



**ALIANZA PARA EL ADELANTO DE LA ENSEÑANZA  
UNIVERSITARIA EN PUERTO RICO**

Un Consorcio Del Sistema De La Universidad De Puerto Rico, La Universidad Interamericana De Puerto Rico ,  
La Pontificia Universidad Católica De Puerto Rico, La Universidad Politécnica de Puerto Rico y  
El Centro De Recursos Para Ciencias e Ingeniería De La Universidad De Puerto Rico

Oficiales de Enlace PR-LSAMP  
Profesores Investigadores de PR-LSAMP  
Estudiantes de PR-LSAMP

Ana M. Feliciano

Coordinadora Gerencial PR-LSAMP

## **SOLICITUD PARA PARTICIPAR EN NIST VERANO 2011**

Como todos los años, PR-LSAMP coordina la participación de estudiantes subgraduados en el internado de verano que ofrece el "National Institute of Standards and Technology" (NIST). Este internado es un beneficio excelente para que los estudiantes obtengan la experiencia de hacer investigación en laboratorios nacionales. Hay siete laboratorios que van a aceptar estudiantes.

Adjunto encontrarán copias de la solicitud junto con información de los siete laboratorios disponibles y la información general del internado. **Noten que no pueden enviar las solicitudes directo a NIST.** Debido a que la fecha limite de nosotros para solicitar al NIST es el 15 de febrero, **las mismas deben ser enviadas a nuestras oficinas en o antes del 10 de febrero de 2011** de manera que podamos revisar y preparar la documentación que las debe de acompañar. Estas deben venir acompañadas de todos los anejos que solicita la Agencia Federal y que se detallan en la solicitud. **SOLICITUD QUE LLEGUE INCOMPLETA NO SERA CONSIDERADA.** Este año están aceptando que la transcripción sea copia de estudiante. En la hoja informativa les indica cuales son los estudiantes que cualifican para este internado. **TODOS LOS DOCUMENTOS Y CARTAS DE RECOMENDACIÓN DEBEN SER ESCRITOS EN INGLES. NO SE ACEPTAN DOCUMENTOS EN ESPAÑOL.**

El criterio básico es que deben ser estudiantes con un GPA de 3.0 o más. Los estudiantes seleccionados por la agencia federal recibirán, entre otros beneficios, un estipendio de \$4500 (por un internado de 11 semanas) o \$409.09 semanal para aquellos que no puedan completar las 11 semanas; dividido en 3 pagos durante el verano, además de hospedaje y \$500 para gastos de transporte aéreo. Es muy importante que hagan lo posible para estar las doce semanas del internado ya que de esa manera el proyecto es mas beneficioso.

Les recomendamos a los estudiantes y profesores de PR-LSAMP que sometan las solicitudes a través de su Oficial de Enlace para así poder mantener un mejor control de las mismas. Si el Oficial de Enlace no estuviera disponible, pueden enviarnos las solicitudes a nuestras oficinas directamente a la atención de esta servidora. Recuerden, todas las solicitudes deben ser en original.

*Es muy importante que los estudiantes entiendan que una vez son aceptados al programa y ellos confirman su aceptación, están contrayendo un compromiso que no deben de cancelar.*

*Todo estudiante debe tener una cuenta de correo electrónico que revise regularmente ya que todas las comunicaciones con el personal de NIST son a través de correo electrónico.*

Les reitero que las solicitudes deben venir debidamente completadas con todos los anejos a nuestras oficinas en o antes del **10 de febrero de 2011.**

Esperamos la participación de nuestros estudiantes!

