OUR MISSION

“Our students’ success is our greatest success — and our lasting legacy.”

JEAN ZU
Dean, Charles V. Schaefer, Jr.
School of Engineering & Science
At Stevens, our reputation as a fast-rising engineering and science school is founded on our ability to empower students to become future leaders in their fields — by offering the best possible educational experience and opportunities, providing them with the knowledge and tools necessary to confront the evolving challenges of a technology-driven world, and furthering their professional success.

Stevens students have the distinct advantage of learning from some of the most respected academic leaders in the country — and the world. We offer more than 40 graduate programs with a quality curriculum across a broad range of engineering and science disciplines. Our welcoming environment provides the support our students need to thrive.

The Schaefer School of Engineering and Science is actively supporting our student learning experiences by expanding interdisciplinary research initiatives in our foundational pillars, including:

- Taking the lead in AI, machine learning, cybersecurity, and data science
- A unique emphasis on quantum communications technologies
- Life-changing medical research findings, from new ways to rehabilitate stroke victims to treating Parkinson's disease more effectively
- Resiliency engineering leadership to help flood zones cope with extreme weather and coastal emergency forecasting
- Nanotechnology solutions to energy efficiency, solar-cell design, fuel-cell design, and more

Our commitment to educational excellence and student centricity has propelled the Schaefer School's tradition of incubating technological innovation for 150 years. We look forward to your contribution to our legacy, upward momentum and future success.

Jean Zu
Dean, Charles V. Schaefer, Jr.
School of Engineering & Science
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Steam to STEM</td>
<td>4</td>
</tr>
<tr>
<td>Preparing Tomorrow's Innovators Today</td>
<td>6</td>
</tr>
<tr>
<td>A Commitment to STEM Excellence</td>
<td>8</td>
</tr>
<tr>
<td>Department of Biomedical Engineering</td>
<td>10</td>
</tr>
<tr>
<td>Department of Chemical Engineering &amp; Materials Science</td>
<td>12</td>
</tr>
<tr>
<td>Department of Chemistry &amp; Chemical Biology</td>
<td>14</td>
</tr>
<tr>
<td>Department of Civil, Environmental, &amp; Ocean Engineering</td>
<td>16</td>
</tr>
<tr>
<td>Department of Computer Science</td>
<td>18</td>
</tr>
<tr>
<td>Department of Electrical &amp; Computer Engineering</td>
<td>20</td>
</tr>
<tr>
<td>Department of Mathematical Sciences</td>
<td>22</td>
</tr>
<tr>
<td>Department of Mechanical Engineering</td>
<td>24</td>
</tr>
<tr>
<td>Department of Physics</td>
<td>26</td>
</tr>
<tr>
<td>Research Is at the Heart of What We Do</td>
<td>28</td>
</tr>
<tr>
<td>Foundational Research Pillars and Labs</td>
<td>30</td>
</tr>
<tr>
<td>A Legacy of Inspiring Innovation</td>
<td>32</td>
</tr>
<tr>
<td>Welcome</td>
<td>33</td>
</tr>
<tr>
<td>Degree Programs</td>
<td>34</td>
</tr>
<tr>
<td>Certificate Programs</td>
<td>36</td>
</tr>
</tbody>
</table>
The Stevens legacy of ingenuity began with its establishment in 1870 by the family of notable inventor Edwin A. Stevens, whose ingenuity powered a young nation with revolutionary designs for steamboats and locomotives.

Today, as one of the world’s preeminent research universities — and the third-fastest rising university in the nation — Stevens leverages this proud history of technological discovery to pioneer promising, practical solutions to the world’s most pressing problems. Our University is committed to preparing the next generation of leaders and agents of change who will make the world a better place.

The challenges facing today’s scientists and engineers often cross boundaries between two different areas — whether between engineering and science or fields within individual disciplines. We recognize this by fostering a proactive, interdisciplinary environment that encourages results-driven research collaboration among academic colleagues and influential industry and government agency research partners.

Four distinguished schools established on a premise of technology — the Charles V. Schaefer, Jr. School of Engineering and Science; the School of Business; the School of Systems and Enterprises; and the College of Arts and Letters — embody our conviction that an interdisciplinary approach to technology and research will provide original solutions in fields ranging from biomedical engineering and artificial intelligence to business, finance, and art.

By housing science and engineering in one school, Stevens’ flagship School of Engineering and Science offers students a complete STEM package.

Internationally celebrated faculty members, cutting-edge labs, research centers and facilities, and proximity to Manhattan fuel new discoveries that reimagine and reshape the future.
in the Percentage of Doctoral Degrees Awarded to Women by School in 2017 (American Society for Engineering Education (ASEE))
among the 30 Best Online Master’s Degrees in Computer Science (Best Computer Science Schools, 2020)
in the nation for Best Online Graduate Engineering Programs (U.S. News & World Report, 2021)
for the number of engineering master’s degrees awarded in 2017 (American Society for Engineering Education (ASEE))
best civil engineering program in the nation (Interesting Engineering magazine, 2018)
in the nation for Best Online Graduate Computer Information Technology Programs (U.S. News & World Report, 2021)
among the best online master’s degrees in Computer Science (College Choice, 2020)
in the nation for master’s student-to-faculty ratio (U.S. News & World Report, 2018)
The Charles V. Schaefer, Jr. School of Engineering and Science is a global leader in training a new generation of scientists and engineers who will create viable market solutions to pressing societal challenges. These leaders discover, devise, and develop the pioneering, workable solutions that ultimately support positive transformative change.

The school’s nine departments and more than 40 graduate programs are structured to meet the demands of an evolving global workplace through up-to-the-minute curricula, invaluable opportunities for hands-on research, experimentation and discovery, and adept instruction, mentorship, and guidance by professors who are preeminent experts in their fields.

School of Engineering and Science researchers lead several of Stevens’ nationally recognized interdisciplinary research centers and laboratories, including two newly formed centers — the Stevens Institute for Artificial Intelligence and the Center for Quantum Science and Engineering — as well the Maritime Security Center, one of Stevens’ two National Centers of Excellence.

Stevens’ location across the river from New York City — a leading global technology and corporate hub — facilitates professional networking. School of Engineering and Science graduates meet industry-specific demand for highly trained, top-quality employees.

