PHASE

A Newsletter of Skaggs Center Internships

Vol. 2, Issue #3 *March 2009*

Other Internship Programs on the DOC Boulder Campus

The month of March marks the end of winter and the start of spring. Daylight Savings Time begins on the 8th, and here in Boulder County there will be two student job fairs in March sponsored by Workforce Boulder County. One will be in Boulder on March 5th at the Spice of Life, 5706 Arapahoe Ave. and the other will be in Longmont at the Twin Peaks Mall on March 11th. Both promise to attract students and job seekers looking for an opportunity to work. Ann Thorne, ESRL Student Coordinator and Tony Tafoya, PHASE Manager, plan on attending both job fairs. We have already received a modest financial commitment that will match funding for a few students to work on the DOC campus. We are still seeking placement opportunities so we can refer students.

In our attempt to share information with other community organizations and within the DOC campus, we have come up with some fascinating programs which we would like to call to your attention. The first is the NIST (National Institute of Standards and Technology) SURF program (Summer Undergraduate Research Fellowships). In speaking with principal investigators Joseph Magee and Ron Goldfarb we learned that their REU (Research Experiences for Undergraduates) award for a site builds upon a pilot program operated in the summers of 2004-2005 and more than 14 years of experience with NIST's highly successful Professional Research Experience Program. It provides an opportunity for the Boulder Laboratories of NIST and the National Science Foundation (NSF) to offer an intensive training program through summer undergraduate research fellowships (SURF).

SURF will engage 22 students each year during its 11 week tenure. The students will be matched with suitable mentors to participate in a wide range of individual research projects in the fields of electromagnetics, materials reliability, optoelectronics, quantum physics, statistical modeling and

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analysis, time and frequency, and mathematical and computational sciences. Students will be exposed to multidisciplinary research at the intersections of different disciplines, which will instill a cooperative approach to sharing information and impart a greater understanding of the methodologies, language, culture and paradigms of different disciplines.

The principal goal of the SURF program is to motivate students to pursue PhD programs in preparation for careers in research and development. The directors will create a cooperative learning environment with weekly seminars for students, frequent social outings, and field trips to nearby laboratories. The program will culminate with students making presentations at a research symposium. The program directors will conduct ongoing reporting and evaluation to assure both continuous improvement of SURF program quality and documentation of the positive effects on participants.

In our meeting with other DOC programs we all have had the opportunity to know each other better. We have developed some rapport and a vision for how PHASE could serve the education and research training needs of the Commerce Boulder Laboratories. We have discovered that this can be done without taking away the autonomy of each program under the PHASE umbrella. We have explored the idea of one portal for access to all our educational programs and just one office which would have the administrative responsibilities. We are currently setting up meetings with the staff at the University of Northern Colorado (UNC) to explore collaboration with the UNC housed Colorado Alliance for Science (CAS) and how we could, as we did in the past when CAS was at CU Boulder, design a program with a low overhead rate that would also provide access to non-citizens who are in the country legally. This arrangement could give all selecting officials the ultimate in flexibility that we would need to serve diverse interests on the DOC campus.

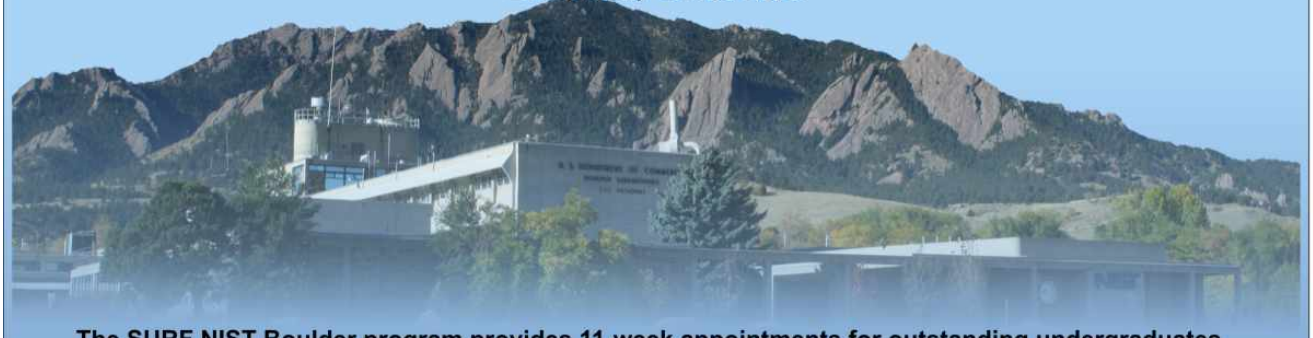
In future issues of this PHASE newsletter we will highlight other student intern programs on the DOC Boulder campus. Our hope is that all the students who come to Boulder for the summer will get to know each other and develop lasting relationships and take away a rewarding experience of having an exciting internship and meeting other students who are beginning their careers in science and engineering. Colleagues we have talked to have expressed interest in having joint social events which will be hosted at the various work sites such as NCAR, JILA, NIST, NWS, NTIA, and of course NOAA/ESRL. Some of these events could include bike trips, hikes, visits to other intern sites, picnics, visits to museums and of course inviting other students to the end of program student intern seminars where interns present information on what they worked on during their internship. This will be an opportunity to hone in on presentation skills they will build for a life time as they continue their career interests.

