TAKE ON THE WORLD

BE AN ENGINEER

HAJIM SCHOOL OF ENGINEERING & APPLIED SCIENCES AT THE UNIVERSITY OF ROCHESTER

1850 MELIORA

UNIVERSITY of ROCHESTER

Picking a college and a major is really about deciding what you want to do with your life. It's not an easy decision.

But if you want to make the world a better place—while working with others as part of a team and being amply rewarded for doing so—then the decision may not be as difficult as it appears.

Enroll in the University of Rochester. And become an engineer.

Engineers are the magicians behind the curtain of technology, tackling the grand challenges that face our society. They create synthetic tissues, implantable devices, and diagnostic tools used in medical clinics. They are working on alternative methods of producing, storing, and distributing energy—from solar, to nuclear, to hydrogen fuels cells, to smart grid development. They "mine" the mountains of data that inundate us in every walk of life, finding the common threads that provide insight and new knowledge to drive innovation in medicine, life sciences, energy, and business.

They also design the latest sports cars, mobile devices, tablet computers, and apps that enrich our daily lives.

At the Hajim School of Engineering & Applied Sciences, we prepare our students to tackle these great challenges—and to improve our lives—with a "full spectrum" of opportunities. What does that mean? The Hajim School provides students a complete array of engineering to explore, from nano-scale biomedical devices to one of the world's most powerful ultraviolet lasers. Hajim School students engage not only in classroom instruction but also in cutting-edge research and hands-on design projects that have real-world applications. They can participate in music, arts, or athletics in addition to their core curriculum. They can study abroad. In other words, we provide students with a rich education and the opportunity to truly grow.

The Hajim School will give you a foundational education, teaching you what you need to know for your first job and how to continue to innovate in a world of accelerating change. Engineers are technology leaders in corporations like Apple, Boeing, Cisco, Google, and Microsoft. However, they also pursue careers in business, law, and medicine. They lead and found major companies. They discover solutions in health care and broadly serve the needs of humanity.

Engineering graduates are not only in high demand but also well rewarded. According to a 2013 report by the National Association of Colleges and Employers, seven engineering majors are among the 10 highest-paid at the bachelor's degree level.

In these pages, you will read profiles of current Hajim students and testimonials of recent graduates. You will get detailed information about our departments and special programs to help you make the all-important decisions that will help shape your future.

Whether you choose to attend the University of Rochester or elsewhere—choose engineering.

CHEMICAL ENGINEERING

BIOMEDICAL ENGINEERING

MECHANICAL ENGINEERING

COMPUTER SCIENCE

ELECTRICAL & COMPUTER ENGINEERING

THE INSTITUTE OF OPTICS

LABORATORY FOR LASER ENERGETICS

AUDIO & MUSIC ENGINEERING

UNIVERSITY OF ROCHESTER

IT'S YOUR CHOICE

The thing that made the University of Rochester stand out . . . was the freedom I was handed to shape and build my own curriculum. A university that respects and trusts its students with the core of their joint purpose was a place I wanted to be.
—Mike Levine, MECHE

Students in Arts, Sciences & Engineering at the University of Rochester, one of the world's top research universities, study only what they're passionate about. They choose a major in one of the three divisions of learning and take thematic three-course clusters in the other two areas. (Students in ABET engineering majors take a cluster in one area.)

This flexibility allows untraditional combinations of majors and minors and enables 23 percent of our students to complete a double major.

The University's seven schools include one of the country's best nursing institutions, a competitive business school, a distinguished medical center, a top engineering school, an innovative school of education, and one of the world's premier creative forces in music.

Our 170 buildings house more than 200 academic majors, nearly 2,300 faculty and instructional staff, and 11,000 students—approximately half of whom are women. Rochester remains one of the smallest and most collegiate among top research universities, with a 10:1 student-to-teacher ratio, allowing close interaction with faculty.

Our award-winning faculty hold memberships in the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences. Many students "major in a professor," working closely with passionate, renowned scholars who regard their students as partners in scholarship and research. Indeed, nearly 80 percent of our undergraduates are involved in research.

Many are also involved in music (25 percent), study abroad (34 percent), and participate in internships (92 percent). More than 250 campus clubs provide a range of activities.

Rochester is an urban setting with an easy suburban feel, three hours by car from Toronto, six hours from New York City and Boston. Its festivals celebrate jazz, lilacs, and fine arts and crafts. The city is home to a renowned art museum, Kodak Hall at Eastman Theatre, three professional sports venues, the National Museum of Play, and the internationally acclaimed George Eastman House photography museum. There is easy access to Lake Ontario, the Erie Canal, the Finger Lakes, and a vast greenbelt of gardens and parks.

The University of Rochester guides students from the widest possible sense of freedom to an individualized, assured sense of focus. By the time they graduate, students have learned how to pursue what they love and serve as driving forces for innovation.

HAJIM ADVANTAGE

It's not easy getting the job you want fresh out of college. Let the Hajim School of Engineering & Applied Sciences give you an "unfair" advantage!

Our new audio and music engineering major will give you access to state-of the-art recording studios and fabrication labs as you learn to provide audio content, search and retrieval, and distribution in such expanding industries as video gaming and the Internet.

Our innovative master's program in medical technology and innovation immerses students in operating rooms and other clinical settings before they start designing medical devices. Students partner with companies, giving them a huge advantage in finding jobs in this growing field.

The Technical Entrepreneurship and Management (TEAM) program provides engineering students with the business skills to start their own companies or to hit the ground running with startups and established companies.

Our University has committed $100 million to an Institute for Data Science that will train our students to be leaders in a defining discipline of the 21st century. Our departments of computer science and electrical and computer engineering are at the cutting edge of research in artificial intelligence, human-computer interaction, and computational systems.

We are determined to make these opportunities available to students of all backgrounds. In its first year, for example, our STEM-Gems program helped 95 percent of our underrepresented minority students successfully navigate their freshman year.

The best education in the world is of little use, however, to students who cannot "sell" themselves in a job interview. That's why we offer a professional networking course that helps students explore their internship and career goals and develop a persuasive professional communication portfolio.

When you're trained as an engineer, a world of opportunities is at your doorstep. We'll help you take those opportunities by storm!

AME AUDIO AND MUSIC ENGINEERING BS

Mark Bocko (mark.bocko@rochester.edu)

Think for a moment about a video game: Who generates the soundtrack? Someone with the kind of skills offered by this major.

And who will pioneer new ways of searching and retrieving music, not by title or performer, but by its mood or content? Perhaps someone who graduates from this program!

Audio and music engineering is at the intersection of science, engineering, and music. It is a rapidly evolving field where technical and artistic creativity in the sonic and musical arts are combined. And the traditional audio recording engineering profession is rapidly evolving with a burgeoning need for sonic media engineers in emerging areas such as the video game industry. Management of musical content, music information retrieval, music preference engines (such as iTunes and Amazon.com) and the semantic web are thriving industries. Thousands of Internet companies, including Apple, Microsoft, Sony, and Google—as well as music hardware and software companies—are developing audio software for content production, searching and retrieval, and distribution and commerce.

