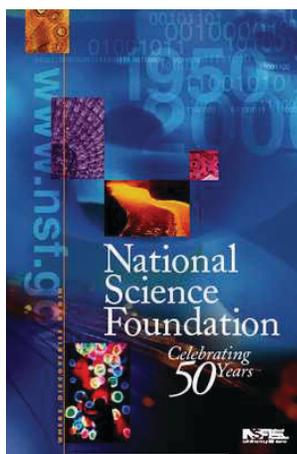


## GRANT NEWS

# The National Science Foundation and Hofstra University: Shared Records of Accomplishment

*In each issue of Hofstra Horizons, through our Grant News column, we seek to highlight some of the recent accomplishments of Hofstra University faculty in major national and international, peer-reviewed grant competitions, and important regional grant competitions.*



“What can the government do now and in the future to aid research activities by public and private organizations?” “Can an effective program be proposed for discovering and developing scientific talent in American youth?” These were the questions posed by President Franklin D. Roosevelt in a private letter dated November 17, 1944 to Dr. Vannevar Bush, director of the government’s Office of Scientific Research and Development during the second world war. “New frontiers of the mind are before us,” the president wrote, “and if they are pioneered with the same vision, boldness, and drive with which we have waged this war we can create a fuller and more fruitful employment and a fuller and more fruitful life.”

In his response to the president, Vannevar Bush spoke of the importance of *basic research* describing it as “the fund from which the practical application of knowledge must be drawn.” Dr. Bush went on to describe colleges and universities as “Centers of Basic Research” that

must be called upon to “furnish both the new scientific knowledge and the trained research workers” that our nation would need in the decades ahead.

Historians point to this exchange between President Roosevelt and Vannevar Bush as the documents which laid the groundwork for the founding of the National Science Foundation (NSF). From the outset, NSF was established to stimulate public and private interests to take on the nation’s challenges in science and engineering, not to conduct research itself. NSF was founded as a science agency with neither laboratories nor a staff of active researchers! Rather, peer review competitions would be established by the new government agency to identify and fund the best scientists our nation had to offer. The concept remains the same today. “NSF invests in the best ideas from the most capable people, determined by competitive merit review,” reads the agency’s Strategic Plan for 2001-2006. “NSF evaluates proposals for research and education projects using two criteria: the intellectual merit of the proposed activity and the broader impacts of the activity on society.” So it was, and so it is, that grants would be awarded by NSF only to the most deserving of organizations and investigators from across the country in fields ranging from anthropology to zoology.

In 1952, with an operating budget of slightly more than \$3 million, the agency issued its first 28 research grant awards. Fifty years later, with an operating budget of \$4.6 billion, we thought it might be interesting to examine Hofstra University’s current alliance with this important agency, the National Science Foundation.



**Thomas O. Murphy**  
Associate Provost for  
Research and Sponsored Programs

The first grant awarded by the NSF to Hofstra University was issued surprisingly early in the agency’s history – indeed, before many of today’s major research universities received their first NSF grants! In 1956, the fourth year of NSF’s existence, a \$12,500 grant was awarded to Hofstra University for work conducted by **Katherine B. Warren**, a professor in the Department of Biology. Coincidentally, as this column goes to press, we are pleased to report that Hofstra University’s most recent grant from the NSF has also been awarded to a woman scientist, **Joanne Willey** (Associate Professor, Biology). In late September, Dr. Willey was awarded a grant of \$190,000 from the NSF in support of research project entitled *Genetic and Biochemical Analysis of Extracellular Complementation in Streptomyces coelicolor*.

Women, it should be noted, have historically been underrepresented in the science, engineering and technology professions – a point that has not escaped the NSF and not escaped **Charol Shakeshaft** (Professor, Foundations, Leadership and Policy Studies). From 1997-2001, the University received more than three-quarters of a million dollars from the NSF to support an education initiative known as the GREEN Project. Led by Dr. Shakeshaft, the GREEN Project sought to promote interest in the sciences among seventh and eighth grade girls, particularly those subjected to multiple risk conditions, for example, girls from minority populations and girls from economically disadvantaged households. “The impact of a program like this is so positive and so full of potential; I have no doubt that par-

ticipation in the GREEN Project will prove to be a very positive influence throughout the lives of these young students," observes James R. Johnson, Dean of the School of Education and Allied Human Services. Alluding to a new \$3 million grant from New York state for a capital project entitled IDEAS at Hofstra (Institute for Development of Education in the Advanced Sciences), Dean Johnson added "the GREEN Project is a good example of the kind of activity that will benefit from IDEAS funding." The IDEAS at Hofstra grant was formally announced by Governor George Pataki on September 24 of this year.

