Welcome to RIT’s College of Health Sciences and Technology (CHST). The college is part of the larger Institute of Health Sciences and Technology (IHST), which includes the IHST Research Center and the IHST Outreach Center. Together, they serve to merge technology and medicine to educate future health care professionals, meet workforce and community needs, and develop and apply innovative new technologies in health care delivery.

Our exceptional bachelor’s and master’s degree programs are designed to prepare students for exciting careers in the growing and ever-changing health care field. Our students combine their technical knowledge with their passion for helping others, and enter the workforce or graduate school committed to improving health care delivery and to making a difference in the lives of their patients and the entire community. They are truly a cut above, and I am continually amazed by their dedication and commitment.

You will meet the distinguished and talented faculty who teach and mentor these exceptional students. And you will learn about the many areas of research that are currently ongoing in infectious disease control, immunology, cancer, cardiovascular disease, behavioral health, health systems engineering, biotechnology, bioengineering, imaging science, deaf technologies, medical devices, and more.

In addition, we are fortunate in our affiliation with Rochester Regional Health, through the RIT & RRH Alliance, to be able to provide students with the added value of mentoring by real world doctors, nurses, and technicians, while also providing the clinical, hands-on experience needed for the most complete and comprehensive educational experience.

While this college is at the heart of health and medical studies at RIT, it collaborates with other colleges within RIT to offer seven additional programs related to health and medicine. These partnerships offer an unequaled range of program options; committed, experienced faculty; and myriad co-op/internship and research opportunities. In short, CHST and its alliances with other colleges form a living/learning health and medical education powerhouse.

I encourage you to explore all that RIT and the College of Health Sciences and Technology have to offer. We would be delighted to welcome you into one of our exciting programs.

Daniel Ornt, MD, FACP
Vice President and Dean, Institute and College of Health Sciences and Technology
Career-oriented programs
RIT’s focus on undergraduate education allows us to provide high-quality, innovative, and relevant degree programs that prepare you for challenging and exciting career and graduate study opportunities. Given the changing nature of the employment market, RIT aims to prepare you with lifelong career skills, and you’ll find that our combination of teaching, research, and practical work experience ensures you receive an education that is comprehensive and up to date.

Wegmans School of Health and Nutrition
The Wegmans School of Health and Nutrition is dedicated to researching and addressing today’s critical health issues, including obesity, sedentary lifestyles, smoking, and other risk behaviors. In addition to housing majors in exercise science and nutrition management, the school seeks new ways to influence and advance the fields of health and nutrition through practical solutions that positively impact individuals and community health.

Institute of Health Sciences and Technology
The College of Health Sciences and Technology is part of the larger Institute of Health Sciences and Technology. As a student in the college, you’ll have access to the other two components of the Institute: the Health Sciences Research Center and the Health Sciences Outreach Center. The Research Center provides opportunities to gain experience through co-ops, internships, and research projects. The Outreach Center partners with regional workforce development agencies to support community health initiatives. These three entities serve to educate future health care professionals, meet workforce and community needs, and apply innovative technologies to health care delivery.

RIT/Rochester Regional Health Alliance
Another advantage to studying health sciences and technology at RIT is the RIT/Rochester Regional Health (RRH) Alliance. Under this new strategic alliance, RIT is Rochester Regional Health’s official academic affiliate and RRH is the university’s official affiliated medical center. RIT and RRH collaborate on education and research programs in key areas of health sciences and technology areas and provide mutual access to each institution’s expertise and facilities. This alliance offers you broad opportunities in all areas related to health sciences and technology.

Experiential learning
Since 1912, the hallmark of an RIT education has been experiential learning. RIT was among the first universities in the world to offer cooperative education (co-op), which gives you the opportunity to apply your classroom learning to the workplace. Within the College of Health Sciences and Technology, experiential learning opportunities include co-op as well as clinical internships, undergraduate research, and study abroad. For more information, see pages 14-15.

The bottom line
The College of Health Sciences and Technology has an outstanding record of producing graduates capable of leading the convergence of medicine and technology. Consistently, 96 percent of our graduates are employed full time or enrolled in graduate school within six months of graduation.
3 Biomedical Sciences
4 Diagnostic Medical Sonography (Ultrasound)
5 Exercise Science
6 Nutrition Management
7 Physician Assistant (BS/MS)
8 Additional Academic Options
10 Related Degree Programs
Biochemistry
Bioinformatics
Biology
Biomedical Engineering
Biotechnology and Molecular Bioscience
Medical Illustration
Photographic Sciences
A strong foundation
You will learn the basics of human body structure and function and apply that knowledge to course work and research pursuits. As an undergraduate, you will learn the science behind normal and abnormal functions of the human body and how this knowledge is the essence to the diagnosis and treatment of disease. Your study begins with the life sciences “core,” a set of courses designed to provide you with a strong grounding in mathematics and science.

Flexibility and choice
In addition to core biomedical science courses, you will select a concentration of study to further develop your skills and knowledge. Concentrations include focused courses in genetics, professional studies (premedical, predental, or preveterinary), exercise science, or pathology (the study of disease). A large number of electives allow you to customize your education. Endocrinology, genetics, histology, diagnostic medical imaging, patient care, virology, diagnosing the criminal mind, gross anatomy, biochemistry—these are just a few of the electives you can select to complement your studies in biomedical sciences. You may also choose from more than 90 minors to gain another area of expertise or pursue a personal interest.

Careers
Advances in biotechnology and an increase in staff needed in new medical research industries has led to rapid growth in the field of biomedical sciences. The need is great for more research in many areas of health care, including AIDS, diabetes, cancer, and neurological disorders such as Parkinson’s and Alzheimer’s disease.