Audio and music engineering is an integral part of many industries, which represent more than $360 billion in economic activity worldwide.

The University of Rochester's audio and music engineering major, offered through a collaboration of the Department of Electrical and Computer Engineering, the College Music Department, and the Eastman School of Music, prepares students to make valued contributions the moment they enter this field. And it prepares them to evolve and grow throughout their careers.

Experiential learning, hands-on design, and the creative process are at the core of the audio and music engineering program. The central pillar of each student's education is a project portfolio that illustrates the design skills and creative abilities the student has acquired. Started during freshman year, it is capped by a senior design project. Projects might include producing a studio recording, building a vacuum tube amplifier, developing new tools for creating electronic music, or developing software for a cloud-based application or a music transcription program.

Career paths are many and diverse, including computer hardware and software manufacturing, audio software development, music and audio recording and production, audio and signal processing technologies and component manufacturing, musical instruments and audio equipment manufacturing, video gaming, automotive, architectural acoustics, urban planning, industrial noise control, and consumer product design.

JEREMY HASSETT '16

Jeremy Hassett's passion for music has pointed him toward a career in engineering.

The sophomore from Newark, N.Y., who plays electric guitar, arrived on campus undecided about whether to major in music or science.

Halfway through his first semester he heard about a class where students were actually building electric guitars. "Wow," Hassett thought, "that's really cool."

He's now enthusiastically pursuing audio and music engineering, a brand new major in the Department of Electrical and Computer Engineering. "I love it. I never thought I would be that interested in electrical engineering—until I started taking the classes."

He's intrigued, for example, that software can be programmed to re-engineer and synthesize sound—to "autocompose" music. Or that different plug-ins can change the sounds and how they are mixed. Hassett, who envisions a career in audio software, is also pleasantly surprised at the abundant opportunities—right on the River Campus—to pursue his interest in guitar. He took a Department of Music class in the theory of jazz music, for example, that allowed him to bring along his guitar and learn improvisation techniques.

"There's a lot of flexibility here in what you can do," says Hassett, who earned honors on the varsity cross country and track and field teams as a freshman. "If you are at all interested in something, but not really sure if that's what you want to do, this is a good place to be. You can find where you want to be. And they never make it seem hard for you to switch from one major to another."

WHAT YOU WILL LEARN

- Recording Arts and Sound Design (art and technology of recording, critical listening, sound design)
- Acoustics (fundamentals, loudspeaker design, architectural acoustics, acoustics of musical instruments)
- Electronics for Audio (analog and digital electronics from vacuum tubes to custom integrated circuits)
- Signal Processing (signals, audio digital signal processing)
- Audio Software Design (C and C++ programming, audio software design, computational music)

BIOMEDICAL ENGINEERING

BS/MS/PhD

www.bme.rochester.edu

BME

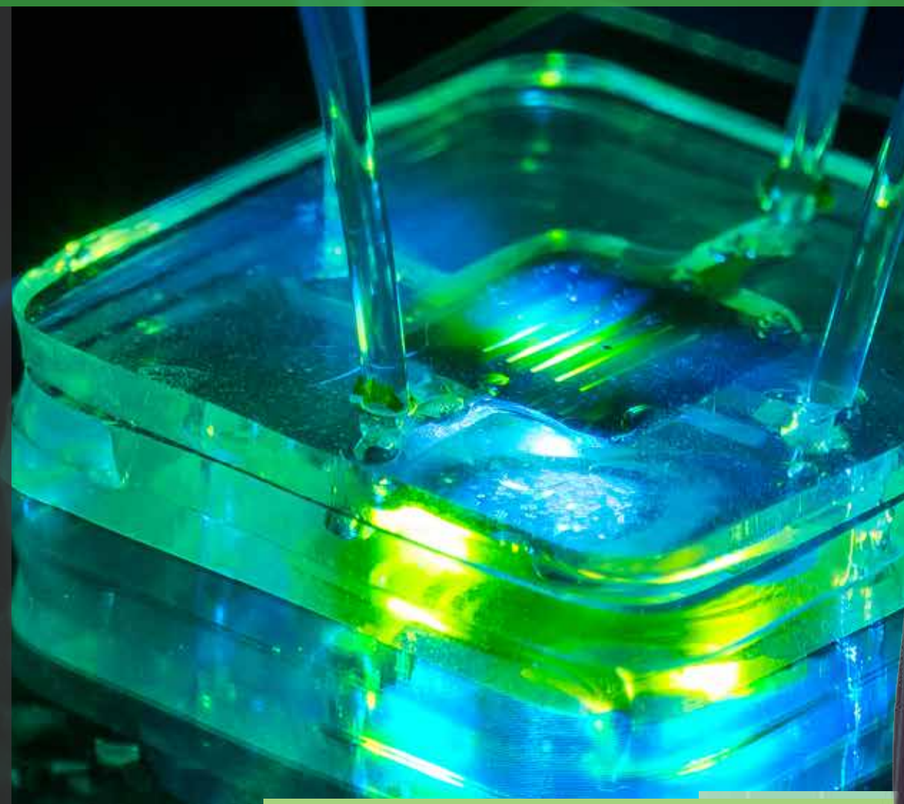
WHAT YOU WILL LEARN

Undergraduates study the following core subjects, plus a sequence of four engineering courses in one of these concentrations: biomechanics, biosignals, cell and tissue engineering, or medical optics.

- Elementary mechanical equilibrium and motion with extended applications to biology
- Computer programming in MATLAB
- Electrical circuit theory, including bioelectric systems
- Computation and statistics
- Signals, systems, and imaging
- Biomaterials for implants, tissue engineering, drug delivery, and sensors
- Quantitative physiology (muscle and nerves, cardiovascular, respiratory, and renal)
- Senior design project

POINTS OF PRIDE

- A tricycle control system devised by our undergraduate students won a prestigious International da Vinci Award. Their Senior Design project enables disabled riders to steer, brake, and shift gears on a recumbent tricycle with one hand.
- Our student chapter of the Biomedical Engineering Society is the first in history to be awarded for excellence in two consecutive years.



We take pride in offering undergraduate and graduate students ample hands-on opportunities to create exciting health care innovations—such as devising dialysis units small enough to fit in a hand, novel approaches to tissue engineering, and nanoscale drug delivery platforms. In the process, students become directly involved in moving their discoveries from bench to bedside. For example, during our yearlong Senior Design course, students develop prototypes to solve problems presented by local companies, clinicians, or researchers—and also learn about the regulatory process, economic constraints, and ethical challenges. Our new master's program in medical technology and innovation immerses students in operating rooms and other clinical settings before they begin designing medical devices. Our research is interdisciplinary, enhanced by our close physical proximity to the University of Rochester Medical Center and the Institute of Optics. Seventeen primary and 40 affiliated faculty members work with our students. With 344 undergraduate students enrolled in 2013–14—40 percent of them women—biomedical engineering represents the largest undergraduate engineering program at the University. Students graduate with career opportunities in advanced research and in industrial and clinical settings. CNNMoney rated biomedical engineering the "best job in America" in 2013, with a median salary of $87,000 and high job satisfaction.

