2010

2010-2011 Undergraduate Bulletin

Rochester Institute of Technology

R·I·T

2010–2011

UNDERGRADUATE BULLETIN

R·I·T

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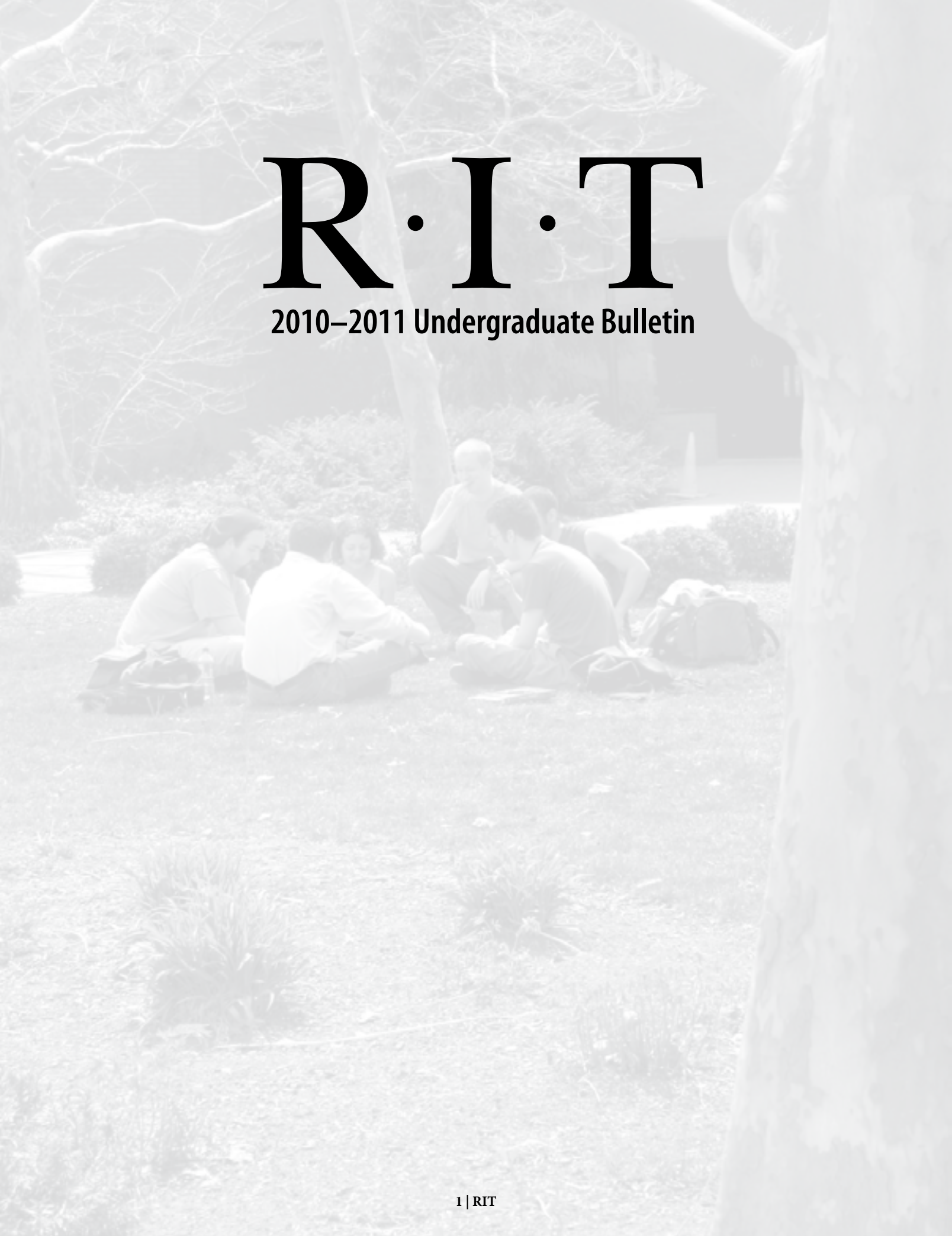

Rochester Institute of Technology
2010-11 University Calendar

Fall Quarter (20101)

April 20-September 6, 2010
Fall registration

September 6
Day, evening, and online classes begin

September 11
Saturday classes begin

September 12
Last day to add/drop courses

September 13
First day to withdraw online via SIS; receive a "W" grade

October 29
Last day to withdraw online with a "W" grade

November 12
Last day and evening classes

November 15, 16, 17, 18, 19
Final exams

November 20
Last Saturday and online classes

November 21-28
Fall/Winter break

November 25-26
Thanksgiving
(University closed)

Winter Quarter (20102)

October 19-November 29, 2010
Winter registration

November 29
Day, evening, and online classes begin

December 4
Saturday classes begin

December 5
Last day to add/drop courses

December 6
First day to withdraw online via SIS; receive a "W" grade

December 17
Last day and evening classes before break

December 18
Last Saturday and online classes before break

December 19-January 2, 2011
Holiday break

December 25-January 2, 2011
(University closed)

January 3
Day, evening, and online classes resume

January 8
Saturday classes resume

February 4
Last day to withdraw online with a "W" grade

February 18
Last day and evening classes

February 21, 22, 23, 24, 25
Final exams

February 26
Last Saturday and online classes

February 27-March 6
Winter/Spring break

Spring Quarter (20103)

January 25-March 7, 2011
Spring registration

March 7
Day, evening, and online classes begin

March 12
Saturday classes begin

March 13
Last day to add/drop courses

March 14
First day to withdraw online via SIS; receive a "W" grade

April 29
Last day to withdraw online with a "W" grade

May 13
Last day and evening classes

May 14
Last Saturday and online classes

May 16, 17, 18, 19, 20
Final exams

May 20
Academic Convocation and Commencement Ceremonies

May 21
Commencement Ceremonies

May 22-June 5
Spring/Summer break

May 30
Memorial Day
(University closed)

Summer Quarter (20104)

April 12-June 6, 2011
Summer quarter registration

June 6
Day, evening, and online classes begin

June 11
Saturday classes begin

June 12
Last day to add/drop summer courses

June 13
First day to withdraw online via SIS; receive a "W" grade

July 4
Independence Day
(University closed)

July 29
Last day to withdraw online with a "W" grade

August 12
Last day and evening classes

August 15, 16, 17, 18
Final exams

August 20
Last Saturday and online classes

** Refer to the 2010-11 Registration Guide for specific registration dates and times, or the Student Information System (SIS) at http://infocenter.rit.edu.*

About this Bulletin

The academic programs, course curricula, policies, and standards described in this *Undergraduate Bulletin* are in effect for students admitted to RIT during the 2010–11 academic year. The purpose of this bulletin is to provide students with a comprehensive source of information to use in planning their undergraduate education. Graduate degree programs and other post-baccalaureate offerings are described in the *Graduate Bulletin*, available through the Office of Graduate Enrollment Services.

The *Undergraduate Bulletin* does not constitute a contract between the university and its students on either a collective or individual basis. It represents RIT's best academic, social, and financial planning at the time of publication. Course and curriculum changes, modification of tuition, fees, dormitory, meal plan, or other charges, and unforeseen changes in other aspects of RIT sometimes occur after the bulletin has been printed, but before the changes can be incorporated in a later edition. Because of this, Rochester Institute of Technology does not assume a contractual obligation with its students for the contents of this *Undergraduate Bulletin*.

RIT Undergraduate Bulletin 2010–11

Produced by the Office of University Publications
Division of Enrollment Management Services and
Career Services

This material was produced, in part, through an agreement between Rochester Institute of Technology and the United States Department of Education. For additional information regarding undergraduate study at RIT, contact:

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RIT will admit and hire men and women; veterans; persons with disabilities; and individuals of any race, creed, religion, color, national or ethnic origin, sexual orientation, age, or marital status in compliance with all appropriate legislation.

An Introduction to Rochester Institute of Technology

Respected internationally as a world leader in career-oriented, technological education, Rochester Institute of Technology has been setting an innovative pace since 1829, when Colonel Nathaniel Rochester became the first president of the Rochester Athenaeum. In 1891, the Athenaeum merged with Mechanics Institute, which had been founded by a group of businessmen to instruct in "drawing and such other branches of studies as are most important for industrial pursuits." In 1944, recognizing the increasingly specialized professional nature of its programs, the university adopted the name it holds today.

A private, coeducational university in upstate New York, RIT offers academic programs that combine outstanding teaching, a strong foundation in the liberal arts and sciences, modern classroom facilities, and work experience gained through the university's cooperative education program, internships, and other opportunities.

Few universities provide RIT's variety of career-oriented studies. Our eight colleges offer outstanding programs in business, engineering, art and design, science and mathematics, the liberal arts, photography, computing, hospitality management, and many other areas.

More than 200 programs—including such distinctive offerings as microelectronic and software engineering, imaging science, film and animation, biotechnology, physician assistant, new media, international business, telecommunications, and the programs of RIT's School for American Crafts and National Technical Institute for the Deaf (NTID)—draw students from all 50 states and more than 100 foreign countries.

As a major university, RIT offers academic opportunities that extend far beyond science and technology, including more liberal arts courses and faculty than are found at most liberal arts colleges. With a strong foundation in the humanities and social sciences, RIT graduates understand both technological developments and the larger philosophical and ethical issues presented by technology.

Approximately 13,800 full-time undergraduate students, 2,500 part-time undergraduate students, and 2,600 graduate students attend RIT. More than 106,000 RIT alumni can be found around the globe.

Almost one-third of our undergraduates are transfer students from two-year colleges or other four-year institutions, and adult students make up a significant portion of the total enrollment. Our full-time undergraduate students include more than 1,200 deaf and hard-of-hearing students, who share the same residence halls and classes on campus.

RIT's cooperative education program is the fourth-oldest and one of the largest in the world. We place more than 3,600 students in co-op work positions with approximately 2,000 employers every year. In addition, more than 600 companies visit RIT to conduct employment interviews on campus.

The world in which RIT graduates live and work is composed of people from many backgrounds, lifestyles, and cultures. Therefore, RIT encourages the appreciation of diversity through a variety of liberal arts courses, campus events, and special programs, including the annual International Banquet, Black History Month, Martin Luther King Jr. celebration, and Hispanic Heritage Week.

RIT has been recognized by *U.S. News & World Report* magazine as one of the nation's leading comprehensive universities and one of America's Best College Values. Many college guidebooks have ranked RIT among the nation's top schools, including "Kaplan's Unbiased Guide to the 320 Most Interesting Colleges" and "The Princeton Review's Best 345 Colleges."

Accreditation

Rochester Institute of Technology is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19014, (267) 284-5000. The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

Colleges

The **College of Applied Science and Technology** offers bachelor of science programs in civil engineering technology; electrical, computer, and telecommunications engineering technology; manufacturing and mechanical engineering technology; electrical-mechanical engineering technology; safety technology; nutrition; hospitality and service management; packaging science; environmental management; and applied arts and sciences. The college also offers a wide variety of degrees, diplomas, and certificates to full- and part-time students. Programs and courses are offered during the day and evening, on Saturdays, and by online learning. Many of the college's programs are also offered as master's degrees. Associate degrees, diplomas, and certificates are offered in several areas and are especially appropriate for part-time adult students looking for convenience, quality, and practicality. The Society of Manufacturing Engineers has recognized the manufacturing engineering technology program as one of the top five in the nation.

The **E. Philip Saunders College of Business** offers seven majors leading to the bachelor of science degree: accounting, finance, international business, management, management information systems, marketing, and new media marketing. With an emphasis on innovation, the commercialization of technology, and a global focus, these programs combine specialized courses in a major, along with courses in the liberal arts and sciences, with cooperative education experience. The college is consistently ranked in *U.S. News & World Report's* Top Undergraduate Business Programs and also is accredited by the Association to Advance Collegiate Schools of Business

(AACSB International). The Saunders College also awards MBA and MS degrees. An accelerated BS/MBA option offers outstanding undergraduates the opportunity to complete both degrees in five years.

The **B. Thomas Golisano College of Computing and Information Sciences** is one of the largest and most comprehensive colleges in the nation devoted to the study of computing and information sciences. Eight bachelor of science degree programs are available in applied networking and system administration, computer science, game design and development, information technology, information security and forensics, medical informatics, new media interactive development, and software engineering. In 1972, RIT was among the first universities in the United States to offer a full undergraduate degree program in computer science. Academic innovation has continued in recent years, as RIT developed the nation's first undergraduate degree programs in information technology and software engineering. The college awards AAS, BS, and MS degrees in a variety of computer disciplines as well as a doctoral degree in computing and information sciences. All of the college's BS degree programs require cooperative education.