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

Recuerden que la fecha limite para someter  
la aplicación a las Oficinas de PR-LSAMP  
para ser enviadas a NIST es el

**10 de febrero de 2011**

- Usa el checklist en el “Student Application Form” para asegurarte de que has sometido todos los documentos. No se procesarán solicitudes incompletas.
- Entrégalos a tu oficial de enlace, lléalos directamente a la oficina de PR-LSAMP en el Edif. Facundo Bueso 304, Recinto de Rio Piedras o envíalo ya sea por fax, email o correo regular. *Tenga en cuenta que si lo envía por correo regular puede que no lleguen a tiempo por lo que esto no es recomendado.*
- Todos los documentos deben ser enviados **como un solo paquete** a:

Ana M. Feliciano  
PR-LSAMP Program  
PO Box 23334  
San Juan PR 00931

Fax: 787-766-1293

Email: [kmelendez.prlsamp@gmail.com](mailto:kmelendez.prlsamp@gmail.com) con copia a  
[a\\_feliciano@prlsamp.org](mailto:a_feliciano@prlsamp.org)

- Recuerden que los ensayos y las cartas de recomendación **deben ser en ingles**
- Las transcripciones pueden ser copias de estudiantes
- En Mayagüez, pueden ser entregados en las oficinas del Centro de Recursos Para Ciencias e Ingeniería ubicadas en el segundo piso del Edificio de Física.

Si no tienes la solicitud, haz un clic aquí para que la puedas bajar en formato PDF:

**Solicitud NIST 2011**

Para ver información directo de la pagina del programa usa este link:  
<http://www.nist.gov/surfgaithersburg/>

**Recuerda que aunque la fecha limite en el website es el 15 de febrero, la fecha limite para someter a PR-LSAMP es el 10 de febrero, 2011.**

## Student Eligibility

### Citizenship Requirements

The program is open to all United States citizens or permanent residents.

### Student Eligibility

Students must be undergraduates at a U.S. university or college with a scientific major, have a G.P.A. of 3.0/4.0 or better (recommended), and are considering pursuing a graduate degree (M.S. or Ph.D.). Students with physics, material science, chemistry, applied mathematics, computer science, or engineering majors are always encouraged to apply. There may be research opportunities for students with other majors.

## Financial Support

SURF students receive stipend, and housing and travel allotments (as needed). Funding for students comes via a federal grant issued to the school from NIST. Students who complete the full 11 week program will receive a \$4,500 stipend. Students that can not make the full 11-week program will be paid at \$409.09 per week.

The only real expenses that students should expect to pay out-of-pocket are personal entertainment and food. To help control the food expenses, the student apartments have a full kitchen with dishes, utensils, pots and pans. There are free continental breakfasts daily!

This is a competitive program that reviews both the university and student portion of the application to determine the final list of SURF awardees. The NIST SURF program will support approximately 100 students.

## Living Arrangements

SURF students participate in the SURF program at the headquarters site of the National Institute of Standards & Technology (NIST). NIST is located in Gaithersburg, Maryland, about 25 miles (40 kilometers) from the center of Washington, D.C. Housing arrangements have been made with a local apartment complex for the SURF students to share fully furnished 2-bedroom (4 beds) apartments. **Students should expect to share a bedroom with one other person.**

**The cost of housing is provided in the fellowship grant and is paid for by the school (see FAQs).**

The apartments come equipped with phone, TV, linens, pots and pans, dishes and includes use of swimming pools, sport courts or tennis courts, and workout facilities. They even offer free continental breakfasts each day! The complex is a short distance away from NIST and within walking distance of stores, restaurants, and the local subway

stop. It is well served by public bus routes that extend to all parts of area. If you would like to bring a car there is plenty of free parking. Direct bus transportation from these apartments to and from the NIST campus may be provided.

The Washington Metropolitan area is rich in cultural and recreational opportunities. The apartments are just a short commute from the nation's capital, theaters, movies, restaurants, evening entertainment, historical and cultural sites, museums, shopping, and many local universities.

## Research Programs Available to Students

All six of the NIST laboratories in Gaithersburg, MD participate in the SURF program: Center for Nanoscale Science and Technology (CNST), Engineering (EL), Information Technology (ITL) , Material Measurement (MML), Center for Neutron Research (NCNR), Physical Measurement (PML).