"ONE OF THE BIGGEST 'NUGGETS OF KNOWLEDGE' THAT I HAVE TAKEN WITH ME IS HOW TO THINK. THE PROBLEM-SOLVING MINDSET THAT I HAD TO USE AS A BME MAJOR IS ONE OF THE REASONS I AM ABLE TO WORK EFFICIENTLY IN MY CURRENT ROLE."

—BETSY SWOVICK '10

ANDREW ZECCOLA '15

Andrew Zeccola has found a way to combine his interest in biology and his knack for building things. "In biomedical engineering, I can do both and help people at the same time," says the junior from nearby Pittsford, N.Y. For example, he's been working with Professor Regine Choe's lab since his sophomore year on a research project using near-infrared lasers and detectors to monitor breast cancer therapy. "So many of the professors here are willing to let you in on their research," he notes. The Department of Biomedical Engineering has the largest undergraduate enrollment in the Hajim School. But Zeccola says he never feels like he's lost in a crowd. Six or seven students will team up with a teaching assistant in weekly workshops to review material covered in lectures. "It's very easy to get individual attention," Zeccola says. "Plus, all the professors are very adamant about coming into their offices and asking them questions." Zeccola, who has earned All-Academic honors with the University's cross country team, will be team captain his senior year. Division III athletics . . . a strong academic program . . . the close proximity of the University's Medical Center to the River Campus . . . all lured Zeccola to a university practically next door to where he grew up.

But it wasn't until he visited as a prospective student that he discovered something else: "It's a gorgeous campus. I had no idea."

CLAIRE HOTVEDT ’16

One of the hardest things about choosing a college is defining priorities.

Claire Hotvedt is grateful the University of Rochester made that easy for her—by offering her just about all the choices she could want.

A sophomore in chemical engineering, Hotvedt takes violin lessons at the Eastman School, plays in the University of Rochester Symphony Orchestra, and studies Chinese. She has even taken up new activities such as Tae Kwon Do, serving as vice president of the University’s club and attending practices three times a week.

“I think I lucked into a school that fit my academic needs the best of all possible choices,” Hotvedt says. “I can’t imagine going to any of the other seven schools I applied to and ending up this happy.”

Hotvedt, who is from New Hartford, N.Y., says the well-structured curriculum in the Department of Chemical Engineering opened her eyes early on to aspects of the field that she finds “very appealing”—for example, systems processes, analysis, and development.

Eager for research experience, she made inquiries during her freshman year and by the second semester was part of Assistant Professor Hitomi Mukaibo’s lab. She’s working with a graduate student on novel ways to inject DNA into algae to enhance their potential for biofuel production and for protein and drug biosynthesis.

“The University of Rochester is not only strong academically, but there’s a flexibility to make the choices that are important to you,” Hotvedt says. “It’s big enough to have the choices available but small enough that you don’t feel overwhelmed.”

“I WENT WITH CHEMICAL ENGINEERING BECAUSE I LOVED CHEMISTRY BUT DID NOT WANT TO GIVE UP MATH. THAT MAY SEEM LIKE A WEIRD ANSWER TO SOME PEOPLE, BUT IT ALLOWED ME TO LEARN A LOT ABOUT THE WAY THE WORLD WORKS AND GAVE ME A NEW PERSPECTIVE ON LIFE AND ON SOLVING PROBLEMS.”

—MICHAEL PERITZ ’11 (MS ’12)

CHEM E

CHEMICAL ENGINEERING

BS/MS/PhD
www.che.rochester.edu

WHAT YOU WILL LEARN

- Chemical process analysis
- Sustainable energy
- Thermodynamics
- Chemical reactions
- Fluid dynamics
- Heat and mass transfer
- Hands-on lab measurements, data analysis, experimental design
- Chemical separation techniques
- Operation of process and purification equipment
- Computer control systems
- Design of chemical processes
- Chemical engineering economic principles and marketing issues, ethics, plant safety, worker education and training, and environmental implications

If you are up to tackling such critical challenges as clean energy, biotechnology, and nanotechnology, the Department of Chemical Engineering is for you. We combine chemistry and engineering with the physical sciences, life sciences, mathematics, and economics to find alternative energy solutions, create pharmaceuticals and medical devices, develop new chemicals, and contribute to the creation of food, consumer goods, and electronics.

Undergraduate and graduate students alike are encouraged to participate in such critically important research areas as organic and inorganic photovoltaics, hydrogen and methanol fuel cells, hydrogen and ethanol biofuels, nuclear fusion energy, and medical diagnostics and treatments.

In 2012, we renovated the main undergraduate lab with state-of-the-art equipment and mobile benches.

We mean it when we promise to graduate innovative problem solvers ready to explore solutions for a better, safer, and more sustainable world!

An undergraduate degree opens up multiple career options, ranging from working as a professional engineer to using the degree as preprofessional training for fields like law, medicine, or business.

According to a 2013 National Association of Colleges and Employers survey, chemical engineering is one of the best-paying majors, with an average starting salary of $66,900.

POINTS OF PRIDE

- In a 2011 survey, the National Research Council ranked our chemical engineering doctoral program eighth in the nation.
- Ching Tang, professor of chemical engineering, whose invention of the organic light-emitting diode (OLED) gave birth to a multibillion-dollar industry, won the prestigious Wolf Prize in 2011.

ISABELLE SCHMIT ’16

It’s one thing to talk about how the University of Rochester affords its students the freedom to build their own curriculum. It’s quite another to experience it.

Just ask Isabelle Schmit. The sophomore from New Orleans came to the University of Rochester primarily to study computer science. But she’s also majoring in studio arts “because I can, because it’s fun, and because I have the space in my schedule.”

“They balance each other really well, which is really a cool thing that I probably couldn’t do at any other university.”

Schmit considers the Department of Computer Science a “hidden gem,” with a very collaborative feel. One of her favorite projects involved natural language processing—using a computer to analyze a sentence in English and then convert it to be more computer-readable.

This meshed beautifully with a class she was taking as part of her linguistics cluster (see below). “I would look at my computer science notes, then up at the board in my linguistics class and there would be the same diagram. That was mind-blowing . . . I could take two completely different things—engineering and social science—and they felt so interconnected.”

“I still get excited talking about it, and it’s something I would love to learn more about and continue working on,” says Schmit, who has a leadership position in the TOOP student theater group, serves as treasurer of her sorority, and is getting more involved with RocHack, an unofficial student group that builds websites and apps.

“This is not your typical university,” Schmit says. “You can customize your education. You can really find what you love—and do what you love.”

Rochester computer science students don’t have to take a “mishmash” of required general education classes. Instead, they pick—or design—two three-course clusters within other divisions or departments. This lets them take ownership of their academic program and spend enough time in a field to feel they’ve begun to master it.

A student demonstrates MACH (My Automated Conversation coacH), Assistant Professor Ehsan Hoque’s computer system designed to help people practice social interactions.