**WE TAKE PRIDE IN OFFERING:**
- World-class professors that include top industry professionals and thought leaders who come to campus to share their expertise
- A robust research enterprise supported by funding from national agencies such as the NSA, the National Institutes of Health, the National Science Foundation, the U.S. Department of Defense, and the U.S. Department of Energy
- Opportunities to participate in industry, government, and academic partnerships
- An environment that nurtures ingenuity and entrepreneurship
- Flexible options for full-time, part-time, on-campus, online, or on-site learning
- A powerful alumni network
- Support and guidance from our award-winning Career Center to help meet career goals
The above icons indicate foundational research pillar categories. Each research project cited throughout this brochure is labeled with a corresponding pillar to showcase the breadth of research in the School of Engineering and Science. Full descriptions of the Schaefer School research pillars are available on page 29.
A COMMITMENT TO STEM EXCELLENCE

Uniquely combining science and engineering disciplines to offer a complete STEM package in one school, the School of Engineering and Science builds on a legacy of designing globally impactful technological solutions to societal concerns.

As a School of Engineering and Science graduate student, you’ll receive a comprehensive grounding in the fundamental principles of engineering and science, as well the opportunity to explore your passions with deep dives into critical science, engineering, and technology disciplines.

Preeminent experts in their fields, our professors will train you in the critical thinking, global outlook and foundational knowledge that will guide your pursuit of original research and discovery that transforms challenge into opportunity.

We continually strengthen our vibrant heritage of academic leadership and leading-edge research by focusing on key strategic pillars that:

- Educate students with broad-based, interdisciplinary training that leads to personal and professional success
- Foster a robust research enterprise characterized by top quality scholarly productivity and impact
- Support a diverse group of faculty members who are inspiring educators, effective research leaders, and influential innovators
- Instill an innovative and entrepreneurial mindset into future engineers and scientists
- Enhance our reputation for leadership by maintaining a culture of excellence in all that we do

The online Construction Management program is exactly what I need to get my skills up to par and get me back where I belong in the workforce.”

ALISON KALMAN
M.S. Construction Management

STEVENS PROUD

We’re looking for technology leaders and innovators to join our honor roll of illustrious alumni.

- Frederick Reines — Nobel Prize winner for the discovery of neutrinos
- Charles Stewart Mott — Co-founder of General Motors
- Eugene McDermott — Founder of Texas Instruments
- Aron Cohen — Director of NASA
- Alexander Calder — Artist who perfected the mobile
- Mark Crispin — Inventor of IMAP (Internet Message Access Protocol)
- Charles Walton — Developed first Radio Frequency Identification Device, or RFID
- Beatrice Hicks — Founder of the Society of Women Engineers
- David Farber — Internet pioneer and Internet Hall of Fame inductee
Technology and advancement are at the core of the School’s nine departments and more than 40 academic programs.

Intensive departmental curricula foster a fundamental and comprehensive understanding of engineering that is amply supported by invaluable opportunities for original research and experiential learning in areas that reflect your particular interests.

In addition to our full-time professors who are globally recognized scholars and researchers, you will study and network with adjunct professors who are top professionals and acknowledged industry leaders in their fields. Uniquely designed courses let you create your own interdisciplinary concentration and explore your individual interests across the school.

We draw on the resources of a network of faculty members, advisors, alumni, fellow students, and Career Center professionals to foster and support student and post-graduate success. Students additionally enjoy the welcoming “home-away-from-home” environment and support of departmental graduate student societies.

**LEADING-EDGE DEPARTMENTS**

- Biomedical Engineering
- Chemical Engineering & Materials Science
- Chemistry & Chemical Biology
- Civil, Environmental, & Ocean Engineering
- Computer Science
- Electrical & Computer Engineering
- Mathematical Sciences
- Mechanical Engineering
The Department of Biomedical Engineering's (BME) wide-ranging, flexible graduate degree and certificate programs in bioengineering and biomedical engineering empower career success in the biotechnology, pharmaceutical, medical device, and life sciences industries, as well as in academic, research, clinical and regulatory institutions. Department graduates are well-prepared to further their studies in medical, dental, veterinary and other professional schools.

An entrepreneurial culture fosters the investigation of new technologies from concept to commercialization, with a focus on nanotechnology and on advancing biomedical technology and healthcare delivery. You’ll collaborate with our visionary, interdisciplinary faculty members and leading industry research partners to develop, test, and model new devices in more than a dozen state-of-the-art laboratories, including Stevens’ university-wide Center for Healthcare Innovation, which focuses on drug discovery and tissue engineering. Design-driven programs give you the tools you need to meet your professional goals — and assume leadership roles — in dynamic fields ranging from tissue engineering to bioinstrumentation.

You’ll be able to both build your professional network in nearby New York City — a global hub for pharmaceutical, medical research, and technology — and also explore career opportunities in New Jersey’s booming medical and pharmaceutical industries.

**STEVENS GOES TO WORK**

**TOP HIRING ORGANIZATIONS INCLUDE:**
- Merck
- Celgene
- Bristol-Myers Squibb
- Sloan Kettering Institute
- Regeneron
- Weill Cornell Medicine

**DEGREE PROGRAMS**

Bioengineering, M.S.
Biomedical Engineering, M.Eng, Ph.D.
HELPING PARALYZED HANDS MOVE

I was an Innovation and Entrepreneurship doctoral fellow,” Patel explains. “In the I&E program they encourage you to think bigger and do more with your research.”

VRAJESHRI PATEL
Ph.D. Biomedical Engineering

Biomedical engineering Ph.D. student Vrajeshri Patel studies how the brain controls complex hand movements. She and her team designed a glove outfitted with sensors and an EEG cap that tracked participants’ brain signals. The duo applied for a patent for this technology, which they hope to develop further with commercial funding.

UNDERSTANDING HOW BREAST CANCERS GROW

Stevens’ researchers have gained a new understanding of how breast cancers grow and metastasize. Research by biomedical engineering professor Hongjun Wang and a team of graduate students suggests that altering the “local environment” of solid breast cancer tumors could hold the key to halting their spread. It’s an insight that Wang thinks could apply to other solid tumor cancers such as prostate or pancreatic cancer.

EXCELLENCE REWARDED

BME ASSISTANT PROFESSOR ANTONIA ZAFERIOU
was selected by the National Institutes of Health (NIH) for an Interdisciplinary Rehabilitation Engineering Research Career Development Award in movement and rehabilitation sciences.

BME ASSOCIATE PROFESSOR CARRIE PERLMAN
was selected to serve on the NIH-Respiratory Integrative Biology and Translational Research Study Section for a four-year term. She will help review grant applications submitted to the NIH, make recommendations on these applications to the appropriate NIH national advisory council or board, and survey the status of research in her field.

