HEALTH SCIENCES PROGRAM
Marking a Decade of Training Broad Thinkers, Caregivers, and Leaders
DEAR ALUMNI, PARENTS AND FRIENDS,

At a time of remarkable political and social change at home and abroad, the Bouvé College of Health Sciences remains firmly focused and committed to its mission to be a center of excellence in health-related education, research, and service. Such excellence depends, in part, on our high-caliber students. This fall, according to President Aoun, we welcomed the most diverse class of entering freshmen in Northeastern’s history, which included 211 Bouvé freshmen. With incoming and continuing students, we’re also advancing the University’s goal of accelerating innovation and entrepreneurship through new initiatives, including new nursing certificate programs and a course in health science entrepreneurship set to launch this coming fall.

Our Department of Health Sciences turns 10 this year, and this issue of Vital Signs highlights the program’s growth and success in providing students an exceptional trans-disciplinary education—one that opens doors to an impressive array of career opportunities in medicine, public health, business, and health informatics, among others.

In this edition, you’ll meet Diomedes Logothetis, BA’80, MA’81, PhD, who joined our faculty in July as chair of the Department of Pharmaceutical Sciences. He plans to invest resources in creating and optimizing small molecules for potential drug development. Diomedes will be based in the new Interdisciplinary Science and Engineering Complex on Columbus Avenue, an exciting addition to NU’s research enterprise, scheduled to open in early 2017.

This issue also showcases groundbreaking work by body image researcher Rachel Rodgers, PhD, associate professor of applied psychology. She and her team are examining the impact of media images on young women’s perceptions of their bodies by comparing their reactions to natural and airbrushed photos from advertisements.

Our Faculty Viewpoint shines a light on prescription drug pricing in the U.S. and offers some intriguing public policy solutions to reduce consumer costs, especially in light of last year’s startling price hike for EpiPens, which are used to deliver lifesaving treatments for anaphylaxis. Interestingly, the EpiPen was invented by Northeastern alumnus Sheldon Kaplan, E’62.

It has been an honor to lead Bouvé during the past 18 months. I am pleased to report that the search for a permanent dean has yielded superb candidates, and we expect to announce the appointment of the new dean this spring.

We remain grateful to you, our loyal alumni and friends, for your ongoing support of our work to promote quality education as we prepare the next generation of exceptional health care professionals and scientists. Whether you give back financially, mentor students, or simply follow our activities, your contributions help strengthen our ever-dynamic Bouvé community. Our mission to enhance health and health care, both locally and globally, is more important than ever.

Best Wishes,

John R. Reynolds, PharmD
Interim Dean, Bouvé College of Health Sciences
COVER STORY

Training Broad Thinkers
Health Sciences Program Prepares Students for Multiple and Meaningful Careers in a Changing Health Care World

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“Interprofessional teaching and learning and trans-disciplinary scholarly engagement in Health Sciences can be transformational for our students. We support students as they clarify their health career goals in light of an ever-changing health care and public health landscape.”

CARMEN SCEPPA, MD, PhD
During his co-op as an emergency department (ED) technician in 2015, Conor Birmingham, HS’16, PA’18, built important clinical skills by taking vital signs, performing strep tests, and tending to wounds. He also found an opportunity to improve patient care.

Birmingham noticed that nurses in the small pediatric ED unit at North Shore Medical Center in Salem, Massachusetts, sometimes had trouble communicating with their Spanish-speaking patients and families during triage. There was no round-the-clock translator. So, Birmingham, a Bouvé College health science major, created a bilingual “flip book” with pictures and translations of common phrases like, “Does your child take any daily medications?” He produced the handy tool as part of his service capstone project, drawing on concepts from his health sciences courses.

“I thought, ‘Language shouldn’t be a barrier to quality care,'” recalls Birmingham, now pursuing a master’s degree in physician assistant (PA) studies at Bouvé. “I had learned how communication—both verbal and non-verbal—is key to good health outcomes. It was amazing to be an undergraduate and support the unit’s patients and providers in that way.”

For the past decade, the Department of Health Sciences in Bouvé has been preparing enterprising students like Birmingham for meaningful careers throughout health care, from bench to bedside to boardroom.

“We offer a well-rounded curriculum that includes coursework in basic and applied sciences, public health, health policy, and
Health Sciences is trans-disciplinary by design. Faculty members have expertise in many fields, from aging to nutrition to biostatistics to mental health, and nearly half hold joint appointments outside Bouvé, including in computer science, law, and business. Students absorb the value of collaboration as they traverse these and other disciplines through their classes, co-ops and practicums, simulation labs, research, and other experiential learning activities. “We have a great opportunity to train the next generation of professionals who are going to do the hard work of teamwork in health care,” Mohammed says.

Triple Degrees
Teamwork comes naturally for Deanna Kerkhof, HS’13, MPH’15, PhD’20. She grew up on a farm in Ontario, Canada, and joined NU as a recruited women’s basketball player in 2009. The scholar-athlete pursued her passion for health sciences even while traveling with the team — thanks to Bouvé professors who recorded classes for students like her. Kerkhof’s undergraduate experience was so positive that she continued with a master’s degree, strengthening her intuitive belief in the need to address disparities in access to health care, food, water, housing, fuel, and other quality-of-life contributors. Her capstone brought her to a primary care clinic in Boston, where she worked with Harvard medical students on ways to integrate public health into the clinic’s mission of caring for patients with hypertension, diabetes, and other chronic diseases.

“We are training health professionals who not only know their discipline but who also understand the broader determinants of health, such as poverty.”

