REPORT TO THE UNIVERSITY SENATE

RESULTS OF THE SUNY HIGH NEEDS PROGRAM

Central to the Power of SUNY strategic plan, is the State University of New York’s commitment to serve as a key engine of revitalization for New York State’s economy. One of the many ways in which this commitment is demonstrated is an intentional effort to link SUNY’s academic programs, where possible, to specific workforce needs of the state. The High Needs Program has supported these efforts by providing grant support for those professional programs that connect directly to occupations crucial to the economic vitality of New York, such as engineering, technology and healthcare. In February, Stony Brook University submitted 12 proposals to the SUNY High Needs Program. Last week, SUNY informed us that they will fund the following eight proposals for three years (with second and third year funding contingent upon the achievement of first year milestones and performance targets), which will enable Stony Brook to further contribute to the economic growth in the Long Island region and in New York State:

- College of Engineering and Applied Sciences

  1. Advanced Manufacturing and Design
The economic future of New York State and the world relies on the development of sustainable energy technologies. An obstacle to the commercialization of any new technology is developing a low-cost and reliable method of mass production. A new technology yields limited job creation and limited economic growth until the mass production hurdle is overcome. It is therefore essential that New York State prepare a workforce that is skilled in advanced manufacturing and design techniques to support these new technologies and complete the process from idea to commercialization to economic growth. CEAS will use this funding to develop a multidisciplinary undergraduate minor in advanced manufacturing with a focus on the energy industry, linked to corresponding enhancements in graduate-level courses at Stony Brook. Courses, including hands-on laboratories, will be developed in collaboration with an industrial advisory board, with input from the Advanced Energy Research Center and the Long Island Forum for Technology’s Advanced Materials and Manufacturing Technology Innovation Center. Outreach and recruitment will be enhanced through collaboration with Suffolk County Community College and other members of the LIAEC. Special attention will be paid to building recruitment efforts for underrepresented and underserved populations, building on current programs and Stony Brook’s Center for Inclusive Education. Pedagogically, we will take
advantage of proven methodologies (problem-based, inquiry-based and project-based learning) and opportunities presented by new learning technologies (electronic portfolios and on-line and hybrid courses). The potential for degree and certificate programs in advanced manufacturing will also be explored, and partnerships will be developed with industrial associations and companies to make courses available to current employees in an effort to enhance competitiveness.

2. Civil Engineering
The current demand for Civil Engineers in New York and Long Island, as well as the rest of the United States, is strong and is projected to remain so over the next decade. As the only Civil Engineering program on Long Island, Stony Brook University must play an important role in meeting the demand for a well-trained civil engineering workforce. CEAS will use this funding to (1) double the current enrollment in Civil Engineering at Stony Brook University, from roughly 25 students to 50 students per year, and (2) improve the quality of the curriculum by improving the laboratory experience. This will result in an estimated increase of about 125 students in total after 4 years. To do this, these funds will be used to improve and expand our undergraduate Civil Engineering Laboratories. Currently, the major bottleneck to serving more students and providing a more enriching learning experience in the Civil Engineering program at Stony Brook University is the availability of laboratory equipment. The purchase of additional laboratory equipment, to supplement currently planned purchases, will provide the opportunity to run laboratories with smaller group sizes. Funding through the High Needs Program will provide much needed testing equipment currently not available in the laboratories.

3. Electrical Engineering Online
This is a joint proposal among three SUNY campuses—Stony Brook, Binghamton and Buffalo—that initiated a collaboration six years ago, with support from a Sloan Foundation grant to SUNY to develop online courses in Electrical Engineering. CEAS will use this funding to expand the online program in Electrical Engineering on all three campuses. The broad objective of the expanded program, embracing the Open SUNY concept articulated by Chancellor Zimpher, is to significantly increase opportunities for professional engineering education for New Yorkers and residents of any state, thereby enhancing the technical work force in New York and the nation. To accomplish the overall goal of originating the online BSEE degree program at all three participating institutions, which will provide a model for the Systemness approach to partnerships among SUNY campuses, specific project objectives include (1) providing a unique, robust, personalized learning experience for students, (2) expanding offerings of high-quality online laboratory courses, (3) supporting faculty in online teaching, instructional design and course development (4) developing an effective strategy for learning outcome assessment that is specific to online education, and 5) obtaining ABET accreditation.

