

ABOUT CSLA

The College of Science and Liberal Arts provides programs in the sciences and humanities and serves as the main source of learning for the General University Requirements. The college was established in 1982.

DEGREES

CSLA offers the following undergraduate programs, 11 master's degree programs and six doctoral programs.

- Applied Physics (BS)
- Biological Science (BA/BS)
- Chemistry (BS)
- Communication and Media (BA/BS)
- Computational Sciences (BS)
- Environmental Science (BS)
- History (BA)
- Mathematical Sciences (BS)
- Science, Technology and Society (BS)

MINORS

Make yourself more marketable by broadening your knowledge. CSLA offers these minors:

- Applied Mathematics
- Applied Physics
- Applied Statistics
- Biological Science
- Chemistry
- Communication and Media
- Drama/Theater
- Global Studies
- History
- Legal Studies
- Literature
- Philosophy/Applied Ethics
- Science, Technology and Society
- Technology, Gender and Diversity

NJIT AT A GLANCE

- New Jersey's Science and Technology University, founded in 1881.
- More than 8,200 students enrolled, including 5,380 undergraduates.
- NJIT's six schools offer small-college intimacy (13:1 student-faculty ratio) with big-university resources.
- 45-acre campus includes \$83 million in new construction and improvements featuring a new Campus Center.
- A *Princeton Review* "Best Value College" and a "Top 25 Most Connected College."
- Ranked by *U.S. News & World Report* among the top national universities, NJIT is 9th in the nation in diversity.

ADMISSION REQUIREMENTS

We consider your academic record, particularly your grades in math, science and English, and your standardized test scores. Your high school curriculum should include at least four units of English; two units of lab science (chemistry and physics preferred); four units of mathematics, including algebra, geometry and trigonometry; and six units of some combination of social studies, foreign language, math and science. We consider your overall GPA, individual course grades and the level of your academic curriculum, plus involvement and leadership in activities. The middle 50th percentile combined SAT score (critical reading plus math) for regular incoming freshmen in fall 2007 was 1040–1220.

HOW TO APPLY

Choose one of these ways to apply:

- Apply online at www.njit.edu/admissions/applyonline.php.
- Download a PDF of the application at www.njit.edu/admissions/applyonline.php.

DEADLINES FOR APPLYING

- For fall semester: April 1
- For spring semester: November 15

NJIT uses rolling admissions. You should hear from us two to three weeks from the date that your file is complete. You can check your application status online at www.njit.edu/admissions/check-status.php.

FOR MORE INFORMATION

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New Jersey Institute of Technology
University Heights
Newark, New Jersey 07102-1982

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To contact the NJIT Admissions Office, go online at www.njit.edu/admissions or e-mail admissions@njit.edu.

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COLLEGE OF SCIENCE & LIBERAL ARTS



THE COLLEGE OF SCIENCE AND LIBERAL ARTS (CSLA) GIVES YOU THE EDGE

THINK SMART:

Technology is the thread that runs through every program in CSLA—not what you usually find at liberal arts colleges. History, for example, includes a focus on the history of science, technology and medicine; humanities includes technical writing in health and medicine. Such learning arms you with valuable knowledge for a world that becomes more technologically focused every day.

RAMP UP THE RESEARCH:

As an undergraduate student in the College of Science and Liberal Arts, you'll be encouraged, even expected, to take part in research on or off campus. NJIT offers opportunities to work side-by-side with faculty members conducting pioneering research. You can be a part of discovering new knowledge—while building worthwhile experience for your career or graduate study.

MAKE CONNECTIONS:

Through classes, research and majors, explore the way different fields intersect and overlap. Biology, for instance, connects with several disciplines at CSLA through mathematical biology, biophysics, biochemistry and biostatistics.

EXPAND YOUR OPTIONS:

Save time and money through NJIT's preprofessional options, including medicine, dentistry, optometry, physical therapy and law. Or consider teaching certification or an Air Force ROTC commission, which you can earn at the same time you're working toward your bachelor's degree.

The College of Science and Liberal Arts (CSLA) is the intellectual crossroads for science, technology and human values. A sense of discovery buzzes through the college, where ambitious research involves faculty and undergraduates. Much of the research and learning crosses disciplinary lines, with biology dipping into math, math into chemistry, biology into communication and more. CSLA provides challenging and intriguing learning experiences, not only for students in the eight major programs, but for all NJIT students through the General University Requirements. This core of coursework provides a solid foundation of knowledge and skills—from analysis to communication to independent thinking—you can apply to any career.