Plan of Study

FIRST AND SECOND YEARS
General Biology
General and Analytical Chemistry
Organic Chemistry
Cellular and Molecular Biology
Calculus
Data Analysis
Statistics
Anatomy and Physiology
Liberal Arts
First Year Seminar
Writing Seminar
Foundational Elective
Wellness Education
Electives
General Education—Liberal Arts and Sciences
Year One: College Experience

THIRD AND FOURTH YEARS
Physics
Liberal Arts
Biomedical Science Electives
Concentration Courses
General Education—Liberal Arts and Sciences

SELECT BIOMEDICAL SCIENCES ELECTIVES
Immunology
Premedical Studies
Medical Genetics
Endocrinology
Patient Care
Biochemistry
Infectious Disease
Sports Physiology and Life Fitness
Microbial Pathogenesis
Fitness Programming and Prescription
Undergraduate Research
Sports Nutrition
Medical Microbiology
Histology
Medical Pathophysiology
Animal Behavior
Human Gross Anatomy
Neuroscience
Parasitology
Virology
Pharmacology
Evolutionary Biology
Language of Medicine
Diagnosing the Criminal Mind
Epidemiology and Public Health
Addiction Pharmacology
Preparing for the field
RIT’s diagnostic medical sonography major is one of only a few baccalaureate degree programs of its type in the nation and has graduated leaders in the field since its inception. The curriculum has been developed to meet and exceed national standards and combines a strong science and liberal arts education with practical experience to prepare you for a career in ultrasound, medical or dental schools, or graduate study. The curriculum also emphasizes skills in administration and research in addition to the development of scanning and diagnostic abilities, with a focus on relevancy to clinical practice.

Clinical internship experience
In addition to the extensive “hands-on” experience in the on-campus, state-of-the-art ultrasound scanning suite, you’ll put your new skills and techniques to use in a clinical internship at two or more medical facilities. You’ll gain experience in abdominal, obstetrical, and gynecological ultrasound and be introduced to vascular ultrasound and other specialties such as neurosonography (the brain) and echocardiography (the heart). An internship allows you to apply learned knowledge in a real-world setting.

National qualifying exam and career opportunities
Upon successful completion of the program, you will be eligible to sit for a national qualifying exam administered by the American Registry of Diagnostic Medical Sonography (ARDMS). Passing this examination denotes entry into the field and allows you to work anywhere in the United States and around the world. Employment opportunities have grown rapidly over the past 20 years and are expected to continue to grow well into the future. RIT graduates work as sonographers in hospitals, clinics, private physician offices, and other medical facilities. Some work freelance or for mobile services. The field attracts people who enjoy working in a vibrant health care environment and who are interested in using the latest technologies to help care for others. With attractive salaries and flexible work hours, sonography is an exciting career path. Opportunities also exist in industry as education specialists, sales representatives, administrators, and researchers.

Certificate options available
Students also can earn a certificate in diagnostic medical sonography or a certificate in echocardiography. These certificates are designed for individuals with an allied health background or an undergraduate or advanced degree in the life sciences. The certificates require one year of full-time study in the clinical internship after completion of prerequisite courses.

Plan of Study

FIRST AND SECOND YEARS
- General Biology I, II
- Pre-Calculus
- Introduction to Statistics
- Computers in Medicine
- Human Anatomy & Physiology I, II
- Language of Medicine
- Medical Genetics
- General Education—Liberal Arts and Sciences
- Wellness Education
- First Year Seminar
- Writing Seminar
- Foundational Elective
- Year One: College Experience

THIRD AND FOURTH YEARS
- Human Cross-Sectional Anatomy
- Sonography Physics and Instrumentation I, II
- Sonographic Scanning Skills and Techniques I, II
- Medical Pathophysiology
- Patient Care
- Obstetrical Sonography I, II
- Gynecological Sonography
- Abdominal and Small Parts Sonography I, II
- Administration and Research in Sonography
- Sonographic Vascular Evaluation
- Clinical Sonography I, II
- General Education—Liberal Arts and Sciences
- Electives

Required clinical internship at affiliated hospitals
Exercise specialists
Students majoring in exercise science develop the knowledge, skills, and abilities necessary to succeed as an exercise specialist. Students learn to conduct medical screenings, perform fitness assessments, and prescribe appropriate exercise programs. The major provides students a solid foundation in the sciences with course work that includes physics, chemistry, math, and human anatomy and physiology. The major’s core curriculum educates students in the fundamentals and principles behind exercise physiology, sports psychology, fitness prescription, kinesiology, and biomechanics.

Achieve competency in three career tracks
In the clinical track, students learn to utilize exercise as a therapeutic treatment modality for individuals with high-risk health issues or those diagnosed with disease. This track prepares students for professional certification as a Certified Exercise Physiologist through the American College of Sports Medicine (ACSM). The athletic track develops students’ abilities to work with a wide variety of athletes to enhance their overall performance while reducing the risk of injuries. Courses fulfill the educational requirement to sit for the Certified Strength and Conditioning Specialist exam offered through the National Strength and Conditioning Association (NSCA).

The research track offers opportunities for students to engage in independent and faculty-supported research to study problems in exercise physiology and biomechanics. Students work under the mentorship of a faculty member in a wide range of areas, from identifying new methods of fitness and strength testing, to examining biomechanical principles of human form and function, to determining the efficacy of biomechanical devices, robotics, and the measurement of cardiovascular function.