4. Undergraduate Specializations in Computer Systems
The Computer Science Department at Stony Brook University will develop two undergraduate specializations in Computer Systems—one in Systems Software Development for Computer Science (CSE) majors and the second in Systems Administration for Information Systems (ISE) majors. These specializations will produce graduates who not only possess the education required for careers in Information Technology and Computer Science, but also have specific skills in areas required by an expanding New York State workforce. Besides developing the curricula and new courses, we will also build a Computer Systems and Networking Laboratory to provide students with hands-on experience. Lastly, we will hire a new faculty member with expertise in Computer Systems, specifically for delivering the curricula associated with these two specializations. Other faculty will also teach courses in these two specializations. The CSE
specialization in Systems Software Development will train CSE majors to become systems software developers/programmers, while the new ISE specialization in Systems Administration will prepare ISE majors for jobs as computer systems and network administrators.

- **School of Health Technology Management**

  5. **Distance Learning Clinical Laboratory Science**

  The Clinical Laboratory Science Department will develop a distance learning part-time Bachelor of Science program that will address documented workforce shortages in the field of Clinical Laboratory Science, providing for an estimated 75 new enrolled students over a three year period, and 25 annually thereafter. Laboratory professionals include clinical laboratory scientists (CLS) and certified clinical laboratory technicians (CLT). The educational requirement for CLT is an Associate’s Degree, whereas CLS requires a Bachelor’s Degree. Since August 2008, a NYS license is required to practice as a CLS or as a CLT. The law allows three options: full license, limited license or restricted license. Limited licenses are issued to allow working professionals time to complete the educational requirements for CLT or CLS and pass the NYS licensure examination. Restricted licenses are issued to work exclusively in a specific area of the Clinical Laboratory Sciences, such as cytogenetics or molecular diagnosis. Many laboratory professionals are fully licensed, but a great number are working with a limited license that will expire in September 2013. The goal of this three-year project is to expand our educational capacity in order to increase the number of individuals eligible for full NYS licensure, which provides for the greatest range of employment opportunities of the three license options.

  6. **Physical Therapy at the Southampton Branch Location**

  The Physical Therapy Program at Stony Brook University will help to alleviate the current and future shortage of physical therapists in New York State by expanding its current program by 20 students each year, starting in summer 2013. This expansion will occur at the Stony Brook Southampton location. The High Needs funding will support the following start-up efforts at the Southampton location using facility space that is currently allocated to the Physical Therapy program: personnel costs for a post-doctoral anatomical science instructor to accommodate the 20 additional PT students in the program’s cadaver-based Gross Anatomy class; personnel costs for faculty; the purchase of examining/treatment tables, chairs, teaching technology, and office equipment; the purchase of therapeutic equipment for lab instruction; the purchase of electrical and physical modalities; support for an Administrative Assistant for the PT program at the Southampton location; and support for an Administrative Assistant to the Assistant Dean for Academic and Student Affairs.

- **School of Nursing**

  7. **Accelerated Baccalaureate Nursing Program**

  The Accelerated Baccalaureate Nursing Program (ABP) at Stony Brook University’s School of Nursing (SBU SON) is in very high demand and, with additional resources, a significant increase in enrollment could be achieved with extremely well-qualified students. High Needs funding will help the SON achieve the following objectives:
  - Expand the Accelerated Baccalaureate Nursing Program at SBU SON by 20% to meet the current needs of the healthcare workforce for Registered Nurses.
  - Provide additional opportunities for qualified students with diverse backgrounds who are underrepresented, disadvantaged and/or minority applicants.
- Develop a self-sustaining expansion through creative use of current resources, such as physical capacity, partnerships, equipment, and supplies.
- Enhance resources, including 1 FTE clinical faculty, faculty development, student mentorship and leadership development.
- Meet the needs predicted by the New York State Department of Labor by graduating increased numbers of highly qualified and culturally competent Registered Nurses to enter the healthcare workforce. This grant will have significant and sustained impact on the health and well-being of patients and families on Long Island and the surrounding metropolitan area.