Meeting Needs
Bouvé established the Department of Health Sciences in the early 2000s, under the leadership of Founding Dean and Professor Stephen Zoloth, MPH, PhD, to prepare students for workforce opportunities in a constantly changing health care environment. “We wanted to create a path for students to enter clinical professions like medicine or attend graduate school in policy, public health, business, or law with a solid background in the basic sciences, as well as an understanding of community and public health. In 2007, there were just seven graduates of the program; next spring we anticipate 108 graduates. The health science major has expanded in size and scope and now comprises over 500 students,” Zoloth says, “and our success can be measured by the extraordinary achievements of our graduates in almost every health profession.” The department currently offers a bachelor’s degree in health science, a master of public health, a master of science in exercise science (emphasizing physical activity and public health), a PhD in population health, and three degrees in collaboration with the College of Computer and Information Science (a master of science in health informatics, a master of science in health data analytics, and a PhD in personal health informatics).
A volunteer trip to Haiti in December 2015, where she witnessed both stunning poverty and resilience, sparked Kerkhof’s interest in global health and her desire to pursue a doctorate in population health from NU, which is expected in 2020. Alongside courses on social epidemiology and the economics of health policy, she is conducting research with Associate Professor of Pharmacy and Health Systems Sciences Jane S. Saczynski, PhD, on the cultural and psychological factors that influence how clinicians treat atrial fibrillation (irregular heartbeat) in elderly patients. Kerkhof, 25, is contemplating medical school but keeping her options open.

Northeastern has already afforded Kerkhof an academic milestone: authoring her first scientific paper. From 2015 to 2016, she was part of a research team developing a new screening method to prevent sudden cardiac death (SCD) in athletes—a tragedy often caused by undiagnosed heart conditions. The approach, pioneered by NU Head Team Physician Gianmichel D. Corrado, MD, involves having team physicians perform echocardiograms with portable ultrasound machines to identify athletes at risk for SCD.

“This achievement came far sooner than I had anticipated,” says Kerkhof, first author on the paper, which was published in *PM&R, the journal of the American Academy of Physical Medicine and Rehabilitation*, in March 2016. “It taught me a great deal about research, writing, editing, and collaboration, and I think it ultimately helped me to get where I am today as a PhD student in population health.”

**Fulfilling His Dream**

Likewise, health sciences has offered Birmingham, the student who developed the bilingual ED flip book, multiple opportunities to collaborate, explore, and lead—and to fulfill his professional dream of becoming a physician assistant.

Birmingham, 24, grew up in Peabody, Massachusetts, visited NU “on a whim” in high school, and was sold on Bouvé during an information session on different majors. “For me, it was a no-brainer,” he recalls. “The health sciences program was so well-rounded. Hearing what the students were doing on their co-ops, I thought, ‘I want to be one of those students.’”

In addition to his ED placement, Birmingham had a second co-op as a nerve monitor during ear, nose, and neck surgeries at Massachusetts Eye and Ear Infirmary. His role was to track electrode stimulation and alert the surgeon when he/she was nearing a nerve. “In the room was the surgeon, the nurse, the anesthesiologist, the patient, and me,” he recounts. “I was part of an integrated team and learned so much about surgery and operating rooms—and I was only 20.”

Other memorable undergraduate experiences included co-leading the Pre-Physician Assistant Society; helping coordinate the Marjorie Bouvé Fellows Program, which matches first-year students with upper-year peer mentors; and spending last summer in London as a teaching assistant for the trans-disciplinary NU Dialogue of Civilizations, which focused on health communications and comparative health systems. This trip was led by Associate Clinical Professor Pauline Hamel, EdD, PT, from the Department of Health Sciences, and Assistant Clinical Professor Valeria Ramdin, PhD’16, MS’95, APRN-BC, CNE, from the School of Nursing.

Now one of roughly 40 first-year PA students (his master’s degree is expected in 2018), Birmingham is studying anatomy and physiology, pharmacology, physical exam and diagnosis, and other topics. “We’re with each other all day, every day, so there’s a great sense of camaraderie,” he says. What attracts him to the profession is the extra time PAs typically spend with patients to address physical, psychosocial, behavioral, and other concerns. “The Department of Health Sciences within Bouvé instilled in us that health is multidimensional,” Birmingham notes. “Looking at your patients’ health from all different aspects and integrating this information is what makes a great provider.”

For both Birmingham and Kerkhof, health sciences has provided the practical tools, context, and support to fuel their passions for improving peoples’ lives.

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**Career Choices Abound**

With an aging U.S. population, ever-changing technology, and a growing emphasis on cost containment and prevention, job opportunities in the health sciences are expected to boom in the coming years. “We need to anticipate and prepare students for what health care will look like in five to 10 years so they can be flexible and successfully adapt,” says Health Sciences Department Chair Carmen Sceppa, MD, PhD. During the past decade, the department has opened doors to careers in clinical care, research, and industry that include these roles:

» Health Care Business Systems Consultant
» Hospital Database Coordinator
» Medical Technician
» Microbiology Supervisor
» Pediatric Nurse Practitioner
» Postdoctoral Research Fellow
» Project Manager at Health Innovation Startup
» Senior Vice President of Health Services

Health sciences alumni have also pursued graduate and advanced professional studies in medicine, law, public health, physician assistant, nurse practitioner, nutrition, health informatics, health communications, and health care administration.

For more information regarding the Health Sciences programs, please visit: http://www.northeastern.edu/bouve/health-sciences/

To view current Health Sciences research projects, click here.
Collaboration is New PharmSci Department Chair’s Field of Dreams

If you build molecules, they will come.
But what the department lacks is expertise in the field of structural biology. That’s the branch of science that seeks to understand the structural basis of function through techniques that enable elucidation of 3-D structures at atomic-level resolution. And that expertise can accelerate drug molecule design. Building a structural biology team to understand drug action will, Logothetis believes, entice scientists from other NU departments and from institutions like Harvard and MIT to collaborate. Finally, this expansion will enable NU students to learn how to address real-world scientific challenges.

One long-term goal for these investigations is to improve existing drugs or even discover new ones and shed light on the therapeutic effects of natural products like olive oil and herbal remedies—which are more chemically complex than small molecules. “Most drug discovery starts by going fishing,” explains Logothetis. “You screen many molecules to find one that works best against your target, then you optimize it chemically. It’s a lot of trial and error.” Structural biology and its tools, such as computational chemistry, provide a leap forward in understanding drug mechanisms at work.