Career opportunities abound
Exercise professionals can find work in corporate, community, and commercial fitness facilities as well as medical rehabilitative settings and a growing number of athletic teams and sports performance clinics.

Plan of Study
FIRST AND SECOND YEARS
General Biology I, II
General and Analytical Chemistry I, II
Seminar in Exercise Science
Introduction to Exercise Science
Applied Calculus
First Year Seminar
First Year Writing
General Education—
Liberal Arts and Sciences
Year One: College Experience
Anatomy and Physiology I, II
College Physics I, II
Introduction to Statistics
Cell and Molecular Biology
Fitness Prescription
Human Motor Development
Wellness Education
THIRD AND FOURTH YEARS
Exercise Physiology
Kinesiology
Sports Nutrition
Biomechanics
Exercise Science Research
Group Exercise Design
Worksite Health Promotion
Coaching Healthy Behavior
Sports Psychology
Professional Electives
General Education—
Liberal Arts and Sciences
Open Electives
Foundation in nutrition and dietetics

The nutrition management major, accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND), provides you with the knowledge necessary to become a registered dietitian/nutritionist (RDN). Courses in chemistry, anatomy and physiology, and food science expand your scientific knowledge by teaching you how food is used by the human body. You’ll study business, information technology, and the liberal arts as well.

The program requires three blocks (400 hours each) of cooperative education—paid, professional work experience—in the food and nutrition field. The nutrition management major has specific course requirements necessary to meet the core knowledge requirements of ACEND. Upon completion of the degree program and a required post-baccalaureate dietetic internship, students are eligible to take the National Registration Exam for Dietitians. Effective 2024, an MS degree in any discipline will be required for entry-level practice as a Registered Dietician. Students completing BS degree programs prior to that date will be grandfathered.

The program offers a challenging curriculum that prepares you for diverse professional opportunities. Possible career paths may be developed in private practice; community nutrition and public health; wellness; sports fitness programs; education and corporations; clinical dietetics, hospital, or long-term-care food management facilities; research for clinical, educational, or food manufacturing operations; restaurant consulting; and health media, among others.

Plan of Study

FIRST AND SECOND YEARS
- General, Organic, and Biochemistry I, II
- Contemporary Nutrition
- Principles of Food Production
- Sanitation and Safety
- Introduction to Psychology
- Foundations of Sociology
- Microbiology in Health and Disease
- Introduction to Statistics
- College Algebra
- Principles of Microeconomics
- Financial Accounting
- Anatomy and Physiology I, II
- Food and Beverage Management
- Electives
- Wellness Education
- Cooperative Education
- Writing Seminar
- Foundational Elective
- General Education—Liberal Arts and Sciences
- First Year Seminar
- Year One: College Experience

THIRD AND FOURTH YEARS
- Assessing and Improving Service Quality
- Principles of Marketing
- Life Cycle Nutrition
- Food Innovation and Development
- Dietetic Environment
- Human Resources Development
- Nutrition and Complementary Medicine
- Techniques of Dietetic Education
- Leadership Innovation in Service Industries
- Medical Nutrition Therapy I, II
- Dietetic Internship Seminar
- Community Nutrition
- Senior Project
- Electives
- General Education—Liberal Arts and Sciences
- Cooperative Education
A focus on patient care

The physician assistant major is a five-year combined BS/MS program. Each entering class is limited to approximately 36 students to ensure individual attention and mentoring. From the onset, your studies will be centered on the health care environment and patient care. The pre-professional phase (years 1 and 2) involves courses in basic sciences, mathematics, and the liberal arts. Years 3, 4, and 5 make up the program’s professional phase, which builds on this foundation, providing 18 months of intensive medical science course work in areas such as clinical diagnostic skills, physical diagnosis, pharmacology, and clinical medicine topics from pediatrics to geriatrics. This professional phase is fully accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA).

A full year of clinical experience

The fifth year of your PA education includes 12 months of supervised clinical rotations in various health care settings. Your studies take on new meaning when you’re working with patients on a daily basis. You’ll get hands-on patient care experience in clinical areas such as inpatient medicine, pediatrics, obstetrics/gynecology, orthopedics, emergency medicine, surgery, family practice, psychiatry, geriatrics, and one elective rotation. You’ll get to use your skills and knowledge on the front lines of health care.

National certifying exam

The National Commission on Certification of Physician Assistants (NCCPA) administers the national board examination. Certification is required to practice in most states, including New York. In addition, a practicing physician assistant must retake the national board exam every 10 years and complete continuing medical education throughout his or her career to maintain certification.

Careers that make a difference

In general, physician assistants provide approximately 80 percent of the services typically provided by a family physician. Upon graduation from RIT’s program, you’ll have your choice of specialties and health care environments for employment, including hospitals, public health clinics, academic medical centers, schools, prisons, and private physician offices. Physician assistants can be found in all communities from small rural to large urban areas. Some physician assistants choose to continue their education in public health, health care administration, business, law, and a number of related areas.

Rachel Triassi

Hometown: Rochester, NY
Major: BS/MS in Physician Assistant
Minor: Psychology
Research Activities: 2014 Summer Undergraduate Research Fellowship
Graduate Research Project: Conducting a clinical review comparing medical treatments of asthma in westernized and developing countries

Rachel Triassi will never forget the people she met at a community medical clinic in Jacmel, Haiti, or their incomplete medical records that reflect the nation’s fragmented health care system. Triassi developed a template for an electronic medical health record and a database of available medications to improve the quality and efficiency of health care in Jacmel. She also conducted research that has pushed forward the development of a standard health history form and a corresponding list of medicines to keep in stock for treating common ailments seen at the clinic.
Premedical and Health Professions Advising

How it works
If you are interested in a career in the health professions that requires a graduate degree (e.g., physician, dentist, pharmacist, physical therapist, physician assistant, occupational therapist, etc.), RIT’s Premedical and Health Professions Advising Program is available to you regardless of your academic major. This advisory program provides you with the guidance, assistance, and information you will need to complete the admissions requirements for graduate programs in all of the various health professions.