GREETINGS FROM CSLA DEAN AND PROFESSOR FADI P. DEEK

Welcome to the College of Science and Liberal Arts. We offer programs, from the bachelor's through the doctoral level, with emphasis on cross-disciplinary interactions that reflect the interests of students and the demands of the modern world. We are preparing our students to be the next generation of leaders. Our accomplished faculty are conducting scholarly research in traditional and emerging directions—and you have the opportunity to be a partner in this research.

We also provide a rigorous, broad and relevant core curriculum in the sciences and liberal arts that lays the foundation for professional and personal fulfillment for all NJIT undergraduates through the General University Requirements. The superior and inspiring learning and dedicated teaching provides you with the fundamentals needed for lifelong learning.

I welcome you to visit the campus and to get to know us better.



Fadi P. Deek

Experience research on the frontier that brings together biology and mathematics through the Undergraduate Biology and Math Training Program, a yearlong program funded by the National Science Foundation.

JABEEN REZA | '06

MAJOR: APPLIED PHYSICS
HOMETOWN: PARSIPPANY, NEW JERSEY
FUTURE PLANS: TO PRACTICE INTERNATIONAL HUMAN RIGHTS LAW



WHAT KIND OF PHYSICS RESEARCH DID YOU DO AT NJIT? I worked in the Center for Solar Terrestrial Research with Dr. Louis Lanzerotti on the Ulysses Mission, observing and measuring the space above and below the sun—where normal satellites don't go. It was a great experience to work with prominent researchers on a high-profile project.

HOW DID NJIT HELP PREPARE YOU FOR THE FUTURE? It made my thinking and problem-solving skills even better and sharper. I also had the liberty to try out many different activities and learn how to work independently and on a team.

WHAT WAS YOUR MOST MEMORABLE ACTIVITY? I started an NJIT chapter of Amnesty International. I loved the challenge of starting a human rights organization on a science-driven campus.

HOW DO YOU THINK YOU CHANGED SINCE YOU STARTED AT NJIT? I became more confident that I can do anything I put my heart and soul into. I made it through one of the toughest programs at NJIT with a decent GPA. I also managed to make the best friends of my life.

WHAT ARE YOUR SHORT- AND LONG-TERM PLANS? I just started working at Fragomen, Del Rey, Bernsen & Loewy as an assistant paralegal. I want to go to law school to be an international human rights lawyer. I realized in my second year that I needed a profession where I could feel like I was making a difference in people's lives directly.

LAST WORD? NJIT is an amazing place to go to college. It has everything you need to have an incredible college education and life at the same time. You just need to keep your eyes open and use everything available to you here.

Degree Program: Biological Sciences

How you make a difference: As a biologist, you seek solutions to problems in medicine, agriculture, the environment and more. You could determine how genes are linked to specific diseases or illnesses. By studying the inner workings of proteins, you could develop new, more effective drugs with fewer side effects. You might find better ways to diagnose medical problems. You could join the burgeoning field of biotechnology and discover ways to increase crop yields while protecting the environment, or develop new biofuels.

Why at CSLA: Along with a solid foundation in biology, the program integrates mathematics, computer science, physics and chemistry. Choose between a BS and a BA in biology, with the BS program incorporating more rigorous training in quantitative reasoning. NJIT is known for strengths in neuroscience, developmental neurobiology/neuroimmunology, ecology and evolution. CSLA includes one of the largest groups of biomath researchers in the country and offers a double major in biology and mathematics. Students have done research in chemistry, biomedical and mathematics departments at NJIT and at the University of Medicine and Dentistry of New Jersey (UMDNJ). Continue your studies at CSLA with an MS or PhD in biology.

Current research: Neural dynamics, neuroimmunology, mathematical neurophysiology, enzyme design, computer-aided drug design, complex ecological systems.