COMPUTER SCIENCE

BS/MS/PhD
www.cs.rochester.edu

CSC

WHAT YOU WILL LEARN

- Programming in Java, C++, Ruby, LISP, Python, and other languages
- Theory of computing
- Design of operating systems and programming languages
- Artificial intelligence
- Human-computer interaction
- Advanced classes in computer architecture, natural language processing, computer vision, machine learning, distributed and parallel computing, networks, and web and mobile computing

“MY SUMMER INTERNSHIP AFTER SOPHOMORE YEAR TURNED INTO A THREE-YEAR CONNECTION THAT INCLUDED OTHER SUMMER INTERNSHIPS, INDEPENDENT RESEARCH, A 3-2 MASTER’S DEGREE, AND, ULTIMATELY, A FULL-TIME JOB AFTER I GRADUATED.”

—NATE CHAMBERS ’02 (MS ’03)

POINTS OF PRIDE

- The National Research Council’s Assessment of Research Doctorate Programs (revised April 2011) ranked the Department of Computer Science in the 9th equivalence group of PhD-granting departments.
- The University of Rochester is home to an IBM Blue Gene/Q supercomputer, making it one of the five most powerful university-based supercomputing sites in the nation.

Computers play a role in virtually every part of our lives. What career could be more relevant, exciting, and in demand than computer science? The University of Rochester’s Department of Computer Science is an ideal place to prepare for such a career.

The University is embarking on a $100 million program to create an Institute for Data Science. Much of the initiative will be built around the Department of Computer Science, which has long been known for its cutting-edge research.

Undergraduates can earn a BS covering all core areas, which is ideal if pursuing high-level research and development in industry or graduate studies. Or they can enroll in a more flexible BA program to explore computational aspects of other disciplines such as linguistics, biology, music, or cognitive science and often pursue a double major.

In either program, the coursework teaches you how to think and to solve problems, both as an individual and in teams.

The department fosters a friendly, collegial environment. Research is open to any student at any time. It’s easy to attend research meetings, get to know the faculty and graduate students, and find projects that are both interesting and fulfilling. University computer science students, for example, made headlines when they helped “mine” Twitter to track the spread of flu.

Faculty and staff help students find paid summer internships at well-known tech companies such as Google, Microsoft, and Amazon. We maintain strong connections to our alumni, and this provides additional opportunities for our students.

Student projects, including mobile apps, video games, robots, and improved efficiencies in operating systems, are exciting and hands on.

Student teams compete in national and international contests with the help of an active Computer Science Undergraduate Council (CSUG), which also organizes leisure activities and peer tutoring. Other relevant clubs are UR Robotics and RocHack.

"ROCHESTER TAUGHT ME TO WORK HARD. I KNOW THAT SOUNDS LIKE A CLICHÉ, BUT COMPARING MYSELF TO COLLEAGUES FROM OTHER SCHOOLS, I SEE THE EASE WITH WHICH I DO MY WORK AT THE HIGHEST LEVEL, WHERE THEY STRUGGLE TO JUST 'PASS.'"

—MICHELLE LAY SAMS '02 (MS '04)

Nancy Vargas '17

"I've always liked technology; I've always thought it was kind of magical," says Nancy Vargas. "When I was younger, I would always wonder 'How do these things work,' and want to be able to build them." Her wish is coming true as a freshman in electrical and computer engineering.

"It's my first year, and I'm already learning everything from programming to circuits," she says. In one of her classes, students built an amplifier. "We learned how it works and learned about op amps (operational amplifiers). I thought it was very interesting considering it was my first semester here."

Vargas is a first-generation college student from San Antonio, Texas—a California native whose parents emigrated from Mexico. She chose the University of Rochester because of its open curriculum. She liked "being able to explore your passions without being tied down to one thing."

As part of that exploration she took an anthropology class on Latin American Immigration to learn more about her culture; that led to another class in anthropology. With help from Associate Professor Daniel Reichman she would like to further her interest in cinematography and photography by doing a documentary about Mexican-Americans.

Vargas is grateful for the opportunities Rochester has given her, opportunities her parents didn't have. "I've been able to connect with people from all over the world; I've learned a lot about different cultures outside of the classroom."

"The students and staff here are very friendly," she adds. "You can always find somebody you want to study with or play quidditch with."

ELECTRICAL AND COMPUTER ENGINEERING

BS/MS/PhD
www.ece.rochester.edu

ECE

Electrical and computer engineering skills are critical in our digital age, in such areas of broad societal impact as health care, energy, national security, and manufacturing and also in telecommunications, consumer goods, media, and entertainment.

The Department of Electrical and Computer Engineering prepares students for these challenges by teaching the fundamentals of circuits and systems, electromagnetics, microelectronics, digital systems, computer architecture, and signals and communications.

Students are encouraged to join faculty members in research that spans a wide range of interests and applications. Recent examples include a computer program that gauges your feelings from your voice and could automatically program a mobile device to play music that fits your mood. Another project involves a motion detector that uses laser light, so that food ads might automatically appear on your cell phone as you go down a grocery aisle.

Most of our graduates either go to graduate school or take industrial positions. We are proud that many of them have had a major impact in fields as different as the microelectronic industry or music.

According to a 2013 National Association of Colleges and Employers survey, computer engineering is one of the best-paying majors, with an average starting salary of $70,300 for bachelor's degree graduates.

WHAT YOU WILL LEARN

- Circuits and system analysis
- Digital logic design
- Communications systems
- Semiconductor devices and electronic circuits
- Design and analysis of digital and analog integrated circuits
- Electromagnetic waves and applications
- Computer organization, including modern microprocessor design
- Design and applications of microprocessors and embedded microcontroller systems
- Ethical, social, and safety considerations of the profession
- A capstone design project of the students' choosing

POINTS OF PRIDE

Current and previous ECE students have won an Oscar, an Emmy, and a Grammy award. George Borchukov '95 (BS EE) received an Oscar in 2000 for his special effects work in the movie *The Matrix;* Mehmet Kemal Özkan '92 (PhD) received an Emmy in 1997 for his contributions to the U.S. digital television (DTV) standard; and Stephen Roessner, a current ECE PhD student, received a Grammy Award in 2010 as an engineering/mixing engineer.

WILLIAM GREEN ’16

William Green took a leap of faith when he decided to major in mechanical engineering—based solely on an introductory physics class in high school.

He’s glad he took that leap. His classes in the Department of Mechanical Engineering encourage him to think independently. They reinforce his belief that engineering “isn’t just what you’re designing; it’s a way of viewing the world and explaining things around you.”

Though only a sophomore, he’s already working with Professor Stephen Burns on cutting-edge research to find ways to create optical elements with 3D printing. An excellent student (3.9 GPA), he also serves as a teaching assistant.

He is the Usability Team Leader for the University’s Baja SAE team, which designs and builds an all-terrain vehicle each year to race against teams from other universities. Green says he’s responsible for cockpit ergonomics and for “every system the driver touches”—for example, the pedal, steering system, and brakes. He’s also worked with private sector sponsors for the team.