Admissions requirements
These vary from program to program and from school to school. However, all health professions schools require the completion of a standardized examination (e.g., MCAT, DAT) so students are encouraged to communicate regularly with their advisers for test information, updates on prerequisites, and planning and course selection. For more information on RIT’s Premedical and Health Professions Advising Program, please visit www.rit.edu/premedical.

What you’ll study
These are the core requirements for students applying to medical school

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
</tr>
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<tbody>
<tr>
<td>Biology</td>
<td>two semesters with lab</td>
</tr>
<tr>
<td>General Chemistry</td>
<td>two semesters with lab</td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>two semesters with lab</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>one or two courses</td>
</tr>
<tr>
<td>Physics</td>
<td>two semesters with lab</td>
</tr>
<tr>
<td>English</td>
<td>two courses</td>
</tr>
<tr>
<td>Psychology</td>
<td>one or two courses</td>
</tr>
<tr>
<td>Sociology</td>
<td>one course</td>
</tr>
</tbody>
</table>

Lake Erie College of Osteopathic Medicine (LECOM) Early Acceptance Programs
RIT students interested in medicine, pharmacy, and dentistry are able to gain provisional early acceptance to LECOM, and in some cases, begin their studies at LECOM prior to completing their bachelor’s degrees. The LECOM’s Early Acceptance Program agreements with RIT are as follows:

- **College of Medicine, “3+4” and “4+4”**—Students will attend RIT for either three or four years, and then complete four years of study at LECOM to earn the Doctor of Osteopathic Medicine (D.O.) degree.

- **School of Pharmacy, “3+3 (4)” and “4+3 (4)”**—Students will attend RIT for either three or four years, and then complete three years at LECOM’s School of Pharmacy in Erie, or four years at its School of Pharmacy in Bradenton, Fla. LECOM’s Erie campus is one of the few nationally to offer an accelerated, three-year Doctor of Pharmacy (Pharm.D.) degree. The School of Pharmacy at the Bradenton campus offers a more traditional, four-year program.

- **School of Dental Medicine, “4+4”**—Students will attend RIT for four years and then complete four years at LECOM. The Early Acceptance Program for the DMD degree is offered only at LECOM’s campus in Bradenton, Fla.

The affiliation program is administered through RIT’s Office of the Director of Premedical and Health Professions Advising in the College of Health Sciences and Technology. For more information, go to http://lecom.edu/entrance-requirements and follow the link for LECOM Undergraduate Affiliated Colleges.

Exploring Academic Options
Many students will enroll at RIT still deciding on the direction of their academic pursuits. If you are a student with multiple interests and would like to take time to explore before committing to a particular major, here are two options for you to consider.

University Studies
University Studies is for students with multiple interests that span two or more colleges and allows them to enroll at RIT before identifying a specific academic program of study. Through introductory courses, seminars, and with the help of informed advisers, students have an opportunity to explore their interests, values, and career goals in order to make an informed decision regarding a major at RIT. Students may remain in the program for up to one year before deciding upon a major.

General Science Exploration
The science exploration option is a yearlong sequence of courses built around a single project aimed at designing, building, and conducting scientific research to achieve a goal. The goal will be presented to students on the first day of class. This approach to interdisciplinary technical education emphasizes real-world, hands-on problem-solving by student-led teams. It offers participating students a degree of autonomy and responsibility rarely found at the freshman level.

As a result of this course sequence, students in the exploration option will develop an in-depth appreciation for the specific field in which their team was involved while simultaneously learning about majors in the College of Health Sciences and Technology and the College of Science.
Biochemistry
College of Science
By blending the classic disciplines of biology and chemistry, biochemistry offers opportunities if you’re seeking an exciting career in the life and health sciences.

Combine your interests
In the biochemistry major, you will learn about the study of biological questions using the quantitative tools and molecular principles that lie at the heart of chemistry. Traditional chemistry course work will be supplemented with introductory and advanced courses in biological sciences, including cellular and molecular biology. The biochemistry curriculum can be completed in four or five years, depending of the amount of co-op you complete. Research is highly recommended, as is co-op, which may begin as early as the summer of your first year. Ongoing research opportunities at RIT cover a wide range of topics including bacterial metabolism, protein structure and function, and molecular visualization and modeling.

Two tracks
The biochemistry major offers two tracks: one that follows the guidelines of the American Society of Biochemists and Molecular Biologists (ASBMB) and one that is certified by the American Chemical Society (ACS). The ASBMB program allows more science and other electives in fields such as biology, while the ACS program includes courses in quantum chemistry and inorganic chemistry; both prepare students for direct entry into graduate-level chemistry, biochemistry, and biomolecular science programs.

Bioinformatics
College of Science
Bioinformatics helps reduce the cost of drug and vaccine development, permits unprecedented biological image analysis, and provides an understanding of biological processes that was unimaginable as recently as one decade ago.