Logothetis is also excited about another addition to his department: undergraduates in the fall of 2017. The new revised bachelor of science in pharmaceutical sciences degree, which will now accept freshman-entry students, will serve as a talent pipeline for various NU graduate programs.

Logothetis says it was the strength of Bouvé’s pharmaceutical sciences program and its proximity to other world-class scientific institutions that drew him back to his alma mater. “The academic and biotech energy in Boston and Cambridge is amazing,” he says. “Northeastern is poised to take advantage of this, and I look forward to helping lead it in that direction.”

Small molecules are low-weight organic compounds, and the most promising ones may eventually become medicines.

done by industry, not academic institutions. No university in the U.S. currently produces optimized small molecules to supply to others.

Bouvé’s School of Pharmacy, which includes Pharmaceutical Sciences and the Department of Pharmacy and Health Systems Sciences, already is a research powerhouse. The school receives more funding from the National Institutes of Health (NIH) than any other private pharmacy school in the country and consistently ranks among the top 15 NIH grant recipients when schools of pharmacy at public universities are added to the equation.

That’s the idea at the center of the ambitious vision of the new chair of the Department of Pharmaceutical Sciences. Diomedes Logothetis, BA’80, MA’81, PhD, arrived at Northeastern in July from Virginia Commonwealth University. It’s a homecoming of sorts for the Greek biophysicist, who earned a bachelor’s degree in physics and a master in psychology from NU followed by a doctorate in physiology and biophysics from Harvard in 1987.

“Making small molecules is the bait,” explains Logothetis. “It’s what brings collaborators to you.” Small molecules are low-weight organic compounds, and the most promising ones may eventually become medicines. Creating and optimizing them to most effectively control the function of their targets requires significant time, cost, and scientific expertise, and this work is usually
But his career could have followed a very different path. As a Northeastern undergraduate captivated by celebrity underwater researcher Jacques Cousteau, Lynch had dreams of becoming a marine biologist. However, due to unforeseen circumstances, he ended up pursuing a co-op instead in a clinical chemistry lab at Boston’s Beth Israel Hospital, now Beth Israel Deaconess Medical Center, a prominent Harvard teaching hospital.

He loved the work at the biochemistry lab, which led to other co-ops and positions at Boston-area hospitals. “By the time I was done with my undergraduate degree, I had a lot of experiences — clinical and research — that someone coming out of a biology program from most other colleges wouldn’t have had,” Lynch says. He earned his bachelor’s degree in biology and later a PhD in pharmacology, both from Northeastern. His thesis and post-doc work focused on nutrient metabolism.

Lynch spent 27 years at Penn State College of Medicine as a professor, administrator, and researcher, investigating the biochemical processes at work in obesity and diabetes. In February 2016, he was chosen to fill a new position at the National Institutes of Health as director of the Office of Nutrition Research (ONR). In this role, he helps coordinate nutrition research across NIH’s 22 institutes and centers.

The demands on the $1.6 billion nutrition research budget are huge, so a critical part of Lynch’s charge is helping develop a 10-year strategic plan to determine the highest priority research areas — and then ensuring they are funded. He has a second position at NIH as chief of the Office of Nutrition Research within the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).

Christopher Lynch, BS’78, PhD’83, is one of the country’s most influential voices in nutrition, overseeing research at the National Institutes of Health (NIH) into the connection between our food consumption and our health.

**What We Don’t Know**

In recent decades, scientists have learned a lot about the link between health and nutrition, such as that certain foods raise the risk of cancer, diabetes, and heart disease while others stave off illness. But one significant research obstacle is that many studies rely on subjects self-reporting what they consume because there are few scientific methods to quantify food intake, according to Lynch. “As in criminal investigations, humans are not very reliable witnesses,” he explains. “Studies have shown that people who are overweight under-report nutritional intake. We need to develop new technologies to assess intake. Blood or urine assays [tests] are one way.” Some scientists are experimenting with innovative solutions, such as wearable cameras or sound sensors worn on the body that determine, for example, how many potato chips have been consumed.
by the sound and duration of the crunch, according to Lynch.

Another significant research focus for NIH, and one of great interest to Lynch, is the human microbiome — the communities of microbes that live in the gut, skin, eyes, and nasal passages. These tiny organisms outnumber our own human cells 10 to one. The human microbiome is believed to be as critical a determinant of health and disease as the human genome, and

the particular microorganisms that dwell in the gastrointestinal tract may be associated with obesity, diabetes, and other conditions. Lynch serves on a committee that brings together agencies as disparate as the Federal Bureau of Investigation, NASA, and the Environmental Protection Agency to coordinate research on the microbial colonies that inhabit not only the human body, but also plants, soil, oceans, and the atmosphere.

Lynch says his experience at Northeastern was invaluable for setting him on the path to where he is today. “The co-op education gave me insights into how hospitals work and the quantitative and clinical knowledge that forms a strong foundation with practical experience for a career in biomedical/nutritional biochemistry research,” he says. After decades focusing on a narrow area of metabolic disorders research, he’s excited to have a chance to influence nutrition on a far more global scale.

“Accomplished nurse practitioner Nancy Dirubbo forges second career as a travel health specialist

Accomplished nurse practitioner Nancy Dirubbo forges second career as a travel health specialist

Expanding Her Horizons

Nancy Dirubbo, FNP’78, FAANP, DNP’15, lives in the small lakeside city of Laconia, New Hampshire, but her work spans the globe. As a family nurse practitioner and travel health specialist, Dirubbo serves patients who are planning trips abroad for work, study, or pleasure. Whether they’re venturing to Africa, Asia, South America, or beyond, she provides protective items from vaccines to water purifiers and helps manage occasional emergencies like rabies scares.

“What I love about travel health is that I was able to design a totally different medical care model,” Dirubbo says. “I spend 45 minutes to an hour with each patient. I evaluate the traveler and his or her health issues and itinerary and design an individual travel plan.” Her clients include students, families, Merchant Marines, and missionaries. “I even had somebody who went to the Philippines to get a bride and bring her back.”