The **Kate Gleason College of Engineering** offers BS degrees in biomedical, chemical, computer, electrical, industrial, mechanical, and microelectronic engineering. Specialized degree options also are offered for students interested in areas such as ergonomics, information systems, software, energy and the environment, sustainability, manufacturing, aerospace, automotive, and biomedical engineering. For those who need time to decide on a particular major, the college also offers an engineering exploration program in the first year. Starting in their third year, students in all engineering programs are required to participate in the cooperative education program. A number of accelerated dual degree options (combined BS/MS degrees) are available in all departments. Recognized as one of the premier colleges of engineering dedicated to undergraduate teaching and cooperative education, the college also offers the nation's only doctoral program in microsystems engineering.

The **College of Imaging Arts and Sciences** includes the schools of Art, Design, American Crafts, Film and Animation, Photographic Arts and Sciences, and Print Media. Specialized labs and darkrooms, studios, computer facilities, photo and graphic design archives, and a broad range of high-tech equipment are provided for students. Undergraduate degrees include the associate, bachelor of fine arts, and bachelor of science. RIT is recognized as one of the nation's top-ranked universities for design, print media, and the study of photography.

The **College of Liberal Arts** offers bachelor of science degree programs in advertising and public relations, criminal justice, economics, international studies, journalism, museum studies (formerly cultural resource studies), professional and technical communication, philosophy, psychology, public policy, and urban and community studies. A one-year undeclared option is offered for students who wish to pursue a liberal arts degree but are undecided about which program to pursue. The college also provides a comprehensive program of liberal arts education that is the foundation for all RIT students' educational experience. In addition to core requirements, students select a concentration or minor from a wide variety of disciplines in the humanities, social sciences, or behavioral sciences.

The **National Technical Institute for the Deaf** provides technical and professional programs for approximately 750 deaf and hard-of-hearing students enrolled in associate degree programs. The college also provides extensive educational access services for approximately 500 deaf students who are pursuing bachelor's or master's degrees or taking courses in RIT's other colleges. Within NTID, students may pursue either career-focused associate degree programs leading directly to employment or associate degree programs designed to facilitate easy transfer into RIT's baccalaureate programs. Students choose from a variety of associate degree options/concentrations in accounting technology, administrative support technology, applied computer technology, applied liberal arts, applied mechanical technology, arts and imaging studies, business, business technology, computer-aided drafting technology, computer-integrated machining technology, hospitality and service management, and laboratory science technology. The college also enrolls hearing students in its ASL-English interpretation programs.

The **College of Science** emphasizes the practical aspects of science and mathematics along with applied research opportunities for undergraduate and graduate students. The college offers a variety of degree programs in the sciences; mathematics and statistics; imaging science; medical sciences; including physician assistant; biotechnology; bioinformatics; biomedical science; polymer chemistry, and other unique programs. A general science exploration option is popular with students who want more time to decide on their major. The premedical core is a set of courses required for admission to most medical, dental, and veterinary schools. Many of the college's bachelor of science degree programs offer an optional cooperative education program. The college awards associate, bachelor of science, and master of science degrees. Doctoral degrees are awarded in astrophysical sciences and technology, color science, and imaging science.

University Studies

Some of our accepted students have interests that span two or more of our colleges. To help these students choose the academic program that best meets their career interests and goals, RIT offers the **University Studies** program. The university's broadest and most flexible option, the program allows students up to a year to explore more than 90 bachelor's degree programs while completing courses in general education, math, and science. University Studies students work individually with experienced advisers who make suggestions on course work and programs of study. Through advising and individual interaction with faculty and department chairs, students narrow their focus on a degree program that matches their career interests and goals.

Undeclared Options

For those students who know their interests fall within a specific college, such as Engineering, Liberal Arts, or Science, but are unsure of a specific major, many colleges offer undeclared options. These college-based options help students discover more about their specific interests while they explore the majors offered by the college.

Undeclared Engineering Technology

For students interested in one of the engineering technology or packaging science programs, but unsure about selecting a specific program, the undeclared engineering technology option, in the

College of Applied Science and Technology, is a solid place to begin. This option allows students to spend up to a year exploring the various engineering technology and packaging science programs while earning course credit that can be applied to any of the programs. By the spring quarter of the first year, students will be asked to select a program of study.

Applied Arts and Science degree

The applied arts and science degree program in the College of Applied Science and Technology offers students the opportunity to create personalized degree programs directly related to their interests and aspirations. This option provides students with a multidisciplinary approach to learning that can be applied to the professional environment. Through this flexible, multidisciplinary program, students follow a plan of study tailored to their individual interests that incorporates courses or sets of courses from across RIT.

Undeclared Business

If a student's interests fall into the business realm, the undeclared business option in the Saunders College of Business provides students up to a year and a half to declare a major. During this time, students complete required courses (including liberal arts courses) that provide an understanding of all facets of business and serve as a foundation for the undeclared option as well as advanced study in a specific area of interest. Advisers are available to assist students in selecting a major that matches their area of interest.

Engineering Exploration

The engineering exploration program is an option for students who prefer additional time in which to decide on an engineering major in the Kate Gleason College of Engineering. Students may choose a major at the end of the fall, winter, or spring quarter of their first year. During the first year, students take the foundation courses required by all the engineering disciplines as well as a one-credit course, Introduction to Engineering. This course provides an overview to all six programs plus the opportunity to learn about the course of study in each program, career opportunities in each of the engineering disciplines, and an introduction to the faculty and students of each program. Other career-oriented activities available include participating in small group discussions with faculty and other students, observing classroom presentations of senior engineering design projects, exploring engineering laboratory facilities, and consulting one-on-one with an academic adviser regarding engineering courses.

Undeclared Art and Design and Undeclared Crafts

If students have a passion for the visual arts, then they may consider the undeclared art and design or the undeclared crafts options in the College of Imaging Arts and Science. Students in the School of Art, School of Design, and the School for American Crafts begin their studies in a Foundation Studies program. This program provides students with a broad set of introductory experiences in several areas of the visual arts. Students interested in one of the programs in the School of Art or the School of Design should apply for the undeclared art and design option, while students interested in programs in the School for American Crafts should apply for the undeclared crafts option. Admission to these programs is based, in part, on a portfolio evaluation. Portfolio guidelines can be found at admissions.rit.edu.

Liberal Arts Exploration

If a student's interests are found in the liberal arts, the liberal arts exploration program is a great place to begin. By building on the core liberal arts as well as other general education core components, this option provides students up to two years to declare a major. During this time, students complete required courses that serve as a foundation for each of the programs in the College of Liberal Arts. Advisers are available to assist in selecting a major that matches each student's interests and career goals.

General Science Exploration (Undeclared Science)

The general science exploration program is an excellent place to start if students have a strong interest in science, mathematics and statistics, or medical science careers, but would like some time to explore the programs available in the College of Science. A customized schedule of courses in science and mathematics is developed based on the student's ability, interests, and goals. A team of academic advisers, representing each department in the college, assists each student in selecting courses and identifying a major in which to enroll. In addition to the traditional science options of biology, chemistry, physics, and math, students may explore courses in environmental science, imaging science, or the medical sciences. Students may decide on a major before the end of the first year or may delay the decision until the end of the second year of study.

Computing Exploration

The computing exploration option is designed for students who are interested in computing but are unsure whether computer science or software engineering is the correct choice for them. Students in the exploration option spend their first and part of their second year exploring computer science and software engineering before selecting a major. The computing exploration option has been carefully designed so that students will stay on track for graduation regardless of whether they select the computer science or software engineering major. Each student is assigned an adviser who will meet regularly to discuss course selection, provide guidance, and discuss career options.

Informatics Exploration

The informatics exploration option is designed for students who are interested in the application of computing to meet the needs of today's society. Students in this option will spend their first year exploring four programs of study: applied networking and system administration, information security and forensics, information technology, and medical informatics. The informatics exploration option has been carefully designed so that students will stay on track for graduation regardless of the major they select. Each student is assigned an academic adviser who provides guidance on course selection, career options, and choosing a program.

Academic Programs of Study

Undergraduate Program	Degree and HEGIS*								Evening Option	Online Option
	College	Certificate	Diploma	AOS	AS	AAS	BFA	BS		
Accounting Technology	NTID		5002			5002				
Administrative Support Technology	NTID		5005			5005				
Advertising and Public Relations	COLA							0604		
Applied Arts and Science	CAST		5699			5699		4999	Y	Y
Applied Computer Technology	NTID		5101	5101	0799	5101				
Applied Liberal Arts	NTID				5699					
Applied Mechanical Technology	NTID					5315				
Applied Optical Technology§	NTID			5212		5212				
Arts and Imaging Studies	NTID			5012		5012				
ASL-English Interpretation	NTID					5506		1199		
Automation Technologies§	NTID			5399		5399				
Biochemistry#	COS							0414		
Bioinformatics#	COS							0499		
Biology	COS				5604			0401		
Biomedical Photographic Communications	CIAS					5299		1217		
Biomedical Sciences	COS							0499		
Biotechnology	COS				§			0499		
Business	NTID				5001					
Business Administration:										
Accounting	COB							0502		
Business Administration	CAST					5001			Y	
Finance	COB							0504		
International Business	COB							0513		
Management	COB							0506	Y	
Management Information Systems	COB							0599		
Marketing	COB							0509		
New Media Marketing	COB							0509		
Business Technology	NTID			5004						
Ceramics and Ceramic Sculpture	CIAS					5610	1009			
Chemistry#	COS				5619			1905	Y	
Communication, Technical:										Y

Undergraduate Program	College	Degree and HEGIS* Certificate	Diploma	AOS	AS	AAS	BFA	BS	Evening Option	Online Option
Basic	CAST	5008							Y	Y
Advanced	CAST	5008							Y	Y
Communication, Professional and Technical	COLA							0601		
Communications, Public Relations:										Y
Graphic Communication	CAST	5008							Y	
Professional Writing	CAST	5008								Y
Computer-Aided Drafting Technology	NTID		5303	5303		5303				
Computer-Integrated Machining Technology	NTID		5312	5312						
Computer Science#	GCCIS							0701	Y	
Criminal Justice	COLA							2105		
Deaf Studies†	NTID	5506							Y	
Deaf Cultural Studies/American Sign Language	NTID	5506								
Design:										
3D Digital Graphics	CIAS						1009			
Graphic	CIAS					5012	1009			
Industrial	CIAS						1009			
Interior	CIAS						1009			
Diagnostic Medical Sonography	COS	5299			§			1299		
Digital Cinema	CIAS							1010		
Disaster and Emergency Management	CAST	5508								Y
E-Business	CAST	5001							Y	Y
Echocardiography	COS	5217								
Economics	COLA							2204		
Engineering:										
Biomedical Engineering	COE							0905		
Chemical Engineering	COE							0906		
Computer Engineering#	COE							0999		
Electrical Engineering#	COE							0909		
Industrial Engineering#	COE							0913		
Mechanical Engineering#	COE							0910		
Mechanical Engineering/Science Technology and Public Policy	COE/COLA							0910		
Microelectronic Engineering#	COE							0999		
Engineering Science	COE				5609				Y	
Engineering Technology:										Y
Civil Engineering Technology	CAST							0925		
Computer Engineering Technology	CAST							0925	Y	

Undergraduate Program	College	Degree and HEGIS* Certificate	Diploma	AOS	AS	AAS	BFA	BS	Evening Option	Online Option
Electrical Engineering Technology	CAST							0925	Y	
Electrical Technology	CAST					5310			Y	
Electrical/Mechanical Engineering Technology#	CAST							0925	Y	Y
Manufacturing Engineering Technology#	CAST							0925	Y	
Mechanical Engineering Technology	CAST							0925	Y	
Mechanical Technology	CAST	5301				5315			Y	
Telecommunications Engineering Technology#	CAST							0925		Y
Environmental Sustainability, Health and Safety#	CAST							0420	Y	
Environmental Science#	COS							0420		
Exercise Science	COS	5299.3								
Film and Animation	CIAS					5008				
Fine and Applied Arts	CIAS		5012						Y	
Fine Arts Studio	CIAS					5610	1002			
Game Design and Development	GCCIS							0799		
General Management	CAST					5004			Y	
Glass and Glass Sculpture	CIAS					5012	1009			
Graphic Communications†	CIAS							0699		
Graphic Media	CIAS							0699		
Health Systems Administration	CAST	5299							Y	Y
Hospitality and Service Management (AAS, BS)	CAST					5011.10		0510.10		
Hospitality and Service Management (AS)	NTID				5011					
Human Resource Administration	CAST					5004			Y	
Illustration	CIAS					5610	1002			
Imaging Science	COS							1999.20		
Imaging and Photographic Technology	CIAS					5007		1011		
Information Technology:										
Applied Networking and System Administration	GCCIS							0702	Y	
Information Security and Forensics	GCCIS							0799		
Information Technology	GCCIS					5101		0699	Y	
Medical Informatics#	GCCIS							1217		
New Media Interactive Development	GCCIS							0699		
International Studies	COLA							2210		
Journalism	COLA							0604		
Laboratory Science Technology	NTID			5407		5407				
Management Development	CAST	5004	5004						Y	
Mathematics:										
Applied Mathematics#	COS				5617			1703		

