



Northeastern University College of Engineering



A Multidimensional Undergraduate Experience

EXCELLENCE IN ACADEMICS, EXPERIENTIAL LEARNING, AND RESEARCH



Jacqueline A. Isaacs, Ph.D.
Interim Dean
College of Engineering

Welcome

Thank you for your interest in the College of Engineering at Northeastern University. We recognize that this is an exciting and important time for you and your family as you choose the college or university that is best for you. This brochure is designed to provide you with some insights about opportunities in engineering at Northeastern.

Today's engineering challenges are far more complex than anything we could have imagined even a decade ago. To meet these challenges, engineers from previously distinct areas are now collaborating more than ever and partnering with experts in other fields. Northeastern's College of Engineering is optimally positioned to respond to this paradigm shift; for more than a century, interdisciplinary collaboration and engagement with the real world have been our guiding principles.

Our faculty push beyond traditional disciplinary boundaries to explore and create new areas of study, such as our latest additions: a PlusOne Curriculum (BS and MS) in Environmental Engineering and combined majors in Civil Engineering and Architectural Studies, and Computer Engineering and Computer Science. In research, our faculty look at critical issues in materials, processes, systems and infrastructure at every scale—nano to macro to global—grounded in a translational approach that integrates the values of fundamental and applied research to meet societal needs.

Our students develop as innovators and leaders through Northeastern's distinctive model of experiential learning, anchored by our world-leading cooperative education program and extending to include service learning, entrepreneurship, national competitions, and global experiences. The combination of outstanding classroom study with industry experience, research, and personalized learning ensures that we are preparing the next generation of engineers to keep pace with fast-changing and exciting global demands.

The College of Engineering is very proud of its alumni and their accomplishments, whether they are leading Fortune-500 companies, blazing new trails in start-up initiatives, or leading cutting-edge research programs in national laboratories. Today, we have nearly 45,000 alumni in more than 100 countries. We hope you will consider joining this large community of accomplished engineers.

I invite you to learn more about our transformative engineering programs and the many opportunities that the college provides; and I wish you all the best as you seek the institution that is best for you.

Jacqueline Isaacs
Interim Dean, College of Engineering

Table of Contents

Bioengineering	3
Chemical Engineering	4
Civil and Environmental Engineering	5
Electrical and Computer Engineering	6
Mechanical and Industrial Engineering	7
First-Year Program	8
Majors and Minors	9
Experiential Learning	10
Student Organizations	11
Global and Research Opportunities	11

Photos by: Brooks Canaday, Matthew Modoono, Alexandra Berleus, Adam Glanzman unless noted



Ben Zinser, Mechanical Engineering junior (minors: Electrical Engineering, Math, & Robotics) working on the Mars Ice Challenge robot.



Yajing Wang, Computer Engineering freshman, working on the Adaptive Guitar project in the Enabling Engineering Lab.



Students test their structures on an earthquake-simulating shake table during the annual gingerbread house competition.

Bioengineering



Lee Makowski, Professor and Chair of the Bioengineering Department, working with students in the lab.

The Bioengineering department was created in response to rapidly increasing student interest, expanding bioengineering research opportunities and exponential industry growth. It is built upon the innovative research already underway by Northeastern faculty.

Bioengineering is engineering in a biological context such as the human body, an ecosystem, or a bioreactor. In every case, the interface between engineered and biological systems place unique constraints on the design and implementation of devices, instruments or implants. These depend on the properties of the biological system involved and the functionality that is being created.

The interface of engineering and medicine as embodied in Bioengineering will be one of the most exciting endeavors and greatest adventures of the 21st century. Job opportunities are expected to expand dramatically with a focus on development of entirely new classes of products, instrumentation, and implants. The impact to human health will be extraordinary.

Bioengineering is intrinsically multidisciplinary and it is essential that students learn the languages used by multidisciplinary teams. To that end, our undergraduate curriculum is structured around a core of 6 courses that analyze biological systems from every possible quantitative point of view. On completion of the core, students choose one of 3 concentrations, which provides the opportunity to develop a deep level of expertise in an area of great value to Bioengineering.

Students joining the Bioengineering department will have unique opportunities in the classroom, research labs, and experiential learning. The projects that they may be able to contribute to include bio-bandages that monitor bacterial growth or that help damaged ligaments heal faster; sheets of cells folded like origami to form a working kidney; and new materials that—like a leaf in the sun—automatically sense and adapt to changes in the environment. This is truly an exciting time!