This is a perfect job for Dirubbo, a longtime travelbuff (her destinations include Kenya, Russia, Lithuania, Cuba, and Mexico) who relishes being her own boss and has founded two solo practices in a nursing career marked by innovation and accolades.

Dirubbo grew up in a blue-collar neighborhood in Cambridge, Massachusetts. Her father worked in a casket factory and her mother was a secretary and child care provider. She felt her professional calling at age five. “I can’t tell you how or why, but for as long as I can remember, I always knew I was going to be a nurse,” she recalls.

She earned a diploma from the Children’s Hospital School of Nursing in 1975 and was working in the Children’s intensive care unit when she contracted bronchitis. Dirubbo saw a nurse practitioner, “and as
soon as she walked out of the room, I said, ‘That’s what I want to be when I grow up.’ She was self-assured, made her own decisions, and understood how guilty I felt about missing work.”

In 1978, Dirubbo received an FNP certificate from Northeastern, a university popular in her family, and a BSN from the State University of New York in 1984 before opening Laconia Women’s Health Center in 1985. The staff included Dirubbo and an administrator. "I call my model 'Love and Kisses,' for Low Overhead and Volume and Keep it Super Simple," she explains. "I believe the fewer people you see, the better care you give."

A New Chapter

Dirubbo used to give local talks about her overseas journeys, and when people asked, "What should I do to get ready?" she recognized a need for travel health services. After reading about a nurse’s travel clinic in New York, she had another professional aha moment. "I was completely convinced I needed to do this," she recalls. In 2008, she opened Travel Health of New Hampshire, ran both solo practices for seven years, and then closed the women’s clinic to focus on travel health. "Rather than retiring, I call it rewiring," says Dirubbo, 61. She also established Beacon Continuing Education, which provides trips and presentations for nurses, nursing students, and other health professionals.

In 2012, already a recognized nursing leader, Dirubbo approached Michelle Beauchesne, DNSc, RN, CPNP, FAAN, FAANP, FNAP, director of the Doctor of Nursing Practice Program, about rounding out her credentials with a doctorate to match her clinical expertise and scholarship.

“I was so impressed with Nancy’s dedication and enthusiasm that I immediately agreed to be her mentor,” Beauchesne notes. Dirubbo’s program included traveling to Trinity College Dublin to study differences in nursing education and health care, leading 21 Bouvé nursing students on a medical mission in the Dominican Republic, and completing a capstone evaluating a unique way to teach primary care NPs about travel health using case studies. Now an adjunct assistant professor, Dirubbo is a DNP capstone advisor and remains a sought-after conference speaker on such topics as “Dengue, Malaria, Chikungunya, and Zika.” In September, she took part in a Bouvé panel discussion on entrepreneurship.

In this globalized world, travel health should have a larger presence in the primary care curriculum, in Dirubbo’s opinion.

Dirubbo’s Top Travel Tips

» Alert the U.S. State Department’s Smart Traveler Enrollment Program when you leave the country so it can reach you in case of emergency.

» Pay attention to weather forecasts and leave if necessary.

» Bring high-quality insect repellent.

» Pack a basic first aid kit and an emergency dental kit.

» Wrap duct tape around a pen to use for anything from patching mosquito netting to bandaging wounds in a pinch.

» Purchase evacuation insurance in case of a medical emergency.

» Leave the smallest health care footprint possible. For example, make sure your vaccinations are current so you don’t introduce diseases into a vulnerable community.
1. School of Pharmacy white coat ceremony 2016: Hannah Kim PharmD’19, Alex Burger PharmD’19, Cindy Wu PharmD’19

2. HSE Presents: I-Corps 101 Panel and Discussion: Tommaso Melodia, Paul Croke, Craig Sockol MP’79, Dan Esposito E’08, Enrico Santagati PhD’17, John Tremblay MBA’98, E’92

3. Parents weekend 2016: Amanda Mei-Yien Lim PharmD’19, Bing Guan E’05, Jennifer Trapp

4. 40th year gathering of NU Pharmacy class of 76: Louise Hecht, John Coleman PharmD’76, Eileen Foley, Boston Bouvé, PT’78, Ernie Anderson PharmD’76, Jay Hecht PharmD’76, Richard Daley PharmD’76, Manny Santos PharmD’76, Eva Chau PharmD’76, Susan Tringale PharmD’76

5. HSE Presents: Myth of the Visionary with Brant Cooper, New York Times best-selling coauthor of Lean Entrepreneur: Brant Cooper and John Tremblay MBA’98, E’92
Honoring Monroe Jasper, Entrepreneur

Kim Jasper Burger, PharmD, mother of Alexandra Burger, PharmD’19, has followed in the footsteps of her father, Monroe Jasper. His passion for hard work and entrepreneurship is what inspired her to launch her own business at a very young age. To honor the memory of her father, Dr. Burger will establish the Monroe Jasper Fund for Student Venture Co-op. It will provide financial support for Northeastern students formally involved in the school’s entrepreneurial ecosystem who have faculty-mentor approval to work full-time on their venture as a co-op experience.

Collaboration Highlighting Autism through Technology for Emotional Regulation (CHATTER)

Through the generosity of the Darald and Julie Libby Foundation and the Dandurand family, Northeastern Autism programming will be highlighted through the June 2017 CHATTER event. Collaboration Highlighting Autism through Technology for Emotional Regulation (CHATTER) is a new, two-day symposium and design challenge to engage autism spectrum stakeholders, supporters, and researchers. This event was inspired by the research of Matthew S. Goodwin, PhD, through his Computational Behavioral Science Lab (CBSL) to develop and showcase technology around autism, as well as the desire of the Dandurand family to increase autism awareness.