Undergraduate Program	College	Degree and HEGIS* Certificate	Diploma	AOS	AS	AAS	BFA	BS	Evening Option	Online Option
Computational Mathematics#	COS							1703		
Medical Illustration	CIAS						1299			
Metals and Jewelry Design	CIAS					5012	1009			
Museum Studies (formerly Cultural Resource Studies)	COLA							1099		
New Media:										
New Media–Design and Imaging	CIAS						0605			
New Media–Publishing	CIAS							0605		
Nutrition Management	CAST					5404		1306		
Organizational Development:										
Human Resource Development	CAST	5004							Y	
Organizational Change and Leadership	CAST	5004							Y	
Packaging Science	CAST							4999		
Performing Arts	NTID	5610								
Philosophy	COLA							1509		
Photographic Illustration, Professional	CIAS					5007	1011			
Physician Assistant	COS							1299.10		
Physics#	COS				5619			1902		
Polymer Chemistry#	COS							1907		
Psychology	COLA							2001		
Public Policy#	COLA							2102		
Quality, Basic	CAST	5004								Y
Quality Implementation	CAST	5004								Y
Quality Management	CAST	5004								
Safety Technology	CAST	5312						0420		Y
Small Business Management	CAST	5004							Y	
Software Engineering#	GCCIS							0999		
Statistics, Applied#	COS							1702		
Structural Design	CAST	5399								Y
Urban and Community Studies	COLA							2214.00		
Visual Media	CIAS						1009			
Woodworking and Furniture Design	CIAS			5317		5012	1009			

**Upon approval from the School for American Crafts.*
#Accelerated dual degree (BS/MS) option available.
†This program has been approved for discontinuance. No new students will be admitted in 2010-11.
§ This program has been suspended. No new students will be admitted in 2010-11.

College of Applied Science and Technology

H. Fred Walker, Dean

www.rit.edu/cast/

The College of Applied Science and Technology provides programs that stress technology in a variety of environments, enhance customer satisfaction in the service sector, and improve the careers of traditional and nontraditional students. Modern technology, whether in the development, integration, or implementation stages, is a focal point in each of the college's programs. This technology may be used to provide productive manufacturing and distribution of durable and consumable goods, the proper flow of information worldwide, the proper protection of the environment, or the enhancement of customer satisfaction in the service sector.

Through its dynamic program offerings, the college is committed to preparing graduates to be innovative, technologically advanced, and entrepreneurial. Degree programs are offered at the associate, baccalaureate, and master's degree levels, and a wide array of diplomas and certificates are offered in a variety of programs. The college also includes the departments of military science (Army ROTC) and aerospace studies (Air Force ROTC) and the Center for Electronic Manufacturing Assembly (CEMA).

Facilities and resources

The college's newest building is LEED (Leadership in Energy and Environmental Design) certified, supporting RIT's commitment to environmentally sustainable design. It houses the William G. McGowan Student Commons; the American Packaging Corporation Center for Packaging Innovation; the William G. McGowan Center for Telecommunications, Innovation, and Collaborative Research; the REDCOM Telecommunications Systems Laboratory; the OSHA Training Center; the department of civil engineering technology/environmental management and safety; the department of electrical, computer, and telecommunications engineering technology; advising and faculty offices; and laboratories.

An adjacent building houses additional administrative, advising, and faculty offices; a student project area; and mechanical systems, materials, and product innovation laboratories. Additional laboratories are located in the Center for Integrated Manufacturing Studies, which features state-of-the-art labs in CAD/CAM systems, electronics manufacturing, instrumentation, and packaging testing.

Henry's, the college's student-run kitchen and restaurant, which is part of the School of Hospitality and Service Management, showcases some of the most sophisticated service equipment and computing resources in the country. Newly remodeled food product development laboratories allow students to create menu items for classes that pertain to the growing food service industry. Computing information laboratories provide data that enable students to assess the supply and demand for food commodities throughout the world.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Faculty

Faculty members in the college have considerable experience in their respective industrial fields, teaching experience from two- and four-year colleges, and have completed graduate programs in their various specialties. While teaching is their primary concern, they also serve as active industrial consultants and researchers who maintain current knowledge in their fields. They are committed to student growth and development.

Advising

The college provides advising services to support students throughout their academic careers. A faculty adviser, co-op adviser, professional adviser, and staff in the departmental offices all participate in the student's academic experience. A faculty adviser is uniquely prepared to offer career counseling in each student's major field of study. RIT's Office of Cooperative Education and Career Services assigns each co-op student an adviser who assists in the placement process. In the departmental offices, all students are assured of administrative support to effectively deal with registration, records, and scheduling. With a prearranged appointment, part-time students will find advisers available during the evening. Each of these advisers will also help identify appropriate RIT support services for specific student needs.

Engineering Technology

RIT is a leader in the development of bachelor's and master's programs in engineering technology that are designed to meet the growing needs of business and industry for engineering technologists.

Degree programs

There are seven engineering technology programs:

- civil engineering technology
- computer engineering technology
- electrical engineering technology
- electrical/mechanical engineering technology
- manufacturing engineering technology
- mechanical engineering technology
- telecommunications engineering technology

Each of the programs is designed to accept graduates from associate degree programs into the upper division (third and fourth years) of the program. Many students choose to transfer from similar engineering technology fields to continue study in

a particular engineering technology specialization. Each program consists of a balance of professional studies, the liberal arts, mathematics, and cooperative education. With the selection of technical electives, students can tailor their program to enhance previous knowledge and work experience.

Upper division: The engineering technology programs are flexible and can easily accommodate students who currently work in full-time positions and wish to pursue a degree on a part-time basis. Part-time study in all engineering technology upper-division programs is available during the day. All programs offer part-time study in the evenings, except civil engineering technology. The upper-division programs in electrical/mechanical and telecommunications engineering technology are also offered through online learning.

The requirements for part-time study and for graduation are consistent with those for the electrical, computer, and telecommunications engineering technology full-time day programs requiring co-op experience. The part-time mechanical, electrical/mechanical, and manufacturing engineering technology programs do not require cooperative education.

Lower division: Engineering technology offers the following lower-division evening programs: electrical technology and mechanical technology.

These programs allow students with full-time jobs to obtain an associate of applied science degree on a part-time basis. Certificate programs are available during the evening and through online learning. For more information, please request a Part-time Undergraduate Studies Guide, an Online Studies Guide, or visit the Part-time and Graduate Enrollment Services website at www.rit.edu/emcs/ptgrad/.

Accreditation

The following baccalaureate degree programs are accredited by the Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering Technology (ABET), 1 Market Place, Suite 1050, Baltimore, Maryland 21202, (410) 347-7700: civil engineering technology, computer engineering technology, electrical engineering technology, electrical/mechanical engineering technology, manufacturing engineering technology, mechanical engineering technology, and telecommunications engineering technology. The technology associate programs have been designed to facilitate easy transfer for students to the bachelor of science programs. Students enrolled in the technology associate degree programs may transfer all of their credits to the TAC of ABET-accredited bachelor of science degree program in the appropriate field.

Cooperative Education

An integral and significant part of each engineering technology program is work experience gained through RIT's cooperative education program. Co-op involves alternating periods of study on campus with full-time, paid work experience in industry. A typical co-op schedule for engineering technology programs is shown.

Year	Fall	Winter	Spring	Summer
1 and 2	RIT	RIT	RIT	—
3	RIT	RIT	Co-op	Co-op
4	RIT	Co-op	RIT	Co-op
5	Co-op	RIT	RIT	—

Co-op provides an opportunity for students to apply techniques, skills, and the latest developments in their fields in a professional environment. Students learn the day-to-day operations of an engineering technology professional while they gain valuable experience that hones their skills and makes them more marketable upon graduation.

Co-op also can provide an income that may help defray a portion of the student's educational expenses. RIT's Office of Cooperative Education and Career Services can assist students in obtaining co-op positions that relate to their career goals.

All full-time engineering technology programs require students to complete five quarters of cooperative education before they can be awarded a bachelor of science degree. All part-time programs also require either cooperative education or its equivalent beyond the level of an associate degree. Many students who work full time and are enrolled par time in an engineering technology program may be able to apply a portion of their full-time employment toward cooperative education experience. The student's professional responsibilities and how they pertain to the degree program in which the student is enrolled must be reviewed to determine if co-op credit may be given.

Some engineering technology programs require an official entry into co-op, with cooperative education experience listed on the student's transcript. Part-time students in the electrical, computer, and telecommunications engineering technology programs have the same cooperative education requirements as full-time students. As part of the graduation requirement for a BS in mechanical engineering technology, electrical/mechanical engineering technology, and manufacturing engineering technology, the department requires that the work experience of all part-time and distance students must total at least 48 weeks of documented full-time work experience relevant to their major.

Undeclared Engineering Technology Option

Elizabeth Dell, Undeclared Program Coordinator

www.rit.edu/cast/mmetps/

Students interested in the fields of engineering technology or packaging science but undecided about selecting a specific program of study should consider the undeclared engineering technology option. Students spend up to one year exploring the various engineering technology programs while earning course credit that can be applied to any of the programs. During the first quarter, students take basic technical skills courses in both the electrical and mechanical disciplines. They also participate in Engineering Technology Seminar (0606-101), which explores the unique characteristics of each engineering technology discipline. After the first quarter, students are expected to select a specific program of study or focus on a discipline area, such as electrical (computer, electrical, telecommunications), mechanical (manufacturing, mechanical, packaging), or civil (civil, environmental management, safety). By the spring quarter, students are required to select a program of study. In their first two years, students who chose to enter RIT in the undeclared engineering technology program may take some courses at different times than the students who entered their first year in a declared program. In most cases, however, students who start in the undeclared option are able to begin their junior year on track with other students in their same program of study.

Undeclared engineering technology, freshman year course sequence

		Qtr. Cr. Hrs.
Fall Quarter	Liberal Arts*	4
	Solid Modeling and Design 0617-262	4
	ExCiTe Introduction to ECT ET 0618-213	4
	Precalculus 1016-230 or Math Sequence	4
	Engineering Technology Seminar 0606-101	2
	First-Year Enrichment 1720-051	1
Winter Quarter	Choose from one of the following programs: Electrical Engineering Technology, Mechanical Engineering Technology, Electrical/Mechanical Engineering Technology, Computer Engineering Technology, Telecommunications Engineering Technology, Civil Engineering Technology, Environmental Management, Safety Technology, Packaging Science	
	Liberal Arts*	4
	First-Year Enrichment 1720-052	1
	Calculus for Engineering Technology 1016-231 or Math Sequence	4
	Two courses from selected option (with adviser approval)	8
Spring Quarter	Calculus for Engineering Technology II 1016-232 or Math sequence	4
	Liberal Arts*	4
	Two courses from selected option (with adviser approval)	8
	Total Quarter Credit Hours	*52*

**Please see Liberal Arts General Education Requirements for more information.*

Civil Engineering Technology

John Morelli, Department Chair
Scott B. Wolcott, Undergraduate Coordinator

www.rit.edu /cast/cetems/

Using the language of codes, working drawings, and specifications, students in the civil engineering technology program will learn how to translate the innovative concepts of the engineer into functioning systems and structures. The program prepares students for employment in the fields of civil engineering technology, construction management, or any of the many closely related fields. In addition, the program teaches the skills necessary for graduates to pursue additional education, certification, or professional licensure. The program also encourages students to grow in responsibility and leadership through course work and extracurricular activities designed to broaden their involvement in organizations within and outside their profession. These objectives are achieved through a broad-based curriculum that offers students a choice of five elective paths that meet specific career interests.

The program is accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202, (410) 347-7700, and is operated as a cooperative education program.

Advisory board

The Industrial Advisory Board is comprised of local and regional industry leaders from consulting, construction, and the municipal market. These advisory board members share their professional and technical expertise to enhance the engineering technology program and strengthen its future development.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Graduates of two-year associate degree programs may apply for admission. Course work should have included technical math (two semesters of college-level math with an introduction to calculus), drafting (including CAD), technical physics (two semesters), soil mechanics, plane surveying, route surveying, statics (mechanics), strength of materials, and methods and materials of construction. Students lacking this course work may be admitted to the program, but may be required to complete additional course work.

