. Students who have made commitments that will **overlap** with this program **should not** complete an application.

**There can be no exceptions!**

#### Qualifications

- To apply, students must have a 3.0/4.0 grade point average or above.
- Strong interest and demonstrated aptitude for mathematics and the sciences, physics, in particular.
- Applicants must have successfully completed Algebra in the ninth grade and be in the process of taking Geometry in the tenth grade.
- Applicants with advanced Information Technology knowledge and Computer Programming skills are encouraged to apply.
- Applicants must secure evaluations from **BOTH** their current **math** and **science** teachers.

#### Looking Forward

Students can look forward to a challenging six-week internship. Students will gain:

- **Work Experience** - during this period, students will report to their assigned areas to work alongside Fermilab personnel. It should be understood, that because of students' level of schooling, age, and work inexperience, restricted work areas within the Laboratory will not be appropriate for work assignment. Student work assignments support the science conducted at Fermilab and can fall within a cross-section of specializations including administration, operations, technology, computing, communications, visual media, engineering, astronomy, and physics. Students will receive formal supervisor feedback about their work performance.
- **Classroom Experience** - Students will receive instructional and laboratory time under the direction of a team of licensed teachers at an off-site location. These sessions are designed so that there is a low-student teacher-ratio (approximately 5 to 1), and students work on individual and group projects. This aspect of the

program allows the student to be both engineer and scientist using hands-on activities. At the end of the six-week program, students are expected to complete an oral presentation.

## Expectations

- To adhere to and complete assignment duties and observe established time and attendance standards.
- To be engaged, proactive, self-directed and respectful in the workplace and classroom.
- To prepare and present oral and written reports and evaluations at the end of the program.
- To adhere to Fermilab's safety and computer policies and practices.
- To conduct yourself in a responsible and professional manner.

## Stipend

Each student is paid an hourly rate of \$8.25 for 20 hours of work per week. In addition, each student receives a weekly stipend of \$40 for the completion of classroom hours. Summer interns receive no paid sick leave or vacation. Standard US taxes will be withheld, as is customary with all Fermilab employees. Each TARGET intern is required to provide evidence of their identity and eligibility to work in the U.S.

## Transportation

Bus service is provided to Fermilab from the CTA Blue Line Forest Park terminal. This is the only pick-up and drop-off point. Students who choose not to use this service are responsible for arranging their own transportation to and from the Lab. The Forest Park terminal is located at 711 Des Plaines Avenue, Forest Park 60130 (along the Eisenhower Expressway).

**Application Deadline: Monday, April 4, 2011**

### Mailing Address:

Mrs. Sandra Charles, EOO & Diversity Office  
TARGET Program  
Fermi National Accelerator Laboratory  
Post Office Box 500 - MS 117 Batavia, IL 60510

### Submit Electronically:

- ✓ 2011 Application
- ✓ 2 Evaluation of Applicant Forms

### Submit Via Mail:

- ✓ Transcript
- ✓ Personal Statement
- ✓ Signature Page (page 2 of 7 of Application)

## About Fermilab

The Fermi National Accelerator Laboratory (popularly known as "Fermilab") is operated by Fermi Research Alliance, Inc. (FRA), LLC. A consortium of more than 90 major universities in the United States and Canada are involved in the research at the Laboratory. FRA holds a contract with the U.S. Department of Energy, under which funds for the operation of the Laboratory are obtained. The Laboratory is located on 6,800 acres about five miles east of Batavia, Illinois. Fermilab is about 30 miles west of Chicago, north of the Illinois East-West Tollway (Interstate 88, the Farnsworth/Kirk exit).

The research done at Fermilab is known as "high energy physics" or "Particle Physics". Its purpose is to explore the basic structure of matter. Teams of scientists from various universities submit proposals for work to be done using the Accelerator. Often scientific teams from other nations come to Fermilab to participate in the research. Fermilab personnel assist these teams in constructing and modifying the equipment that is used in their experiments. The success of experiments is determined by analyzing the data that is gathered and tabulating results. Previous generations of this basic research have revealed the structures of the atom and the nucleus of the atom.

Learning more about the behavior of particles has become possible through the use of particle accelerators of higher and higher energies. Fermilab's machine is a synchrotron which accelerates protons to 8 - 1000 GeV [giga (billion) electron volts]. The Fermilab machine has no "product", nor does it produce electrical power, as does a nuclear reactor. It is a scientific instrument (in a sense, a giant microscope) that permits study of atomic nuclei, searching always for the basic building blocks of nature.