John Webb Lectureship Endowed

The John W. Webb Lecture Award Program was established in 1985 to recognize pharmacy practitioners or educators’ who have shown extraordinary dedication to fostering excellence in pharmacy management. The lectureship honors John W. Webb, who was the director of the graduate program in hospital pharmacy at Northeastern and the director of pharmacy at Massachusetts General Hospital.

As of Fall 2016, the lectureship reached endowed status, and the program will now continue in perpetuity, with special thanks to the many
alumni and friends, including past Webb Lecture Award recipients and Webb family members, who have donated generously to make this possible.

**NU Faculty Member Gives Back**

Judith Barr, professor emerita, School of Pharmacy, and her husband Jim have made a gift aimed at building community at the NU School of Pharmacy. Citing the generous University policy by which NU matches faculty contributions to their retirement accounts, Professor Barr chose to thank the University by returning a major part of the first year’s retirement distribution to the School of Pharmacy. Through this donation, Judy and Jim hope to inspire faculty to give back to the institution that is shaping the expertise, values, and professionalism of pharmacy students so that they can contribute to health improvement at both the individual and public health levels. Through their gift, they will fund programs to create a sense of community within the School of Pharmacy, between its two departments, and among the faculty.

**School of Pharmacy Lectureship to Focus on Policy Issues in Medicine and Law**

To navigate the frequent changes that affect their profession and practice, pharmacy students and alumni must stay knowledgeable about current policies in medicine and law. Dr. David Benjamin, friend of the School of Pharmacy, has funded a lectureship on public policy issues around medicine and law. This lecture will attract thought leaders and accomplished practitioners in the pharmacy area to Northeastern for informative and inspiring conversations with students, faculty, and parents about current trends and new policies in pharmacy medicine and law. The goal of this lecture is to impart specialized knowledge on students, pharmacists, and those interested in pharmacy to keep abreast of pharmacy policy changes and use their expertise in the field for the greatest good.

**Anonymous Donor Pledges $50,000 Challenge Gift for Nurse Innovation and Entrepreneurship**

Nurses and health care professionals throughout the nation now have a new avenue to efficiently and effectively turn their innovative ideas for changing and improving patient care and services into a reality. School of Nursing Dean Nancy Hanrahan, PhD, RN, FAAN, is leading the way in training nurses and health care leaders across the globe to help bring their ideas to fruition through a variety of conferences, hackathons, mentoring opportunities, and certificate programs. A generous donor sees the potential impact of Dean Hanrahan’s vision and has offered a dollar-for-dollar match up to $50,000. Friends of the program Arnold Friedman and Nancy Nager, as well as alumna Ann Corcoran, N’86, have already joined the challenge with contributing gifts. To participate or for more information, contact Kathy Cotter at (617) 373-2637 or k.cotter@northeastern.edu

Launching the second year of the Nurse Innovation program are:

Front row: Arnold Friedman, Rebecca Love, NP’08, Dr. Marybeth Pompei, School of Nursing Dean Nancy Hanrahan, Chris Ford, DMSB’73, Kathy Cotter

Back row: Kevin Scanlon, Julie Norton, Interim Dean John R. Reynolds, Isabel Cunha-Vasconcelos, Craig Johnson, Hoda Sayed-Friel, BHS’80, Ann Corcoran, N’86, Mary Manning

[Image of a group of people]
When Rachel Rodgers, PhD, thumbs through women’s magazine, she is irritated by the contradictions within. The articles often tout the importance of female empowerment and body positivity, but the ads are a different story.

“The magazines are advertising weight loss products and other merchandise, using images of stereotypically ultra-slim models,” says Rodgers, an associate professor of applied psychology at Northeastern. “Corporations are getting rich off promoting women’s insecurities about their bodies.”

Rodgers’ research takes place at the fertile intersection of media imagery and body perception. She seeks to answer questions such as: How do photographs of idealized bodies alter our self-perception? How do these images affect behavior like eating and exercising? And how can society combat the pernicious effects of these unrealistic representations of women? (Although Rodgers’ research mostly focuses on women, men are subjected to some of the same pressures.)

It comes as no surprise that when we view photos of idealized bodies, our gaze turns back to ourselves.

Research has clearly established a strong link between body image and eating disorders and, for Rodgers, the stakes couldn’t be higher. “Eating disorders are one of the psychiatric disorders with the highest rates of mortality and morbidity; the health consequences are huge,” she says. Poor body image is also linked to depression, decreased physical activity, and unhealthy eating behaviors, which all contribute to overall health, she adds.

Rodgers and her Bouvé research team are now engaged in a multi-year study examining the impact...
of altered and unaltered media images on young women’s views of their own bodies. The investigation looks at the differences in body perception between a cohort of young women who viewed lingerie ads from a company called Aerie (a division of American Eagle Outfitters) whose new campaign, Aerie Real, features models whose photographs had not been retouched and another group that viewed images from Aerie’s previous campaign that had been airbrushed to make them look thinner, smoother, and more “perfect.” Rodgers believes it’s the first study to examine the impact of an actual ad campaign. The quantitative part of the study was recently published in the prestigious Journal of Health Psychology.

The study found that women who saw the retouched images reported a greater decrease in body satisfaction than the women who viewed the unmodified photographs, particularly if they reported comparing their appearance to that of the models. Rodgers and her collaborators delved more deeply by conducting focus groups, asking participants questions such as whether they would be more likely to buy lingerie from Aerie because of its Photoshop-free ad campaigns. “If this is a viable business strategy, you want to be able to tell companies this,” explains Rodgers. This qualitative part of the study is still being analyzed.

An Intriguing Disconnect

Rodgers was born in London to English parents, and when she was 10, her family moved to a rural region of southwestern France. Her interest in how the media affects our sense of self began as a teenager. She was struck by how little the photographs she saw in magazines resembled the people around her. “They didn’t look like the magazine images, and they didn’t seem to worry about their appearance.”

It would be years later, when she was a graduate student at the University of Toulouse in France, that Rodgers began examining the sociocultural influences that shape body perception—including the media—through a critical feminist framework. And that framework resonated deeply with her. “I began asking questions like, ‘Why are we being sold these images?’ ‘Who is selling them?’ ‘Who is profiting?’ ‘Who is not?’” she recounts. She was off and running.