Normally, an associate degree in science is acceptable from an engineering transfer program, and students take courses they lack concurrently in the program. Typically these students graduate in the same six academic quarters as an engineering technology transfer student.

Graduates

Consulting engineers; construction companies and industries; and federal, state, and local government agencies employ engineering technology graduates both nationally and internationally. Their initial job titles range from assistant project manager, structural designer, or junior engineer to construction inspector and environmental engineer. Many of our graduates continue on to pursue advanced degrees, a large number have gained registration in several states as professional engineers, and many manage their own consulting firms.

Civil engineering technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Civil Engineering Technology 0608-051	1
	Precalculus 1016-230	4
	Engineering Graphics with CAD 0608-211	4
	Materials of Construction 0608-330	4
	Calculus for Engineering Tech I 1016-231	4
	College Physics I, II, Lab 1017-211, 212, 271, 272	8
	Problem Solving and Communication with Computers 0608-225	2
	Introduction to Statics 0610-302	4
	Civil Engineering Graphics 0608-220	4
	Liberal Arts*	16
	Wellness Education†	1
	First-Year Enrichment 1105-051, 052	2
Second Year	College Physics III, Lab 1017-213, 273	4
	Plane Surveying 0608-320	4
	Effective Technical Communication 0535-403	4
	Strength of Materials 0610-303	4
	Elementary Soil Mechanics 0608-360	4
	Elements of Building Construction 0608-422	4
	Calculus for Engineering Technology II 1016-232	4
	Route Surveying 0608-340	4
	Elementary Structures 0608-380	4
	Differential Equations for Engineering Tech 1016-304	4
	Liberal Arts*	8
	Wellness Education†	0

Third Year	Introduction to Civil Engineering Technology, Transfer 0608-199	1
	Hydraulics, Lab (or Technical Elective) 0608-420, 421	4
	Structural Loads and Systems 0608-304	2
	Land Development Computer Applications 0608-303	2
	Math Elective	4
	Structural Computer Applications 0608-305	2
	Applied Mechanics of Materials 0608-404	4
	Technical Elective	2
	Fundamentals of Chemistry 1011-271	3
	Chemistry I Lab 1011-205	1
	Liberal Arts*	8
	Co-op Preparation 0606-099	0
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Water and Wastewater Transport Systems 0608-432	2
	Structural Analysis 0608-490	4
	Chemistry of Water and Wastewater, Lab 1011-272, 276	4
	Technical Electives	8
	Principles of Water and Wastewater Treatment 0608-438	4
	Structural Design 0608-496 or 0608-497	4
	Soil Mechanics and Foundations, Lab 0608-527, 528	4
	Professional Principles and Practices 0608-546	1
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
Fifth Year	Transportation Engineering 0608-530	4
	Free Electives	12
	Technology Electronics 1017-359	4
	Engineering Economics 0617-436	4
	Principles of Dynamics in Civil Engineering Technology 0608-570	4
	Liberal Arts*	4
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***195***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
The program shown is that which would be taken by those who start at RIT as freshmen. Each transfer student will be given a program tailored to his or her particular needs upon acceptance. Graduates will have to meet a minimum of 36 quarter credit hours of mathematics and science (including credits transferred) and include Mathematics (1016-304) or equivalent.

Technical electives

It is anticipated that a student will take at least two electives from one of the sequences shown below. Other electives may be chosen from within that sequence, from another sequence, or from the other electives shown. With departmental approval, technical electives may be selected from existing courses in other RIT colleges. Also, independent study projects may be pursued for credit in cases where students demonstrate unusual ability and obtain sponsorship of a faculty adviser.

	Qtr. Cr. Hrs.
Wa ter Resources	
0608-482 Stormwater Management	4
0608-485 Hydraulic Structures	4
0608-480 Groundwater Hydraulics	4
Environmental Controls	
0608-510 Design of Water Treatment	2
0608-514 Land Use Planning	4
0608-511 Design of Wastewater Facilities	2
0608-525 Resource Recovery/Waste Management	4
Construction Management	
0608-500 Labor Relations	2
0608-509 Cost Estimating	4
0608-560 Construction Project Management	4
0608-544 Contracts and Specifications	2
Structures	
0608-470 Timber Design	4
0608-496 Reinforced Concrete Design	4
0608-497 Structural Steel Design	4
Building and Heavy Construction	
0608-460 Construction Equipment	2
0608-505 Construction Safety	2
0608-535 Pavement Design	4
0608-444 Mechanical Equipment	2
Other Electives	
1016-319 Data Analysis	4
0610-440 Applied Thermodynamics	4
0630-370, 372 Environment al Geology, Lab	4

Structural Design Certificate

The structural design certificate is for professionals who need formal training in proper design techniques to better perform the preliminary design functions that may be allocated to them under the supervision and guidance of a professional engineer. The certificate is a 20-quarter-credit-hour program that consists of five 4-quarter-credit-hour courses.

The curriculum covers the latest techniques in steel design, designated "load and resistance factor design," which is replacing the "allowable stress design" techniques still offered in many engineering and engineering technology curricula.

Prospective students are those with an associate degree in civil engineering technology (or a similar program) employed in a design environment who need additional training, or those with a bachelor's degree in civil engineering, civil engineering technology, or architecture and employed in a design environment.

Admission requirements include an official transcript from all previous institutions of higher education indicating the successful completion of the courses equivalent to the program's prerequisites.

Certificate courses	Qtr. Cr. Hrs.
0608-404 Applied Mechanics	4
0608-490 Structural Analysis	4
0608-470 Timber Design	4
0608-496 Reinforced Concrete Design	4
0608-497 Structural Steel Design	4
Total Quarter Credit Hours	***20***

Computer Engineering Technology

Michael Eastman, Department Chair

www.rit.edu/cast/ect

Embedded systems are at the heart of devices and systems used every day. Computer engineers design embedded systems for medical diagnostic equipment, digital cameras, missile guidance systems, anti-lock braking systems, scanners, copiers, switches, routers, and cell phones. The embedded systems designer requires knowledge of computer hardware and software.

The computer engineering technology program is designed to meet industry's ever-increasing need for employees with an in-depth knowledge of hardware and software design and development. The curriculum bridges the gap between these two disciplines by providing a solid foundation in each and integrating them with intensive classroom and laboratory experiences.

From a software perspective, students gain a strong background in cutting-edge development using programming languages currently used in industry. Students learn industry standard approaches to application software development as well as state-of-the-art problem-solving techniques. Students learn techniques for developing applications code and firmware, and they understand and appreciate the difference. Embedded "C" and assembly language programming are performed in numerous courses.

The hardware focus of the curriculum is on digital systems design and development. From low-level gate design to high-end

microprocessors and current bus standards, students gain an architectural appreciation of computer systems. The curriculum includes in-depth design and analysis of combinational logic, sequential logic and state machines, micro-controller systems, microprocessor systems, and state-of-the-art computer technology. Students perform schematic entry timing analysis and FPGA development in VHDL using industry standard computer-aided engineering tools.

The emphasis on hardware and software design, along with a solid foundation in math, science, and the liberal arts, produces graduates who are well-prepared to enter the work force as design engineers or to pursue advanced degrees. Students will gain depth of knowledge and breadth of experience that will inspire them to pursue successful careers in their chosen professional field and embark on a path of lifelong learning.

The computer engineering technology program is accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202, (410) 347-7700.

Accelerated dual degree option

The computer engineering technology program, in conjunction with the department of computer science in the B. Thomas Golisano College of Computing and Information Sciences, offers an accelerated dual degree option that combines the bachelor's degree in computer engineering technology and a master's degree in computer science in a cohesive, five-year curriculum.

Applications to this program are accepted from matriculated undergraduate computer engineering technology students who have completed all the courses in the first five quarters of the baccalaureate program and have maintained a cumulative grade point average of at least 3.4 out of 4.0. At least 55 quarter credit hours must have been earned at RIT. This program requires the maintenance of at least a 3.0 cumulative grade point average and at least a 3.0 in the 45 quarter credit hours directly applicable to the master of science degree.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Graduates of closely allied associate degree programs may apply for transfer. These students complete the requirements for the BS degree in three years, which includes six academic quarters and five quarters of cooperative education. All qualified transfer students are evaluated on a course-by-course basis and given a specific program of study that best meets their career goals, provides a meaningful cooperative education experience, and permits fulfillment of the degree requirements in a reasonable period of time.

Electives

There is a need in the computer industry for professionals with diversified areas of expertise. The computer engineering technology program requires a three-course professional concentration sequence that allows students to customize their education yet ensures depth of knowledge in subject matter beyond the core curriculum. Concentrations are offered in computer science, systems administration, IT wireless networks, telecommunications, and communications systems.

Computer Science
4003-263 Computer Science for Transfers
4003-450 Programming Language Concepts
4003-440 Operating Systems I

Systems Administration
4050-402 OS Scripting
4050-421 Systems Administration I
4050-516 Network Services

IT Wireless Networks
4050-351 Network Fundamentals
4050-403 Concepts of Wireless Networking
4050-413 Applications of Wireless Networks

Telecommunications
0614-271 Telecommunications Fundamentals
0614-465/0614-466 Voice Communications Technology
0614-475 Switching Technologies

Communication Systems
0609-363 Electronics IV
0609-534 Communication Systems I
0609-547 Digital Signal Processing

In addition to the professional concentration electives, the curriculum has three free electives that may be used to pursue minors, to provide additional technical expertise for greater career specialization, or to explore courses that fulfill personal interests.

Cooperative education

The computer engineering technology program requires students to complete five quarters of cooperative education. Students may begin their co-op experience in the third year of the program. Each student is assigned a co-op adviser to assist in identifying placements.

Computer engineering technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	First-Year Enrichment 0609-051, 052	2
	Technical Programming I, II 0618-231, 232	4
	Digital Fundamentals 0618-301	4
	ExCiTe Introduction to ECT ET 0618-213	4
	Circuit Theory I, II 0609-214, 215	8
	Calculus with Foundations I, II 1016-261, 262	8
	Calculus B 1016-272	4
	Microcomputers 0618-303	4
	Liberal Arts*	12
	Wellness Education†	0
Second Year	Data Analysis 1016-319	4
	Technical Programming III 0618-233	8
	Circuit Theory III 0609-216	4
	Electronics I, II 0609-360, 361	8
	College Physics I, II, III 1017-211, 212, 213	12
	Liberal Arts*	12
	Calculus C 1016-273	4

Third Year	Digital Systems Design I 0618-438	4
	Electronics III 0609 362	4
	Electronic Design Automation 0618-439	4
	Career Orientation 0609-407	1
	Networking Technologies 0614-477	4
	Principles of Optics 1017-320	4
	Differential Equations for Engineering Technology 1016-304	4
	Effective Technical Communication 0535-403	4
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Embedded Systems Design I, II 0618-561, 562	8
	Concepts in Systems and Signals 0609-333	4
	Professional Concentration Elective	4
	Advanced Electronics 0609-442	4
	Liberal Arts*	8
	Free Elective	4
	Cooperative Education (2 quarters)	Co-op
Fifth Year	Embedded Systems Design III 0618-563	4
	Professional Concentration Electives	8
	Liberal Arts*	4
	Ethics, Economics, and Planning for Engineers 0614-440	4
	Free Electives	8
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***192***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Electrical Engineering Technology

Michael Eastman, Department Chair

www.rit.edu/cast/ect

The bachelor of science program in electrical engineering technology provides students with a foundation in circuits, analog and digital electronics, physics, calculus, and the liberal arts. The third and fourth years expand on the fundamental courses with more advanced course work in applied differential equations, advanced circuits and electronics, transform methods, control systems, analog and digital electronics, mechanical engineering technology, and additional liberal arts courses. Students choose free electives or mechanical/manufacturing and professional electives to round out the program. Professional electives include sequences in electric power systems, electronic communications, embedded systems, telecommunications, networking, and optics. Several electives also are available from other technical disciplines, and the student's academic adviser can assist in determining the best choices for career goals and objectives. The upper division of the program provides a viable option for students who have completed their associate degree and wish to continue their education in engineering technology.

The BS is a five-year program that includes a year of cooperative education experience for full-time students. Students are required to complete five quarters of co-op and may begin their co-op experiences in the third year of the program. A co-op counselor is assigned to each student.

Graduates

Graduates of the program are well-prepared to pursue careers in a number of fields related to electrical engineering technology. Graduates enter not only design and development but related disciplines, including manufacturing, research, sales and marketing, applications engineering, and education. To attain these objectives, detailed program outcomes are specified for graduates. These can be found on the department website, www.rit.edu/ect.

