## APPROPRIATIONS SUMMARY

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>HOUSE</th>
<th>CHANGE FROM FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSF</td>
<td>$6,995 billion</td>
<td>+ 1.6 %</td>
</tr>
<tr>
<td>NIST</td>
<td>$784 million</td>
<td>- 3.0 %</td>
</tr>
<tr>
<td>NOAA</td>
<td>$4.92 billion</td>
<td>nearly no change</td>
</tr>
<tr>
<td>NASA</td>
<td>$16.6 billion</td>
<td>- 5.4 %</td>
</tr>
<tr>
<td>NIH</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>DOE</td>
<td>$25.0 billion</td>
<td>- 7.4 %</td>
</tr>
<tr>
<td>DOD RDTE</td>
<td>$66.4 billion</td>
<td>- 5 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>SENATE</th>
<th>CHANGE FROM FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSF</td>
<td>$7.426 billion</td>
<td>+ 7.9 %</td>
</tr>
<tr>
<td>NIST</td>
<td>$947.5 million</td>
<td>+ 17 %</td>
</tr>
<tr>
<td>NOAA</td>
<td>$5.59 billion</td>
<td>+ 13.2 %</td>
</tr>
<tr>
<td>NASA</td>
<td>$18 billion</td>
<td>+ 2.7 %</td>
</tr>
<tr>
<td>NIH</td>
<td>$30.955 billion</td>
<td>+ 7 %</td>
</tr>
<tr>
<td>DOE</td>
<td>$28.2 billion</td>
<td>+ 4.3 %</td>
</tr>
<tr>
<td>DOD RDTE</td>
<td>$65.8 billion</td>
<td>- 6 %</td>
</tr>
</tbody>
</table>

## SELECTED FUNDED PROJECTS

### Matthew Goodwin
Assistant professor of health sciences and computer and information science, will develop an integrated, home-based video capture and wearable sensor system for recording behavioral states and physiological responses in individuals with autism, a project funded by the Simons Foundation.

### Maria Dolce
Associate professor of nursing, has received funding from the Dentaid Foundation to promote interprofessional, team-based approaches to reduce oral health disparities among vulnerable underserved populations. The project will focus on integrating oral health into comprehensive healthcare with a focus on prevention and management of oral diseases, oral health literacy, and patient-provider communications.

### William Hancock
Bradstreet Chair in Bioanalytical Chemistry and faculty fellow in the Barnett Institute of Chemical and Biological Analysis, is collaborating with colleagues at MIT on a Defense Advanced Research Projects Agency-funded project, providing detailed characterizations of manufactured proteins and glycoproteins that are expected to be therapeutic candidates.

### Toyoko Orimoto
Assistant professor of physics, has received an Early Career Award from the Department of Energy. Orimoto was part of the team working at the Large Hadron Collider in Geneva that identified the Higgs boson in 2012, the last elusive particle in the Standard Model of particle physics. Orimoto plans to focus her research on questions still left unanswerable by the Standard Model, such as the existence of dark matter particles.

### Philip Laurese-Casanova
Assistant professor of civil and environmental engineering, will investigate quantum dot degradation in aquatic environments, with the goal of understanding the long-term effects and remediation of nanomaterials released through product disposal or industrial waste streams.

### Thomas Wahl
Professor of computer and information science, will develop a verification framework for the early detection of programming errors in concurrent software, a rapidly growing problem as multi-core computers and support for concurrency in mainstream languages make parallel programming widely accessible.

## PLANNING FOR DISASTER

### Center for Resilience Studies Launched

The university has established a new interdisciplinary research center in the College of Social Sciences and Humanities to address the rising threat of natural and manmade disasters by promoting the development of resilient systems, networks, and infrastructure that can withstand and recover quickly from catastrophe.

The Center for Resilience Studies, founded in July, is affiliated with the Kostas Research Institute for Homeland Security, and will focus on developing effective approaches to averting the kinds of social and economic disruption caused by Hurricane Sandy last fall.

“One thing we must stop doing is neglecting our nation’s critical infrastructure such as transportation systems, the electric grid, fresh water and wastewater treatment systems that underpin our daily lives,” said political science professor Stephen Flynn, the CRS founding director. “When these systems become brittle because of age and overuse, they will fail badly as they did in New York City.”

Flynn (below), is the principal investigator for a multi-university project that is examining the aftermath of Hurricane Sandy. Funded by the Alfred P. Sloan Foundation, the project is a partnership with Columbia University, New York University, Stevens Institute of Technology, and the Wharton School of the University of Pennsylvania.

The Center for Resilience Studies is leading an effort to create the Global Network for Resilience Research, a consortium of research institutes from countries around the world, including Israel, Germany, Singapore, France, Sweden, and Canada.

To uniquely prepare the next generation of homeland security and emergency management leaders, Northeastern is also launching a first-in-the-nation master’s program in resilience studies this fall.
PROTECT RESEARCHERS DEVELOP SOLUTIONS TO GROUNDWATER POLLUTION IN PUERTO RICO

Researchers in Northeastern’s Puerto Rico Testsite for Exploring Contamination Threats center are advancing innovative approaches to mitigating the groundwater contamination that is suspected of contributing to a preterm birthrate in Puerto Rico that is the highest among the states and territories of the United States.