Total Students Enrolled

600

Curriculum concentrations

Biomedical Devices and Bioimaging
Cell and Tissue Engineering
Biomechanics

Research Areas

Intrinsically interdisciplinary, the Bioengineering department engages faculty from across the college and university, pursuing research in:

- Biocomputing & Information Processing (bioimaging, bioinformatics, simulation)
- Systems & Synthetic Biology (biomotor control, cell and tissue engineering, environmental biology, mechanobiology, metabolic engineering)
- Biodevices (biomaterials, bioMEMs, legal and regulatory issues, nanomaterials)

Total Co-op Employers

300

Representative Employers

Abiomed
Becton Dickenson
bluebird bio
Boston Scientific
Brigham and Women's
Eli Lilly
Hologic
J&J
Lyndra
Takeda
Wyss Institute

Employer Types

Biotechnology
Alternative Biofuels
Medical Devices
Pharmaceutical
Nano Medicine
Tissue Engineering
Imaging

Typical Co-op Jobs

Medical device design, drug development, process development, bioinformatics, genetic engineering, synthetic biology, biomedical imaging, biomedical materials, biomedical device and product manufacturing

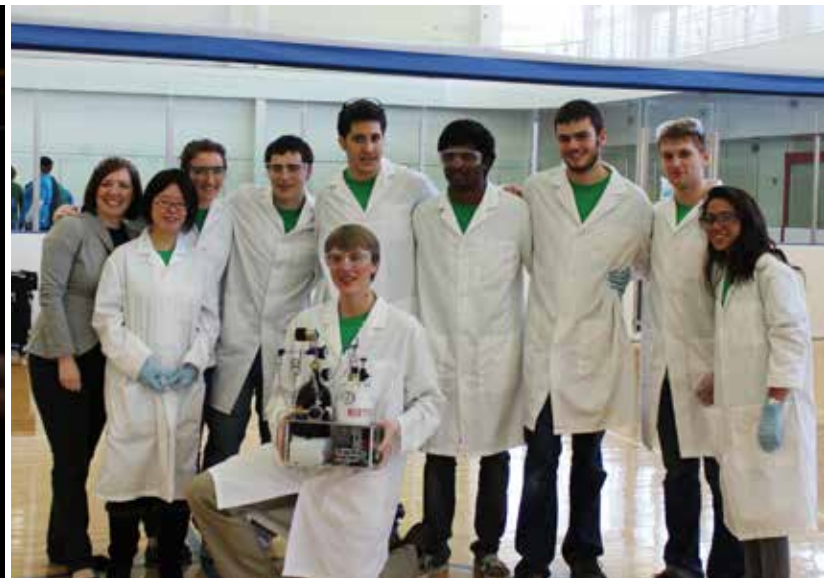


Anie Phillips, accepted to medical school (early admissions cycle), has had co-ops in Medical Devices and as a Clinical Assistant



Kritika Singh, Rhodes Scholar, does biomedical research and outreach to help eliminate malaria and other diseases

Chemical Engineering



Faculty: Dr. Debra Auguste is collaborating with Boston Children's Hospital to develop new treatments to target and treat patients with triple-negative breast cancer. Her research is focused on designing a new way to simultaneously deliver a cancer-killing drug and interfere with the cancer's ability to grow and spread.

Students: Chemical Engineering students come together with faculty for social events sponsored by NU's chapter of the American Institute of Chemical Engineers. This student group participates in the Chem-E-Car competitions winning national and regional awards in the last 5 years; but more importantly forming community and having fun!

Alumni: Lauren Gianino enhanced her studies with 18 months of co-op, a Research Experience in Bioengineering at UC Berkeley, and a Dialogue of Civilization in Europe to study history and art. She also found time to tutor, be on the executive board of the engineering honor society, and participate in NU's Dance Company. Her academic, co-op, research, and leadership accomplishments earned her multiple job offers prior to graduation and early admission to Harvard's MBA program.

Sean Burns was selected for a Steamboat Foundation Summer Scholars Program which supports students who show potential for becoming leaders in their field. A co-op with Millennium Pharmaceuticals prepared Burns for the program where he worked in an oncology lab at the Dana-Farber Cancer Institute. He also volunteered at Brigham & Women's Hospital and tutored high-school students in an urban youth program. After completing medical school, Sean will do his residency in emergency medicine.

Jordan Harris did research in the Advanced Drug Delivery Lab under Professor Rebecca Carrier. His three co-ops helped him realize a tremendous interest in medical research and immunology. As a result, he's now at the University of Pennsylvania earning a dual MD/PhD degree, hoping to run his own lab where he can do research and practice medicine simultaneously as a physician-scientist.