LEARN MORE: stevens.edu/sep/bme
Chemical and materials science engineers develop and improve the processes and products that we use every day. The Department of Chemical Engineering and Materials Science (CEMS) offers M.Eng. and M.S. programs in chemical engineering and materials science and engineering; Ph.D. programs; a chemical engineer professional degree; and graduate certificate programs that are career springboards for everything from manufacturing and design to research and development.

You’ll work alongside professors known for their expertise in high-demand fields such as alternative energy, biomaterials and tissue microenvironment, and nanomaterials assembly. You’ll design and develop new and practical solutions to issues that impact our society in on-campus, state-of-the-art research laboratories focusing on areas such as polymer processing, biopolymers, advanced chemical processing, alternative energy production, biofuels, tissue microenvironment, nanomaterials assembly and coatings, and microchemical systems.

Our convenient location just 15 minutes from downtown Manhattan fosters unlimited career potential by connecting you with networking and internship opportunities within academia and industry — including Fortune 500 companies.

DEGREE PROGRAMS

Chemical Engineering, M.Eng., Ph.D.
Materials Science and Engineering, M.S., M.Eng., Ph.D.
Nanotechnology, M.S., Ph.D. (Interdisciplinary)

RESEARCH SPOTLIGHT

USING NANOTECHNOLOGY TO DETECT INFECTIONS BEFORE THEY SPREAD

Materials science professor Matthew Libera and a team of graduate students are collaborating with top-ranked medical centers on research that could lead to a quick and effective test to identify bacterial and viral infections before they become life threatening.

EXCELLENCE REWARDED

CEMS graduate student Yiteng Zheng won the second place research award at the annual Catalysis Society of Metropolitan New York conference, which included students from 44 prestigious universities, including Rutgers, Princeton, Columbia, and NJIT.

STEVENS GOES TO WORK

TOP HIRING ORGANIZATIONS INCLUDE:

- Applied Materials
- Avon
- Bechtel
- MIT
- Naval Air Weapons Station China Lake
- Rudolph Technologies

LEARN MORE: stevens.edu/ses/cems
AN ONGOING EXPERIENCE

“Job-specific knowledge rarely falls in the category of a certain course or curriculum, and majors try to cover as many topics as possible, but I firmly believe few do this as well as Stevens. CEMS department professors were always proactive in sharing their research and interests with us.

“...The most important thing is that my experience with Stevens isn’t past tense: staying engaged as an alumnus, remaining in contact with professors and staff, and supporting the university in all that it does are paramount to me.”

OWEN JAPPEN
Alumnus Chemical Engineering, Industry Award Winner
An innovator from the start, the Department of Chemistry and Chemical Biology (CCB) at Stevens established the nation’s first undergraduate program in chemical biology in the 1970s. Today, we remain at the forefront of this field, offering master’s degrees in chemistry and chemical biology as well as Ph.D. programs in chemistry and chemical biology and six graduate certificates of special study.

Our programs, which are leading drug discovery exploration, offer interdisciplinary training, rigorous theoretical instruction, and invaluable mentorship and research opportunities. You’ll have access to our premier research labs and centers, where prominent professors will direct the hands-on experience that is so highly valued by today’s leading employers.

We help you build professional networks to meet your professional goals. Our location — just 15 minutes from downtown Manhattan and in the center of New Jersey’s pharmaceutical corridor — is ideal for networking.

Program graduates are ideally positioned for careers at the cutting edge of chemistry and chemical biology, from drug discovery and medicinal chemistry to materials science within academic, government and national labs, pharmaceutical and biotechnology companies, as well as legal and patent offices.

STEVENS GOES TO WORK

TOP HIRING ORGANIZATIONS INCLUDE:

- Celgene
- Merck
- Novartis
- Procter & Gamble
- Regeneron

A HISTORY OF PIONEERING INGENUITY

My current research focuses on elucidating the true intracellular nature of a prominent enzyme, the mutations of which are strongly implicated in cancer. I am extremely grateful to be in an environment that can give me the tools that I need to make discoveries.”

PATRICK DE PAOLO
Ph.D. Chemical Biology
CREATING NEW APPLICATIONS FOR ALTERNATIVE ENERGY TECHNOLOGIES

Computational and medicinal chemistry professor Yong Zhang believes that computational chemistry can fuel new discoveries. Working with the University of Illinois, Zhang is using quantum and computational chemistry to determine how the heme-copper oxidase protein — a molecule that every oxygen-breathing life form uses to survive — produces adenosine triphosphate (ATP). Since ATP stores energy, Zhang’s research will also help create new biomimetic alternate energy solutions.

EXCELLENCE REWARDED

Chemistry professor Athula B. Attygalle is the recipient of a 2017 Edison Patent Award from the Research & Development Council of New Jersey. The award honors his patented work in mass spectrometric analysis that uses helium-plasma and charge-exchange ionization techniques.

DEGREE PROGRAMS

Chemistry, M.S., Ph.D.
Chemical Biology, M.S., Ph.D.

LEARN MORE: stevens.edu/ses/ccb
Civil engineering has been an integral discipline at Stevens from the very beginning. Today, the Department of Civil, Environmental, and Ocean Engineering (CEOE) offers master’s degrees and doctoral degrees in civil engineering, environmental engineering and ocean engineering; master’s degrees in construction engineering and management, and sustainability management; as well as graduate certificates within five topic areas.

An outstanding group of scholars, researchers, and industry leaders will prepare you for professional success in dynamic fields seeking top-tier talent. Stevens’ proximity to New York City additionally provides ample access to networking and employment opportunities.

The department also facilitates student research by hosting the renowned Davidson Laboratory and the Center for Environmental Systems (CES). While the Davidson Lab is a global leader in delivering new knowledge and technologies for marine monitoring, forecasting, and experimental ship design and evaluation, CES assists industry, government and environmental service organization partners by providing research and testing services for the development and implementation of new environmental technologies.

**STEVENS GOES TO WORK**

**TOP HIRING ORGANIZATIONS INCLUDE:**

- Exxon
- Jilin Water Treatment Plant (China)
- Lockheed Martin
- Mitsubishi Heavy Industries
- National Oceanic and Atmospheric Administration (NOAA)
- U.S. Office of Naval Research

**GAINING ESSENTIAL KNOWLEDGE**

The Stevens Construction Management master’s program helped me earn amazing internship and job opportunities. It gave me knowledge I didn’t have before — how to clearly communicate the process of construction with project stakeholders in terms of needs, wants, risk management and problem-solving.”