International Research Scope

Rodgers came to the U.S. in 2010 to do postdoctoral training on a Fulbright fellowship with Debra Franko, PhD, professor of applied psychology, an eating disorders researcher and NU’s vice provost for academic affairs. Rodgers joined the Bouvé faculty in 2011 as a visiting professor and then became an associate professor in 2013. Her international background has put her research team, APPEAR (Applied Psychology Program for Eating and Appearance Research), in an ideal position to collaborate with investigators throughout the U.S. and abroad, including in France, Australia, Sweden, Japan, and Canada.

APPEAR is involved in a longitudinal study in Australia examining the body attitudes of children between ages two and six. “By three, they’re certainly aware of body image,” comments Rodgers. Her lab is also participating in a multi-country study that compares body perceptions of men in the U.S., Sweden, Britain, and Australia. “In recent years, there’s been a shift toward men’s bodies being...
“There’s an enormous amount of time and energy spent on looking the ‘right’ way that could be put toward so many more important things, like changing the world.”

increasingly objectified and men feeling pressure to look a certain way,” explains Rodgers. “But we don’t know as much about male body image as we do about female, and this study seeks to capture what’s going on with young men.”

Rodgers is fascinated by how issues of appearance play out differently from culture to culture. For example, her team has explored some of the same research questions with Latina and black women and found variations in the traits that people find central to appearance. “Black women talk about the importance of facial features—skin tone, hair, and things like that, with Eurocentric features being most desirable,” she says. Interestingly, Latina women often point to the impact of family members’ attitudes on self-image. “They talk about getting lots of messages from family about how they should look, and there can often be generational and acculturation differences in terms of opinions.”

Translational Research
Understanding the sociocultural factors that influence body image is critical to Rodgers’ scholarship, but her work ventures far beyond academia. She has begun working with a Harvard University eating disorders researcher, S. Bryn Austin, ScD, to evaluate whether legislation that forbids the fashion industry from employing excessively thin models is an effective strategy.

A 2015 French law, for example, requires models to have a medical certificate verifying a minimum body mass index. Israel has a similar law, and countries like Spain and Italy discourage overly thin models through their fashion industries’ voluntary efforts. As part of their research, Rodgers and Austin are surveying and interviewing models, photographers, fashion editors, and other stakeholders about these legislative efforts.

Social media is a relatively new research frontier for Rodgers and her team—and one that’s ripe with possibilities. “It’s an intensely visual medium, and there’s so much peer feedback from people you know and don’t know,” explains Rodgers. “That feedback can be very emotionally impactful and move you to engage or not engage in certain behaviors.” She has launched a new project with Bouvé doctoral student Alice Lowy and 2016 Miss Ohio Alice Magoto that assesses the value of “stamping” Instagram photos of women that have not been altered (see sidebar).

Rodgers believes her research is relevant to many women and men, not just those who engage in unhealthy behaviors in pursuit of the “ideal” physical form. “There’s an enormous amount of time and energy spent on looking the ‘right’ way that could be put toward so many more important things, like changing the world.”

Stamping Out Photo Manipulation
This year’s Miss Ohio, Alice Magoto, had an idea. What if she created a stamp to show that an online photograph has not been filtered or altered, then tried to start a social media movement to combat unrealistic depictions of female beauty? Would it catch on? Make a difference? Now Magoto, 18, is trying to answer the first question, and a pair of Bouvé researchers are trying to answer the second.

Magoto’s “100% Un-Edited” stamp graces the photos of several hundred images of women on her website. Women of all ages upload their photos and stamp them. When Magoto learned about Rodgers’ similar interests, she reached out and a collaboration was born.

One of Rodgers’ doctoral students, Alice Lowy, began a crowdfunding effort to raise $4,500 to underwrite a research study that will examine the results of Magoto’s campaign. The money will be used to compensate 300 research participants with $15 gift cards.

“It’s a unique opportunity to work with Alice—who, as a beauty pageant winner, has a very different perspective on these issues,” says Lowy. “It will be fascinating to assess what kind of an effect these stamped photographs have on young women.”

The mobile site for donations to the project can also be accessed by texting APPEAR to 71777.
Bouvé Updates

Yudit Bolotovskaya, SLP’17, who was born in Israel, has been a counselor and now a program director to the Boston-Sderot Project and uses her skills as a graduate clinician in speech language pathology to implement new activities and communication skills with the children.

SCHOOL OF PHARMACY

ReThinkDrink NEU

Kendall Donohoe, PharmD’17, Gina Lee, PharmD’17, Heeseon Yeon, PharmD’17, Youmna Hassan Mahmood, PharmD’19

Over the past year, the Northeastern’s School of Pharmacy has collaborated with the Boston Public Health Commission (BPHC) to implement a component of its three-year grant, “Let’s Get Healthy, Boston!” from the Centers for Disease Control and Prevention (CDC) to reduce obesity in Boston. The School of Pharmacy has led a campus-based component of this project, “ReThinkDrink NEU,” to encourage the use of non-sugary drinks, thus reducing caloric intake and ultimately obesity. Also in collaboration with the Northeastern Office of Sustainability, pharmacy students have promoted “ReThinkDrink NEU” and encouraged the consumption of water in place of high-sugar beverages, especially from the 190 filtered water stations on campus. Activities have included active outreach displays at Earth Day, Sustainability Day, and Bouvé Health Day where pharmacy students have collected over 500 recommendations from 375 individuals as to where additional filtered water dispensers should be placed. In October, pharmacy students distributed 300 “ReThinkDrink NEU” water bottles at the Bouvé Health Fair.