Total Students Enrolled

590

Research Areas

Advanced Materials
Alternative Energy
Biochemical & Biomedical Engineering
Biomaterials

Computational Modeling
Electrochemical Engineering
Multifunctional Materials
Nanostructure Design
Nanotechnology

Total Co-op Employers

190

Representative Employers

Abbvie
Acorda Therapeutics
Amag
Amgen
Ashland Specialty
A123 Systems
bluebird bio
Entegris
Form Energy
HH Technology

Nano C
Ocular Therapeutix
Pfizer
Poly6
Rogers Corporation
Sanofi Genzyme
Nuvera Fuel Cells
TEL NEXX
Waters Corporation

Employer Types

Biotechnology
Alternative Fuels/Energy Storage
Chemical Manufacturing
Coatings/Materials
Consulting

Consumer Products
Pharmaceuticals
Process Design
Product Design
NanoTechnology
Semiconductors

Typical Co-op Jobs

Process engineering, biomaterials engineering, lab technician, equipment design, product development, process controls, data analysis, mixing and formulations, analytical chemistry, advanced materials, research and development



Jordan Harris, next step: MD/PhD



Lauren Gianino, next step: Harvard MBA



Sean Burns, next step: medical school

Civil and Environmental Engineering



The coming decades will represent a crucial time in human history as climate change, urbanization, and technological progress profoundly reshape the ways in which we live and work. From the opportunities of renewable energy and artificial intelligence to the threats of rising sea levels and overcrowded urban spaces, civil and environmental engineers work at the forefront of an ever-evolving and complex world.

Northeastern civil and environmental engineering students prepare for lifelong engagement with the world through a flexible curriculum and exciting co-ops across the U.S. and around the world. Our program offers leadership opportunities through award-winning student groups like our chapter of the American Society of Civil Engineers, which leads community service projects throughout the region, and Engineers Without Borders (EWB), which builds schools, water systems, and other projects for communities in Africa and Central and South America.

One favorite way for students to enhance their classroom experience is through Dialogue of Civilizations, six-week immersive faculty-led summer programs which pair cultural experience with technical learning. Recent Dialogues include trips to the Netherlands to learn about sustainable transportation, to India (pictured above) to learn about climate change, and to Italy to learn about resource recovery.

For students interested in research, our outstanding faculty (e.g., Ameet Pinto, pictured above right with student) have a variety of projects to engage with in the lab or in the field, such as developing tools to rapidly identify microbes in drinking water, and strengthening communities against climate change.

Students are mentored by faculty to reach their highest potential. We are very proud of our recent Civil Engineering grad, Logan Jackson, who received a Rhodes Scholarship upon completing her degree and subsequently received two master's degrees from Oxford University.



Logan Jackson, Rhodes Scholar, completed two master's degrees from Oxford



Michael Tormey, Marshall Scholar, will pursue graduate studies at the London School of Economics and University of Leeds



Kelly O'Connell was recognized nationally as Co-op Student of the Year by the American Society of Engineering Education



Julieta Moradei did co-ops at Disney and at a firm where she integrated civil engineering with architecture. She will begin her MBA at Harvard in 2020.

Total Students Enrolled

Civil Engineering: 350

Environmental Engineering: 80

Research Areas

Sustainable Urban Engineering
Coastal Engineering
Environmental Sustainability
Water Quality and Public Health

New Materials
Smart Infrastructure
Earthquake Engineering
Civil Infrastructure Security

Total Co-op Employers

140-160

Representative Employers

AECOM	Howard Stein Hudson
Barletta	Jacobs Engineering
Berkshire Hathaway	McCourt Construction
BlueWave Solar	Nitsch Engineering
City of Cambridge	Panama Canal Authority
CDM Smith	Parsons
D.C. Beane and Associates	Simpson Gumpertz and Heger
Disney Worldwide Services	Stantec
DN Tanks	Suffolk Construction
Environmental Partners	Toole Design Group
Faithful+Gould	Turner Construction
HDR Engineering	Vanasse Hangen Brustlin
HNTB Corporation	WSP

Employer Types

Environmental Health	Infrastructure Preservation
Smart Construction Design	Sustainable Energy
Structural and Geotechnical Design	Government
Transportation Systems	Urban Development
	Environmental Consulting

Typical Co-op Experiences

Sustainable building and urban design, energy sector efficiency, environmental protection and design, clean water development, forensic engineering, infrastructure planning, design, and construction

Electrical and Computer Engineering



Elizabeth Wig, Electrical Engineering senior, on co-op at NASA.