JOHN DORIA
Alumnus Construction Management

**DEGREE PROGRAMS**

Civil Engineering, M.Eng., Ph.D.
Construction Engineering & Management, M.S., MBA (Dual Degree)
Environmental Engineering, M.Eng., Ph.D.
Ocean Engineering, M.Eng., Ph.D.
Sustainability Management, M.S., MBA (Dual Degree)
U.S. ARMY AWARDS $3.8 MILLION TO STEVENS RESEARCHERS TO MAKE BIOFUELS FROM MUNITIONS WASTE

Christos Christodoulatos, professor and director of the Stevens Center for Environmental Systems, received a sizable grant from the U.S. Army to convert recovered waste materials from U.S. Army facilities that make explosives into clean energy sources.

“Instead of spending between $8 million to $35 million on cleaning up these facilities, the United States is spending a fraction of the cost to fund the innovation of clean and sustainable technologies. It’s not a bad way to use taxpayer’s money.”

CHRISTOS CHRISTODOULATOS
Professor and Director, Stevens Center for Environmental Systems

EXCELLENCE REWARDED

Environmental engineering graduate student Nadira Najib — the recipient of Civil + Structural Engineering News magazine’s Rising Star award as well as a Young Civil Engineer of the Year award from the North Jersey chapter of the American Society of Civil Engineers — loves what she does.

“I don’t see myself doing anything else besides continuing to work in environmental engineering consulting. I love working with my clients to meet their goals while protecting human health and the environment.”

NADIRA NAJIB
Ph.D. Environmental Engineering

LEARN MORE: stevens.edu/ses/ceoe
Master’s degree programs in computer science, cybersecurity, machine learning, and media and broadcast engineering prepare graduates to lead the development and application of breakthrough computer science technology that shapes the modern information world.

In the Department of Computer Science (CS), you’ll have the flexibility to pursue research opportunities in dynamic, competitive fields ranging from cryptography, machine learning, and cybersecurity to visual computing, media production, and delivery. Working in exceptional facilities, such as the Stevens Center for the Advancement of Secure Systems and Information Assurance (CASSIA), with experts in the field who boast strong ties to industry, you’ll gain the knowledge and skills to fuel success in careers ranging from computer systems analyst and cloud architect to software engineer and forensics expert.

Stevens’ location, just minutes from many Manhattan Fortune 500 company headquarters and tech startups, connects you with networking and employment opportunities unavailable anywhere else in the country.

STEVENS GOES TO WORK

TOP HIRING ORGANIZATIONS INCLUDE:
- Federal Reserve
- Goldman Sachs
- Google
- IBM
- National Security Agency
- Visa

DEGREE PROGRAMS

Computer Science, M.S., Ph.D.
Cybersecurity, M.S.
Data Science, Ph.D. (Interdisciplinary)
Machine Learning, M.S.
Media & Broadcast Engineering, M.S.

STEVENS WHITE HAT Hackers Expose Holes in Browser Security

When cybersecurity researcher and professor Georgios Portokalidis successfully hacked Internet browser Mozilla Firefox and telecom server Asterisk, he revealed weaknesses in a common cybersecurity technique called address space layout randomization (ASLR). His research demonstrates for the first time that certain attacks can actually bypass ASLR, and that it’s easier to mount low-level attacks — like low-risk viruses and network probing — on programs than previously believed due to information disclosure issues within program structures.

EXCELLENCE REWARDED

CS department chair and professor Giuseppe Ateniese won the Institute of Electrical and Electronics Engineers (IEEE) ComSoc Communications & Information Security Technical Recognition Award for his work in cloud security.

CS Associate Professor Samantha Kleinberg was selected to serve on the National Institutes of Health (NIH) Biomedical Informatics, Library and Data Sciences Review Committee for a four-year term. She will help review grant applications submitted to the NIH, make recommendations on these applications to the appropriate NIH national advisory council or board, and survey the status of research in her field.

LEARN MORE: stevens.edu/ses/cs
Stevens has an impeccable reputation in technical industries, and I believe the knowledge and understanding I’m partaking in is second to none. The professors are extremely knowledgeable in what they teach. This has allowed me to learn much more than just what was taught in class. All the professors I had have one common theme: they want students to succeed.”

MARK WILSON
M.S. Cybersecurity
Master’s students in the Department of Electrical and Computer Engineering (ECE) have easy access to instruction, guidance, and mentorship by industry-leading researchers in modern facilities. Dynamic master’s degree programs in artificial intelligence for engineering, electrical engineering, and computer engineering; and doctoral and graduate certificate programs power successful careers in industry, business, government, and academia.

Each program is distinctly research driven, reflecting a primary departmental focus on areas such as signal processing; medical diagnostic systems; information security and forensics; embedded, real-time intelligent microelectronic systems; and networked information systems and applications. You will work alongside notable faculty members engaged in cutting-edge research projects funded by the National Science Foundation, Air Force Research Laboratory, Office of Naval Research, and private organizations.

Our applied artificial intelligence (AI) degree program joins the department’s widely recognized, interdisciplinary computer engineering and electrical engineering programs. It is one of the first graduate programs in the nation to specifically focus on AI applications for electrical and computer engineering. Access to state-of-the-art facilities such as our new Stevens Institute for Artificial Intelligence will ensure you are at the top of a rapidly evolving field.

Just 15 minutes from downtown Manhattan, Stevens’ location facilitates career networking with tech startups and industry leaders that are developing groundbreaking new technologies and recruiting top-level talent.

STEvens INSTITUTE foR ARTIFICIAL INTEllIGENCE (SIAI)

Engineering, business, systems, and design experts collaborate to address pressing global technology challenges. The Institute embodies Stevens’ commitment to leading the rapid exploration, research, analysis and practical application of AI and machine learning innovations.

AWARD-WINNING STUDENT WORKS TO SPOT EARLY SIGNS OF ALZHEIMER’S

In America, we have a large population of Alzheimer’s patients. We want to help all people at the beginning, when they feel slightly different.”

DORIS SOUTH
Ph.D. Computer Engineering

DEGREE PROGRAMS

Artificial Intelligence for Electrical & Computer Engineering, M.S., M.Eng.
Computer Engineering, M.S., M.Eng., MBA (Dual Degree), Ph.D.
Electrical Engineering, M.S., M.Eng., MBA (Dual Degree), Ph.D.
A NOVEL WAY TO SPOT FORMING SKIN CANCERS

National Science Foundation (NSF) CAREER award recipient and assistant professor Negar Tavassolian has developed a new way to use millimeter-wave technology in biomedical imaging applications for identifying skin cancers.

Tavassolian also performs additional research on radio frequency and microwave technologies, bio-electromagnetics, and micro-electromechanical systems with biomedical applications, including a project to develop a heart-rate and blood-pressure monitoring system using acoustic signals, radar, and accelerometer data.