Exploring the human genome
Biotechnology research is creating an exploding demand for well-trained bioinformatics professionals. RIT has responded to this need by offering BS and MS programs in bioinformatics. Courses are taught by faculty who are experts in biotechnology, computer science, and information technology. In laboratory exercises and assignments, you’ll learn how to sequence DNA, then use sophisticated computer programs to analyze that sequence and predict molecular models. You will learn how to interpret vast amounts of data, predict targets for new drugs, and determine routes to gene therapy.

Get hands-on experience through co-op
A valuable aspect of an RIT education is the opportunity to integrate cooperative education experiences into your degree program. These short-term, full-time, paid jobs allow you to enhance your education in real-world situations. Bioinformatics students are prepared for cooperative work experience upon completion of their second year of the program.

BS/MS option available
Differentiate yourself in the job market by pursuing a combined BS/MS program in bioinformatics. This option can enrich your research experiences and better prepare you for further graduate education as well.

Biology
College of Science
Biologists conduct research to advance our knowledge of life and create solutions to medical, environmental, and agricultural challenges.

A flexible major
You’ll start with foundation courses in biology, math, chemistry, and liberal arts and then submerge yourself in the biological sciences, studying animals, micro-organisms, and plants at the levels of molecules, cells, tissues, organisms, and populations. You will acquire a comprehensive set of practical skills, from the proper way to prepare cultures in the lab to the proper way to gather and analyze ecological data in the field. Undergraduate research is strongly encouraged and further strengthens your preparation for graduate study or employment.

Co-op is the difference
What sets RIT’s biology major apart from the rest is the opportunity to participate in cooperative education. Co-op jobs are typically in research, laboratory support, or data analysis in private businesses, government agencies, and nonprofit organizations. RIT biology students have worked for hospitals, wildlife centers, veterinary clinics, and food and pharmaceutical companies.
Biomedical Engineering
Kate Gleason College of Engineering

Biomedical engineering applies the principles and theories of engineering to solve problems in the widely varied field of medicine.

A comprehensive curriculum
It is essential that biomedical engineers develop an intimate and precise understanding of the human body—the living system for which they will develop devices and procedures. Our curriculum stresses the development of a solid set of quantitative, analytical, and design skills that are specifically targeted toward biomedical endeavors. Throughout their studies, students will consistently correlate their engineering skills to human physiology and learn how engineering analysis and problem-solving methodologies can be leveraged toward the successful creation of devices, systems, and treatments related to biomedical applications. Students can also develop a deeper understanding of an area within biomedical engineering by choosing a concentration of study involving areas such as biomedical device and system design; biomedical signal processing; physiological modeling, dynamics, and control; biomedical imaging; or biomaterials. One of the things that sets RIT’s biomedical engineering major apart from other programs is approximately one year of cooperative education that allows students to apply the skills they learn in the classroom to the development of real medical solutions that make a difference in the lives of individuals.

Biotechnology and Molecular Bioscience
College of Science

Through biotechnology, we can improve a crop’s resistance to natural enemies or engineer organisms to clean up the environment.

The nation’s first biotech program
If you’re fascinated by genetics and genetic engineering and interested in research, you’ll want to take a close look at our biotechnology and molecular bioscience major. In addition to core biology, chemistry, math, and liberal arts courses, the curriculum focuses on the exciting and rapidly expanding field of genetic engineering and the almost unlimited potential that controlled genetic experiments have for improving the quality of life. Specialized areas of emphasis include recombinant DNA, mammalian and plant tissue culture, monoclonal antibody production and purification, large-scale fermentation techniques, and methods for characterization and separation of proteins and nucleic acids.

Leading-edge facilities
Performing experiments using modern equipment that is equal to that found in industry will help set you apart. You will gain an array of professional laboratory skills and build experience through lab work using state-of-the-art equipment used in the nation’s leading labs and companies.

Medical Illustration
College of Imaging Arts and Sciences

Combining art and science, medical illustrators provide visual support for the health sciences and medical instruction fields.

Combine your interests
From traditional carbon dust renderings to 3D animated digital imagery, medical illustration spans the full range of artistic media. Building on a foundation of drawing and design, you will learn how to translate anatomical and surgical sketches into instructional illustrations, courtroom exhibitions, computer graphics, and more.

The program combines the studies of the visual arts and science, including gross anatomy. Through collaboration with area hospitals, you will be able to draw from direct observation of operations in progress. Digital technology integrated into the studio environment enables you to create sophisticated images and well-designed, interactive, educational media presentations that include motion graphics and sound.

Our medical illustration major is one of the few in the world. As a medical illustrator, you can find career opportunities in medical research centers, textbook publishers, medical associations, pharmaceutical firms, and many other allied health companies.

Photographic Sciences
College of Imaging Arts and Sciences

The photographic sciences major, with its options in biomedical photographic communications and imaging and photographic technology, prepares you for a career providing for scientific information via imagery.

Two options
Biomedical photographers are at the forefront of advances in medicine and science, whether photographing landmark surgery in an operating room or the rainbow of colors in a butterfly wing. You are prepared for a photographic career in forensics, research, hospitals, and other biological settings such as ophthalmic (eye) clinics, veterinary centers, and other life science situations. Lasers, computer-controlled cameras, high-speed film, stroboscopes, digital editing equipment—all these powerful tools are altering the face of photography, and at the forefront of these changes is the imaging and photographic technology option. This unique, applications-oriented program prepares you for careers in a technical, industrial, or scientific environment.

Certification
The biomedical photographic communications option provides the educational background for the registered biomedical photographer (RBP) certification after you enter the profession. Your course work also can be tailored to assist you in preparing for the certified retinal angiographer (CRA) exam.
Faculty at RIT are engaged.
They are committed. They will facilitate and mentor your learning experience. RIT is a place where you enjoy interaction with faculty—not only in class or during office hours, but in the hallways after class, in the Wallace Library, or over coffee. You get to know your professors and often build relationships that last a lifetime.