Northeastern University PA Program (NUPA) Back-to-Back Massachusetts Medical Challenge Bowl Champions

The Massachusetts Association of Physician Assistants (MAPA) hosts an annual medical challenge bowl where PA schools from all over the state compete for the title. The event is hosted in a quiz bowl style with three students per team and one team per school. Currently, there are eight PA schools accepting enrollment and one seeking provisional accreditation. The questions test students on a variety of subjects, such as physical diagnosis, anatomy, cardiology, emergency medicine, neurology, surgery, obstetrics, women’s health, and pulmonology.

Northeastern’s PA Program (NUPA) has fared very well, taking home the state title in three of the past four competitions. They will send a team to compete at the National Medical Challenge Bowl in May 2017 hosted by the American Academy of Physician Assistants (AAPA) at the national conference in Las Vegas.
The National Medical Challenge Bowl has nearly 100 participating teams and is attended by over 2,000 students from across the country. Best of luck to the 2017 team at the national event!

**Upcoming Events**

- **February 6 & 13**
  Annual Beanpot Hockey Tournament, TD Garden

- **February 15 @ 6:00 p.m.**
  Northeastern University Happy Hour & Networking Event in San Antonio, TX

- **February 21**
  Northeastern Circuits: Navigating the Challenges and Rewards of Caregiving with School of Nursing Dean Nancy Hanrahan in Boca Raton, FL (Location: TBD)

- **February 23 @ 1:05 p.m.**
  Red Sox vs. Huskies, JetBlue Park – Fort Myers, FL

- **March 8 @ 4:00 p.m. to 6:00 p.m.**
  Northeastern University Happy Hour & Networking Event at The Waterfront Inn, The Villages, FL

- **March 14 @ 11:30 a.m.**
  Pharmacy Scholarship and Awards Luncheon, Curry Student Center Ballroom

- **March 24, 25, 26**
  Nurse Hackathon: Nurses Hacking Health Care, Northeastern campus

- **March 30**
  Department of Health Sciences Celebrates 10 Years with Keynote Speaker John Auerbach, President and CEO, Trust for America’s Health, Northeastern Visitor Center

- **April 25**
  School of Pharmacy Lectureship: Medical and Legal Public Policy (Location: TBD)

- **May 1**
  Nurse Innovation Shark Tank, Northeastern campus

- **May 4**
  Bouvé College of Health Sciences Convocation, Northeastern campus

- **May 5**
  Northeastern commencement, TD Garden

- **June 9 & 10**
  CHATTER (Collaboration Highlighting Autism through Technology for Emotional Regulation) Symposium and Design Challenge, John D. O’Bryant Center

For more information about any event, please contact Alex Gicas at (617) 373-4242 or a.gicas@northeastern.edu.

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**PHYSICAL THERAPY, MOVEMENT AND REHABILITATION SCIENCES (PTMRS)**

**Master’s Degree in Occupational Ergonomics and Health Is Launched**

A new master’s degree that will focus on workplace prevention approaches for work-related musculoskeletal disorders and injuries and health promotion has been introduced, and we will begin accepting students this spring. This is the only degree program that combines ergonomics with health promotion, policy, and organizational ergonomic factors. Leading the master of science degree in occupational ergonomics and health will be Lauren Murphy, DMSB’09, PhD, an industrial and organizational psychologist. Dr. Murphy, who will serve as the program director, joins us from Safety

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**COMMUNICATION SCIENCES AND DISORDERS**

**Dr. O’Neil-Pirozzi Travels to Uganda**

Dr. Therese O’Neil-Pirozzi, CCC-SLP’81, ScD recently returned from a one-month Northeastern University Dialogue of Civilizations trip with 14 Northeastern students to Uganda. While in Uganda, Dr. O’Neil-Pirozzi and the students engaged in research, service, and cultural exchanges with Ugandans throughout the country and had up-close experiences with the wildlife. Dr. O’Neil-Pirozzi collaborated with Titi Pamela Kakonge, founder and CEO of the Tunaweza Children’s Centre, where everyone provided service. Dr. O’Neil-Pirozzi reflects that “the knowledge and skills that the students developed will have a long-lasting positive impact on them personally and professionally.”

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**From Boston to Sderot**

In 2000, Sderot, a small city in Israel, was the target of missiles from terrorist attacks, and many of the children living in these conditions developed serious emotional
disorders as a result. To help children heal from their trauma, teach coping skills, and provide unconditional support, a 10-day visit is arranged every summer through the Boston-Sderot Project. Yudit Bolotovskaya, SLP’17, who was born in Israel, has been a counselor and now a program director to the Boston-Sderot Project and uses her skills as a graduate clinician in speech language pathology to implement new activities and communication skills with the children. Read more about the Boston-Sderot Project by visiting http://rjcf.com/SderotJournal/.

**APPLIED PSYCHOLOGY**

Academic success? Dating? The latest beauty tips? Stress management? We’ve got the answers

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**Learn more in the Department of Applied Psychology**

The Department of Applied Psychology houses dynamic research teams whose goal centers on the translation of knowledge to improve the physical and mental health in individuals and communities. Projects focused on young children include the importance of play for learning (Dr. Karin Lifter, Dr. Emanuel Mason) and how families promote healthy eating and physical activity to prevent obesity (Dr. Jessica Hoffman).

Researchers examine how schools support students’ academic and social functioning (Dr. Amy Briesch, Dr. Robert Volpe), students’ progress through high school exit exams (Dr. Louis Kruger, Dr. Chieh Li), and the experiences of English language learners (Dr. Chieh Li). Projects focused on adolescence embrace the development of body image and establishment of positive eating and exercise behaviors (Dr. Jessica Edwards George PhD’07, MS’02, Dr. Debra Franko, Dr. Rachel Rodgers), forming positive relationships (Dr. Christie Rizzo), supporting individuals with autism (Dr. Nicole Davis, Dr. Laura Dudley MS’97), and how siblings engage one another (Dr. Laurie Kramer).

Other projects include helping people to engage in sustainable and healthy behaviors through projects that focus on: mindfulness (Dr. Mariya Shiyko), motivational interviewing (Dr. Christina Lee) and the examination of processes of behavioral change (Dr. Changiz Mohiyeddini). Researchers attend to the intersection of visible and non-visible identities (Dr. Tracy Robinson-Wood) and use large-scale data sets to address health variables (Dr. Emanuel Mason).