More info: biology.njit.edu/academics/undergraduate/index.php

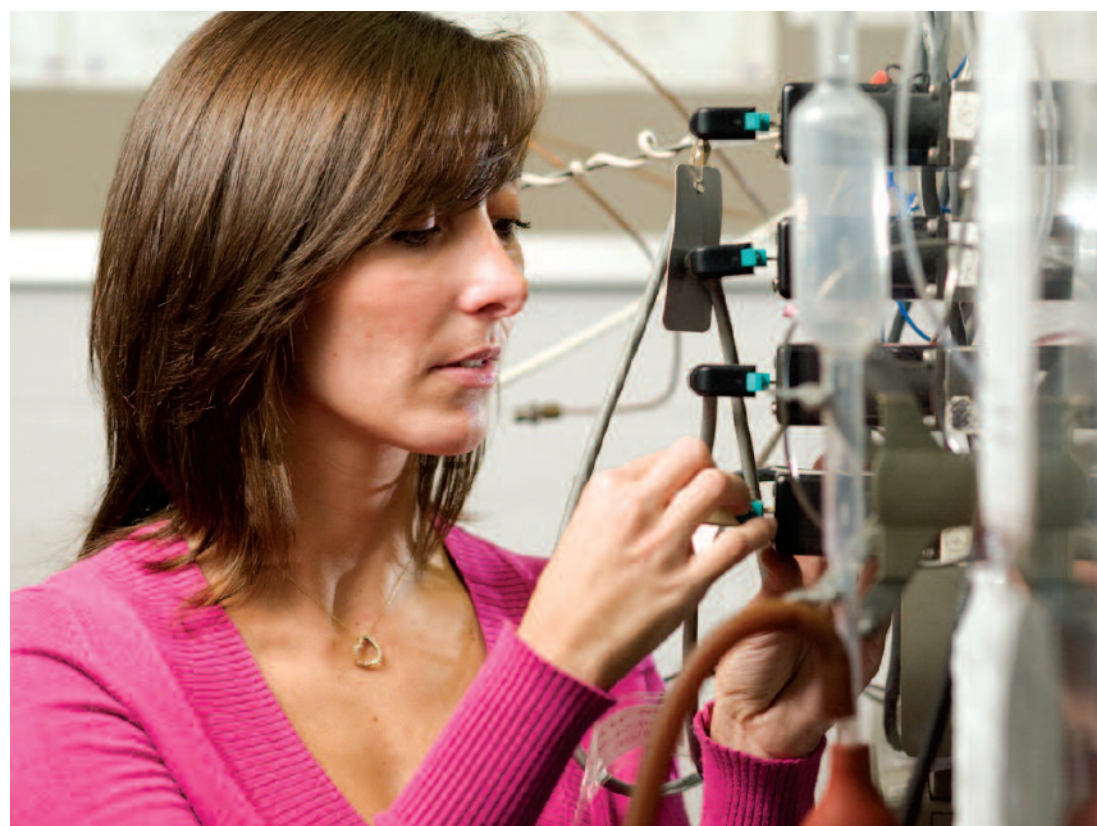
Degree Program: Chemistry

How you make a difference: Explore the chemistry of living things so that you can solve problems in medicine, agriculture, food processing and more. With the help of computer modeling and simulations, you could have a role in discovering new drugs that treat diseases. You might work in chemical manufacturing plants to make sure products, from plastics to soap to paint, are being manufactured correctly, or find a way to produce goods while monitoring air and water pollution.

Why at CSLA: The program's solid grounding in the sciences, mathematics and engineering, along with lab skills, allow you to apply theory to practical areas of chemistry. NJIT has particular strengths in analytical, medical and environmental chemistry. You can conduct research with faculty mentors with expertise in such areas as energy, pharmaceuticals, materials and environmental chemistry. Continue your studies at CSLA with an MS in applied chemistry or PhD in chemistry.

Current research: Analytical and environmental chemistry at industrial and microchip scales, synthesis of organic and inorganic materials in green solvents, computer-aided drug design, laser diagnostics of elementary processes, kinetics.

More info: chemistry.njit.edu/academics/undergraduate/index.php



For CSLA students, research is an important element of the education that offers experience for the future, along with analytical, problem-solving and communication skills.

Paralleling life in the real world, CSLA encourages students and faculty members to work together across disciplinary lines in class and research projects.



ACTING UP: THEATRE ARTS AT NJIT

If a sense of the dramatic flows through your blood, consider the Theatre Arts program, a joint venture between NJIT and Rutgers-Newark. You can minor in drama/theatre through NJIT or major in communication and media with a theatre arts track *and* be eligible for The Jim Wise Scholarship in Theatre Arts (each year there are more than thirty thousand dollars given out), so get involved—in front of the footlights or behind the scenes—in productions performed both at Rutgers and at NJIT.

LEARNING FROM ACCOMPLISHED FACULTY MEMBERS

CSLA faculty members are well known in their fields for their leadership and groundbreaking research. They are also dedicated and caring teachers committed to the undergraduate experience. A few highlights:

- Robert Miura, professor of mathematical sciences and biomedical engineering, won the Leroy P. Steele Prize, a prestigious honor in mathematics, in 2006.
- Showing the college's cross-disciplinary nature, Assistant Professor of History Stephen Pemberton's 2006 book, *The Troubled Dream of Genetic Medicine*, explores links between ethnicity and race and genetic diseases such as Tay-Sachs, cystic fibrosis and sickle-cell anemia.