“I don’t think you can get that opportunity—even in industry—to be involved in the design, manufacturing, and business aspect altogether. Baja really does give students an opportunity to explore all of those different aspects of engineering at the same time.”

Green likes the fact he can “talk to my professors on a daily basis. It’s no trouble dropping in for a few minutes for a quick question. That community aspect of it definitely is attractive.”

“I think I’ve hit a steady stride,” he adds. “I’m involved in exciting research. I’m in a leadership position on the Baja team, and I think that experience is going to make me valuable anywhere.”

WHAT YOU WILL LEARN

- Computer-Aided Design (CAD) software for engineering drawings and designs
- Basic concepts, such as distributed loads, internal forces, joints, and sectors
- Thermodynamics
- Finite element analysis to solve design and analysis problems
- Mechanical systems, fluid dynamics, solid mechanics
- Properties of engineering materials, including atomic structure
- Vapor power and gas power systems, refrigeration and heat pumps, internal combustion engines, compressors, and turbines
- Lab practice and data analysis
- Senior capstone project, devising solutions to real-world mechanical engineering problems submitted and mentored by industry and/or faculty

POINTS OF PRIDE

- Professor Riccardo Betti is recipient of the 2012 Department of Energy Distinguished Scientist Award and of the 2009 Edward Teller Medal from the American Nuclear Society.
- The department is ranked 14th in publications per faculty and 8th in citations per publication, according to a 2010 study by the National Research Council.

MECHANICAL ENGINEERING

BS/MS/PhD

www.me.rochester.edu

MECH E

Mechanical engineering undergraduates at the University of Rochester apply the latest software to solve problems of solids and fluids, materials science, mechanical systems, and advanced power.

Applications range from the functioning of the human heart to why ancient structures still stand, and from the pursuit of laser fusion to building tunnels where they could never have been built before.

The Department of Mechanical Engineering offers a newly refurbished undergraduate lab and links to research centers around the University, including the Laboratory for Laser Energetics—one of the world’s foremost facilities for studying inertial confinement fusion—the Center for Freeform Optics, and the School of Medicine and Dentistry.

Undergraduates become involved in research projects or summer jobs at these centers, at national organizations such as NASA and Sandia National Labs, and at a wide variety of engineering firms in the Rochester area, such as Corning, Xerox, ITT Exelis, and OptiPro.

Students can gain additional hands-on experience—and have a lot of fun—by joining the Baja SAE team, which builds an all-terrain vehicle each year and competes against more than 100 other university teams.

According to a 2013 National Association of Colleges and Employers survey, mechanical engineering is one of the best-paying majors, with an average starting salary of $63,900.

OPTICS

THE INSTITUTE OF OPTICS

BS/MS/PhD
www.optics.rochester.edu

Optics is all about light: how it's generated, propagated, manipulated, and detected. Its applications can be found in our everyday lives—barcode scanners, cameras, laser printers, fiber-optics communication, and medical imaging—and also in new frontiers such as space telescopes, quantum cryptography, laser fusion, and plasmonics.

There is no better place to prepare for a career in this exciting, constantly evolving field than the Institute of Optics, the first of its kind and internationally renowned for its leading role in such fields as quantum optics and laser physics.

Undergraduates pursue a degree in optics or in optical engineering. They participate in research alongside faculty experts in such emerging areas as quantum optics, nanophotonics, terahertz optoelectronics, and freeform optics. Research at the institute is highly interdisciplinary: optics students may work with researchers at the Laboratory for Laser Energetics, the Department of Physics, or the University of Rochester Medical Center.

The institute fosters a close-knit atmosphere. Networking lunches acquaint students with faculty members. Monthly pizza gatherings help students unwind.

About 30 companies are members of our Industrial Associates Program, which can quickly connect students with internship and job opportunities.

Our graduates typically move on to prestigious graduate schools or receive multiple job offers in academia, industry, and government agencies. An optics graduate with a bachelor's degree can expect a starting salary of $60,000 to $85,000 depending on location.

WHAT YOU WILL LEARN

- Operation of optical sources and photodetectors, including lasers and light-emitting photodiodes, and optical instruments and their use
- Aberrations, interferometry, and testing
- Interference and diffraction
- Electromagnetic theory
- Techniques used in mathematical study of optical phenomena
- Quantum mechanics in the context of modern optics and optical technology
- Practical experience through four laboratory courses and a senior project

POINTS OF PRIDE

- The Institute of Optics has granted more than 2,400 degrees, about half of all degrees ever awarded in the field.
- Three books by Institute of Optics faculty members are among the 12 most-cited books ever in physics, according to Google Scholar.

PEDRO VALLEJO-RAMIREZ '16

Pedro Vallejo-Ramirez knew very little about optics when he arrived at the University of Rochester. It certainly wasn't a subject he was interested in pursuing academically. Then he ran into Professor Wayne Knox, who was encouraging other incoming engineering freshmen at an orientation event to drop by his introductory optics class the next day.

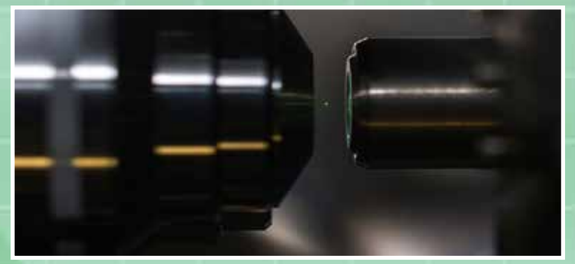
That class "completely blew my mind," Vallejo-Ramirez recalls. He heard about the myriad applications of optics—not just eyeglasses, but solar cells, OLED displays, even detecting what lies beneath a painting. And just like that, Vallejo-Ramirez found his calling.

By his second semester, Vallejo-Ramirez was in Knox's lab, learning about light scattering in polymers machined with high-power lasers, with possible applications for noninvasive vision correction.

Vallejo-Ramirez, a sophomore from Panama, "always knew I wanted to do engineering." After learning about the University's GEAR program, which enables students to complete both a bachelor's and master's in five years, Vallejo-Ramirez came for a visit, was accepted, and "fell in love with the place. I loved it from the moment I stepped on the campus."

He's a resident advisor in a freshman dorm, a student alumni ambassador, a blogger for the Office of Admissions, and a newly elected president of the student chapter of the Optical Society of America.

At the Institute of Optics, "people are very passionate about what they do," Vallejo-Ramirez says. "Professors are very involved in their field and can really communicate that to their students. Everyone is trying to help you do great things."



"THE TEST EQUIPMENT I USE AT WORK IS SIMILAR TO WHAT I USED IN LABS AT ROCHESTER. I ALSO DO A LOT OF MODELING AND DATA ANALYSIS USING SOFTWARE TOOLS THAT I WAS EXPOSED TO AS AN UNDERGRAD."

—GRETCHEN BAUER '10

ATHS ARCHAEOLOGY, TECHNOLOGY AND HISTORICAL STRUCTURES BA

www.rochester.edu/college/ATHS/ • Renato.perucchio@rochester.edu

The Pantheon in Rome—containing the largest dome ever built with unreinforced concrete—would never have gotten a building permit based on modern structural codes. Yet it still stands, remarkably intact, after 2,000 years.