The bachelor of science degree program in electrical engineering technology is accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202, (410) 347-7700.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Graduates of two-year associate degree programs in electrical or electronic engineering technology are encouraged to apply for admission. Students currently enrolled in engineering science associate degree programs also may apply, but may be assigned to a slightly different series of courses. Students from associate degree programs closely related to electrical technology who have appropriate circuits and electronics course levels may also be accepted, but may be required to complete some foundation courses before starting the third year of the program.

Electrical engineering technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	ExCiTe Introduction to ECT ET 0618-213	4
	Circuit Theory I, II 0609-214, 215	8
	Calculus with Foundations I, II 1016-261, 262	8
	First-Year Enrichment I, II 0609-051, 052	2
	Liberal Arts*	12
	Technical Programming I 0618-231	4
	College Physics I 1017-211	4
	Digital Fundamentals 0618-301	4
	Calculus B 1016-272	4
	Wellness Education†	0
Second Year	Circuit Theory III 0609-216	4
	Electronics I, II, 0609-360, 361	8
	Liberal Arts*	12
	Machines and Transformers 0609-337	4
	College Physics II, III 1017- 212, 213	8
	Calculus C 1016-273	4
	Data Analysis 1016-319	4
	Wellness Education†	0
	Microcomputers 0618-303	4
Third Year	Digital Systems Design I 0618-438	4
	Electronics III, IV 0609-362, 363	8
	Differential Equations for Engineering Technology 1016-304	4
	Public Speaking 0535-501	4
	Career Orientation 0609-407	1
	Technical Writing 0502-444	4
	Electronic Design Automation 0618-439	4
	Concepts in Systems and Signals 0609-333	4
	Cooperative Education (2 quarters)	Co-op

Fourth Year	Free Elective	4
	Liberal Arts*	8
	Digital Signal Processing 0609-547	4
	Advanced Circuit Theory 0609-403	4
	Mechanical/Manufacturing Engineering Technology Elective	4
	Advanced Electronics 0609-442	4
	Transmission Lines 0609-408	4
	Cooperative Education (2 quarters)	Co-op
Fifth Year	Control Systems I 0609-404	4
	Ethics, Economics and Planning for Engineers 0614-440	4
	Professional Electives	8
	Free Electives	8
	Liberal Arts*	4
	General Education Elective	2
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***194***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
The program shown is that which would be taken by those who start at RIT as freshmen. Each transfer student will be given a program tailored to his or her particular needs upon acceptance. Graduates will have to meet a minimum of 36 quarter credit hours of mathematics and science (including credits transferred) and include Mathematics (1016-304) or equivalent.

Possible professional electives

Option	*Course Title*	*Prerequisite(s)*
Power Systems		
0609-550	Power Systems I	0609-337 or 0609-411
0609-552	Power Systems II	0609-550
Communications Systems		
0609-534	Communication Systems I	0609-333 and 0609-363
0614-520	Fiber Optic Telecommunications Technology	1016-304, 1017-212 and (0614-483 or 0609-408)
Embedded Systems		
0618-561	Embedded System Design I	0618-438
0618-562	Embedded System Design II	0618-439 and 0618-561
Telecommunications		
0614-561	Network Engineering (3 credits)	1016-304, 0614-477, 0614-475
	< AND >	
0614-562	Network Engineering Lab (1 credit)	
0614-574	Networking Planning and Design	0614-479, 0614-561, 562

Electrical/Mechanical Engineering Technology

Michael J. Parthum Sr., Program Chair

www.rit.edu/cast/mmetps/

With both the increased complexity of product design and the merger of mechanical and electrical aspects of design, there is a growing need for professionals who have a strong foundation in the electrical, mechanical, and manufacturing disciplines. Graduates from the electrical/mechanical engineering technology program are able to effectively bridge the gap between coworkers with more specialized backgrounds.

The program is accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202, (410) 347-7700.

Program goals

The electrical/mechanical engineering technology program prepares graduates for professional careers in the broad field of engineering technology, where an integration of mechanical, electrical, and manufacturing disciplines is important. We also provide the maximum amount of flexibility in transfer from other RIT programs and a variety of two-year programs, including engineering science and engineering technology.

Curriculum

The program's core consists of 66 quarter credit hours covering the disciplines of electricity, electronics, microprocessors, mechanics, materials, thermal science, solid modeling, and manufacturing processes. After completing the core, students may select a technical concentration, which consists of three courses in a particular discipline. Students may use this concentration to either tailor the degree to meet specific employment objectives or establish a technical minor. Technical concentrations are available in electrical power systems, manufacturing management, telecommunications, and structures—civil, safety technology, and environmental management. Additional concentrations may be developed to meet the needs of a student's career goals or interests. Students will also complete 24 quarter credit hours of electives (12 as free electives and 12 as technical electives). In addition, students take general education courses in mathematics, physics, chemistry, communications, programming, and the liberal arts.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Students with associate degrees in either electrical or mechanical engineering technology can generally transfer to the upper-division portion of the program with third-year status. Students with other backgrounds usually need additional core course work to achieve third-year status. Transfer students will more closely follow the requirements outlined in the upper-division part-time and online course sequence, since some lower-division courses are replaced by parts of upper-division courses. The actual course sequence will be determined by advisement.

Evening and online option

The upper-division portion of this program may be completed part time during the evening or through online learning. This enables students to complete the program if they are employed full time or if they reside outside Rochester. For online students, there is a different sequence of courses so they can come to RIT only once for a one-week intensive laboratory course in addition to labs that can be completed using kits or the Web. The typical transfer student, with a technical associate degree or equivalent, will be able to complete the part-time program in approximately five years. Many of the program's electives are available online.

Electrical/mechanical engineering technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	First-Year Enrichment I, II 1720-051, 052	2
	ExCiTe Introduction to ECT ET 0618-213	4
	Manufacturing Processes 0617-220	4
	Precalculus 1016-230	4
	Solid Modeling and Design 0617-262	4
	College Physics I 1017-211	4
	Calculus for Engineering Technology I, II 1016-231, 232	8
	Liberal Arts*	16
	Digital Fundamentals 0618-301	4
	Introduction to Materials Technology 0610-211	3
	Materials Testing 0610-304	1
Second Year	Introduction to Statics 0610-302	4
	College Physics II, III 1017-212, 213	8
	Differential Equations for Engineering Technology 1016-304	4
	Strength of Materials 0610-303	4
	Data Analysis 1016-319	4
	Telecommunications Fundamentals 0614-271	4
	Electrical Machines and Transformers 0609-337	4
	Electrical Principles I 0609-411	4
	Liberal Arts*	8
	Effective Technical Communications 0535-403	4
	Computers in Mechanical Engineering Technology 0610-432	2
	Wellness Education†	0
Third Year	College Chemistry 1011-208	4
	Technical Programming I 0618-231	4
	Applied Dynamics 0610-405	4
	Applied Microprocessors 0609-413	4
	Co-op Preparation 0606-099	0
	Electric Principles II 0609-412	4
	Liberal Arts*	4
	Thermal Fluid Sciences I, II 0660-401, 402	5
	Mechanical Engineering Technology Lab I 0610-407	2
	Wellness Education†	0
	Introduction to Chemistry of Materials, Lab 1011-273, 277	4
	Cooperative Education 0660-499 (2 quarters)	Co-op
Fourth Year	Controls for Manufacturing Automation 0617-470	4
	Materials Technology 0610-416	4
	Production and Operations Management I 0617-440	4
	Mechanical Engineering Technology Lab II 0610-409	4
	Cooperative Education 0660-499 (2 quarters)	Co-op
	Liberal Arts*	8
	Thermal Fluid Science III 0660-403	3
	Upper-Division Technical Concentration	4
	Technical Programming I 0618-231	4
Fifth Year	Cooperative Education (1 quarter) 0610-499	Co-op
	Engineering Economics 0617-436	4
	Upper-Division Technical Concentration	7-8
	Free Electives	12
	Liberal Arts*	4
	General Education Elective	2
	Total Quarter Credit Hours	***204***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
For the electrical/mechanical engineering technology BS degree upper-division evening and online learning program typical course sequence, please see the Part-time Undergraduate Studies Guide or Online Studies Guide.

Manufacturing and Mechanical Engineering Technology/Packaging Science

Daniel P. Johnson, Chair

www.rit.edu/cast/mmetps/

The manufacturing and mechanical engineering technology/packaging science department is a leader in providing innovative career-oriented education in the design, manufacturing, packaging, and distribution of goods.

Instructional and research laboratories for all of the programs are located in the College of Applied Science and Technology building and in the Center for Integrated Manufacturing Studies. Packaging laboratories include dynamics, materials, and environmental testing. Mechanical laboratories include mechanics and materials, thermofluids, plastics, pneumatics, and materials processing. Manufacturing laboratories include CAD, CIM/robotics, and surface-mount technology.

The BS programs in electrical/mechanical engineering technology, manufacturing engineering technology, and mechanical engineering technology are accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202-4012, (410) 347-7700.

Accelerated dual degree options

Accelerated, five-year dual BS/MS degree options are for exemplary mechanical, manufacturing, and electrical/mechanical engineering technology students. (The combined BS/MS options are respectively known as the mechanical systems integration, manufacturing systems integration, and electrical/mechanical systems integration.) Graduation requires the successful completion of 230 quarter credit hours (or 229 hours for the electrical/mechanical systems integration program). After completing this requirement, the student is awarded the BS and MS degrees simultaneously. The MS degree is a master of science in manufacturing and mechanical systems integration. A student may apply to this option after receiving credit for at least 60 quarter credit hours. The most recent 30 quarter credit hours must be from RIT courses. The student must have at least a 3.2 cumulative grade point average at the time of application and must maintain a 3.0 cumulative GPA once admitted. (Students with cumulative GPAs less than 3.0 will automatically return to the BS program they started in and will not be eligible to reapply for the BS/MS program.)

The course work for the first eight quarters is the same as that for the first three years of the mechanical, manufacturing, or electrical/mechanical engineering technology programs. However, in the spring quarter of the third year, the BS/MS student will not participate in a spring/summer co-op block. Instead, the student will take courses in the spring quarter and participate in co-op during the summer quarter. In the fourth and fifth years, the student will take more graduate-level courses. When finished, the student will meet all the graduation requirements for both the BS degree (in manufacturing, mechanical, or electrical/mechanical engineering technology) and an MS degree in manufacturing and mechanical systems integration.

The BS/MS student must complete the department's requirement of 48 weeks of cooperative education experience, which can be completed in four quarters, including the summer quarter between the second and third years. The BS/MS student may use three summer quarters and one other quarter to fulfill his or her co-op requirement. Students taking full course loads every quarter can complete the BS/MS requirements, including the co-op experience, within five calendar years. Students with significant advanced placement courses, or those who choose to take courses during their co-op assignments, may complete the BS/MS program in less than five years.

Manufacturing Engineering Technology

Scott Anson, Program Chair

www.rit.edu/cast/mmetps/man.php

The present shortage of qualified manufacturing engineers and technologists is between 50,000 and 100,000 people—and the need is increasing. Manufacturing engineers are retiring faster than graduates are produced, resulting in employment opportunities for graduates of our program. In addition, industrial productivity and technological innovations are driving the demand for well-prepared manufacturing engineers.

The manufacturing engineering technology program prepares students to meet the demand for personnel well-versed in the new manufacturing technologies, which include computer-aided design, computer numerical control, microprocessor controls, robotics, computer-aided manufacturing, flexible manufacturing systems, assembly automation, and electronics manufacturing.

The manufacturing engineering technology program is operated on the cooperative education plan and is accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202, (410) 347-7700.

Program goal

The goal of the manufacturing engineering technology program is to prepare individuals for professional employment in the fields of product design, development, and manufacturing. The program is designed to provide the skills necessary for applying emerging manufacturing technologies. A cooperative education program enhances these skills by allowing students to gain valuable experience working in the manufacturing industries. Throughout the academic program, a significant amount of hands-on laboratory experience in manufacturing is provided.

Curriculum

The curriculum has been designed with the aid and consultation of professionals in the field. The program emphasizes computer-integrated manufacturing and product development. Courses cover traditional and nontraditional manufacturing processes, fundamentals of electronics and microprocessors, computer-aided design, computer numerical control, robotics, group technology, computer-aided process planning, materials requirements planning, surface-mount electronics design and assembly, flexible manufacturing systems, quality control, engineering economics, value analysis, plastics manufacturing, manufacturing management, and lean manufacturing.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Students transferring from two-year colleges should have an AAS degree or equivalent in one of the following areas: manufacturing technology, mechanical technology, management engineering technology, engineering science, electrical technology, computer technology, quality control technology, design and drafting technology, or electromechanical technology. Students with other backgrounds may need to take additional courses to meet admission requirements.