EXCELLENCE REWARDED

CANADIAN ACADEMY OF ENGINEERING FELLOW

Noted wireless communications and cognitive radio researcher Professor Yu-Dong Yao was recently inducted as a new fellow in the Canadian Academy of Engineering. The Academy praised Yao as an “internationally recognized expert in data link and access protocol designs for satellite and cellular networks. For more than 25 years, he has made significant contributions to telecommunications systems, including developing advanced on-board processing technologies for the Canadian Department of Communications and the European Space Agency, as well as data link protocols for the Globalstar satellite system.”

Yao, who is also an Institute of Electrical and Electronics Engineering (IEEE) and National Academy of Inventors fellow, holds 13 U.S. patents and has published more than 150 research papers.

LEARN MORE: stevens.edu/ses/ece

Doctoral student Zongru Shao (publishing as Doris South) received the New Jersey Tech Council’s Rising Star in STEM award for her dissertation on artificial intelligence and mental health. Working with professors K.P. Subbalakshmi and Rajarathnam Chandramouli, she is collecting and analyzing linguistic data to help machines detect neurological disorders such as Alzheimer’s earlier and provide better treatment options.

RESEARCH SPOTLIGHT
DEPARTMENT OF MATHEMATICAL SCIENCES

Our master’s degree programs in actuarial science and quantitative risk, applied mathematics, data science, and mathematics provide you with the foundational skills, knowledge, and research expertise to prepare for professional success. The Department of Mathematical Sciences (MS) also offers a Ph.D. program in mathematics and a graduate certificates in applied statistics.

Recognizing that the study of math is the foundation of many scientific and engineering disciplines, we are committed to supporting the kind of mathematics-related fundamentals that our graduate students need to address the toughest challenges facing industry, business, and society.

A case in point: the Algebraic Cryptography Center, a multi-disciplinary initiative between the Departments of Mathematics and Computer Science dedicated to applying new computational algebra techniques to practical problems in cryptography and cryptanalysis.

Proximity to New York City, a major industry hub, provides innumerable professional opportunities for program graduates to build promising careers in academia and a diverse spectrum of industries, including aerospace engineering, bioinformatics, cryptography, data mining, environmental science, finance, healthcare, materials science, pharmaceutical statistics, and wireless communications.

STEVENS GOES TO WORK

TOP HIRING ORGANIZATIONS INCLUDE:

- Facebook
- Honeywell
- Humboldt University
- Rutgers University
- University of North Carolina
- Yale University

HOW TO CALCULATE CAREER SUCCESS

EXCELLENCE REWARDED

Gradarius, a revolutionary calculus software platform developed by professors at Stevens, is the world’s first calculus-learning software to give step-by-step feedback, manage homework, and administer and grade quizzes for instructors. It has helped yield marked improvements in student grades and retention of calculus knowledge. By changing the way college students learn calculus, Gradarius may very well change the way calculus is taught in higher education.

LEARN MORE: stevens.edu/ses/math

STOPPING A SPY NETWORK WITH MATH

I’m happy with my experience at Stevens. I’m excited to be involved in research and I like the applications of it. Professor Suffel invited us to meetings and let us participate in the research, which was really encouraging.”

ALICIA MUTH
Ph.D. Mathematics

Graduate students Alexis Doucette and Alicia Muth co-authored an award-winning paper on applying dissemination theory to detect spies in communications networks. Their work was based on a paper written by their advisor, professor Charles Suffel, and their success was due in part to their experiences at the Stevens Graduate Research Conference.
Stevens not only got me into the financial industry at a young age, but it taught me to be comfortable with the uncomfortable. In the real world, on day one in your first job, you use almost nothing of what you learned in class. Every situation, every challenge will be new. Things are always changing and adapting, and we have to grow and adapt with them. I was prepared to do that, because at Stevens we learned to adapt and quickly become comfortable with challenges. That’s the value of a Stevens education.”

RITA GUREVICH
Alumna, SPHERE Technology Solutions Founder and CEO
Stevens was the first institution in the United States to offer a degree in mechanical engineering and continues to build on its excellent reputation by offering master’s degrees in mechanical engineering, robotics, and pharmaceutical manufacturing, as well as a Ph.D. in mechanical engineering and certificate programs in diverse areas of special study. As a Department of Mechanical Engineering (ME) graduate student, you’ll benefit from the department’s emphasis on interdisciplinary study and research collaboration in emerging fields such as nanotechnology and sustainable engineering.

Mechanical engineering students study and collaborate with multidisciplinary professors, many of whom are pioneering researchers and industry leaders who also hold patents for their inventions. Our master’s programs will prepare you for career success, whether your goal is to make an impact in the aerospace, renewable energy, pharma, biotech, or other emerging industries, devise elegant solutions to building and construction challenges, or manage complex engineering issues with sophisticated technologies.

With a master’s degree in mechanical engineering, you will acquire research, design, production, and testing skills that support professional development and success. Our leading edge robotics program will prepare you to solve complex engineering problems, position emerging technologies, and lead the development of high-quality products. Our internationally recognized pharmaceutical manufacturing degree program will train you to lead teams using industry-standard good manufacturing practices, and solve challenging problems with emerging pharmaceutical technologies.

Centered around the fundamentals and mathematical foundations of robotics and integrating hands-on learning, our robotics master’s program will give you the tools you need to succeed in a competitive, multidisciplinary profession that is rapidly evolving. With its focus on robot modeling, analysis, design, and control, integrated with modern and advanced applications of robotics technology, our degree program in robotics will prepare you to address today’s specialized needs within the industry.

Our prime location promotes strong professional networking opportunities and collaborations with industry professionals, tech businesses, and other academic institutions for in nearby New York City and the New Jersey pharmaceutical industry hub.

**STEVENS GOES TO WORK**

**TOP HIRING ORGANIZATIONS INCLUDE:**

- General Electric
- Johnson & Johnson
- Merck
- Pfizer
- PSEG
- United Technologies

**DEGREE PROGRAMS**

Mechanical Engineering, M.S., M.Eng., MBA (Dual Degree), Ph.D.
Pharmaceutical Manufacturing, M.S., MBA (Dual Degree)
Robotics, M.Eng.
IMAGING THE BRAIN, HEARTBEAT BY HEARTBEAT

Mehmet Kurt, a mechanical engineering professor, developed an imaging technique that “shows the brain moving” in real time. It’s a promising diagnostic tool for pinpointing conditions such as concussions and aneurysms before they become life-threatening.

