

National Institute of Standards and Technology  
**NIST SURF Program**

**Student Applicant Information**

To be filled out by student applicant and included with completed institutional application  
**DO NOT SEND SEPARATELY – note this is for the Gaithersburg program**

Name \_\_\_\_\_ Institution \_\_\_\_\_

Email address \_\_\_\_\_

Quickest contact (cell, apt/dorm phone) \_\_\_\_\_

Home Address \_\_\_\_\_

**Current Class Standing (check only one)**

Freshman     Sophomore     Junior     Senior     5<sup>th</sup> Year Senior

Applying to the Gaithersburg SURF Program in: **(Please Note: indicate 1<sup>st</sup> and 2<sup>nd</sup> choices)**

*(click links below for further information)*

CNST

EL

ITL

MML/NCNR

Materials Science  
Chemical/Biochemical  
Sciences

PML

Physics  
Electrical Engineering

Major (Minor) \_\_\_\_\_ Current Overall GPA \_\_\_\_\_

Do you require housing?  Yes  No (your gender)  Male  Female (for housing purposes only)

*Students should expect to share a bedroom with one other student*

Available for the entire 11-week SURF Program? (**XX/XX/XXXX – XX/XX/XXXX**)  Yes  No

*If no, give availability dates \_\_\_\_\_*

Limited number of 9-week fellowships available (**XX/XX/XXXX – XX/XX/XXXX**)

**NOTE: All students must attend through the final date in August**

Are you a U.S. Citizen? \_\_ YES or \_\_ NO

If not a U.S. Citizen, are you a Permanent U.S. Resident with a valid Green Card? \_\_ YES or \_\_ NO

**Checklist:**

- Resume (**IMPORTANT: be sure to include any laboratory skills or computer languages, etc., you have**)
- Two letters of recommendation
- Transcripts (unofficial copies acceptable)
- Personal statement of commitment to participate and description of prioritized research interests
- Verification of U.S. citizenship or permanent legal residence, (e.g. copy of birth certificate, passport, or green card)

**Submit to University contact for inclusion with institutional application – DO NOT SEND SEPARATELY**

APPLICATION DEADLINE: February 15

Application Questions: Anita Sweigert, Phone: 301-975-4200, Fax: 301-975-3038

Website: <http://www.nist.gov/surfgaithersburg>

NOTE: This collection of information contains Paperwork Reduction Act (PRA) requirements approved by the Office of Management and Budget (OMB). Notwithstanding any other provision of the law, no person is required to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA unless that collection of information displays a currently valid OMB control number. Public reporting burden for this collection is estimated to be 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. OMB NO.: 0693-0042 Expiration Date: XX/XX/XXXX

**SURFING CNST – The Center for Nanoscale Science and Technology**

Projects support nanotechnology from discovery to production by providing industry, academia, NIST, and other government agencies with access to world-class nanoscale measurement and fabrication methods and technology. Primary focus areas are: future electronics; nanofabrication and nanomanufacturing; and energy storage, transport, and conversion

**Range of Research Activities:** nanofabrication, atomic-scale characterization & manipulation, nanophotonics, nanomagnetism, nanoplasmonics, environmental TEM, nanoelectromechanical systems, thermoelectrics & photovoltaics, theory of nanostructures, and nanoscale control; [additional information...](#)

**Relevant Academic Majors:** physical sciences, engineering, materials science, physics, chemistry, biochemistry, mathematics, computer science **Selection Rate\* (summer 2011):** 75 applicants, 6 fellowships awarded (8%)

### **SURFING EL – Engineering Laboratory**

Projects promote the development and dissemination of advanced manufacturing and construction technologies, guidelines, and services to the U.S. manufacturing and construction industries

**Range of Research Activities:** innovative fire protection, sustainable manufacturing; model-based engineering enterprise; intelligent manufacturing (automation, robotics, and equipment); net zero energy buildings; integrated and automated construction processes; building materials and systems; economic impacts; and disaster-resilient structures and communities; [additional information...](#)

**Relevant Academic Majors:** engineering including fire science, materials science, physics, chemistry, mathematics, statistics, computer science, and economics (electrical engineers should apply to PML)

**Selection Rate\* (summer 2011):** 121 applicants, 38 fellowships awarded (31%)

### **SURFING ITL – Information Technology Laboratory**

Projects provide hands-on experience in Applied Mathematics, Statistics, Software Testing, Computer Security, Information Access and Networking.