Only part of Hadrian's Villa, the famed retreat of a Roman emperor, survives. And yet, modern researchers, using advanced computational modeling and a NASA solar database, have uncovered new evidence that the villa's design created remarkable intersections of shadow and architecture timed to coincide with key moments in the Roman calendar.

There is much to learn—and much yet to discover—about the evolution of technological, architectural, and engineering practices and their relationship to ancient and preindustrial societies and cultures.

The archaeology, technology and historical structures program at the University of Rochester takes an innovative, multidisciplinary approach to this study, integrating material from engineering and natural sciences, the humanities, and social sciences.

Students use various methodologies to explore the creation of artifacts, buildings, and infrastructural systems from the first millennium B.C. to the 18th century. Students then broaden their understanding of the social and cultural contexts of these creations through courses taught by faculty members from the classics, art and art history, philosophy, earth and environmental sciences, history, and anthropology.

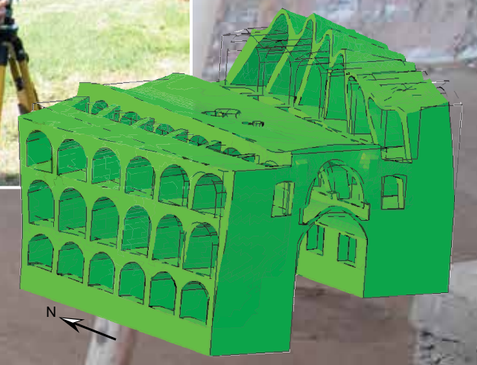
The program can easily be tailored to prepare students for graduate studies in archaeology, architecture, civil or mechanical engineering, art history, classics, or history.

A prominent feature of the program is a research-oriented track that allows students to address issues of interpretation, conservation, and restoration of the world's cultural heritage, including collaboration with prestigious foreign academic institutions and opportunities to study abroad.

Projects have included the funereal architecture of Etruscan and Roman Italy, the pre-Hispanic aqueducts of Northern Peru, a structural analysis of the Great Hall of Trajan's Market in Rome, and the cobblestone masonry of western New York.

WHAT YOU WILL LEARN

- Insights into the material culture and technology of preindustrial societies
- The impact of technology on ancient and preindustrial cultures
- The engineering behind the technology, design, materials, structures, and architecture of historical monuments
- Skills in interpreting, conserving, and restoring historical artifacts, monuments, and infrastructures



Cassandra Donatelli '13, T5 '14

How many people can say they've recovered an ancient Roman coin from an archaeological dig in Italy?

Or demonstrated that a prehistoric canal in Peru probably never worked because sloppy surveying let a hill get in the way?

Or explored how the brain functions differently when people communicate by sign language rather than by voice?

Cassandra Donatelli has accomplished all of that, and more, through the University's archaeology, technology and historical structures (ATHS) program, followed by a year in the Take Five Scholars Program. She's also pursued her love of theater by doing a variety of jobs, including Master Electrician, for Rochester's International Theatre Program.

"I love this school. I've been able to take advantage of all these opportunities. I could never do that anyplace else," says Donatelli, who is from Portland, Maine. She will leave Rochester with a BA in ATHS and ***three*** minors: in biology, mechanical engineering, and technical theater. "One of the main reasons I came to this school is because they gave us an opportunity to take a lot of classes not necessarily related to your major."

She enrolled in ATHS after taking a course on the engineering of bridges with Renato Perucchio, professor of mechanical engineering and the program's director. "He was so enthusiastic and so excited about engineering that he just drew me in."

She spent a month at the archaeological site at Torano, Italy, helping excavate a Roman villa under the supervision of Elizabeth Colantoni, assistant professor of religion and classics and ATHS faculty. "It was amazing. It wasn't like a slow introduction where they didn't really trust you to do any of the real work. We were actually digging in the trenches."

For her capstone project, analyzing the prehistoric irrigation canals of Peru, she delved into hydrology with David Foster, professor of chemical engineering; construction technology with Perucchio; and the geology of volcanoes and earthquakes in the area with Cynthia Ebinger, professor of earth and environmental sciences and ATHS faculty.

"It was a great interdisciplinary experience," Donatelli said.

Her next stop: Tufts University in Boston in pursuit of a PhD in biomechanics, an area she studied during an NSF-funded undergraduate research internship at the University of Washington last summer. The decision to pursue that line of study came easier, she says, because of her many and varied explorations at the University of Rochester.

"I was able to take all these courses and minors and my major and really got to see what I was actually interested in," Donatelli says. "Now I feel solid and comfortable in my choice to go to graduate school."

LABORATORY FOR LASER ENERGETICS

www.lle.rochester.edu

LLE

University of Rochester's Laboratory for Laser Energetics, established in 1970 to investigate the interaction of intense radiation with matter, is a unique national resource. It houses Omega, the world's most powerful ultraviolet laser system, and pursues the feasibility of inertial confinement fusion as an inexhaustible energy source.

Education is one of its most important missions. More than 800 Rochester students have received training at LLE—in electro-optics, high-power lasers, high-energy density physics, plasma physics, and nuclear fusion technology. And that means unique opportunities for students in the Hajim School of Engineering & Applied Sciences. During 2013–14 for example, 30 Hajim School undergraduates worked at LLE on a variety of projects.

Student projects included operational maintenance of the Omega Laser Facility; work in laser development, materials, and optical-thin-film-coating laboratories; computer programming; image processing; and diagnostics development. Students have the unique opportunity of working with some of the world's leading scientists and engineers, not just from the University of Rochester but also from other research and technology laboratories worldwide.

LLE's program for undergraduates is a unique opportunity for students, many of whom will go on to pursue a higher degree in the area in which they gained experience at the laser lab. Other students have started their own companies, crediting their hands-on experience at the laser lab as a turning point in their academic careers.

"THE IMPORTANCE OF GOING ONTO THE ASSEMBLY FLOOR AND SEEING FIRSTHAND WHAT YOU'RE MODELING ON A COMPUTER SCREEN IS SOMETHING THAT IS VERY FUNDAMENTAL TO MY JOB TODAY."

—JEANETTE QUINLAN '05

POINTS OF PRIDE

- The Omega 60-beam laser is the world's second largest laser and it can deliver up to 40 kilojoules of laser energy through a pulse of 40,000,000,000,000 watts of power for approximately one-billionth of a second onto a target less than 1 millimeter in diameter. The Omega EP laser is one of the world's most powerful lasers capable of producing short laser pulses of 1 trillionth of a second with a power of 10 quadrillion watts.
- In 2013, the LLE conducted its 25,000th experiment to create and study extreme states of matter.

TESS JACOBS '15

Cerium oxide—a critical material used to make precision optics—is only available from foreign sources. Export restrictions have caused major price swings, and this has resulted in significant cost uncertainties for optics manufacturers, several of which are in the Rochester region.

Tess Jacobs, a Hajim School undergraduate, is helping to find a solution at the Laboratory for Laser Energetics.