*William Brewer* is an American College of Sports Medicine certified Exercise Specialist and an adjunct faculty member of the world-renowned Cooper Clinic. He holds a bachelor’s degree in health education and a master’s degree in exercise science and health promotion. Brewer is developing an exercise science program to enhance the utilization of exercise as a therapeutic modality within the health care system. His experience includes corporate, commercial, and medical rehabilitative settings where he has worked as a health promoter and fitness specialist.

*Cory Crane*, an assistant professor in the biomedical science program, specializes in forensics, focusing primarily on the intersection of substance use and violent or aggressive behavior. With the belief that you cannot treat medical issues without addressing mental health, Crane’s research with fellow professor Caroline Easton is helping to shape proposed legislation in the treatment and prevention of domestic violence. Crane, who is also affiliated with the Canandaigua Veterans Affairs Medical Center, teaches courses on addiction pharmacology.

*Caroline Easton* is a forensic clinical psychologist. She is working to establish a clinical psychology program with a forensic emphasis and will collaborate with external partners at Rochester Regional Health/Behavioral Health Network, University of Rochester Medical Center Department of Psychiatry, Monroe County Criminal Justice System, and Monroe County Office of Mental Health. Easton’s work in alternative therapy has attracted international attention. Based on her research on drug addiction, violence, and crime she has created therapies producing positive outcomes in reducing clients’ aggression and helping them to manage their anger and abstain from drug use.

*Hamad Ghazle*, professor, advanced practice sonographer, and director of the diagnostic medical sonography program, sees teaching as more than an eight-to-five job. “We can’t just educate students to help them get jobs. I believe we have to teach them what life is all about and prepare them to become leaders,” he says. Ghazle has been honored for his teaching, having received the Eisenhart Award for Outstanding Teaching, the Student Affairs Award for Promoting Learning Outside the Classroom, and the Alpha Sigma Lambda Honorary Society Mentor Award.

*Elizabeth Kmiecinski*, professor and co-chair of the nutrition management program, uses her extensive experience from her time as a Registered Dietitian in the food and health care industries to help shape her lectures and classes. She received the 2009 – 2010 Outstanding Dietetic Educator Award for her work preparing undergraduate students for careers in the dietetic field.

*Barbara Lohse*, a leading researcher in community nutrition, leads the Wegmans School of Health and Nutrition. In her role, she defines the research agenda for the school, which addresses critical health issues such as obesity, and promotes healthy lifestyles. Lohse’s research centers on attitudes and behaviors pertaining to food, community nutrition, and nutrition education for low-income populations.

*Robert Osgood*, associate professor of biomedical sciences, is a vital part of the RIT-Rochester Regional Health Alliance through the research he conducts. He joined forces with a Rochester General Hospital pediatrician in research of middle-ear and catheter-related infections. He brings this experience into the classroom to provide his students real examples of how biomedical sciences can make an impact on people’s lives.

*Laurence Sugarman*, a research professor in the College of Health Sciences and Technology, was recently elected clinical editor of the peer-reviewed *American Journal of Clinical Hypnosis*. He is the director of the Center for Applied Psychophysiology and Self-Regulation in RIT’s Institute for Health Sciences and Technology, and a general and behavioral pediatrician at Easter Seals Diagnostic and Treatment Center. Sugarman also sits on the board of directors of AutismUp, the leading autism organization in Rochester with more than 2,000 members.

*Bolaji Thomas*, an associate professor of molecular biology, focuses his current research on infectious diseases, population genetics, and immunology. He has received recognition for his academic and research endeavors from such world-renowned organizations as the American Association of Immunologists, The Wellcome Trust, Marine Biological Laboratories Fellowship, and UNDP/World Bank/WHO Special Program for Research and Training in Tropical Medicine.
The new 45,000-square-foot Clinical Health Sciences Center provides clinical and research space for the physician assistant and diagnostic medical sonography programs, forensic clinical psychology research, the Center for Applied Psychophysiology and Self-regulation, and the Wegmans School of Health and Nutrition. Additional facilities include an ultrasound lab, a physician assistant lab, and an oral microbiology and biofilm research lab.

The College of Health Sciences and Technology facilities provide a comprehensive environment to support academic, community, and career-training programs in the emerging life and medical sciences. The facilities consist of multipurpose, high-tech laboratories and classrooms for academic programs, research, K–12 student workshops, secondary school training programs, and workforce development.

In addition to the Clinical Health Sciences Center (pictured above), the college’s facilities include the Center for Bioscience Education and Technology, a suite of laboratories equipped with state-of-the-art technology, which hosts:

- **High-Tech Bioscience Classroom**—This 1,050-square-foot “smart classroom” accommodates approximately 40 students with wireless access and a podium equipped for multimedia presentations.

- **High-Tech Bioscience Teaching Laboratory**—This 1,650-square-foot multipurpose teaching laboratory accommodates 20 students.

- **Anatomical Studies Laboratory**—This 1,450-square-foot laboratory is dedicated to teaching human anatomy through cadaver dissection to 24 students at a time enrolled in biomedical science, premedical/predental studies, diagnostic medical sonography, echocardiography, biomedical engineering, medical illustration, and physician assistant programs. The lab includes six cadaver tables, and displays of computer-based images or video sequences to assist dissection.