**Range of Research Activities:** human computer interaction, computer network modeling, pervasive computing, multimedia computing, information security, biometrics for computer access and security, cryptography, computer forensics, trustworthy software, software measurement science, software quality testing, digital data retrieval and preservation, bioinformatics, mathematical modeling, and image analysis; [additional information...](#)

**Relevant Academic Majors:** computer science, mathematics, statistics **Selection Rate\* (summer 2011):** 68 applicants, 39 acceptances, 19 fellowships awarded (28%)

### **SURFING MML/NCNR – Material Measurement Laboratory/NIST Center for Neutron Research**

*Applicants can choose from two SURF concentrations:*

**Materials Science** – Projects focus on synthesis, measurements, and computational/theory/modeling of innovative materials and devices **Range of Research Activities:** ceramics, metallurgy, polymers, condensed matter science, biomaterials, semiconductors, metals, nanoscale materials and measurements (includes activities at the NCNR) **Relevant Academic Majors:** materials science, chemistry, biochemistry, physics, physical sciences, mathematics, computer science, engineering, biological sciences

**Selection Rate\* (summer 2011):** 99 applicants, 31 fellowships awarded (31%) **Chemical and Biochemical Sciences**

– Projects address the nation’s needs for measurements, standards, technology development, and reference data in the areas broadly encompassed by chemistry, biotechnology, and chemical engineering.

**Range of Research Activities:** from fundamental work in the composition, structure, properties, and processes of chemical, biological, environmental, and nanomaterials to the development and dissemination of certified reference materials, critically evaluated data, and advanced chemical and biochemical measurement paradigms

**Relevant Academic Majors:** chemistry, biochemistry, molecular biology, chemical engineering, computer science, environmental science, and to a lesser extent materials science, physics, mathematics, and other areas of engineering **Selection Rate\* (summer 2011):** 61 applicants, 19 fellowships awarded (31%)

[additional information...](#) -----

## **SURFING PML – Physical Measurement Laboratory**

*Applicants can choose from two SURF concentrations:*

**Physics** -Projects provide hands-on research experience in physics fields of atomic, molecular, optical, radiation, chemical, and condensed matter physics. **Range of Research Activities:** atomic and molecular effects in spectroscopy, surface effects, collision dynamics, and chemistry; radioactivity in environmental sensing, industrial dosimetry, and physical therapy; laser cooling and trapping; UV/optical/infrared light in detector development, tweezers, and quantum optics; QED effects on atomic structure. **Relevant Academic Majors:** physics, computer science, electrical engineering, mechanical engineering, mathematics, nanoscience

**Electrical Engineering** -Projects involve developing new electronic devices and metrology to serve US industry's need for improved and standardized measurements. **Range of Research Activities:** Electrical engineering and control of systems applications for power-efficient electronics, reliability, high power and smart grid, CMOS and nanoelectronics, dimensional metrology, and nanointerconnects. Also cross-disciplinary electronics applications such as large area electronics (including solar cells), molecular/organic electronics, bioelectronics, MEMS, and quantum-based devices related to electrical and mass standards. **Relevant Academic Majors:** biochemistry, chemistry, computer science, electrical engineering, mechanical engineering, material science, mathematics, nanoscience, and physics. **Selection Rate\* (summer 2011):** 68 applicants, 30 fellowships awarded (44%)  
[additional information...](#)

*\*The historical acceptance rate for the SURF Gaithersburg program is 33% (i.e., for every three student applicants, one student gets accepted). The number of student applicants each year will impact these statistics. Each Laboratory lists the acceptance rate for the students that applied to that laboratory as their 1<sup>st</sup> choice. Students may be considered by other Laboratories for projects, thus giving students more opportunities to receive an internship.*