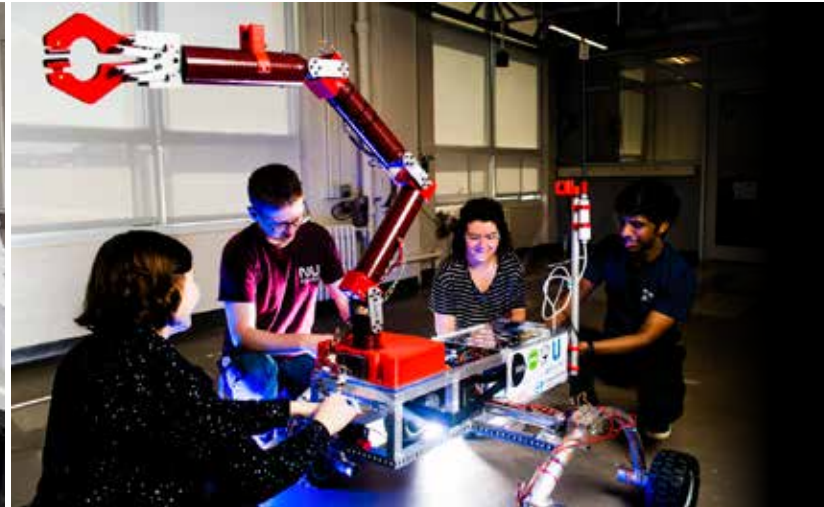
The University's leadership in both co-op and research provides unique opportunities for students to extend what they learn in the laboratory to the workplace and vice versa.

For example, Elizabeth Wig (pictured above), is a senior, majoring in Electrical Engineering with a minor in Mathematics. She credits her undergraduate research and co-op experiences for the skills that will be extremely valuable when she enters graduate school.

Elizabeth is fascinated by electromagnetics, a field with a wide range of applications. At NASA's Armstrong Flight Research Center, she helped test and demonstrate the viability of a radar system for an autonomous vehicle. At ALERT, a security-focused research center based at Northeastern, she helped refine a model for detecting explosive materials in airport scanners. And while on co-op in the R&D labs at Draper, she worked on creating a proof-of-concept for a technology used in self-driving cars.

These research experiences have allowed Elizabeth to apply her knowledge of electromagnetics to problems as diverse as threat detection, LIDAR optimization, cellular phone technology, the Mars Rover, and radar for drones. Elizabeth earned the 2018 Goldwater Scholarship in recognition of her outstanding achievements and potential as a researcher. She has also been the recipient of a SWE scholarship and has been the President of the NU student chapter of IEEE. She plans to earn a Ph.D. in electrical engineering and conduct research in either an academic or industrial setting.

In addition to co-op, Northeastern engineering students get valuable hands-on experience through a required capstone design experience in their senior year. The capstone experience requires students to utilize knowledge and experience they have acquired in the classroom, in the lab, and on co-op to address a unique design challenge and implement a solution—into a working prototype if plausible. See this website for some of the exciting projects: ece.northeastern.edu/academics/undergraduate-studies/ece-capstone/



The Northeastern University Mars Rover Team working on a new prototype.

Total Students Enrolled

Electrical: 230 Computer: 310
 Electrical Engineering & Computer Engineering: 130
 Computer Engineering & Computer Science: 240

Research Areas

AI: Computer Vision, Machine Learning	Electromagnetics, Plasma, and Optics
Big Data and Algorithms	Microsystems, Materials, and Devices
Communications	Motion Control
Controls	Power Systems, Power Electronics
Computer Networks and Security	Robotics
Computer Systems and Software	Signal and Image Processing

Total Co-op Employers: 300-350

Representative Employers

Advanced Micro Devices	NBC Universal
Amazon Robotics	Optimus Ride
Analog Devices	Philips
Apple	Qualcomm
Bose Corporation	Raytheon
Boston Engineering	Red Sox Baseball
Draper Laboratories	RKF Engineering
Dell/EMC	Schneider Electric
Google	SharkNinja
Hasbro	SpaceX
Intel	Starry
iRobot	Tesla Motors
MIT Lincoln Laboratory	Teradyne
MITRE	WHOOP

Employer Types

Aerospace	Healthcare
Automotive	Machine Learning
Computer Software/Hardware	Medical Electronics/Biomedical
Consulting and Contract Design	Power Generation/Distribution
Consumer Products	Research
Defense	Robotics
Electronics Research/Development	Semiconductor Design and Tools
	Telecommunications

Typical Co-op Jobs

Software quality assurance, test and debug; hardware design; assistant substation engineer; digital signal processing; semiconductor design; embedded programming; project engineering; prototype assembly and test; power conversion design; research & development engineering support; software development; medical product design/test; robot design, test and development; circuit board design and testing; systems engineering

Mechanical and Industrial Engineering



Carly Parlato, Mechanical Engineering grad, was selected to be the 2018 student graduation speaker.