Manufacturing engineering technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Materials Technology 0610-211	3
	Materials Testing 0610-304	1
	Manufacturing Processes I 0617-220	4
	Calculus for Engineering Technology 1016-231	4
	First-Year Enrichment 1105-051, 052	2
	Solid Modeling and Design 0617-262	4
	Manufacturing Processes II 0617-420	4
	Calculus for Engineering Technology II 1016-232	4
	Design Dimensioning and Tolerancing 0610-220	4
	Differential Equations for Engineering Technology 1016-304	4
	College Physics I 1017-211	4
	Liberal Arts*	12
Second Year	Introduction to Statics 0610-302	4
	Pneumatics and Hydraulics 0610-305	4
	Data Analysis I 1016-319	6
	College Physics II, III 1017-212, 213	8
	Electrical Principles for Design I 0609-411	4
	Strength of Materials 0610-303	4
	Liberal Arts*	4
	Wellness Education†	0
	Principles of Mechanical Design I 0610-315	4
	Computational Methods for Engineering Technology 0610-309	1
	Ethics Elective	4
	Effective Technical Communication 0535-403	4
	Free Elective	4
Third Year	Cooperative Education Preparation 0606-099	0
	Introduction to Electronics Packaging, Lab 0617-455, 457	5
	Robots in Manufacturing 0617-485	4
	Technical Programming 0618-231	4
	Engineering Economics 0617-436	4
	Computer Numerical Control 0617-471	4
	College Chemistry 1011-208	4
	Free Electives	4
	Liberal Arts*	4
	Cooperative Education (2 quarters)	Co-op
	Introduction to Electronic Packaging 0617-455	4
Fourth Year	Production and Operations Management I 0617-440	4
	Materials Technology 0610-416	4
	Controls for Manufacturing Automation 0617-470	3
	Production and Operations Management II 0617-441	4
	Liberal Arts*	12
	Mechanical Engineering Technology Lab II 0610-409	2
	Tool Engineering 0617-472	4
	Data Analysis II 1016-320	6
	Cooperative Education (2 quarters)	Co-op

Fifth Year	Computer-Aided Manufacturing 0617-475	4
	Technical Electives	8
	Process Design 0617-510	4
	Liberal Arts*	12
	Free Elective	4
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***205***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Part-time option

For students who are employed full time, the upper division of this program may be taken on a part-time basis during the evening. It normally takes approximately 13 quarters for the typical evening student to complete the upper-division course requirements. In the early quarters, the fundamentals of mathematics, science, engineering, electronics, and processes are emphasized to provide a foundation for later courses in computer-integrated manufacturing and technical electives. Students also may elect certain courses from other programs.

Note: Some technical electives are offered only every other year. Please check with an adviser when planning the program's technical elective content.

Mechanical Engineering Technology

William Leonard, Program Chair

www.rit.edu/cast/mmetps/mech.php

Mechanical engineering technology involves understanding how products and machinery work and how to design, make, or use them. From consumer products to high-performance automobiles, air-conditioned environments and jet aircraft, mechanical engineering technology has changed society for the better.

Students in this program will study the foundations of mechanics, materials, and energy. They will learn technical skills such as computer-aided design, computer-aided engineering, how to test materials, and how to make parts. Students will apply these principles and skills to the various fields of mechanical engineering technology—such as product and machine design, power generation, utilities and manufacturing—through laboratories and design projects. Full-time students gain valuable industrial experience through the required cooperative education program.

The BS in mechanical engineering technology program is accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202, (410) 347-7700.

Program goals

Students are prepared for professional careers in machine design; manufacturing; test engineering; field service engineering; technical sales; thermal design; product design; utilities operations; heating, ventilating, and air-conditioning design; or plant operations. The program emphasizes the development of a design methodology and is reinforced by project-oriented assignments.

Curriculum

Students first develop their skills in the fundamentals of mechanics, mathematics, materials technology, and computer-aided design. Later, courses focus on both mechanical design and applied thermofluid engineering. The program includes five technical electives and three free electives. These courses can be used to create a specialization in such areas as product design, air conditioning, thermal power, plastics processing, and manufacturing.

A substantial amount of laboratory and product work is required. Teamwork, technical writing, and computer use are emphasized throughout the program.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Students transferring from two-year colleges should have an AAS degree or equivalent in mechanical technology, design-drafting technology, air-conditioning technology, or engineering science. It is expected that course work in these associate degree programs will be covered: mathematics (through introductory calculus), physics, computer-aided design and drafting, manufacturing processes, statics and strength of materials, computer skills (word processing, data analysis, presentation graphics, equation solving), metallurgy, electric circuits, statistics, and mechanical design.

Concentrations

In the last three quarters of the program, students may select a concentration in one of the following areas: product design; heat, power, and HVAC; or plastics processing. Customized sequences may be developed with department approval.

Evening option

Students who are employed full time and wish to pursue the BS in mechanical engineering technology may take the upper-division portion of this program part time during evening hours. The typical evening student requires approximately 13 quarters to complete the upper-division course requirements. Students also may elect certain courses from the computer-integrated manufacturing engineering technology and electrical engineering technology programs with department approvals.

Note: Some electives are not offered every year. Please check with an adviser when planning the program's technical electives.

Mechanical engineering technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Materials Technology I 0610-211	3
	Materials Testing 0610-304	1
	Manufacturing Processes I, II 0617-220, 420	8
	Calculus for Engineering Technology 1016-231	4
	First-Year Enrichment 1720-051, 052	2
	Solid Modeling and Design 0617-262	4
	Calculus for Engineering Technology II 1016-232	4
	Design, Dimensioning, and Tolerancing 0610-220	4
	Differential Equations for Engineering Technology 1016-304	4
	College Physics I 1017-211	4
	Liberal Arts*	12

Second Year	Introduction to Statics 0610-302	4
	Pneumatic and Hydraulic Systems 0610-305	4
	Data Analysis I, II, Lab 1016-319, 320, 379	12
	College Physics II, III 1017-212, 213	8
	Engineering Economics 0617-436	4
	Electrical Principles for Design I 0609-411	4
	Strength of Materials 0610-303	4
	Liberal Arts*	4
	Wellness Education†	0
	Principles of Mechanical Design 0610-315	4
	Computational Methods for Engineering Technology 0610-309	1
	Ethics Elective	4
Third Year	Cooperative Education Preparation 0606-099	0
	Effective Technical Communication 0535-403	4
	Applied Dynamics 0610-405	4
	Applied Fluid Mechanics 0610-460	4
	College Chemistry 1011-208	4
	Mechanical Engineering Technology Lab II 0610-409	2
	Materials Technology 0610-416	4
	Applied Thermodynamics 0610-440	4
	Introduction to Chemistry of Materials, Lab 1011-273, 277	4
	Liberal Arts*	4
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Failure Mechanics 0610-403	4
	Mechanical Engineering Technology Lab I 0610-407	2
	Technical Elective	8
	Machine Design I 0610-506	4
	Thermofluids Lab 0610-465	3
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
Fifth Year	Technical Electives	12
	Free Electives	8
	Liberal Arts*	8
	Free Elective	
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***196***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
For mechanical engineering technology, BS degree, upper-division evening, and mechanical technology, evening, typical course sequences, please see the Part-time Undergraduate Studies Guide or Online Studies Guide.

Mechanical technology, associate degree program option

An associate degree in mechanical engineering technology is also available. This part-time evening program is designed to prepare technicians for employment in the mechanical design and manufacturing fields. Since it is identical to the lower division of the full-time BS degree program, it prepares graduates to continue their studies toward a baccalaureate degree in engineering technology. The program begins with courses in mathematics, physics, computer-aided drafting and design, and manufacturing processes. The advanced portion of the technical program covers topics in mechanics, hydraulics, materials, and machine design. Courses in composition, communication, social science, and humanities round out the program.

Telecommunications Engineering Technology

Michael Eastman, Department Chair
Warren L. G. Koontz, Program Chair

www.rit.edu/cast/ect

Since its beginning, the telecommunications industry has driven technological innovation, giving us everything from the basic ability to transmit text and voice to the sophisticated communications systems that businesses and individuals depend upon every day. The industry has grown from providing simple telephone service to offering a wide range of audio, video, and data communication services including voice, broadband Internet, broadcast video, and wireless services. Whether you are calling next door or exchanging data with a probe on a distant planet, telecommunication is involved.

The telecommunications engineering technology program prepares students for exciting careers in this dynamic field. Through classroom and laboratory experience, they gain in-depth knowledge of the components and systems that make up the global telecommunications network. With a basis in electronics and computing, students learn about the media and devices that transport and direct communication signals through the network. Students become familiar with current technology and develop the tools they will need to work with future technology. The program emphasizes analytical methods to plan and design networks to meet the goals of quality, reliability, and cost. Students also learn about the policies and regulations that have shaped the industry around the world.

The telecommunications curriculum contains a number of electives for students to tailor their studies or pursue a minor. If students' interests lie in the applications of telecommunications equipment, opportunity exists to take courses from areas such as computer engineering technology, electrical engineering technology, and information technology. If students wish to pursue the management of telecommunications resources, a minor in business or management can provide the necessary background for the challenges they'll face as a future manager.

The telecommunications engineering technology program is accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202, (410) 347-7700.

Cooperative education

The telecommunications engineering technology program requires students to complete five quarters of cooperative education. Students may begin their co-op experience in the third year of the program. Each student is assigned a co-op adviser to assist in identifying placements.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Transfer students with an associate degree and students from closely related programs, such as telecommunications technology or electrical/electronics technology, can normally expect to graduate in three years, which includes six academic quarters and five quarters of cooperative education. Graduates of less closely related programs are also welcome to apply but may expect to take longer to complete the program.

Telecommunications engineering technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.

First Year	ECT ET First-Year Enrichment I, II 0609-051, 052	2
	Calculus with Foundations I, II 1016-261, 262	8
	Calculus B 1016-272	4
	ExCiTe Introduction to ECT ET 0618-213	4
	Circuit Theory I 0609-214	4
	Telecommunications Fundamentals 0614-271	4
	Circuit Theory II 0609-215	4
	Digital Fundamentals 0618-301	4
	Liberal Arts*	12
Second Year	Electronics I, II 0609-360, 361	8
	Circuit Theory III 0609-216	4
	Calculus C 1016-273	4
	Technical Programming II 0618-232	4
	College Physics I, II, III 1017-211, 212, 213	12
	Voice Communications Technology, Lab 0614-465, 466	4
	Liberal Arts*	12
	Wellness Education†	0
		4
Third Year	Differential Equations for Engineering Technology 1016-304	4
	Concepts in Signals and Systems 0609-333	4
	Networking Technologies 0614-477	4
	Electronics III, IV 0609-362, 363	8
	Career Orientation 0609-407	1
	Effective Technical Communications 0535-403	4
	Technical Electives	4
	Cooperative Education (2 quarters)	Co-op
	Data Analysis I 1016-319	4
Fourth Year	Introduction to Telecommunications Policy 0614-480	4
	Telecommunications Transmission Systems, Lab 0614-483, 484	4
	Switching Technologies 0614-475	4
	General Education Elective	4
	Free Elective	4
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
	Fiber Optic Telecommunication Technology 0614-520	4
Fifth Year	Telecommunications Network Engineering, Lab 0614-561, 562	4
	Communication Systems I 0609-534	4
	Liberal Arts*	4
	Free Electives	8
	General Education Elective	4
	Network Planning and Design 0614-574	4
	Ethics, Economics, and Planning for Engineers 0614-440	4
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***195***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Accelerated dual degree option

Qualified students may pursue the simultaneous award of a BS degree and an MS degree in telecommunications engineering technology. This 230-quarter-credit-hour option includes a minimum of 48 quarter credit hours of graduate course work plus four quarters of cooperative education experience. The option is offered to students who have completed four quarters of study (excluding co-op) and who have attained an overall GPA of at least 3.4. The BS/MS program can be completed in five years of full-time study.

A sample schedule is shown. Note that a student may elect to complete a master's thesis for 6 credits or a master's project for 2 credits. In the latter case, the student must complete an additional graduate elective course.