	<u>EL</u>	<u>CNST</u>	<u>MML/NCNR</u>	<u>PML</u>	<u>ITL</u>	<b>Special Project</b>
<b>Biochemistry</b>			X	X		X
<b>Biological Sciences</b>		X	X	X		X
<b>Chemistry</b>	X	X	X	X		X
<b>Computer Science</b>	X	X	X	X	X	X
<b>Engineering</b>	X	X	X	X		X
<b>Materials Science</b>	X	X	X	X		X
<b>Mathematics</b>	X		X	X	X	X
<b>Physical Sciences</b>	X	X	X	X		X
<b>Physics</b>	X	X	X	X		X
<b>Statistics</b>	X				X	X

Due to the multi-disciplinary nature of NIST's research, we encourage students to look through the different websites below to discover lots of interesting project areas. For example, a chemistry student may find project opportunities in ITL, PL, EL and , in addition to the logical choice of MML. Similar opportunities exist for those in other disciplines.

Summaries of current research opportunities exist in the following laboratories:

MML/NCNR [http://www.nist.gov/mml/mml\\_surf.cfm](http://www.nist.gov/mml/mml_surf.cfm)

PML <http://www.nist.gov/pml/surf/index.cfm>

EL <http://www.nist.gov/el/surf.cfm>

CNST [http://www.nist.gov/cnst/cnst\\_surf.cfm](http://www.nist.gov/cnst/cnst_surf.cfm)

ITL <http://www.nist.gov/itl-surf-program.cfm>

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

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? (5/23/2011 – 8/5/2011)  Yes  No  
*If no, give availability dates \_\_\_\_\_*

Limited number of 9-week fellowships available (6/6/2011 – 8/5/2011)

**NOTE: All students must attend through the final week 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
- 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 form contains collection of information requirements subject to the Paperwork Reduction Act. 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 Paperwork Reduction Act, unless that collection of information displays a currently valid OMB control number. The estimated response time for this application is 2 hours. The response time includes 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 Exp.Date: 10/31/2012

## **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 2010):** 30 applicants, 9 fellowships awarded (30%)

## **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

**Selection Rate\* (summer 2010):** 54 applicants, 22 fellowships awarded (41%)

## **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 2010):** 50 applicants, 17 fellowships awarded (34%)

## **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 2010):** 53 applicants, 29 fellowships awarded (55 %)

**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 2010):** 87 applicants, 16 fellowships awarded (18 %)

[additional information...](#)

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

Projects provide hands-on research experience in electrotechnology and atomic, molecular, optical, radiation and chemical physics. Projects involve developing new electronic devices and metrology techniques to serve US industry's need for standardized measurements.

**Range of Research Activities:** atomic and molecular spectroscopy, atoms and molecules on surfaces, atomic and molecular collisions, environmental radioactivity, industrial radiation dosimetry, laser cooling and trapping, optical/infrared detector development, optical tweezers, physics of radiation therapy, quantum optics, QED effects on atomic structure, UV optics. Also cross-disciplinary electronics such as bioelectronics, power electronics, national electrical standards and smart grid metrology, micro- and nanotechnology, quantum-based electrical measurements and devices, electronics reliability, electronic materials metrology, molecular electronics, organic electronics, micro- and nanoelectronic fabrication; [additional information...](#)

**Relevant Academic Majors:** biochemistry, chemistry, computer science, electrical engineering, material science, mathematics, nanoscience, and physics

**Selection Rate\* (summer 2010):** 113 applicants, 38 fellowships awarded (34%)

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*\*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.*

summer  
undergraduate  
research  
fellowship

## To learn more

### About NIST:

[www.nist.gov](http://www.nist.gov)

### About SURF and research opportunities:

[www.surf.nist.gov/surf2.htm](http://www.surf.nist.gov/surf2.htm)