Mechanical and Industrial engineering students have many exciting opportunities both inside and outside of the classroom. It is truly rewarding when both come together. Carly Parlato's time at Northeastern has taken her to the NASA Jet Propulsion Laboratory in California and Taiwan during a Google co-op. Her ambition is to travel much, much farther. "I'd love to go to Mars," said Parlato, who gave the student Commencement address in May and received her degree in mechanical engineering.

Parlato, who is from Hillsborough, NJ, has already done plenty of cool things. On co-op at NASA, she worked on the Mars 2020 rover. She also had the opportunity one day to "play in the MarsYard"—NASA's simulated Martian landscape used to test different robotic prototypes. There, she encountered a replica of the Mars rover Curiosity, and the actual BB-8 droid from the Star Wars movies.

She was also a member of the student team that participated in the Hyperloop Pod Competition, which challenges college students to design and build the best prototype as part of SpaceX founder Elon Musk's vision to make his Hyperloop concept a reality.

Following graduation, Parlato began a job at SpaceX as an associate engineer, where she will work on the environmental control and life support systems of the Dragon spacecraft. Her job will involve ensuring the temperature and pressure in the spacecraft's capsule is such that it can support life.

Parlato said her vision goes beyond working on exciting projects that take others into space. She said she's "hell-bent" on getting up there too one day. In her Commencement address, she encouraged her peers to "embrace change" and reminded them of what a unique experience they've had at Northeastern. "We've been given an edge on life," she said, referring to the extensive real-world work experience gained through co-op.

By Greg St. Martin
News@Northeastern



Students participating in the Hyperloop competition with prototype "pod" they designed in background.

Total Students Enrolled

Mechanical Engineering: 1150 Industrial Engineering: 300

Research Areas

Advanced Materials Engineering	Quality Control
Biomechanics/Biosensors/ Biomedical	Robotics/Control/Human Machines
Energy Systems	Smart & Sustainable Manufacturing
Fluid Flow	Thermodynamics/Combustion/ Heat transfer
Healthcare Systems	Tribology
Microelectromechanical Systems	Virtual Environments/Human- Factors
Mechanics and Design	Engineering
Mechatronics	
Nanotechnology	
Operations Research	

See this website for more: mie.northeastern.edu/coe-research/research-areas/

Total Co-op Employers

350-400

Representative Employers

Abiomed	Hasbro
Amazon Robotics	iRobot
Analogue Corporation	Johnson and Johnson/Depuy
Apple	Synthes
Beth Israel Hospital	MIT Lincoln Laboratory
Bose Corporation	NASA JPL
Boston Children's Hospital	NxStage Medical
Boston Scientific Corporation	Raytheon
Dana Farber Cancer Institute	SharkNinja
Desktop Metal	Sikorsky Aircraft
Fikst Product Development	Tesla
General Electric	

Employer Types

Aerospace	Defense
Automotive	Government
Biomedical	Healthcare
Construction/HVAC	Industrial Products
Consulting	Power/Energy
Consumer Products	Robotics

Typical Co-op Jobs

Design, research and development, solid modeling/drafting, quality control, prototype/assembly, manufacturing, business intelligence, testing, data analysis/statistics, supply chain/logistics, sales engineering, project management, renewable energy, robotics, business consulting and systems engineering

Common First-Year Curriculum

Engineering students take a common first-year curriculum (shown below), and do not need to commit to an engineering major until the end of their freshman year.

FALL Semester:

Introduction to the Study of Engineering	1 credit
Cornerstone of Engineering 1.....	4 credits
Calculus 1.....	4 credits
General Chemistry.....	4 credits
College Writing	4 credits

SPRING Semester:

Cornerstone of Engineering 2	4 credits
Calculus 2.....	4 credits
Physics 1 + lab.....	5 credits
Elective.....	4 credits

Most 4 credit classes meet three times a week for 65 minutes each.

Advanced Placement and Transfer Credit

Credit for courses may be awarded for AP exam scores of 4 or greater and transfer courses appearing on an official college transcript with a grade of C or better. Also course credit may be awarded for scores of at least 5 on an IB higher-level exam. An academic adviser will work with students during summer orientation to determine the specific courses in the engineering curriculum for which credit can be awarded, to discuss the value of that credit in a specific program of study, and to make any necessary course schedule adjustments for the first semester.

SUPPORT EFFORTS FOR FIRST-YEAR STUDENTS

Undergraduate Academic Advising Office

Professional academic advisors are available in the Snell Engineering Center, Room 220 office suites. The office provides support, advice, and referral services for all student issues and concerns. Engineering students are urged to talk to one of our advisors about any concern or issue before academic success is impeded.

GE1000: Introduction to the Study of Engineering

This course, required for all new engineering students in their first semester, meets weekly and focuses on decision-making and tools for success in studying engineering. Designed to facilitate the transition from high school to college and from living under direct parental influence to an environment of more independent responsibility, this course is taught by academic advisors and upper-class engineering students. A student's GE1000 instructor serves as the student's advisor for their freshman year.