- **Histopathology and Forensic Medicine Laboratory**—This 968-square-foot laboratory supports a variety of bioscience curricula pertaining to cell and tissue structure. New upper-division classes in forensic medicine and microbiology teach students cutting-edge science. This laboratory has a 16-student capacity.
RIT offers extraordinary opportunities beyond the structure of your program to enhance your resume and deepen your experience and knowledge in the field of your choice. With undergraduate research and our Study Abroad program, as well as the experiential learning opportunities reviewed on the previous page, you have options that will put you far ahead of the crowd upon graduation.

Cooperative education
Cooperative education (co-op) provides an opportunity to put classroom lectures, textbook theories, and your personal initiative to the ultimate test—performance in the work place. RIT has the fourth oldest and one of the largest cooperative education programs in the world. Hundreds of companies—from Fortune 500 firms to smaller, privately owned companies—come to campus each semester to recruit students for co-op positions. There’s no question that RIT’s cooperative education program provides you with a competitive advantage over science graduates from other colleges and universities.

Clinical internships
Many of the academic majors in the college offer students the opportunity to gain work experience through cooperative education, while other programs require some type of internship. Students in the physician assistant major have mandatory rotations in fields of general clinical practice that build a solid, basic understanding of their field. These required rotations are family medicine, geriatrics, orthopedics, emergency medicine, OB/GYN, pediatrics, surgery, general medicine, and psychiatry. Students also are able to select one elective rotation, which allows students to individualize their experiences according to their own areas of interest. For the diagnostic medical sonography major, a clinical internship year is required. This provides hands-on experience at two or more medical facilities in upstate New York or at approved regional and national medical ultrasound facilities. All students begin the internship by attending an intensive, five-week experience on campus. During this time, they learn how to perform complete sonographic examinations and to recognize anatomy and disease states using equipment in the state-of-the-art ultrasound laboratory. Students also learn about hospital departmental and administrative operations. After completing the requirements, candidates are assigned to a medical training site for clinical experience in various ultrasound specialties.
Undergraduate research
Undergraduate students can engage in research as early as their freshman year, working alongside faculty to conduct original research. You’ll carry out all of the experiments, and analyze and interpret the results. You can earn credit toward your degree while you gain valuable, hands-on experience. Our students regularly present their findings at national and international scientific meetings and conferences, or publish their work in professional science journals.

Study abroad
There’s no better way to gain an understanding of another culture than to experience it firsthand. To prepare you for success in our global society, RIT offers a range of exciting study abroad opportunities that expand your horizons in every sense. You can immerse yourself in another culture through our Study Abroad programs offered in cooperation with RIT Croatia, RIT Dubai, Queens University (England), University of Osnabruck (Germany), or Kanazawa Institute of Technology (Japan). In programs affiliated with other institutions, RIT students also have the opportunity to study in Italy, Spain, France, Ireland, Australia, China, Kenya, New Zealand, Germany, Greece, and other international locations.

Graduate School
Our students enjoy a high rate of acceptance into top-tier graduate programs. Here is a list of the institutions attended by recent College of Health Sciences and Technology graduates.

Appalachian State University
Binghamton University
Columbia University
Cornell University
Drexel University
Keene State University
Lake Erie College of Osteopathic Medicine
Massachusetts College of Pharmacy and Health Sciences
Massachusetts General Hospital
Meredith College
Miami Valley Hospital
Morrison Chartwells
National College of Natural Medicine
Nazareth College
New York Chiropractic
Northern Illinois University
Rochester Institute of Technology
The Sage Colleges—Sage Graduate School
St. John Fisher College
Seton Hall University
Sodexo South Coast Health System
Soma Institute
Southern California University of Health Sciences
Stony Brook University
SUNY Oneonta
SUNY Upstate
Syracuse University
Temple University
Thomas Jefferson University
University at Buffalo
University at Buffalo—School of Dental Medicine
University of Albany
University of California-Fresno
University of California, San Diego
University of Cincinnati
University of Connecticut
University of Maryland Medical Center
University of Massachusetts
University of Michigan
University of Minnesota Medical Center
University of Missouri
University of Pennsylvania
University of Rochester
Villanova University
West Va. School of Osteopathic Medicine

Co-op and Permanent Placement
Examples of co-op and permanent employers of College of Health Sciences and Technology students and graduates.

The Advisory Board Company
Bako Pathology Services
Borg and Ide Imaging
Broad Reach Healthcare at Liberty Commons
Certified Medical Illustrations
Children’s Hospital at Montefiore
Cleveland Clinic
Columbia University
Duke University Medical Center
eHealth Technologies
Epic
Georgetown University
Healthcare Services Group Inc.
Cardiac Technologies
Jewish Community Center of Greater Rochester
Johns Hopkins School of Medicine
Lab Synergy
Ludwig Maximilian University of Munich
Massachusetts Eye and Ear Infirmary
McNeil Consumer Healthcare—Johnson & Johnson
The Mount Sinai Hospital
National Institutes of Health
OncoPlex Diagnostics
Rochester Eye & Human Parts Bank
Rochester Regional Health
Rogers Science’s Inc.
Rutgers University
ScribeAmerica
Sodexo
St Ann’s Community
St John’s Home
UNC Health Care
Unity Health Services
University of Colorado Health System
University of Connecticut
University of Georgia—Department of Microbiology
University of Kansas
University of Michigan
University of Rochester
University of Virginia Health System
Walter Reed National Military Medical Center
The College of Health Sciences and Technology has a wide range of academic options for students who want to expand their educational experience. You can pursue a minor in a second area of science and mathematics, add a liberal arts or business minor to complement your studies, or enroll in a study abroad, BS/MS, or Honors program.