NEUROMECHANICS LAB THE FIRST OF ITS KIND

Stevens’ recently-launched Center for Neuromechanics seeks to apply the principles of mechanical engineering to the study of the brain. The initiative brings together an interdisciplinary team of radiologists, neurosurgeons, neurologists, engineers and applied mathematicians to advance the understanding of the dynamics of brain function and structure.

ADDRESSING TRANSPLANT SHORTAGES BY PRINTING THE PERFECT CELL

Students working with ME professor Robert Chang in his Biomodeling and Biomeasurements Lab are collaborating with the biomedical engineering department to tackle the shortage of organ, tissue and bone donations with 3D printing and machine learning. Former Ph.D. student Filippou Tourlomousis helped develop a melt electrospinning writing system. “It has the potential to provide a new paradigm of 3D printing with a wide range of applications,” he says.

EXCELLENCE REWARDED

DECORATED FACULTY

Professor Brendan Englot, MIT Schlumberger Technology Award and National Science Foundation CAREER Award winner, accrued $1.3 million in funding for his research involving underwater robots. A multiple patent holder, Englot holds Institute of Electrical and Electronics Engineers (IEEE) associate editor positions.

LEARN MORE: stevens.edu/ses/me
DEPARTMENT OF PHYSICS

Expand your understanding of the universe with a master’s degree in physics, quantum engineering, or an interdisciplinary degree with another department of your choice. The Stevens Department of Physics (PHY) also offers two doctoral programs and five graduate certificates. While some of our graduates elect to earn their doctoral degrees and follow an academic career path, others pursue successful research-based careers in diverse industries ranging from defense and aerospace to healthcare and energy.

You’ll explore elements of the physical world and conduct formative research beside professors in cutting-edge fields ranging from atomic, molecular, and optical physics to quantum science and engineering. Faculty–student collaborations in advanced research labs and centers yield new knowledge that increases our understanding of the material world and positively impacts society.

Stevens’ proximity to New York City, a world-class academic, corporate, tech startup, and financial hub, connects you with leading employers on the lookout for top talent.

STEVENS GOES TO WORK

TOP HIRING ORGANIZATIONS INCLUDE:

- Newport
- OFS Labs
- Thorlabs
- Palantir Technologies
- Picatinny Arsenal

DEGREE PROGRAMS

Physics, M.S., Ph.D.
Quantum Engineering, M.S.

DISCOVER THE SECRETS OF THE UNIVERSE

RESEARCH SPOTLIGHT

RESEARCHING QUANTUM TECHNIQUES FOR COMMUNICATIONS TECHNOLOGY

Physics professor and National Science Foundation (NSF) CAREER awardee Stefan Strauf’s research in Stevens’ NanoPhotonics Lab focuses on using semiconductor nanomaterials to create more efficient optical devices. Strauf, along with his students and team members from the National Renewable Energy Lab and Columbia University, were recently recognized for their work by the prestigious journal, Nature Communications.

EXCELLENCE REWARDED

In recognition of the revolutionary impact of his work in quantum physics, nanophotonics, quantum computing, hybrid quantum communications and their industrial applications, professor Yuping Huang has received more than $5 million in support from multiple federal funding agencies over the past three years, including the National Science Foundation.

LEARN MORE: stevens.edu/ses/phy
RESEARCHERS ON THE CUSP OF QUANTUM SYSTEMS BREAKTHROUGH

Ting Yu, a globally recognized authority in quantum entanglement, is at the forefront of controlling quantum entanglement by developing new error correction codes for thermal, colored, and correlated noise interference. His collaborative research could open the door for monumental research breakthroughs in quantum systems.

“It’s stunning to think that 25 or 30 years ago no one thought this was possible. But as a result of ambitious collaborative research, we stand close to realizing a powerful tool from a promising theory.”

DR. TING YU
Professor and Department Chair
Research has always been integral to Stevens and it’s at the heart of everything we do at the Charles V. Schaefer, Jr. School of Engineering and Science. Internationally acclaimed faculty members, supported by technologically advanced labs and research centers and funding from major national agencies, propel research efforts that develop ingenious and impactful new products and technologies.

Through numerous collaborative, interdisciplinary research programs, as well as national and global strategic initiatives and partnerships, the school powers transformative advances in critical areas such as healthcare, energy, cybersecurity, artificial intelligence, machine learning, robotics, biomedicine, pharmaceutical manufacturing, maritime defense, nanotechnology, and more.

This keen focus on research gives you the hands-on experience and tools needed to devise solutions to today’s and tomorrow’s most pressing global challenges.

**Pursuing Energy Innovation and Public Service**

Stevens and the Public Service Enterprise Group (PSEG) have come together for a 10-year partnership designed to strengthen mutual pursuits of energy innovation and public service. Under the partnership, Stevens has created a highly collaborative, multidisciplinary faculty team to produce flexible solar cells and sustainable fuels for green energy solutions, as well as investing in undergraduate and Ph.D. research scholarships.
<table>
<thead>
<tr>
<th>FOUNDATIONAL RESEARCH PILLARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty-led, world-renowned research centers and labs support strategic and interdisciplinary research pillars:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ARTIFICIAL INTELLIGENCE &amp; MACHINE LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stevens performs research in AI and machine learning with applications to healthcare, financial data, and homeland security, among other areas. AI and machine learning are embedded in multiple areas of research at Stevens, leading to discoveries in defense and security, medical applications, the increased functionality of autonomous vehicles — and much more.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CYBERSECURITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stevens’ strength in cybersecurity research and education — reaching from mathematical foundations, formal methods, privacy, network and systems security, and cybersecurity in critical infrastructure — confronts increasingly sophisticated and damaging cyberattacks while also addressing the pressing needs of the nation’s cybersecurity workforce.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATA SCIENCE &amp; INFORMATION SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stevens data scientists explore the management, mining, and visualization of data to produce predictive insights and analytics. We span disciplines to discover and deploy applications that tackle large-scale societal challenges such as disaster response, improved communications networks, enhanced data management, and analytics, and user access domains.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BIOMEDICAL ENGINEERING, HEALTHCARE, &amp; LIFE SCIENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>The healthcare industry accounts for a full 18 percent of the nation’s gross domestic product (GDP), and Stevens produces key research that develops tools to improve medical outcomes; makes patients more comfortable; and supports the planning and operation of medical facilities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUANTUM SCIENCE &amp; ENGINEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stevens is at the forefront of the quantum revolution, leading the way in research and development of applications for quantum technologies in areas such as communications networks, quantum computing, ultrafast optics, remote sensing, machine learning, big data processing, and more.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESILIENCE &amp; SUSTAINABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stevens is an international leader in coastal and urban resilience research, driving study and discussion about protecting coastal communities from the effects of climate change. We also perform significant sustainability and energy research.</td>
</tr>
</tbody>
</table>
FOUNDED \n\nRESEARCH PILLARS \nAND LABS

RESEARCH CENTERS

STEVENS INSTITUTE FOR ARTIFICIAL INTELLIGENCE (SIAI)
Capitalizing on artificial intelligence's limitless growth opportunities, the SIAI is spearheaded by SES faculty members conducting high-tech, collaborative interdisciplinary research on AI applications in cybersecurity, healthcare, FinTech, and more.