- A leader in technical communication, Nancy Coppola, associate professor in the Humanities Department, guest-edited a special issue of *Technical Communication Quarterly*, a leading journal in the field.
- Louis Lanzerotti, distinguished research professor of physics, was nominated by President George W. Bush to the National Science Foundation's board. He also won NASA's Distinguished Scientific Achievement Medal for his contributions to space science.

Degree Program: Communication and Media

How you make a difference: As the world becomes more connected and interdisciplinary, the ability to communicate effectively becomes more vital. By using words, images and multimedia in traditional and new ways, you can play a role in fields from business and industry to journalism and the arts. You might translate the important findings of scientists and researchers into words the general public can understand. You might write technical reports for engineering firms or develop a website for a nonprofit organization. As a journalist, you could determine the headlines of the day or the hour, working for a news website, satellite radio station, television program, newspaper or magazine.

Why at CSLA: With two required paid internships and the creation of an original work for your senior capstone project, you'll be well prepared to work in a variety of communication media, including multimedia, television, print, advertising and technical reporting. Choose from four tracks: literature (with an option in education), media arts (including Web design, television, film, graphic arts and design and fine arts), professional and technical communication (with an option in journalism), and theatre arts.

Current CSLA research: Technical communications, technology-enhanced teaching and learning, digital literature and writing in new media.

More info: humanities.njit.edu

Degree Program: Computational Sciences

How you make a difference: Offered by the Department of Mathematical Science, computational sciences combines the application of numerical methods, models and algorithms in the context of solving problems in chemistry, biology, physics or mathematics. You can apply these skills in many industries, including pharmaceuticals, chemicals and electronics, and medical and environmental research.

Why at CSLA: The college is home to stellar departments of math, physics, chemistry and biology. Many of the program faculty have earned international reputa-

tions as a result of the breadth and depth of their accomplishments. The program offers students a unique opportunity to learn from leading experts in the field.

Current CSLA Research: Cocaine addiction, molecular processes in nanotechnology, blood circulation, ocean acoustics, endangered species protection, structure and functions of the neural system, forecasting sunspots that may affect aviation and telecommunications.

More Info: math.njit.edu

Degree Program: Environmental Science

How you make a difference: By learning to analyze the air, water, soil and other factors, you can protect people, animals, plants and the environment. As an environmental scientist, you might clean up a body of water, restore contaminated land, investigate the depletion of the ozone layer or study flood control. You could be involved with developing environmental regulations. Your degree could lead you into law, business, sociology, health or political science.

Why at CSLA: You'll build a well-rounded background in environmental science, drawing on chemistry, geology and biological sciences. You'll also learn to use computer modeling, data analysis, digital mapping and more—skills that will put you ahead in the job market—to solve environmental challenges. You can choose specializations in sustainable earth, biocomplexity, environmental policy studies and chemistry of the environment. Continue your studies at CSLA with an MS or PhD in environmental science or an MS in environmental policy studies.

Current CSLA research: Industrial waste streams, site decontamination, solvent replacement, volatile organic compound containment, computer-aided process design, systems analysis.

More info: chemistry.njit.edu



CSLA's Society of Biology participated in the 2007 Clean Ocean Action Beach Sweep at Sandy Hook, New Jersey, removing and cataloging debris to help chart pollution trends.

CSLA offers a range of learning resources, from extensive library holdings to specialized labs to faculty members who are prominent scholars and researchers.



"Research gave me intellectual and innovative freedom and showed me what graduate research might be like."

—Matt Malej '06, mathematical sciences; graduate student, NJIT graduate program in applied mathematics

Degree Program: History

How you make a difference: With the research, writing and analytical skills you gain as a student of history, you'll have a range of career possibilities. You could teach others about the past in a school or museum; research a particular trend, problem or region; or put your efforts toward preserving history. Your skills also make you valuable in fields from media to business to government. In corporations and nonprofits, you might oversee records or archives. You could use your communication skills as a journalist, editor or television or website producer.

Why at CSLA: Special opportunities include original research and historical writing, internships with cultural institutions and access to Rutgers library holdings. There's a unique concentration in the history of technology, environment and medicine/health. As a senior, you'll write a thesis that draws on the historiography and research skills you've learned during the rest of the program. The chair of the NJIT department serves as the advisor for all history majors and works with each student individually. Paired with a minor in legal studies, the degree offers excellent preparation for law school. This is a joint program with Rutgers-Newark.