The Institute of Optics junior is working with two Rochester companies, testing the relative effectiveness of two different methods for removing wastes from a polishing slurry that contains cerium oxide, so that it can be recycled after it is used. Her project, supervised by Professor Stephen Jacobs, is funded by the U.S. Department of Energy.

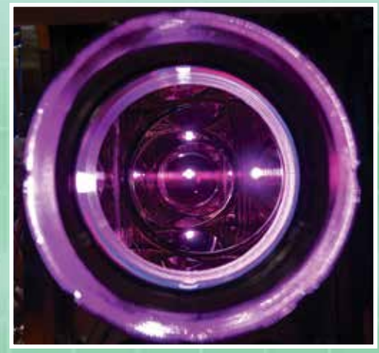
Talk about research with real-world applications!

"I do a couple of experiments on the slurries, comparing the original and the recycled ones to see how they chemically differ," she explains. No, she doesn't get to use LLE's renowned Omega laser, but she is getting hands-on experience with optical polishers and metrology equipment, such as white light interferometers."It's really interesting," she says.

Jacobs, who is from San Jose, Calif., eventually would like to earn a graduate degree at the institute and then look for a career in medical optics. "There's a lot of really promising, emerging fields for optics, especially in medical care—for example, early, noninvasive detection of breast cancer."

She appreciates the close-knit, supportive environment at the institute. "Some of my professors have done really groundbreaking research, but I can still go in and chat with them about a simple physics problem. I really like that. I think that's pretty unique to Rochester."

So is the LLE, where Jacobs is doing research that makes a difference.



EARLY CONNECTION OPPORTUNITY PROGRAM

Abner Aquino ’16

A lot of freshmen start college not knowing what to expect.

Not Abner Aquino, who discovered that the University of Rochester’s **Early Connection Opportunity program** is a great way to “ease into the curriculum.”

Now a sophomore in electrical and computer engineering, Aquino arrived on campus the summer before his freshman year for instruction in math, basic engineering, writing, and time management/study skills. A series of seminars introduced students to campus life and services.

“I would definitely recommend it,” says Aquino. It gave him an upper hand compared to many of his freshmen classmates, he adds.

Classes in robotics, mechatronics, and auto-cad at his Brooklyn high school hooked Aquino on engineering. At the University of Rochester he’s found supportive professors and staff in the Department of Electrical and Computer Engineering.

He also enjoys additional hands-on experience by working on audio equipment at the University radio station as part of WRUR Engineering and by participating in “fix it” nights with the student IEEE chapter.

As a Kearns Scholar, he is afforded academic advising, study groups, career mentoring, and other enrichment opportunities. “The program provides another source of guidance along with helping me plan and prepare for graduate school,” Aquino says.

Aquino has taken full advantage of the University’s flexible curriculum to explore interests outside engineering. He’s taking classes in religious history, for example, and American Sign Language. He’s active on the rugby team.

“The University of Rochester,” says Aquino, “has everything you could possibly need—good faculty, a good support team, and plenty of opportunities for you to grow and learn.”

(Early Connection Opportunity, offered by the Office of Minority Student Affairs, helps students become better prepared to engage in college life. The Hajim School STEM-Gems program provides peer mentoring and other support to help underrepresented minorities succeed in engineering.)

STUDY ABROAD

Louisa Bauer ’14

Mention the Comeragh Mountains of Ireland to Louisa Bauer and don’t be surprised if the BME senior gets a faraway look in her eyes.

One of her fondest memories of her Study Abroad semester in Dublin was a weekend spent hiking in County Waterford.

“That was great,” she recalls. “You’re with a small group of people, and you’re hiking through beautiful mountains. I made some really good friends there.”

Bauer spent the spring semester of her junior year at Dublin’s Trinity College. It took a lot of work to arrange this once-in-a-lifetime opportunity, but it was definitely worth it, she says.

It’s been an important part of her “full-spectrum” experience at Rochester, including

- Two years of varsity soccer
- Invaluable experience as a teaching assistant for two classes
- Hands-on research experience developing a new way to target leukemia stem cells with chemotherapeutics
- An entire summer doing lab work through the Xerox Engineering Research Fellows program

All that lab time will be good training when she looks for a clinical research coordinator position after graduating, before going on to med school.

But she’ll also draw on her experiences from that memorable semester abroad. “I think I’ve become a lot more confident and able to talk to people more easily,” she says. “You’re sort of forced to make friends pretty quickly.”

FAST FACTS

BY ANY MEASURE, THE HAJIM SCHOOL IS ON THE MOVE.
Our undergraduate enrollment has nearly doubled from 710 in 2007–08 to 1,337 in 2013–14.

According to the report Engineering by the Numbers, published by the American Society for Engineering Education, the University of Rochester's Hajim School of Engineering & Applied Sciences is ranked:
18th in the percentage of master's degrees awarded to women by school
25th in research expenditures by school with $92.9 million
The Hajim School of Engineering & Applied Sciences graduate programs are nationally ranked 37th by *U.S. News and World Report*'s America's Best Graduate Schools as ranked in 2014.

OF THE APPROXIMATELY 1,337 FULL-TIME ENGINEERING UNDERGRADUATES IN THE 2013–14 ACADEMIC YEAR
29 percent are women
10 percent are underrepresented minorities
16 percent are international students

OF THE 220 BACHELOR'S DEGREES AWARDED IN 2014
27.7 percent went to women
6.4 percent went to underrepresented minorities
12.7 percent went to international students

OF THE GRADUATING SENIORS IN 2013
44 percent went on to full-time graduate programs
16 percent earned humanities/social science minors
5 percent participated in the Take Five Scholars Program or the Kauffman Entrepreneurial Year (KEY) Program

THE HAJIM SCHOOL OF ENGINEERING & APPLIED SCIENCES HAD 87 TENURE/TENURE-TRACK FACULTY IN THE 2013–14 ACADEMIC YEAR.
2013–14 faculty award counts
11—National Science Foundation CAREER Awards
1—Presidential Early Career Award in Science and Engineering (PECASE) (Department of Defense)
4—National Academy of Engineering memberships
115—Fellows
49—Fellowships accepted
4—Presidential Young Investigator Awards
2—Alexander von Humboldt Fellows
5 —Alexander von Humboldt Awards
4—Fulbright Fellowships
4—IBM Fellowships
1—Willis E. Lamb Award for Laser Science and Quantum Optics
1—Office of Naval Research (ONR) Young Investigator Award
1—Wolf Prize in Chemistry
1—Ernest Orlando Lawrence Award
9—American Association for the Advancement of Science (AAAS) Fellows

UNIVERSITY OF ROCHESTER
About 23 percent of undergraduates (Arts, Sciences & Engineering) graduated with double majors or with two or more undergraduate degrees in 2013.

18 percent of full-time engineering students took music lessons or courses during the 2013 fall semester.

According to a 2013 survey of rising Hajim seniors in the Class of 2014, 97 percent had one or more career-related experiences; 66 percent had two or more career-related experiences.