Education, Science, and Careers

SURF NIST Boulder

Summer Undergraduate Research Fellowships

National Institute of Standards and Technology
Boulder, Colorado



The SURF NIST Boulder program provides 11-week appointments for outstanding undergraduates to engage in state-of-the-art research with senior scientists and engineers in the unique research facilities at the NIST campus in Boulder, Colorado.

RESEARCH AREAS

- Materials reliability
- Mathematics and computational sciences
- Optoelectronics
- Quantum physics
- Quantum electrical metrology
- Thermophysical properties
- Statistical modeling and analysis
- Time and frequency metrology
- Electromagnetics

Living arrangements

Housing will be offered within walking distance of NIST.

Fellowship award

SURF NIST Boulder awards include a fellowship of $4,000, a living allowance, and a travel allowance.

Eligibility

Applicants must be U.S. citizens or permanent residents and undergraduates at a U.S. university or college with a technical major. A G.P.A. of 3.0 or better is recommended. Each student must be covered by a health insurance plan (either through school or family). Students with physics, materials science, chemistry, mathematics, computer science, or engineering majors are encouraged to apply. There may be research opportunities for students with other majors.

Program duration

May 26 to August 7, 2009. Adjustments will be made to accommodate specific academic schedules (e.g., quarter systems).

Application deadline

February 16, 2009. The student's university must submit a grant proposal that provides details about its academic programs and nominates one or more students. Each student must provide a transcript, two letters of recommendation, and a personal statement of interest.

".. Never have I been as deeply engaged with science as I was at NIST, ... I left Boulder with a renewed passion for physics and a determination to work toward a research career. It was the turning point in my decision to pursue a graduate degree."

"The SURF NIST Boulder program has opened doors for me..."

"...I learned a lot about how the scientific community in general, and metrology specifically, are critical to the search for new fuels. ... I feel better prepared to discuss emerging alternative energy technologies."

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More information at http://SURF.Boulder.NIST.gov

Frederick High School MESA Wins FIRST Tech Challenge and Goes Global!

On Saturday, February 14, 2009, Frederick High School's Mathematics, Engineering and Science Achievement (MESA) after-school program accomplished an amazing feat! They won the Western Regional FIRST Tech Challenge. (FIRST for Foundation for the Inspiration and Recognition of Science and Technology) As a result, seven Frederick High MESA students and their advisor, Julie Constantine, will be on their way to compete in the FIRST Tech Challenge at the US First World Championship! The Frederick High MESA team will compete against teams from eight other countries including Canada, Mexico, Chile, Brazil, India, Norway, Holland, and Singapore at the Georgia Dome in Atlanta, Georgia, April 16-18, 2009.

"We were lucky to be introduced to this challenge while our MESA team was presenting at Stemapalooza last October," explained advisor Julie Constantine. Kathy and Matthew Collier, Regional U.S. FIRST representatives, grabbed the MESA students' attention by demonstrating a model FTC robot. No one suspected that the "lucky" meeting would end with Frederick High MESA being the first and only Colorado MESA team to enter and win the FIRST Tech Challenge.