Current CSLA research: History of science and technology, history of medicine and health, environmental history, history of media and communication, law and society, international law and diplomacy, urban history.
More info: history.njit.edu

Degree Program: Mathematical Sciences

How you make a difference: In fields from science and engineering to finance and business, put your valuable problem-solving skills to work to create sound solutions. You might explore the safety of new drugs, schedule the most efficient airline routes between cities, develop new financial instruments or test the cost-effectiveness of a manufacturing process. The analytical reasoning skills gained as a mathematical sciences major also serve as a strong basis for professional studies in medicine or law.



All NJIT students take classes at CSLA through the General University Requirements (GUR), which provide a solid foundation for learning.

Although you may have a job title other than mathematician—for instance, cryptologist, software engineer or financial analyst—you will still be using your analytical and quantitative skills.

Why at CSLA: With one of the few—and one of the best—departments emphasizing applied mathematics and statistics, you'll learn to apply mathematical modeling to physical, biological and industrial phenomena. You can concentrate in applied mathematics, applied statistics, mathematics of finance and actuarial science or mathematical biology—or opt for a double major in an area such as biology, computer science or physics. The department's research program is internationally known. Continue your studies at CSLA with an MS in applied mathematics or applied statistics or a PhD in mathematical sciences.

Current CSLA research: Mathematical biology, mathematical fluid dynamics, linear and nonlinear wave propagation, scientific computing, statistics, ocean acoustics applied to national defense.

More info: math.njit.edu/academics/index.php

Expand the possibilities by cross-registering at Rutgers-Newark, across the street from NJIT, which offers additional courses in humanities, arts and sciences.



The NSF-funded Undergraduate Biology and Math Training Program combines research and teaching at a fundamental level for both undergraduate and graduate students.

COMPUTATIONAL SCIENCE TRAINING FOR UNDERGRADUATES IN THE MATHEMATICAL SCIENCES

Supported by the National Science Foundation, the Computational Science Training for Undergraduates in the Mathematical Sciences (CSUMS) Program at NJIT engages six to eight mathematical sciences majors per year into research projects in mathematics and scientific computing. Students conduct research under the guidance of mathematical sciences faculty and learn how to present their work to the scientific community. Students also participate in research and scientific computing workshops and are exposed to computation on parallel clusters. CSUMS participants gain expertise that is invaluable in today's fast-paced quantitative graduate programs and, with their modeling and computing skills, have an edge in pursuing career opportunities in industry.

"I feel very privileged to go to a school that gives us so many opportunities and allows us to shine at what we do best."

—Tanya Martinez, junior, chemistry major



CSLA's small and engaging classes make learning more effective and enjoyable.

STUDENT RESEARCH

As an undergraduate, you'll have the opportunity to conduct research in your field of interest. A few examples of recent projects:

- Biology majors Shawn Abraham and Supreet Binda worked with Carol Venanzi, distinguished professor of chemistry, helping with computational studies of molecules that could be useful in the treatment of cocaine abuse.
- Camila Rohr Modenesi, chemistry major, earned recognition for her research into chemical transformations of freons in the environment with awards in NJIT's Provost's Student Research Showcase, NJIT's McNair Symposium and the Laboratory of Robotics Interest Group Mid-Atlantic Chapter student poster contest.
- Mathematical sciences major Michael Pallotta studied numerical aspects of beam bending analysis—research funded by the National Science Foundation—while working under the guidance of Sheldon Wang, associate professor of mathematical sciences.
- Through the Undergraduate Biology and Math Training Program, math majors Kunj Patel and Jonathan Lansley used mathematical modeling to study the way root systems differ between native and invasive species of plants.
- Under the joint NJIT-Liberty Science Center sponsorship, Sushil Sikha, an undergraduate senior in biology, is working with Professor N.M. Ravindra and his graduate students—Ivan Padron, Shanmugamurthy Fnu and Gaurav Devrani—on setting up an interactive baseball demonstration at the Liberty Science Center. In addition, Sushil is working with Professor Ravindra on application of pthalocyanines in biosensor applications.

Degree Program: Physics

How you make a difference: Apply your knowledge of physical laws and theories to a career in biotechnology, pharmaceuticals, lasers, telecommunications, imaging, technical management, machine vision, optics-based instrumentation, semiconductors or spectroscopy. You could improve the way diseases are diagnosed, study the intricacies of the sun, find new uses for lasers. You might develop an innovative electronic or optical device or a piece of medical or research equipment.