Telecommunications engineering technology, BS/MS option, typical course sequence

		Qtr. Cr. Hrs.
First Year	ECT ET First-Year Enrichment I, II 0609-051, 052	2
	ExCiTe Introduction to ECT ET 0618-213	4
	Calculus with Foundations I, II 1016-261, 262	8
	Data Analysis I 1016-319	4
	Circuit Theory I 0609-214	4
	College Physics I 1017-211	4
	Telecommunications Fundamentals 0614-271	4
	Circuit Theory II 0609-215	4
	College Physics II 1017-212	3
	Digital Fundamentals 0618-301	4
	Liberal Arts*	8
Second Year	Electronics I, II, 0609-360, 361	8
	Circuit Theory III 0609-216	4
	Calculus B, C 1016-272, 273	8
	Technical Programming I, II 0618-231, 232	8
	College Physics III 1017-213	4
	Voice Communications Technology, Lab 0614-465, 466	4
	Liberal Arts*	12
	Career Orientation 0609-407	1
	Wellness Education†	0
Third Year	Differential Equations for Engineering Technology 1016-304	4
	Concepts in Signals and Systems 0609-333	4
	Networking Technologies 0614-477	4
	Microcomputers 0618-303	4
	Electronics III, IV 0609-362, 363	8
	General Education Elective	4
	Technical Electives	4
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Telecommunications Policy and Regulation 0614-780	4
	Effective Technical Communications 0535-403	4
	Telecommunications Transmission Systems 0614-783	4
	Network Management 0614-479	4
	Switching Technologies 0614-475	4
	Technical Elective	8
	Free Electives	8
	Liberal Arts*	8
	Ethics, Economics, and Planning for Engineers 0614-440	4
	Cooperative Education (1 quarter)	Co-op
Fifth Year	Telecommunication Network Engineering 0614-761	4
	Telecommunication Systems 0614-764	4
	Telecommunication Concepts 0614-720	4
	Telecommunication Principles 0614-722	4
	Wireless RF Telecommunications Systems 0614-763	4
	WAN/LAN Planning and Design 0614-774	4
	Graduate Elective	4
	Thesis/Project Planning 0614-890	2
	Master's Thesis or Project and Elective 0614-892, 893	6
	Fiber Optic Telecommunications Tech 0614-732	4
	Liberal Arts*	8
	Free Elective	4
	Total Quarter Credit Hours	***230***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Packaging Science

Daniel Goodwin, Program Chair

www.rit.edu/cast/mmetps/packaging/

The packaging science program prepares students for employment in areas such as package development, sales, purchasing, structural design, production, research, and marketing.

Packaging is increasingly related to total marketing concepts; it has even greater dependence on new developments in materials and processes. Therefore, the industry requires management personnel

with creativity and a strong background in business, engineering, and science.

The program was developed as a result of a close and long-established relationship between the packaging industry and RIT. This multibillion-dollar industry exhibits dynamic growth and provides employment for thousands of men and women with wide-ranging skills and expertise.

Industrial Advisory Board

The Industrial Advisory Board contributes professional and technical expertise to the packaging science program, which strengthens and develops the program to reflect the dynamics and growth of the industry.

Cooperative education

The packaging science program requires two quarters (six months) of cooperative education, in addition to the program's course work, to meet graduation requirements.

Admission guidelines

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Students with an appropriate two-year degree may normally expect to complete the course requirements for the BS degree in two years. In addition, six months of cooperative education experience is necessary to meet graduation requirements. Transfer students with less than two years of college or with an unconventional educational background can be accommodated. The amount of transfer credit is determined by evaluating individual student transcripts.

Packaging science, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year		
	Principles of Packaging 0607-201	3
	Engineering Design Graphics 0607-301	4
	Packaging Materials II 0607-312	4
	College Algebra and Trigonometry 1016-204§	4
	Calculus for ET 1016-231	4
	College Chemistry 1011-208	4
	Introduction to Chemistry of Materials, Lab 1011-273, 277	4
	Introduction to Organic Chemistry, Lab 1011-213, 207	5
	Principles of Microeconomics 0511-211	4
	Liberal Arts*	8
	Wellness Education†	0
	First-Year Enrichment 1720-051, 052	2
Second Year	Packaging Materials I 0607-311	4
	Rigid Containers 0607-321	4
	Flexible Containers 0607-322	4
	Computer Applications 0607-341	4
	Technical Communication 0607-420	3
	Principles of Printing 2082-371	4
	Principles of Marketing 0105-363	4
	Introduction to Polymer Technology 1029-301	2
	Microbiology in Health Disease 1004-210 or 1016-320	4
	Principles of Macroeconomics 0511-402	4
	Liberal Arts*	8
	Wellness Education†	0
	Cooperative Education 0607-499	Co-op
Third Year	Career Seminar 0607-401	1
	Packaging Production Systems 0607-431	4
	Packaging for Distribution 0607-432	4
	Packaging for Marketing 0607-433	4
	Shock and Vibration 0607-485	4
	College Physics I, II 1017-211, 212	8
	Data Analysis I, II 1016-319, 320	10
	Effective Speaking 0535-501	4
	Liberal Arts*	8
	Elective	4
	Cooperative Education 0607-499	Co-op
Fourth Year	Packaging Regulations 0607-462	4
	Professional (Packaging) Electives	12
	Liberal Arts*	12
	Electives	20
	Total Quarter Credit Hours	***190***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
§Students are required to choose two out of the following three courses to fulfill the math/science electives requirement: College Physics III (1017-213), Data Analysis II (1016-320), or Microbiology (1004-210).

Environmental Sustainability, Health, and Safety

John Morelli, Department Chair

www.rit.edu/cast/cetems

The BS degree in environmental sustainability, health, and safety is focused on social responsibility. The program stresses taking responsibility for our activities and being good stewards of the products we make and the services we provide. The program prepares students to work as environmental sustainability, health, and safety professionals in both industry and government. Students gain a strong foundation in science, applied environmental, health and safety science and technology, sustainability and social responsibility, and are provided with the basic tools of financial management, team building, and leadership.

Our graduates are ready to eliminate, reduce, and control the release of pollutants into the environment and to manage the health and safety hazards associated with an organization's activities, products, and services. The program emphasizes globally sustainable and socially responsible approaches and prepares professionals to become leaders in moving us toward a more sustainable and socially responsible future.

The most rewarding aspect of an environmental management and technology career is that students can start making a difference right away. There is so much that can be done at every level that graduates will feel good about their contributions from their first day on the job.

Cooperative education

A minimum of four quarters of cooperative education is required in the program. Students start their first co-op experience in the spring of their third year. Co-op provides students with the opportunity to apply their skills in multiple, real-world situations before they graduate. Our co-op students are especially valuable to organizations because they are well-qualified and well-prepared to take on the many interesting environmental projects organizations seem never to have the time to get done otherwise. Co-ops range from field research to office work, and employers range from government to industry. Co-ops are often located in the Rochester area or near a student's hometown, but some more adventurous individuals seek jobs across the continent or overseas.

Admission guidelines

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Electives

A wide variety of electives within the curriculum permits students to develop various competency areas or pursue areas of interest in greater depth.

Environmental Sustainability, Health and Safety, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	ESHS Seminar 0630-200	2
	First Year Experience 0608-199	2
	Algebra for Management Science 1016-225	4
	General and Analytical Chemistry I, II and Lab 1011-215, 216, 205, 206	10
	Principles of ESHS 0630-201	4
	Human Biology II and Lab 1004-212, 232	4
	Field Biology 1005-210	4
	Environmental Communications 0688-327	4
	Organic Chemistry Foundations	4
	Liberal Arts*	12
Second Year	College Physics I 1017-211	4
	Calculus for Management Science 1016-226	4
	College Physics II 1017-212	4
	Data Analysis I, II 1016-319, 320	8
	Economics	4
	Problem Solving and Communicaion with Computers 0608-225	2
	Environmental Geology and Lab 0630-370, 372	5
	Occupational Health and Lab 0630-450, 451	5
	Liberal Arts*	12
	Wellness Education†	0
Third Year	Industrial Wastewater Management 0630-352	4
	Hydrology and Lab 0630-380, 382	4
	Financial Accounting 0101-301	4
	Occupational Safety 0630-454	4
	Solid and Hazardous Waste Management 0630-350	4
	Air Emissions Management 0630-354	4
	Environmental Monitoring and Measurement and Lab 0630-360, 362	4
	Ethics 0509 211	4
	Cooperative Education Preparation 0606-099	0
	Cooperative Education 0630-499	0
Fourth Year	EHS Law 0630-480	4
	Social Responsibility and Environmental Sustainability 0630-463	4
	Organizational Behavior 0102-320	4
	Occupational Health 0630-450	4
	EHS Accident Causation and Prevention 0630-461	4
	Construction Safety/Lab 0633-505	4
	Professional Elective	4
	Liberal Arts*	4
	Cooperative Education 0630-499	Co-op
Fifth Year	Corporate EHS Management	0630-515
	ESHS Capstone Proposal 0630-XXX	2
	Professional Electives	8
	Liberal Arts*	8
	Free Elective	8
	ESHS Capstone Project 0630-591	2
	Cooperative Education 0630-499	Co-op
	Total Quarter Credits	*194*

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Technical electives

Students will take at least three professional electives from one of the sequences shown below. With departmental approval, professional electives may be selected from existing courses in other RIT colleges. Also, independent study projects may be pursued for credit in cases where students demonstrate unusual ability and obtain sponsorship of a faculty adviser.

Environmental Consulting

0630-444	Remedial Investigation and Corrective Action
0630-490	Project Management
0630-500	Contaminant Hydrology
0630-570	Environmental Risk Management and Communication

Health and Safety

0633-530	Mechanical and Electrical Controls
0633-401	Fire Protection
0303-415	Ergonomics

Alternative Energy

1055-300	The Greening of RIT (Honors)
1011-305	Introduction to Hydrogen Technology
0521-451	Energy Policy
0630-500	Special Topic: Alternative Energy Resources
0304-629	Renewable Energy Systems
0304-633	Sustainable Energy Management

Sustainability

0106-401	Operations and Supply Chain Management
0630-465	Product Stewardship
0508-490	Biodiversity and Society
0508-491	Sustainable Communities
0630-505	Resource Reduction

Emergency Management

0634-401	Emergency Preparedness Law
0634-471	Emergency Planning and Methodology
0634-474	Counter Terrorism for the First Responder
0634-481	Emergency Operations

Environmental Technology and Environmental, Health, and Safety Management

John Morelli, Department Chair
Joshua Goldowitz, Undergraduate Coordinator

www.rit.edu/cast/cetems/

Qualified environmental management and technology undergraduate students may pursue an accelerated, five-year, dual degree (BS/MS) option, resulting in the simultaneous award of a BS degree in environmental management and technology and an MS degree in environmental, health, and safety management. The BS/MS program requires the completion of 232 quarter credit hours, including 50 quarter credit hours of graduate course work, plus three quarters of cooperative education experience. The BS/

MS program is an option for students who are already enrolled in the BS in environmental management and technology program, have completed at least four quarters of undergraduate study, and have a cumulative GPA of at least 3.2.

A typical course schedule for completing the BS/MS program is shown. Students interested in pursuing this option should work with their program advisers and start following this course schedule during their freshman year.

Environmental technology and EHS, BS/MS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Chemistry Principles I, II, and Labs 1011-211, 212, 205, 206	8
	Algebra for Management Science 1016-225	4
	Calculus for Management Science 1016-226	4
	Environmental Management, Health, and Safety Seminar 0630-200	1
	Principles of Environmental Management 0630-201	4
	Introduction to Organic Chemistry, Lab 1011-213, 207	4
	Field Biology 1005-210	4
	Environmental Communication 0688-327	4
	Human Biology II, Lab 1004-212, 232	4
	Liberal Arts*	12
	First-Year Enrichment 1720-051, 052	2
	Wellness Education†	0
Second Year	Wellness Education†	0
	Data Analysis I, II 1016-319, 320	8
	Professional Elective	4
	College Physics I, II, and Labs1017-211, 212, 271, 272	8
	Environmental Geology, Lab 0630-370, 372	4
	Problem Solving and Communication with Computers 0608-225	2
	Occupational Health 0630-450, 451	5
	Liberal Arts*	16
	Free Elective	4
	Cooperative Education Preparation 0606-099	0
	Cooperative Education (1 quarter)	Co-op
Third Year	Introduction to Hydrology, Lab 0630-380, 382	4
	Solid and Hazardous Waste Management 0630-350	4
	Environmental Permitting 0630-440	4
	Remedial Investigation and Corrective Action 0630-444	4
	Air Emissions Management 0630-354	4
	Industrial Wastewater Management 0630-352	4
	Environmental Monitoring and Measurement, Lab 0630-360, 362	4
	Project Management 0630-490	4
	Liberal Arts*	8
	Free Elective	4
	Professional Elective	4
	Cooperative Education (1 quarter)	Co-op
Fourth Year	Environmental Regulatory Law I 0630-480	4
	Corporate Environmental Management 0630-515	4
	Resource Reduction 0630-505	4
	Professional Elective (graduate)	4
	Professional Electives (undergraduate)	8
	Free Elective	4
	Liberal Arts*	8
	Occupational Safety 0630-712	4
	Organizational Behavior and Leadership 0102-701	4
	Cooperative Education (1 quarter)	Co-op
Fifth Year	EHS Management 0630-720	4
	EHS Accounting and Finance 0630-725	4
	EHS Management System Design 0630-740	4
	Integrating EHS into Business Management 0630-760	4
	EHS Internal Auditing 0630-790	4
	Graduate Project/Thesis Planning 0630-890	2
	Graduate Project/Thesis 0630-891, 899	4
	Professional Elective (graduate)	12
	Total Quarter Credit Hours	*232***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
***The total quarter credit hours include 182 quarter credit hours of undergraduate course work and 50 quarter credit hours of graduate course work.*

School of Hospitality and Service Management

Carol B. Whitlock, Interim Chair

www.rit.edu/hsm

The School of Hospitality and Service Management offers bachelor of science degrees in hospitality and service management and nutrition management.