Accelerated dual-degree programs
If you’re looking for a way to further distinguish yourself from the crowd, you may want to combine undergraduate and graduate studies in accelerated options such as BS/MS or 4+1 MBA programs. These options allow you to earn both a bachelor’s and a master’s degree in less time than it would normally take to complete each degree separately. Most accelerated programs require students to complete freshman and sophomore coursework at RIT before being considered for entry into a dual-degree program. With careful scheduling, you can still complete several blocks of co-op and even study abroad while earning two degrees.

Honors Program
The Honors Program admits approximately 150 entering freshmen each year. The Honors Program features several distinctive and complementary components:

• Honors courses
• Research and professional development
• Complementary learning experiences (annual volunteering and community service projects)
• Honors advising and mentoring
• Honors residence

Outstanding upperclass students who have distinguished themselves academically and as contributing members of the campus community also may apply for sophomore or junior admission to the Honors Program.

Minors and immersions
Minors and immersions can give you a secondary area of expertise or the chance to explore other areas of interest to you. They may complement your major, broaden your career options, or expand your personal interests. For the most current list of minors and immersions please visit rit.edu/minors and rit.edu/immersions.
Enrolled students represent all 50 states and more than 100 countries. Nearly 3,200 students from diverse racial and ethnic backgrounds are enrolled on the main campus along with approximately 2,700 international students. An additional 1,760 students are enrolled at RIT’s international campuses.

RIT is an internationally recognized leader in preparing deaf and hard-of-hearing students for successful careers in professional and technical fields. The university provides unparalleled access and support services for the more than 1,200 deaf and hard-of-hearing students who live, study, and work with hearing students on the RIT campus.

RIT ALUMNI number more than 118,000 worldwide.

COOPERATIVE EDUCATION provides paid career-related work experience in many degree programs. RIT has the fourth-oldest and one of the largest cooperative education programs in the world, annually placing more than 4,300 students in more than 5,700 co-op assignments with more than 2,200 employers across the United States and overseas.

WALLACE LIBRARY is a multimedia center offering a vast array of resource materials. The library provides access to more than 250 electronic databases, 40,000 electronic journals, and more than 150,000 e-books. Resource materials also include audio, film, and video titles and more than 500,000 books and print journals.

HOUSING: Many of RIT’s full-time students live in RIT residence halls, apartments, or townhouses on campus. On-campus fraternities, sororities, and special-interest houses are also available. Freshmen are guaranteed housing.

STUDENT ACTIVITIES: Major social events and activities are sponsored by the College Activities Board, Residence Hal Association, sororities, fraternities, and special-interest clubs of many kinds. There are more than 300 clubs and student organizations on campus.

ATHLETICS: Men’s Teams—baseball, basketball, crew, cross country, ice hockey (Division I), lacrosse, soccer, swimming, tennis, track, and wrestling

Women’s Teams—basketball, crew, cross country, ice hockey (Division I), lacrosse, soccer, softball, swimming, tennis, track, and volleyball

RIT offers a wide variety of activities for students at all levels of ability. More than 50 percent of our undergraduate students participate in intramural sports ranging from flag football to golf and indoor soccer. Facilities include the Gordon Field House, featuring two swimming pools, a fitness center, indoor track, and an event venue with seating for 8,500, the Hale-Andrews Student Life Center, with five multipurpose courts, eight racquetball courts, and a dance/aerobics studio, the Ritter Ice Arena; and outdoor facilities including an all-weather track, tennis courts, and several athletic fields. The newly opened Gene Polisseni Center, which houses RIT’s new hockey arena, accommodates 4,300.

EXPENSES: Full-time students living in an RIT residence hall have the following 2016-17 academic year expenses. We estimate that the typical student also spends an average of $5,026 per year for books, transportation, and personal expenses.

<table>
<thead>
<tr>
<th>Charges</th>
<th>2016-2017</th>
<th>NTID*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$38,024</td>
<td>$15,140</td>
</tr>
<tr>
<td>Room (double)</td>
<td>7,162</td>
<td>7,162</td>
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<tr>
<td>Board (standard plan)</td>
<td>5,112</td>
<td>5,112</td>
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<tr>
<td>Fees</td>
<td>$44</td>
<td>$44</td>
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<tr>
<td>Total</td>
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<td>$27,958</td>
</tr>
</tbody>
</table>

* Deaf and hard-of-hearing students who are U.S. citizens enrolled in any undergraduate program and students enrolled in the ASL-English Interpretation major will pay these charges instead of the regular academic year charges.

VISITS TO CAMPUS are encouraged and may be arranged in advance by calling 585-475-6631. Deaf and hard-of-hearing students may arrange campus visits by calling 585-475-6700, toll free in the U.S. and Canada at 866-644-6843, or by videophone at 585-743-1366.

HOME PAGE: www.rit.edu

EMAIL: admissions@rit.edu

UNIVERSITY COLORS: Orange and brown

UNIVERSITY MASCOT: Bengal tiger "Ritchie"

UNIVERSITY ATHLETIC TEAMS: Tigers

RIT does not discriminate. RIT promotes and values diversity within its workforce and provides equal opportunity to all qualified individuals regardless of race, color, creed, age, marital status, sex, gender, religion, sexual orientation, gender identity, gender expression, national origin, veteran status, or disability.

The Advisory Committee on Campus Safety will provide, upon request, all campus crime statistics as reported to the United States Department of Education. RIT crime statistics can be found at the Department of Education website, http://ope.ed.gov/security, and by contacting RIT’s Public Safety Department at 585-475-6620 (v/tty).