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**Student Profile: Kathrin Lozah**

**Innovation is a direct result of passion.**

That was a lesson University Scholar Kathrin Lozah, HS’18, learned over and over during her co-op experience at the John A. Hartford Foundation, a philanthropic organization focusing on improving the care of older adults.

Lozah, who immigrated to the U.S. from Egypt with her physician parents at age two, saw that connection embodied in the work of foundation president Terry Fulmer, PhD, RN, FAAN, a former Bouvé professor and college dean. “Witnessing the fervor and zeal of the staff at the foundation showed me that when there is a will, there is most certainly a way,” says Lozah.

At the foundation, Lozah assisted with research and grant applications and even contributed to an article that was published in the Journal of Aging Life Care this past summer. She is pursuing a bachelor’s degree in health sciences to help her “understand the health care system as a whole and be a better provider to patients,” she says. Long term, she’d like a career that combines law and public health.
known as formularies. Drug makers would then be incentivized to offer better prices to ensure their medications show up on the formularies. And because plans need to be competitive, it’s likely they would pass the resultant savings to consumers. Each of these ideas tilts the balance of market power toward consumers and away from manufacturers, a necessary step to obtain lower prices, but a strategy that would also constrain innovation. Given the level of public outrage over rising drug prices, however, the time for this kind of reform may have arrived.

There are no simple solutions to the problem of skyrocketing drug costs, and each of the solutions cited above has its shortcomings. While many of us may not personally feel the impact of high drug prices, all of us will eventually be affected through increased health insurance premiums, deductibles, and other forms of cost sharing, if the cost trajectory continues unchecked.

Remember when the price of EpiPens, lifesaving treatments for severe allergic reactions, soared from about $50 a dose to $300 last year? The ensuing uproar followed a familiar script. Congress and others launched investigations into EpiPen maker Mylan’s pricing practices, with renewed calls for regulation. Mylan fired back that it makes huge financial investments in research and development and that price regulation will stifle drug discovery. The company eventually agreed to enhance discounts for patients who have trouble paying and to begin selling a less expensive, generic version of the drug, which reverses the sometimes deadly symptoms of anaphylaxis.

The EpiPen — which was invented by NU alumnus Sheldon Kaplan, E’62 — is a dramatic example of pharmaceutical price hiking. But an arguably thornier problem is high medication costs in general, affecting a broad range of patients every single day. During the past two years, prescription medication prices in the U.S. have increased an average of 11 percent while nationally overall health care costs have risen only three percent. Why the disconnect?

Factors driving the high cost of medications are complicated, but chief among them is that U.S. drug manufacturers set their own prices, which isn’t the same in most countries. Also, it’s not uncommon for pharmaceutical companies to exploit loopholes in patent rules to keep competitors at bay. So, from a public policy perspective, what can be done about high medication prices?

First, in cases like EpiPen, we need to continue pressuring the federal Food and Drug Administration (FDA) to accelerate approval of generic drug products, copies of brand-name drugs that generally are more affordable. While in recent years, the FDA has dedicated additional resources to lessen the wait list for generic drug approvals, as of July 2016, there was still a backlog of 4,036 generic drug applications, according to the Generic Pharmaceutical Association. Unfortunately, the impact of accelerating the approval of generic drugs on overall prices would be modest because generic manufacturers still have to wait 20 years for patents to expire on each brand-name drug before they can begin the application process. But it’s a start.

A broader solution involves the Centers for Medicare and Medicaid (CMS), which is now forbidden from directly negotiating prices on behalf of Medicare beneficiaries. (Only individual Medicare prescription drug plans are permitted to bargain with drug makers. But because each represents just a fraction of Medicare patients, their negotiating power is diluted.) If CMS, with its substantial purchasing power, were allowed to negotiate directly with drug makers, prices would surely be substantially lower. Some 83 percent of Americans favor this solution, according to the Kaiser Family Foundation.

Another approach would enhance the purchasing power of Medicare drug plans by permitting them to limit the number of products on their lists of covered drugs, known as formularies. Drug makers would then be incentivized to offer better prices to ensure their medications show up on the formularies. And because plans need to be competitive, it’s likely they would pass the resultant savings to consumers.

Each of these ideas tilts the balance of market power toward consumers and away from manufacturers, a necessary step to obtain lower prices, but a strategy that would also constrain innovation. Given the level of public outrage over rising drug prices, however, the time for this kind of reform may have arrived.

There are no simple solutions to the problem of skyrocketing drug costs, and each of the solutions cited above has its shortcomings. While many of us may not personally feel the impact of high drug prices, all of us will eventually be affected through increased health insurance premiums, deductibles, and other forms of cost sharing, if the cost trajectory continues unchecked.

Tayla Rose, PharmD, Assistant Clinical Professor, Department of Pharmacy and Health Systems Sciences
Steven Pizer, PhD, Associate Professor of Health Economics, Department of Pharmacy and Health Systems Sciences
Gary Young, JD, PhD, Director of Center for Health Policy and Health Care Research, Professor of Strategic Management and Health Care Systems, Department of Health Sciences
HSE ventures receive hands-on mentoring from successful professionals with relevant experience, who guide ventures through the startup adventure.

Health Science Entrepreneurs promotes entrepreneurship in health care innovation to the Northeastern community and assists Northeastern graduate students, faculty and alumni health care start-ups to be successful through specialized education and hands-on mentoring.

As a Venture

HSE ventures receive hands-on mentoring from successful professionals with relevant experience, who guide ventures through the startup adventure.

As a Mentor

HSE mentors share their relevant expertise and best practices in a formalized program. Mentor benefits include access to the HSE mentor network and University-wide entrepreneurial ecosystem.

If you have an innovative idea in health care you’d like to explore, contact Julie Norton at j.norton@northeastern.edu.

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