College of Arts and Sciences

8. Quantitative Biology and Biomedicine

The broad objective of this program is to raise the standards, and increase the availability of practical training in quantitative biology, to meet current and future workforce needs in Biomedicine, Biotechnology and Healthcare. Building on an established, high-capacity B.S. program in Biology with a record of pedagogic innovation, CAS will develop, or upgrade and expand, lab courses in Physiology, Neurobiology and Microbiology, and support practical training for a new Specialization in Quantitative Biology and Bioinformatics. Specific objectives are:

- Equip and staff teaching laboratories for training in methods and instrumentation in neurobiology, physiology, and microbiology at the advanced B.S. level.
- Support practical instruction in quantitative and computational biology, including a course in biostatistics and a new Specialization in Quantitative Biology and Bioinformatics.
- Engage with regional employers, to advertise the abilities of SBU Biology graduates, elicit advice on skills in demand, and explore new areas to develop post-graduate employment.

URECA CELEBRATION

On April 24, 2013, we celebrated the research and creative activities of students working with SBU faculty mentors in all disciplines. The URECA program has been listed for the last several years by the US News & World Report as an academic program that leads to student success. This celebration was a testament to how much research collaboration between our students and faculty has really grown. In 1997, the URECA annual symposium featured 14 student presentations. That year, the university was one of 10 nationwide to receive the RAIRE grant from the NSF in Recognition of Achievement in Integrating Research and Education. This was the beginning of the URECA Celebration tradition, which continues to grow every year. In 2001, there were about 70 posters displayed. This year, we had over 200 posters, involving more than 300 students. The undergraduate students who exhibited posters and projects at the 2013 URECA Celebration represent some of the best students at Stony Brook. Many have received funding support from URECA, the Howard Hughes Medical Institute, Battelle for work at BNL, the Beckman Foundation, and the National Science Foundation.
SEVENTH ANNUAL WOMEN IN SCIENCE AND ENGINEERING BANQUET

On April 25, 2013, Stony Brook held its Seventh Annual WISE Banquet in celebration of our 2013 graduates of Stony Brook University’s Women in Science and Engineering program. Started in 1993 with a grant from the National Science Foundation, WISE is a truly unique program designed to encourage talented women interested in math, science or engineering to pursue degrees and careers in these fields, thereby, attempting to redress the historical under-representation of women in these disciplines. Built upon a foundation of mentoring, WISE puts our students at the heart of a community of excellence—a community made up of talented and dedicated students, faculty, staff, and corporate partners. WISE offers special enrichment courses, extracurricular activities and interaction with other highly talented students and faculty. WISE provides students with special classes, early research opportunities, personalized academic advising and small study groups. We currently have over 200 students in our WISE program and over 500 graduates. Reflective of the high-quality education WISE students receive, 85 percent of our WISE graduates go on to graduate or professional school.

PROVOST’S AWARD FOR ACADEMIC EXCELLENCE

This year, 22 undergraduate seniors have been selected to receive the Provost’s Award for Academic Excellence. This award is given annually to a very select number of graduating seniors who have shown true academic excellence—not just in the classroom, but in other ways as well—in research or creative activities, or in helping to build the academic community at Stony Brook. A check in the amount of $250 and a certificate will be presented to these students at the Baccalaureate Convocation Ceremony.

PROVOST’S LECTURE SERIES

On April 22, 2013, we were pleased to host a lecture by Dr. Eric S. Rabkin on “MOOCs: Been There, Done That, What is Different?” Rabkin is the Arthur F. Thurnau Professor of English Language and Literature, and of Art and Design, at the University of Michigan in Ann Arbor. His research interests include fantasy and science fiction, graphic narrative, and traditional literary criticism and theory. Rabkin is known for his large, popular lecture courses on science fiction and fantasy, and for his many teaching innovations. In 2012, he offered the world's first writing-intensive MOOC (Massive Open Online Course) through the University of Michigan and Coursera. Massive online education is coming. How does it feel so far? What can we do better? What should we do differently? What should the future of education hold? In his talk, Rabkin will share his experiences and explore these issues, as well as those concerning pedagogy, plagiarism, and evolving technology.