First-Year Faculty

Twelve professors specialize in teaching first year engineering courses to help new students meet the challenges of the first year.



Photo by: Christina McNeil

First Year Engineering Learning and Innovation Center.

University Honors Program

Honors sections of courses taken by first-year engineering students are available for those accepted into the Honors Program.

Freshman Engineering Residence Hall

First-year engineering students can elect to reside with other first-year engineering students in the Engineering/Connections Living Learning Communities (dedicated floors in a freshman residence hall). Incoming students indicate this preference when registering for housing.

Course Scheduling

First-year courses are scheduled to facilitate the formation of study groups and new friendships. For example, whenever possible, the schedules are organized so that students in a particular section of freshmen engineering will also be in the same chemistry, English, and math sections.

Tutoring for First-Year Engineering Students

Upper-class students are available (35 hours per week) to provide free drop-in tutoring for first-year engineering students in calculus, physics, chemistry, and engineering courses. Tutoring services are also provided by the Physics department, Math department, Chemistry Central, the Writing Workshop, student groups, and honor societies.

Women in Engineering

Special programs (e.g., mentoring and tutoring) designed to support women students in engineering are coordinated by the Director of the Women in Engineering Program, Rachele Reisberg (r.reisberg@northeastern.edu).

Multicultural Engineering Program

Special programs (e.g., mentoring and tutoring) designed to support under-represented students in engineering are coordinated by the Director of the Multicultural Engineering Program, Richard Harris (ri.harris@northeastern.edu).

Majors and Minors

All engineering students follow a common curriculum during their first year and do not need to commit to a major until the end of their freshman year. Introductions to the various majors are accomplished within the freshman engineering courses and special departmental forums, as well as in conversations with individual engineering faculty.

The College of Engineering offers the following undergraduate majors and combined majors:

- Bioengineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Mechanical Engineering

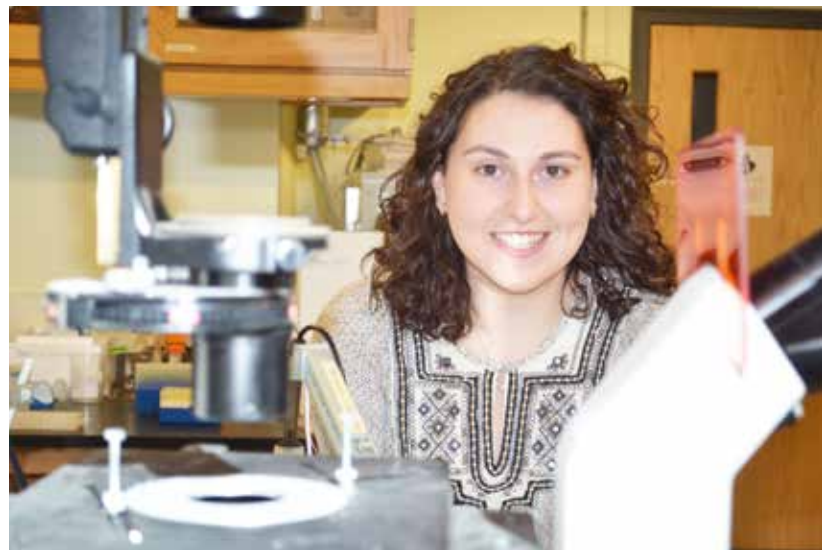
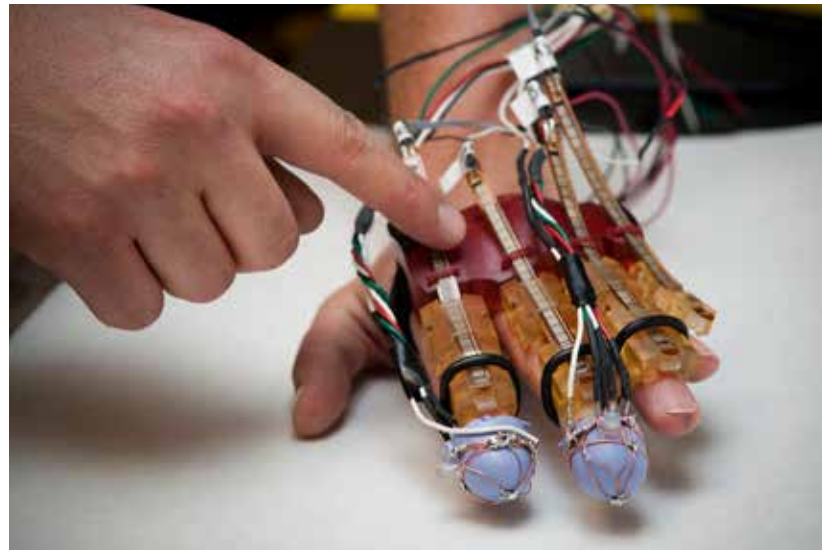
- Chemical Engineering & Biochemistry
- Chemical Engineering & Physics
- Civil Engineering & Architectural Studies
- Computer Engineering & Computer Science
- Computer Engineering & Physics
- Electrical & Computer Engineering
- Electrical Engineering & Music Technology
- Electrical Engineering & Physics
- Environmental Engineering & Health Science
- Environmental Engineering & Landscape Architecture
- Mechanical Engineering & Design
- Mechanical Engineering & Physics