DEGREE PROGRAMS

MAJORS AND GRADUATE DEGREES
Alternative Energy: MS
Audio and Music Engineering: BS
Biomedical Engineering:* BS, MS, PhD
Chemical Engineering:* BS, MS, PhD
Computer Science: BA, BS, MS, PhD
Electrical and Computer Engineering:* BS, MS, PhD
Interdepartmental Engineering: BS
Engineering Science: BA
Geomechanics: BS
Materials Science: MS, PhD
Mechanical Engineering:* BS, MS, PhD
Optical Engineering: BS
Optics: BS, MS, PhD
Technical Entrepreneurship and Management (TEAM):† MS

** Accredited by the Accreditation Board for Engineering and Technology*
† Offered jointly by the Simon Business School and the Edmund A. Hajim School of Engineering & Applied Sciences and administered by the University of Rochester Center for Entrepreneurship

MINORS
Biomedical Engineering
Chemical Engineering
Computer Science
Electrical and Computer Engineering
Environmental Engineering
Materials Science
Mechanical Engineering
Optics

INTERDISCIPLINARY DEGREE PROGRAMS
BS in Cognitive Science: studies in behavioral, computational, and neuroscience approaches to cognition, with an option for coursework in computer science

Joint PhD in Computer Science and Brain and Cognitive Sciences: this program supports interdisciplinary PhD research in computational models of cognition

BS in Geomechanics: designed for students interested in the quantitative aspects of the earth sciences

SPECIAL PROGRAMS

GRADUATE ENGINEERING AT ROCHESTER (GEAR)
To begin a career in engineering, it helps to have both a bachelor's degree and a master's degree, which would typically take at least six years of college, plus a strong score on the Graduate Record Exam (GRE) or Graduate Management Admission Test (GMAT). The GEAR program allows you to skip the exam and earn both your bachelor's and master's in just five years.
http://enrollment.rochester.edu/specialized/gear?#tab1

TAKE FIVE SCHOLARS
Heralded by the *New York Times* as "one of the most innovative liberal arts programs in the country," this option allows students to study, tuition free, for an additional semester or year in areas outside their formal majors.
www.rochester.edu/college/CCAS/students/opportunities/takefive/

STEM-GEMS
Helps underrepresented minorities through the first year of college—and beyond
www.hajim.rochester.edu/undergraduate/stemgems/index.html

INDUSTRY PRACTICUM CO-OP PROGRAM
Provides quality workplace experience through paid, full-time employment
www.hajim.rochester.edu/options/ip.html

KEY (KAUFFMAN ENTREPRENEURIAL YEAR) PROGRAM
Allows students to continue their studies tuition free for as much as an entire academic year to pursue entrepreneurial endeavors with the help of the Hajim School of Engineering & Applied Sciences and Simon Business School faculty. Students pursue internships, special projects, business plan development, research into various factors for a successful entrepreneur, or analysis of how culture and public policy influence entrepreneurial activities.
www.rochester.edu/College/ccas/AdviserHandbook/KEY.html

STUDY ABROAD
Enables students to take science and engineering classes abroad during the academic year
www.hajim.rochester.edu/undergraduate/studyabroad/intro.html

TRAVEL GRANTS
Allow undergraduate engineering students to attend professional conferences
www.hajim.rochester.edu/assets/pdf/TravelGrantapplication.pdf

XEROX UNDERGRADUATE FELLOWS PROGRAM
Allows engineering undergraduates to participate in a research experience during the summer preceding their senior year
www.rochester.edu/college/kearnscenter/Xerox/xeroxfellowsmain.html

MEDICAL TECHNOLOGY AND INNOVATION
Immerses master's students in clinical settings and then puts them to work designing new medical devices and procedures
http://cmti.rochester.edu/

TECHNICAL ENTREPRENEURSHIP AND MANAGEMENT (TEAM) MASTER'S PROGRAM
Immerses students in a technical concentration of their choice while receiving a strong foundation in entrepreneurial management
www.rochester.edu/team/

"I worked in the biodiesel lab my junior and senior years and decided to devote a fifth undergraduate year in the Kauffman Entrepreneurial Year Program to improve the sustainability in the lab. I highly recommend the KEY program to anyone who has a vision of a project that they would like to pursue. The scholars' projects range from science to dance to t-shirt pressing, or so it did when I was a scholar!"

—Kathleen Maloney '10
Biomedical Engineering

"When employers [that I interviewed with] found out that TEAM students are not just typical engineers—they also understand business concepts and strategies—that made me even more attractive to hire."

—Jack Chang '09
Optics, TEAM Class of 2010

"Professor John Lambropoulos, chair of the mechanical engineering department, was monumental in helping me make study abroad a reality by working with me to find courses that would satisfy graduation requirements. He has been very enthusiastic about students studying abroad, and any mechanical engineering student should seek him as a resource."
—Jen Skevington '11, *Mechanical Engineering*

"Rochester is unique in how many undergraduates can find research positions in the labs on campus, and it's these opportunities that will help you decide if research is something for you."
—Lisa Cole '10, *Biomedical Engineering*

"When I was looking at schools, I had narrowed my interests to computer science and psychology. I was putting schools into those two buckets as well. When I visited the University of Rochester and talked to the chair of the computer science department, he said to me, 'Why don't you come here and study both?' The thought had never even occurred to me. The Rochester curriculum made it not only possible, but it was encouraged."
—Brad Orego '11, *BS Computer Science/BA Psychology*

"When I was a sophomore, I was able to land a position as a part-time research assistant in J. H. David Wu's lab. He set me up with a PhD student as a mentor, and he taught me a tremendous amount of molecular biology skills that I could not have learned in class. When I was a senior . . . Professor Wu brought in a speaker from Bristol Myers Squibb. I approached the speaker afterwards, and, next thing I knew, I was working in the industry and have been here ever since. I am sincerely grateful for Professor Wu's help in getting me into my career."
—Jason Condon '04, *Biomedical Engineering*

"Explore! It's very easy to get "trapped" on the River Campus and never realize that Rochester is a vibrant, exciting community. Spend time in the city (e.g., downtown, Park Avenue, Corn Hill), visit the Finger Lakes, bike along the Erie Canal path, hike Letchworth State Park, ski Holiday Valley. Play!"
—Owen Zacharias '03 (MS '04), *Electrical and Computer Engineering*

"Since graduating, I've realized how interconnected the wider research community really is. It turns out that people with connections to the University are everywhere, so I've met plenty of fellow students (and a professor) here who previously studied at the University of Rochester. There's even a plaque with the bust of George Eastman outside of a classroom here, and students rub his nose for good luck before exams."
—Kyle Murray '12, *Computer Science (pursuing a PhD at MIT)*

"I was interested in the University of Rochester for the strong engineering department, the location, and the volleyball program. I was sold once I visited campus. Walking around the quad, I realized that the campus was exactly how I'd dreamed a college campus would be."
—Sarah Provan '05, *Biomedical Engineering*

For more information, please contact
University of Rochester Admissions
(585) 275-3221
(888) 822-2256 (toll free)
admit@admissions.rochester.edu

UNIVERSITY of ROCHESTER