### About the area:

[www.washington.org](http://www.washington.org)

[www.cvbmontco.com](http://www.cvbmontco.com)

### Get a SURF application:

Go to: [www.surf.nist.gov/surf2.htm](http://www.surf.nist.gov/surf2.htm)

Write: NIST SURF Program

100 Bureau Dr., Stop 8400

Gaithersburg, MD 20899-8400

Call: 1 301 975 4200

E-mail: [NIST\\_SURF\\_program@nist.gov](mailto:NIST_SURF_program@nist.gov)

### Watch the SURF video:

Go to: [www.surf.nist.gov/video.htm](http://www.surf.nist.gov/video.htm)

## Hang 10 in the laboratory

Curious about physics, electronics, manufacturing, chemistry, materials science, or structural engineering? Intrigued by nanotechnology, fire research, information technology, or robotics? Tickled by biotechnology or biometrics? Have an intellectual fancy for superconductors or, perhaps, semiconductors?

Here's your chance to satisfy that curiosity. By spending part of your summer working elbow to elbow with researchers at the National Institute of Standards and Technology, one of the world's leading research organizations and home to three Nobel Prize winners. Gain valuable hands-on experience, work with cutting-edge technology, meet peers from across the nation (from San Francisco to Puerto Rico and from New York to New Mexico), sample the Washington, DC, area. And, no kidding, get paid while you're learning.

See which way the wind blows

...go SURFing  
at NIST

Setting  
a course  
toward  
a career in

Science or  
Engineering?

Cover photo credits from the top, clockwise

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2 - Barry Gardner

December 2007



**NIST**  
National Institute of  
Standards and Technology  
U.S. Department of Commerce



## About SURF

Since it began in 1993, the Summer Undergraduate Research Fellowship program at NIST has been receiving rave reviews from participants. The program is co-sponsored by NIST and the National Science Foundation, federal agencies committed to attracting and training future generations of scientists and engineers.

SURF students work for 11 weeks, contributing to an ongoing research project under the guidance of a NIST scientist or engineer from one of the Institute's nine major laboratories (Physics, Manufacturing Engineering, Building and Fire Research, Chemical Sciences, Electronics and Electrical Engineering, Information Technology, Materials Science, Neutron Research, and Nanoscale Science). In addition, a summer-long lecture series exposes SURFers to a sampling of diverse research topics, presented in ways to pique interest.

"I've met people that probably will be my friends for life"

© Geoffrey Wheeler

Located 40 kilometers (25 miles) north of downtown Washington, DC, NIST's Gaithersburg, MD, campus is only a subway ride away from the nation's capital.

The Washington Metropolitan area is rich in cultural and recreational opportunities including theaters, movies, restaurants, evening entertainment, historical and cultural sites, museums, shopping, and many local universities. The Blue Ridge Mountains are only 90 minutes away. Social activities are part of the program.

"This has been the most meaningful summer of my life"

## The Details

**Number of Awards:** SURF is a competitive program. Applications are ranked and reviewed.

About 100 fellowships are awarded each year.

**Student Eligibility:** Applicants should be undergraduate students with a scientific major and a G.P.A. of at least 3.0 (on a 4-point scale). Students majoring in physics, materials science, engineering, computer science, chemistry, or mathematics are encouraged to apply; research opportunities for students with majors in other disciplines may be available. Only U.S. citizens and permanent residents are eligible.

### Housing and Transportation:

Housing arrangements have been made with a local apartment complex near NIST's Gaithersburg, MD, campus. SURF students share fully furnished apartments. Transportation to and from NIST is provided.

**Financial Support:** SURF students receive a \$4,000 stipend for an 11-week Research Fellowship, plus travel and housing allowances. Limited 9-week fellowships also are available. Universities are encouraged, but not required, to share in the program in such ways as providing student course credits or allowances for housing and travel.

**Deadline: February 15th.**

"I have a much better idea of what I want to do in the future"

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