Additional information about each major can be found on the COE website at: coe.northeastern.edu

MINORS

In many cases, a student can earn a minor without course overloading. There are over 70 minors across 7 colleges. Some of the popular minor choices for engineering students include:

- | | |
|---------------------------|---------------------------------|
| Architectural Engineering | Data Analytics |
| Biochemical Engineering | Electrical Engineering |
| Biology | Entrepreneurial Engineering |
| Biomechanical Engineering | Industrial Engineering |
| Biomedical Engineering | Mechanical Engineering |
| Business Administration | Materials Science & Engineering |
| Chemistry | Mathematics |
| Civil Engineering | Music |
| Entrepreneurship | Physics |
| Environmental Science | Psychology |
| Computer Engineering | Robotics |
| Computer Science | Sustainable Energy Systems |



Dr. Sandra Shefelbine, Professor, jointly appointed in the departments of Mechanical Engineering and Bioengineering, researches mechanics of the skeletal system.

Experiential Learning

Co-op has been the centerpiece of a Northeastern College of Engineering education since 1909.

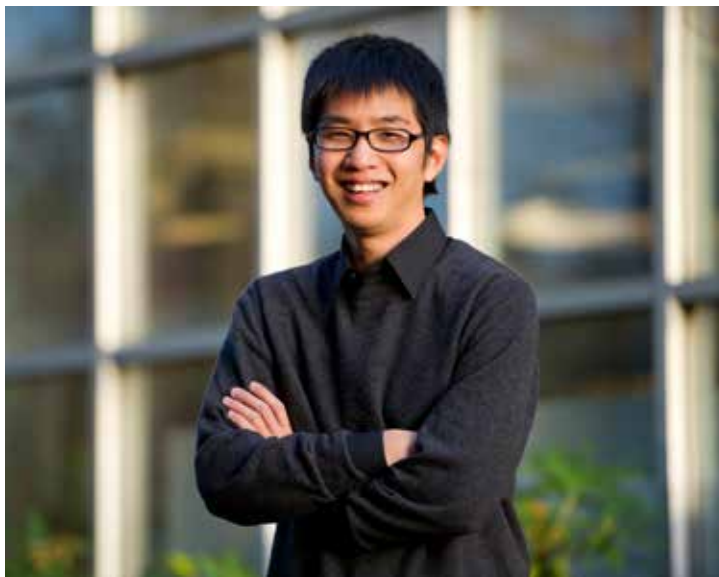
After their freshman year, students typically alternate periods of classes with relevant, paid employment. Students graduate with 12 to 18 months of relevant work experience and a strong set of technical and professional skills, as well as a clear understanding of the career they have chosen.

There are over 1100 undergraduate co-op employers in 38 states and 37 countries. Students can work in Boston (and live on campus), set up a co-op in their hometown, or work elsewhere in the US or around the world. More than twenty engineering co-op coordinators work closely with our students.

Students do not typically take classes or pay tuition while on co-op. The median hourly co-op salary ranges from \$17 (first co-op) to \$29 (last co-op). Nearly 50% of our students receive a job offer from their co-op employer. 90% of our graduates are employed full time or enrolled in graduate school within 9 months of graduation.

The Co-op program helps students:

- Connect and apply classroom theory
- Grow personally and professionally
- Find careers that suit their interests and abilities
- Build an impressive resume
- Meet potential employers
- Develop valuable job search and interviewing skills
- Gain self-confidence
- Prepare to be lifelong learners



Shuntaro Okuzawa (pictured), a recent Industrial Engineering graduate, took his last co-op with IBM in the Philippines. After graduating, Okuzawa accepted a job with Amazon's supply-chain team, and has rotated through assignments in Japan and now India.

There are several co-op schedule choices for completing a Bachelor of Science (BS) degree as well as an option to complete a PlusOne Accelerated Master's degree.