Extremely dedicated and talented students, Linda Palacios, Meghan Goff, Lorissa Flanagan, Adam Charlton, Dominic Wenk, Teague McCurry, and Joel Jackson accepted the daunting task of designing and building a competition ready robot in just one month. With the guidance and dedication of mentors Julie, Kathy, and Matthew, Frederick High MESA students defied all odds they faced as a rookie team. The team's success was based on building a very stable, sensible robot that consistently scored points.

Early in the competition, the team had an amazing lead. But, rather than boast about their success, they demonstrated compassion for others by assisting competitors trouble-shoot their robot's problems. Hard work, persistence, and the spirit of "gracious professionalism" defined this outstanding MESA FTC team.

The Objectives of the ESRL Intern Program

A. To seek a broad development and expansion of internship opportunities for high school, college and graduate students and high school teachers.

B. To assist and encourage NOAA organizations in establishing goals and identifying the best possible sources for the recruitment, employment, training and advancement of student Interns.

C. To encourage and actively support the promotion and advancement of Interns already employed.

D. To analyze and determine the educational and professional needs of students seeking entry and advancement in employment; and, whenever possible, provide appropriate training and counseling services to meet these needs.

E. To establish and continually upgrade a broad range of contact with supervisors and Interns across the country via personal visits, telephone calls, e-mails, and periodic newsletters.

F. To respond to the reasonable requests from non-NOAA groups for student referrals when their objectives are supportable and similar to the ESRL PHASE program.

G. To enhance the promotion of student excellence, pride, and camaraderie through organized and regular social gatherings which will serve to bind students together.

H. To provide a forum for major research issues of local and national significance so that students may be better informed and may express their views through seminar presentations before their peers and supervisors.

Key Advisory Board Functions

The key functions performed by the PHASE Advisory Board include: **Advocacy on Employment and Education Issues; Membership and Outreach;** and **Consultation with Students and Supervisors**. The following is a brief description of each function:

Advocacy on Employment and Education Issues

The advocacy function is performed when advisory board members take a pro-active role in seeing that an employment related issue is addressed by the appropriate community, education or government organization. This function typically involves the following: Assisting students and parents with local school issues, e.g. summer jobs, internships, grades and course requirements; Informing the local community on student internship opportunities; Researching employment opportunities and various employment related topics such as housing, travel, and community demographics.

Membership and Outreach

The membership committee is charged with an ongoing program of recruiting and retaining members of the Advisory Board. This involves coordinating a yearly membership drive for new members. The outreach function is performed by going out into the community to explain NOAA internship programs and communicating the assistance that can be provided. Typically, this function involves attending meetings and briefings, networking with NOAA agency representatives, providing orientation briefings to newcomers, attending training sessions and education workshops - both as participants and presenters.

Consultation

Consultation services are typically private and are provided to students, parents and teachers who need explanations related to PHASE documents and procedures. This function typically involves mediating an issue at the lowest level before it escalates and assisting the ESRL Student Coordinator with employee issues.

PHASE **is a publication of the ESRL Student Coordinator**

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PHASE seeks to inform employees and students on employment programs and internships.

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MISSION

The mission of the Practical Hands on Application to Science Education (PHASE) program is to have students benefit from a science intern program at a Federal facility.

The objectives of the program are (1) for laboratories to identify student projects that provide a learning environment and focus on practical hands-on activities; (2) to provide laboratories with profiles of students who have an interest in considering NOAA and science in general as a positive career choice; and (3) to inform students of career opportunities in NOAA.

Ann Thorne, ESRL Student Coordinator, JoAnn Miller, Boulder County Workforce, and teacher Diana Wiant, after a visit to Centaurus High School on February 17th to provide information on internships, NOAA programs and tips on interviewing for a job. Engineering classes were combined to two periods so that information on available internships could be provided to Centaurus juniors and seniors.

COLLABORATING ORGANIZATIONS

GOVERNMENT AGENCIES:

- NOAA/OAR/ESRL
- NOAA/NWS/SWPC
- NOAA/NESDIS/NGDC
- NIST
- NTIA
- Workforce Boulder County

HIGHER EDUCATION:

- University of Colorado/CIRES
- CU SORCE Program

COMMUNITY:

- SACNAS
- MESA
- AISES
- National Image, Inc.
- Blacks-In-Government

SCHOOL DISTRICTS:

- Boulder Valley
- St. Vrain Valley

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Please add me to newsletter mailing list. (Please print or type.) Issue #3, 2009

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