MARITIME SECURITY CENTER
A Department of Homeland Security National Center of Excellence, the Maritime Security Center works with academic, industry, and government partners to enhance port and maritime security.

CENTER FOR HEALTHCARE INNOVATION (CHI)
From biomedical technology to healthcare delivery, CHI coordinates interdisciplinary research to benefit patients the world over.

CENTER FOR ENVIRONMENTAL SYSTEMS (CES)
CES provides research and testing services to industry, government and environmental service organizations for developing and implementing new environmental technologies.

CENTER FOR QUANTUM SCIENCE & ENGINEERING (CQSE)
Research priorities at CQSE include innovative quantum engineering applications for secure communications networks, remote sensing, machine learning, big data processing, and quantum computing.

DAVIDSON LABORATORY
Home to a unique, high-speed towing tank with wave generation capabilities and advanced computational facilities, the Davidson Lab supports a fully-automated flood advisory system. Utilizing expertise from programs including naval architecture, coastal and ocean engineering, physical oceanography, marine hydrodynamics, and maritime systems, the multidisciplinary lab addresses issues in each of these disciplines as well as those facing natural systems and human-made maritime activities.

CENTER FOR SENSOR TECHNOLOGY & APPLIED RESEARCH (STAR)
STAR leverages existing research at Stevens to create new research areas, applications, and funding opportunities related to sensor technologies for defense, physical and national security needs, healthcare, critical infrastructure, and communications applications.
Recent research breakthroughs continue to build on our proud heritage:

**CONTROLLING PROSTHETIC LIMBS WITH VIRTUAL REALITY**

Biomedical engineering professor Raviraj Nataraj has collaborated with a Cleveland Clinic team on a groundbreaking advance that uses a virtual reality platform to help amputees undergoing a new experimental surgery retrain muscles and nerves to control prosthetics more naturally.

**POWERFUL NEW PASSWORD CRACKER**

By harnessing the power of machine learning, Stevens computer science chair Giuseppe Ateniese and his team have developed a powerful new password cracker that detects commonly used password patterns. The technology, which outperforms known hacking tools, is a promising tool both for law enforcement officials seeking to crack terrorist communications and for its potential to help individuals test and improve personal password choices.

**USING AI TO SPOT FALSIFIED VOICES**

Professor K.P. Subbalakshmi, together with fellow professor Rajarathnam Chandramouli and graduate student Zongru Shao (publishing as Doris South), developed an algorithm that can both authenticate voices and stop false, synthesized voices before they access private data and financial information. The team hopes this will be a powerful security to offer banks and financial institutions fighting to protect themselves against new technical threats by bad actors.

“Even a quick check online demonstrates that it’s possible to copy anyone’s voice — even the president’s.”

DR. K.P. SUBBALAKSHMI
Professor and Founding Director, SIAI

**STEVENS SWITCHES ON FIRST U.S. CAMPUS HYBRID QUANTUM-COMMUNICATIONS NETWORK**

Stevens physics professor Yuping Huang, postdoctoral researcher Yong Meng Sua and doctoral candidate Lac Nguyen are paving the way for super-secure communications with the nation’s first campus hybrid quantum-communications network. Led by Huang, Stevens’ Center for Quantum Science and Engineering (CQSE) is applying the quantum concept to tackling cybersecurity challenges.

“This hybrid-quantum network, which could be the first of its kind in a campus setting, will serve as a test bed for engineering innovations and, more importantly, as an open platform to encourage and engage students and scholars from broad backgrounds.”

DR. YUPING HUANG
Associate Professor and Founding Director, CQSE
Beginning in the 19th century, celebrated inventor Edwin A. Stevens, along with members of his family, were celebrated for unique feats of engineering such as the nation’s first steam ferry, first commuter trains, and the T-rail, which is still the main form of railroad track used worldwide. Known as “America’s First Family of Inventors,” the Stevens family established Stevens Institute of Technology to carry on their legacy of engineering solutions.

**FOLLOWING IN THE FOOTSTEPS OF OUR FOUNDING FAMILY, SCHOOL OF ENGINEERING & SCIENCE RESEARCHERS AND GRADUATES HAVE:**

- Invented IMAP — the modern form of email
- Developed the Gantt Chart, an essential tool for construction and other project managers
- Won a Nobel Prize for co-discovering the neutrino — and validating the Big Bang Theory
- Developed a new method of synthesizing penicillin
- Prepared NASA spacecraft for America’s Apollo moon missions
- Invented Bubble Wrap
- Perfected the art of kinetic structures known as mobiles
- Created the Jersey Barrier to separate traffic lanes
- Patented a new mass spectrometry technique
- Worked with UNICEF to filter dissolved minerals from Bangladesh well waters
The inviting educational environment at the Schaefer School of Engineering and Science is a home away from home for international graduate students.

International students from more than 60 countries are welcomed not only by the Stevens campus community, but also by the city of Hoboken, our charming home city that is just minutes from all that New York City has to offer.

An expanding worldwide network of research, academic and alumni partners circles the globe and includes productive partnerships with international universities and institutions reflecting a culture that celebrates and embraces diversity.

Our partnership with Tsinghua University in China facilitates cooperative research and the exchange of students and training initiatives. It offers exciting opportunities to School of Engineering and Science students, including co-Ph.D. programs and dual M.S. degrees in cybersecurity, artificial intelligence, and deep learning.

As an international student, you’ll study with and be mentored by distinguished professors, who are scholars, researchers and experts in a number of federally designated STEM degree programs. Graduate student societies within each department foster collaborative student relationships. Robust student affairs and networking opportunities are designed to help you adjust and thrive, while a school focus on your career development offers a pathway to U.S. work experience.

Full-time international students with F-1 immigration status are eligible for work authorization through federal Optional Practical Training (OPT) or Curricular Practical Training (CPT) benefits that lead to work experience directly related to academic areas of study. Additional employment opportunities include internships and Cooperative Education.