The options include:

- 4-year BS program with 2 six month co-ops (Figure 1)
- 5-year BS program with 3 six month co-ops (Figure 2)
- PlusOne Accelerated Master's degree (4-year BS plus additional 2 semesters of classes as a graduate student)

More info at: coe.northeastern.edu/undergradcoop

Freshman	Fall: SCHOOL		
	Spring: SCHOOL		
	Summer 1: SCHOOL - NU Term		
	Summer 2: VACATION		
	Sample Schedule A	Semester	Sample Schedule B
Sophomore	SCHOOL	Fall	SCHOOL
	SCHOOL	Spring	CO OP 1
	SCHOOL	Summer 1	
		Summer 2	SCHOOL
Junior	CO OP 1	Fall	SCHOOL
	SCHOOL	Spring	CO OP 2
	SCHOOL	Summer 1	
		Summer 2	SCHOOL
Senior	CO OP 2	Fall	SCHOOL
	SCHOOL	Spring	SCHOOL

Figure 1

Freshman	Fall: SCHOOL		
	Spring: SCHOOL		
	Summer: VACATION		
	Sample Schedule A	Semester	Sample Schedule B
Sophomore	SCHOOL	Fall	SCHOOL
	SCHOOL	Spring	CO OP 1
	VACATION	Summer 1	
		Summer 2	VACATION
3rd Year	CO OP 1	Fall	SCHOOL
	SCHOOL	Spring	CO OP 2
	SCHOOL	Summer 1	
		Summer 2	SCHOOL
Junior	CO OP 2	Fall	SCHOOL
	SCHOOL	Spring	CO OP 3
	SCHOOL	Summer 1	
		Summer 2	SCHOOL
Senior	CO OP 3	Fall	SCHOOL
	SCHOOL	Spring	SCHOOL

Figure 2

Student Organizations

Students have an opportunity to develop their leadership skills through participation in any of our student professional societies. These include:



Engineers Without Borders on-site in Honduras

AerospaceNU
American Institute of Chemical Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
BioMedical Engineering Society
Black Engineering Student Society
Enabling Engineers
Engineers Without Borders
FIRST Robotics - NUTRONS
Generate
Institute of Electrical & Electronics Engineers
Institute of Industrial & Systems Engineers
International Society for Pharmaceutical Engineers
NU Baja SAE All-Terrain Vehicle
NU Embark
NU Institute of Transportation Engineers
NU New England Water Environment Assoc.
NU Robotics
NUSound
oSTEM
Paradigm Hyperloop
SEDS
Society of Asian Scientists & Engineers
Society of Automotive Engineers
Society of Hispanic Professional Engineers
Society of Women Engineers
Solar Boat
STEMout
Wireless Club

Global Opportunities

The College of Engineering supports the opportunity to have students go global by participating in one of many programs at Northeastern. These include Study Abroad programs, such as semester study abroad and Dialogue of Civilizations. Global Co-ops provide additional opportunities for students. Locations have included: Singapore, Germany, Tanzania, Costa Rica, Italy, Netherlands, Chile, Ireland, Turkey, Madagascar, and China. Additionally, the engineering student organization, Engineers Without Borders (EWB), applied their engineering skills, traveling to Honduras where they designed and constructed a system which will supply clean drinking water to the town of Los Planes.



Dialogue of Civilization to study renewable energy in Brazil

Research



Kristina Bennett, chemical engineering BS/MS '18, became involved in research as a freshman. She participated in two Research Experiences for Undergraduates (REUs) funded by the National Science Foundation: one during the summer after her freshman year at Princeton, and, one after her third year at the University of Connecticut.

Northeastern's College of Engineering is engaged in a wide array of exciting and highly innovative research areas. These include 17 state-of-the-art multidisciplinary Research Centers and institutes with funding by eight federal agencies. When combined with numerous other research efforts at Northeastern, engineering research-related awards exceed \$67 million annually. See: coe.northeastern.edu/coe-research/research-initiatives/. This creates a vibrant research community of faculty, graduate and undergraduate students, and collaborative partners at other universities, hospitals, and industry.

Some research programs freshman may apply for are the ALERT and Bernard Gordon CenSSIS Scholars programs. These select groups of students attend faculty research presentations during their freshman year and then are matched up with faculty to begin research projects. Additionally, freshmen with a GPA above 3.0 are encouraged to apply for summer REUs (Research Experience for Undergraduates) which enable them to conduct original research during a 10 week on-campus paid internship. As an upper class student, there are additional opportunities to perform independent research work both in a university setting and/or with industry partners during their six month co-op period.

These undergraduate research opportunities provide a unique window into graduate research for students wishing to continue their education in graduate school at Northeastern or other excellent graduate programs from MIT to Stanford.



College of Engineering

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