PROTECT, a collaboration of experts in engineering, public health, and biomedical and environmental sciences, is led by Akram Alshawabkeh (above, right), George A. Svel Professor of Engineering in the Department of Civil and Environmental Engineering. The center was established in 2010 with a $9.9 million grant from the National Institute for Environmental Health Sciences’ Superfund Research Program.

The center’s goal is to study the relationship between the island’s high level of groundwater contamination and high preterm birth rate of 17.7 percent, and develop solutions. PROTECT researchers also seek to better understand the phenomena affecting hazardous substances in the karstic aquifers.

Define success in terms of the “triple-bottom-line,” said Whittlefield: environmentally responsible, socially conscious, and financially successful. With the right technology innovations, those kinds of businesses can succeed in leading the state’s water initiative,” he added.

Matthew Eckelman, assistant professor of civil and environmental engineering, co-chaired an exhibition of some of those new technologies. In addition to cutting-edge ideas developed by more than 30 companies, the exhibition included two from a College of Engineering research center, the Puerto Rico Testsite for Exploring Contamination Threats. Doctoral student Ali Cibik and postdoc Lily Rajic, showcased their work on solar-powered electrochemical technologies for groundwater treatment, while researchers Annalisa Onnis-Hayden and Lorelta Fernandez presented on advanced biological sensors for water contaminants, developed in Associate Professor April Gu’s lab.

Governor Dannel Malloy, who opened the symposium, noted that a water-innovation cluster could advocate for its collective interests and draw talent to the region along the lines of the state’s other successful innovation clusters.

DAN ADAMS

On September 23, Dan Adams, assistant professor of architecture, and Marie Law Adams, lecturer in architecture, will celebrate the opening of a new public park that they designed on reclaimed industrial land along the Chelsea waterfront. Dubbed the PITT (Publicly Organized Recreation Territory), the park is located in an active industrial dock where roadway salt is offloaded for winter use. The Adameses have repurposed features from an old salt dock, turning decaying fuel tanks into landscape trellises and loading platforms into waterfront viewing decks to provide direct access to the waterfront. The park can be expanded in the summer, providing basketball courts and event space on ground that is reclaimed by mountains of salt in the winter months.

John Auerbach, Distinguished Professor of Practice and director of the Institute on Urban Health Research and Practice, was recognized by Health Care for All, a Massachusetts organization dedicated to making adequate and affordable healthcare accessible to everyone, with the establishment of the John Auerbach Community Leader Award.

Jonathan Tilly, who recently joined Northeastern as professor and chair of the Department of Biology, was honored as one of the Boston Business Journal’s Champions in Health Care. Each year, the business weekly recognizes professionals and organizations at the leading edge of the region’s world-class healthcare system.

Two members of the law school faculty, Matthews Distinguished University Professor Karl E. Klare and Professor Lucy Williams, are editing a book on the emerging jurisprudence of social and economic rights, to be published by Routledge in 2014. The contributors are members of the International Social and Economic Rights Project, an initiative of the law school’s Program on Human Rights in the Global Economy. They include lawyers, judges, academics, and human rights activists, most of them working in the Southern Hemisphere. The multi-national group convened in March at a workshop held at the Rockefeller Foundation’s Bellagio Conference Center in Italy.

Yiannis Levendis, Distinguished Professor of Mechanical and Industrial Engineering, has been honored with the 2013 George Westinghouse Gold Medal of the American Society of Mechanical Engineers. The award recognizes his distinguished service in the power systems field.

FACULTY NEWS

RESEARCH CONNECTIONS AT NORTHEASTERN

Informing, Inspiring, and Engaging

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northeastern.edu/research

NORTHEASTERN HOSTS 2013 SWIM CONFERENCE

Lack of clean water is responsible for more deaths in the world than was a stark fact that has made global water access a National Academy of Engineering Grand Challenge—and a potential point of leadership for researchers and business innovators in Massachusetts.

To help advance that goal, the O’Keefe-McKern School of Business sponsored the second annual Symposium on Water Innovation in Massachusetts in June, bringing together business leaders, policymakers, and academics to explore opportunities in the emerging clean water industry.

Northeastern researchers across disciplines—from business and management to engineering and science—are well positioned to play a major role in a statewide initiative to create a water innovation cluster that will enable Massachusetts to become the world leader in the water industry.

Ron Whittlefield, director of SME’s Business Sustainability Initiative and a SWIM symposium organizer, noted that the RIS promotes sustainability in business and service as well as in its collaborations with industry. Sustainable business enterprises adopt strategies that inform, inspire, and engage product innovation clusters.

The multi-project partnership includes four primary institutions—Northeastern University, the University of Puerto Rico at Mayaguez, the University of Puerto Rico Medical Sciences Campus, and the University of Michigan—and involves significant interaction and sharing of samples, testing, and results among the disciplines of analytical chemistry, epidemiology, engineering and toxicology.

For example, a project team headed by Alshawabneh, is developing a solar-powered device made out of inexpensive materials that can transform tetrachloroethylene and other hazardous chemicals into non-toxic substances. Another project team headed by Professor of Pharmaceutical Sciences Roger Glise is conducting research to discover xenobiotics in tap water and groundwater sources that contribute to preterm birth.

To learn more about PROTECT and its plans and goals for the next five years, visit northeastern.edu/protect