Another program that will benefit from the University's new IDEAS grant is Hofstra's Center for Technology Literacy. Center co-director **M. David Burghardt** (Professor and Chair, Computer Science) is leader of Hofstra University's largest current NSF award – a grant of more than \$1.5 million entitled *NYSCATE: New York State Curriculum for Advanced Technological Education*. NYSCATE is a consortium of two- and four-year colleges and universities across New York state, working in cooperation with the State Education Department to systemically reform Advanced Technological Education (ATE) curriculum. The NYSCATE team is developing, field testing, and institutionalizing curriculum modules for grades 9 through 14 within three overarching areas of technology: Bio/Chemical Technology, Information Technology, and Physical Technology (materials and manufacturing).

**John Impagliazzo** (Professor, Computer Science) has also demonstrated a concern for the historical underrepresentation of women in his field. As editor-in-chief of the Special Interest Group on Computer Science Education (SIGCSE) bulletin, Dr. Impagliazzo sought to address this problem by securing a \$36,000 grant from NSF providing partial support for the preparation and targeted dissemination of a special issue of the SIGCSE Bulletin on "Women and Computing."

Very few faculty can match the accomplishments of Dr. Impagliazzo in recent national grant competition. Over the past 12 months, the NSF issued three new grant awards on which Dr. Impagliazzo serves as either the lead or co-project director.

Project CITIDEL is a collaborative effort involving Dr. Impagliazzo and colleagues from Villanova University, Pennsylvania State University and Virginia Polytechnic Institute. CITIDEL, which is an acronym for *Computing and Information Technology Interactive Digital Educational Library*, will lead to the creation of a portal for use by educators, students and the general public, relating the ongoing history of computers and computing technologies. One of Dr. Impagliazzo's goals with Project CITIDEL is to encourage historically underrepresented segments of our society to enter computing fields. Consequently, the CITIDEL portal will serve as a central repository of information to attract women, African-Americans and Hispanics, among other traditionally underrepresented populations, into computing programs by providing information regarding recruitment, retention and professional development opportunities specifically geared toward them.

**David Cassidy** (Professor, Chemistry) has teamed up with John Impagliazzo for an additional award from the NSF known as CHRAD, or *Computing History Resource Adaptation*. CHRAD focuses on the "history approach" to teach an overview course in computer science for non-majors.

**Beverly Clendening** (Assistant Professor, Biology) received a sizable grant for a project entitled *Molecular Biology Techniques: A Research-Integrated Approach*. This grant provides support to develop and implement an advanced molecular biology laboratory course, using a project approach to learning and incorporating an independent research component, all designed to improve the preparation of biology students for careers in research, biotechnology and science education and to increase knowledge retention and integration of concepts among upper level biology majors.

**Harold M. Hastings** (Professor and Chair, Physics) and **Sabrina Sobel** (Associate Professor, Chemistry) are presently conducting research with a special classification NSF award. Drs. Hastings and Sobel

are recipients of a special grant award for exploratory research involving a previously untested or novel idea that is likely to catalyze innovative advances. Their research project is entitled *Temporal and Spatial Scales in Models of Excitable Media*. In conducting this research, Drs. Hastings and Sobel have enthusiastically engaged the assistance of several student researchers. "Funded research offers students a unique opportunity at exploring their interests and gaining project-oriented group experiences in their own fields of interest," says Hastings. "It prepares them well for graduate school as well as most industrial careers. In addition, many external grants provide the students with much needed financial support. The fact is funded research plays an important role in institutional development since it enables the institution to attract outstanding faculty and the best of students and to undertake a broad range of worthwhile projects beyond the scope of the operating budget."

Only the brightest and most-promising researchers and educators receive grant support from the NSF. Indeed, last year alone, a total of eight Nobel Prizes were issued to scientists whose Prize-winning research was funded by the agency.

Congratulations to all of Hofstra University's current and past NSF grant recipients, whose names have been singled out by their peers as among the best and the brightest our nation has to offer.



Professor Harold Hastings is a strong proponent of undergraduate student involvement in faculty research, seen here reviewing preliminary results with Jordan Pekor and Claudia Frank on a NSF grant awarded to Professors Hastings and Sabrina Sobel.