"I remember the first day I attended Stevens. I didn’t know how a professor here would think or explain concepts, but my thesis advisor was very patient. I grew a lot because of him."

PEI-KANG SUN
Ph.D. Chemical Engineering

EXTRA

READY, SET, APPLY
PUT THE POWER OF STEVENS TO WORK FOR YOU. TO APPLY, VISIT
stevens.edu/graduate
DEGREE PROGRAMS

DEPARTMENT OF BIOMEDICAL ENGINEERING
Bioengineering, M.S.
Biomedical Engineering, M.Eng, Ph.D.

DEPARTMENT OF CHEMISTRY & CHEMICAL BIOLOGY
Chemistry, M.S., Ph.D.
Chemical Biology, M.S., Ph.D.

DEPARTMENT OF CHEMICAL ENGINEERING & MATERIALS SCIENCE
Chemical Engineering, M.Eng., Ph.D.
Materials Science & Engineering, M.S., M.Eng., Ph.D.
Nanotechnology, M.S., Ph.D.
(Interdisciplinary)

DEPARTMENT OF CIVIL, ENVIRONMENTAL, & OCEAN ENGINEERING
Civil Engineering, M.Eng., Ph.D.
Construction Engineering & Management, M.S., MBA (Dual Degree)
Environmental Engineering, M.Eng., Ph.D.
Ocean Engineering, M.Eng., Ph.D.
Sustainability Management, M.S., MBA (Dual Degree).

DEPARTMENT OF COMPUTER SCIENCE
Computer Science, M.S., Ph.D.
Cybersecurity, M.S.
Data Science, Ph.D. (Interdisciplinary)
Machine Learning, M.S.
Media & Broadcast Engineering, M.S.

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING
Artificial Intelligence for Electrical & Computer Engineering, M.S., M.Eng.
Computer Engineering, M.S., M.Eng., MBA (Dual Degree), Ph.D.
Electrical Engineering, M.S., M.Eng., MBA (Dual Degree), Ph.D.

DEPARTMENT OF MATHEMATICAL SCIENCES
Actuarial Science & Quantitative Risk, M.S.
Applied Mathematics, M.S.
Data Science, M.S.
Mathematics, M.S., Ph.D.

DEPARTMENT OF MECHANICAL ENGINEERING
Mechanical Engineering, M.S., M.Eng., MBA (Dual Degree) Ph.D.
Pharmaceutical Manufacturing, M.S., MBA (Dual Degree)
Robotics, M.Eng.

DEPARTMENT OF PHYSICS
Physics, M.S., Ph.D.
Quantum Engineering, M.S.

INTERDISCIPLINARY DEGREES
Interdisciplinary, Ph.D.
YOUR DEGREE. YOUR WAY.

Gain career momentum with an advanced degree or graduate certificate from StevensOnline. Our award-winning online platform gives you the flexibility to pursue your degree in your own time, your way — and gain knowledge and skills you can apply to the workplace immediately. You’ll study online with the same esteemed professors as on-campus students and connect with other students, take part in group assignments and network.

The School of Engineering and Science offers fully online master’s degree programs in:

- Applied Artificial Intelligence
- Computer Engineering
- Computer Science
- Construction Engineering & Management
- Data Science
- Electrical Engineering
- Machine Learning
- Pharmaceutical Manufacturing
- Robotics

STEVENS ONLINE

GRADUATE CERTIFICATES

DESIGNED FOR BUSY PROFESSIONALS

Hone your industry expertise and take your career to the next level with a graduate certificate from Stevens.

The Schaefer School offers a variety of continuing-education programs designed with the working professional in mind. Course schedules with evening and online classes provide flexibility in continuing your education. Certificate curricula generally provide instruction with a particular research or professional focus, and in most instances, credits earned in a graduate certificate can be applied toward a full master’s degree.

Graduate certificates in engineering and science are generally four-course, 12-credit programs for students who:

- Are interested in improving their current skills
- Are considering new career paths within industry
- Have been out of school for some time, and want to resume their studies without committing to a full 30-credit master’s degree program
- Already hold an advanced degree, but wish to continue their studies in a new or related area
SCHOOL OF ENGINEERING & SCIENCE
CONTINUED

CERTIFICATE PROGRAMS

DEPARTMENT OF BIOMEDICAL ENGINEERING
Bioengineering

DEPARTMENT OF CHEMISTRY & CHEMICAL BIOLOGY
Analytical Chemistry
Biomedical Chemistry
Chemical Biology
Chemical Physiology
Drug Discovery
Laboratory Methods in Chemical Biology
Polymer Chemistry

DEPARTMENT OF CHEMICAL ENGINEERING & MATERIALS SCIENCE
Application of Machine Learning to Pharmaceutical Development
Materials Technology for Energy & Sustainability
Microelectronics
Microdevices & Microsystems
Pharmaceutical Manufacturing (Interdisciplinary)
Photonics

DEPARTMENT OF CIVIL, ENVIRONMENTAL, & OCEAN ENGINEERING
Advanced Certificate for Executives in Construction Management
Applied Coastal Oceanography
Atmospheric & Environmental Science & Engineering
Construction Accounting/Estimating
Construction Engineering
Construction Law/Disputes
Construction Management

DEPARTMENT OF COMPUTER SCIENCE
Cybersecurity
Cybersecurity Databases
Enterprise & Cloud Computing
Enterprise Security & Information Assurance
Health Informatics
Machine Learning

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING
Artificial Intelligence in Engineering Design
Autonomous Robotics
Microelectronics & Photonics (Interdisciplinary)
Real-time & Embedded Systems
Secure Network Systems Design
Software Design for Embedded & Information Systems
Wireless Communications

DEPARTMENT OF MATHEMATICAL SCIENCES
Applied Statistics
Stochastic Systems
Quantum Computation (Interdisciplinary)

DEPARTMENT OF MECHANICAL ENGINEERING
Additive Manufacturing
Advanced Manufacturing
Computational Fluid Mechanics & Heat Transfer
Design & Production Management
Medical Devices
Nuclear Power Engineering
Ordnance Engineering
Pharmaceutical Manufacturing (Interdisciplinary)
Power Generation
Robotics & Control
Structural Analysis & Design
Sustainable Energy Systems
Validation, Compliance & Quality
Vibration & Noise Control

DEPARTMENT OF PHYSICS
Applied Optics
Atmospheric & Environmental Science & Engineering
Microdevices & Microsystems
Microelectronics
Photonics
Quantum Computation (Interdisciplinary)
A premier, private research university just minutes from New York City with an incredible view and exceptional access to opportunity.