Why at CSLA: Undergraduate research is encouraged, and some opportunities include the chance to earn money while learning alongside nationally known researchers. Faculty members in the physics department bring in the most federal research dollars per capita of any NJIT department in areas such as solar-terrestrial research, optics, materials science and biophysics. Choose from three concentrations: optical science and engineering, astronomy and astrophysics, and biophysics. A double major with computer science or mathematics is also available. NJIT operates the Big Bear and Owens Valley Solar Observatories in California. This is a joint program with Rutgers–Newark. Continue your studies at CSLA with an MS or PhD in physics.

Current CSLA research: Solar and terrestrial physics, photonics, imaging, biophysics, material science and condensed matter physics.

More info: physics.njit.edu

Degree Program: Science, Technology and Society

How you make a difference: By understanding how fundamental ideas of science and technology take form in the values, language, history, politics and economics of modern technological society, you'll explore the interrelated worlds of the scientist, artist, engineer, politician and citizen and develop the global, multicultural and environmental perspectives that support ethical awareness and public responsibility. Core courses, which introduce students to the connections among civilization, technology and the global environment, focus on historical and cultural foundations, basic ideas and values, dominant institutions, environmental viewpoints, policy formation and sustainable development.

Technology is woven throughout CSLA, whether the topic is physics or history.



Why at CSLA: Science, Technology and Society students focus on technology, public policy and globalization; media, aesthetics and technology; environmental studies; the philosophy of technology; and social studies education, leading to New Jersey teaching certification. Graduates find employment in fields such as law, medicine, government, corporate planning, business management, public policy and administration, urban development, technology assessment and environmental planning. The degree provides excellent preparation for graduate and professional study. This is a cooperative program with Rutgers–Newark.

Current CSLA research: Environmental studies, globalization and public policy, technology and ethics, music and technology.

More info: humanities.njit.edu/academics/undergraduate/bs_sts/index.php

NJIT's solar and terrestrial physics initiative attracts more federal funding to the university than any other program. NJIT operates the Big Bear and Owens Valley Solar Observatories in California.

PREPROFESSIONAL PREPARATION

If you're considering a professional degree beyond the bachelor's, NJIT offers accelerated options that can save you a year's time and tuition. Earn your bachelor's and a degree in medicine, optometry, dentistry or physical therapy in seven years (instead of the usual eight) or in law in six years (instead of seven). As a CSLA major, you may qualify for the following accelerated programs in conjunction with your bachelor's degree:

- **Medicine:** MD at the New Jersey Medical School of the University of Medicine and Dentistry of New Jersey (UMDNJ), Newark or at St. George's University Medical School, Granada, West Indies.
- **Dentistry:** DMD at UMDNJ, Newark, or DDS at the New York University College of Dentistry.
- **Physical therapy:** Doctor of Physical Therapy (DPT) at UMDNJ School of Health Related Professions, Newark.
- **Optometry:** OD at the SUNY College of Optometry.
- **Law:** JD at Seton Hall Law School.

Several master's programs at NJIT allow you to take graduate classes as an undergraduate; in some cases, the classes count toward both your bachelor's degree and your master's degree. In addition, NJIT offers a program that allows you to earn a bachelor's at NJIT and an MS in Physician Assistant (MSPA) at UMDNJ.

NOYCE SCHOLARS PROGRAM

NJIT's National Science Foundation-funded Teacher Education Collaboration for High-Need Schools–New Jersey program offers scholarships for students majoring in math or science who pursue teacher certification and are committed to working to improve secondary math and science education.

STRENGTHEN YOUR DEGREE WITH TEACHING OR ROTC

Teaching certification: All majors can earn certification to teach elementary or secondary school in New Jersey through this 30-credit program conducted in cooperation with Rutgers–Newark. At the same time you work toward your bachelor's degree, you can work toward certification as well and still graduate in four years. Without paying additional fees, you can earn certification in: English, language arts literacy, mathematics, biological science, earth science, physics, chemistry, physical science, science, social studies and technology education.

U.S. Air Force ROTC: Earn a commission as a second lieutenant in the U.S. Air Force, no matter your major. While working toward your degree, you'll receive military instruction leading to a commission as a U.S. Air Force officer. Through the weekly course and lab, you'll have great opportunities to develop your leadership and teamwork skills, along with the chance to compete for scholarships.