Faculty

Faculty members have outstanding academic credentials and industry experience. They serve in professional and trade associations at the national level, are frequent guest speakers, and consult in their fields of expertise: travel, food marketing, hospitality operations, nutrition, human resources, and health care, to name a few.

Advisory board

The National Advisory Board contributes professional and technical expertise to undergraduate programs to strengthen their development.

Admission guidelines

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

International programs in Croatia

The American College of Management and Technology in Dubrovnik, Republic of Croatia, is a branch of RIT that enrolls approximately 600 undergraduate students. The college offers associate of applied science and bachelor of science degrees in hospitality and service management. The Dubrovnik campus provides an exchange opportunity for Rochester campus students who may wish to spend a quarter studying abroad. Classes are taught by a combination of RIT faculty members and European instructors.

Facilities

Commercial equipment and laboratories enhance the educational experience of all students in our hospitality and nutrition programs. Henry's, a full-service, licensed restaurant, provides an excellent training environment for students, who manage the restaurant during regular dining hours, special luncheons, and dinners. The food lab is commercially equipped for developing, testing, and evaluating new food products and equipment.

Information management is a critical element in the service industry. A computer laboratory and training studio allow students to prepare for the technology they will encounter on the job. Database, spreadsheet, and numerous other types of software are used in conjunction with classroom activities.

Approximately 40 to 50 health care, corporate, and community-based facilities are used by nutrition management students for practicum experience.

Hospitality and Service Management

The BS degree in hospitality and service management prepares students for a wide variety of career choices in food management, hotel/resort management, health care management, corporate travel management, food marketing sales and distribution, and human resources. A career in the hospitality industry has become highly specialized in today's business world, and RIT graduates are in demand.

The program's concentrations provide broad-based views of service management, hospitality, travel, and client care through a common core of courses. This approach promotes an understanding of the interrelationships among the food, lodging, travel, and health care industries based on the underlying concept of quality service management. This approach allows students to retain the flexibility to switch majors or jobs if their career goals change. These diverse and specialized fields require creative problem solving, technical knowledge, communication skills, and leadership.

RIT's hospitality and service management program is among the nation's leading hospitality and travel management programs, recognized by *Forbes*, *Travel Weekly*, *Nation's Restaurant News*, and *Corporate Travel* magazines. The program is accredited by the Middle States Association of Colleges. Our alumni come from around the United States and from more than 38 countries.

Curriculum

The program's curriculum is rigorous and challenging as it provides opportunities for students to develop their full potential in a managerial environment. The program is integrated, encompassing a broad base of competencies defined in partnership with faculty, students, and industry. Students take courses that build a strong concept of the industry as a whole by studying accounting, marketing, finance, economics, business management, behavioral sciences, human resource management, service management, nutrition, food preparation, food and beverage service principles, hotel operations, travel, tourism, and other topics.

In addition, some students may opt to custom design their own unique concentration based upon their interests. A preplanned set of courses must be selected with an adviser.

Cooperative education

The hospitality and service management program requires each student to combine 1,200 hours of practical cooperative education experience with classroom theory. In co-op placements, students are introduced to hands-on learning in the service industry. Co-op usually is completed in the summer following the freshman and sophomore years and during any quarter in the junior and senior years, except the final quarter of the senior year, when students are required to be in residence on campus. Co-op is planned, monitored, and evaluated by the student, the co-op counselor, the faculty adviser, and the employing firm.

Hospitality and service management, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Survey of Service Management 0619-220	2
	Basic Computer Applications 0619-221	2
	Program Concentration	12
	HSM Elective	4
	Algebra for Management Science 1016-225	4
	Science Electives with Lab	8
	Liberal Arts*	16
	Wellness Education†	0
	First-Year Enrichment 1105-051, 052	2
	Cooperative Education 0621-499	Co-op
Second Year	Financial Accounting 0101-301	4
	Managerial Accounting 0101-302	4
	Global Standards 0619-320	4
	Program Concentration	12
	Data Analysis I, II 1016-319, 320	10
	HSM Elective	2
	Liberal Arts*	8
	Principles of Microeconomics 0511-211	4
	Cooperative Education 0621-499	Co-op
Third Year	Principles of Marketing 0105-363	4
	Assessment of Service Quality 0619-410	4
	Technology in Service Systems 0619-426	4
	Human Resources Management 0619-480	4
	HSM Electives	8
	Liberal Arts*	4
	General Education	16
	Free Electives	4
	Cooperative Education 0621-499	Co-op
Fourth Year	Leadership Management in Service Culture 0619-470	4
	Senior Project 0619-490	4
	Free Electives	12
	General Education	16
	Cooperative Education 0621-499	Co-op
	Total Quarter Credits	***182***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Concentrations

Students choose one of seven concentrations to tailor the program toward their career interests and goals. Concentrations include: food management, food marketing and distribution, health services management, hotel and resort management, human resource management, international public relations, development, or travel and tourism management.

Food management

It takes a wide range of knowledge to manage the daily operations of restaurants (from full-service to cafeteria, quick-service, and special chain operations); hotel fine dining and catering; clubs; and contract services for business, manufacturing, recreation and sports centers, education, health care, retail stores, government agencies, and food vending.

The food management concentration prepares students for management positions through lab experience in Henry's, a full-service, beverage-licensed restaurant. Students learn essential principles and procedures for quality in food production and presentation, sanitation, nutrition, menu planning and merchandising, purchasing, product development, cost control, and service management. In addition, students develop competencies in problem solving and decision making through individual and team-based class projects, computerized exercises, and industry-related activities.

A student chapter of the New York State Restaurant Association fosters the exchange of ideas between professionals working in industry and students. The organization supports professional growth in organizational and social skills, and offers a place for students to network with professionals to make industry contacts. Students in their junior year are encouraged to attend the annual National Restaurant Association show in Chicago.

	Qtr. Cr. Hrs.
0621-225 Principles of Food Production	4
0621-314 Sanitation and Safety	2
0621-318 Food and Beverage Management	4
0621-331 Restaurant Operations	6
0621-334 Integrated Service Management	4
0621-416 Product Development	4
Total Quarter Credit Hours	*24*

Food marketing and distribution

This concentration prepares graduates for industry positions in food marketing, sales, and distribution and logistics. Graduates are uniquely qualified for positions in an array of food marketing and distribution industries worldwide. In particular, they understand a variety of issues, including food service operations and food marketing, logistics, distribution, and packaging.

	Qtr. Cr. Hrs.
0621-225 Principles of Food Production	4
0621-315 Food Service Marketing	4
0621-410 Food Processing and Quality Assurance	4
0621-532 International Food Distribution Seminar	4
0607-201 Principles of Packaging	4
0621-432 Packaging for Distribution	4
Total Quarter Credit Hours	*24*

Health systems management

Health care is in the process of undergoing dynamic change in our country and in the global community. A successful health care professional is one with a desire to learn and the ability to adapt to change. This concentration prepares students for entry-level positions in the administrative areas of health care. When combined with another concentration that is more clinically-based or hospitality-oriented, the health systems management concentration can result in a level of expertise valued by health care systems today.

The concentration features a sequence of three survey courses and three specialized courses. The survey courses introduce the health care field while specialty courses explore topics in more depth. These courses are offered online only.

	Qtr. Cr. Hrs.
Survey courses:	
0635-310 Survey of Health Care Systems	4
0635-320 Health Care Administration	4
0635-351 Health Care Economics and Finance	4
Specialty courses:	
0635-421 Legal Aspects of Health Care Administration	4
0635-490 Health Care Quality	4
0635-441 Health Planning and Program Development	4
Total Quarter Credit Hours	*24*

Hotel and resort management

This concentration is focused on preparing students for the management and operation of hotel, resort, leisure, and related enterprises. Students will understand the physical characteristics of specific properties and gain the business expertise to manage and market them.

Industry professionals regularly offer their expertise in all of the program's courses. Hospitality and service management students, in conjunction with the general manager of a local Rochester hotel, may enroll in a mentorship program sponsored by the Rochester Hotel Association. This allows students to work closely with executive managers on assigned research projects within a hotel.

Hotel and resort management students evaluate various technologies and service strategies in order to familiarize themselves with the industry's best practices.

	Qtr. Cr. Hrs.
0622-200 Hotel Operations	4
0622-210 Hotel Marketing and Sales	4
0622-310 Resort Development and Management	4
0622-315 Facilities and Property Management	4
0622-355 Financial Management for the Hospitality Industry	4
0622-420 Hospitality Law	4
Total Quarter Credit Hours	*24*

Human resource management

All organizations share one fundamental concern: how to ensure that their employees are adequately prepared, organized, and managed to support common goals with flexibility.

The human resource management concentration provides students with the tools to recruit the most qualified applicants, help them grow and develop as an organization's needs change, and keep them satisfied enough to stay on the job in this era of frequent turnover. Students also explore the global and legal issues around employment, both to enhance the work force and to avoid the cost of lawsuits.

All students who will be hiring, supervising, or managing in their future careers will benefit from gaining human resource administration competencies.

	Qtr. Cr. Hrs.
0626-234 Interviewing Techniques	4
0626-428 Training Design and Delivery	4
0626-390 Benefits and Compensation	4
0621-554 International Human Resource Management	4
0626-434 Advanced Human Resource Administration	4
Related Elective (with adviser approval)	4
Total Quarter Credit Hours	*24*

Travel and tourism management

The growth of modern travel has created many technical challenges for the movement of individuals and groups in a global corporate environment. With that comes the need to consult highly qualified experts to plan, arrange, and coordinate travel. Today more than ever before, travelers are faced with many alternatives for transportation, accommodations, and other travel services and rely increasingly on the travel professional to guide them wisely and honestly. Travel agencies and corporate travel consultants have an important impact on the hospitality and travel economies, including the food service, lodging and leisure, travel and transportation, and meetings and technology industries.

Travel management combines a study of specialized courses in travel management with a sound general education that includes courses in accounting, management, marketing, and business law. The program is structured to provide students with a balance of hands-on experience and management theory. This is necessary to further their understanding of why the travel industry operates as it does in its business environment. Students are also versed in

the communications technologies that allow them to conduct research via the Internet. This career orientation provides students with a balance of theoretical classroom instruction and experiential opportunities furnished by cooperative education.

This program prepares students for careers in corporate travel, consulting, and professional meeting management. Employment opportunities are excellent with hotels, resorts, retail travel agencies, major corporations, and other businesses.

	Qtr. Cr. Hrs.
0623-206 Distribution Systems	4
0623-375 Travel Destinations	4
0623-410 Meeting and Exposition Management	4
0623-418 Corporate Travel Marketing and Planning	4
0623-438 Tourism Planning and Development	4
0622-420 Hospitality Law	4
Total Quarter Credit Hours	***24***

Health systems management certificate

Many students who have completed their associate degree consider entering the health care work force but require an orientation to health systems. These students do not wish to attain a bachelor's degree but rather to enhance their knowledge base about health care. Students who wish to pursue a certificate in health systems administration must have completed their associate degree with a minimum GPA of 2.0. To earn the certificate, students must attain a GPA of 2.5 or higher in the certificate courses. These courses are available only online.

Nutrition Management

Barbra Cerio-Iocco, Chair
Elizabeth Kmiecinski, Co-Chair

www.rit.edu/cast/hsm/programs/nutrition/index.html

People are increasingly interested in the nutritional requirements for obtaining good health and a long life. They are concerned about balanced menus away from home and the availability of special diet menus for those with serious ailments. Physical fitness centers seek educated advice about meal planning and human performance.

Dietitians work with people of all ages, cultures, and economic means. They enjoy people and learn to understand them as individuals, thereby helping to solve their nutritional needs. Dietitians are health professionals who apply the science and art of human nutrition.

The BS program in nutrition management offers a challenging curriculum that prepares students for diverse career paths 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; nutrition education; restaurant consulting; and writing.

The nutrition management program leads to a BS degree that meets the education requirements of the American Dietetic Association (ADA). Students must complete three quarters of approved cooperative education experience. To become credentialed as a registered dietitian, students also need to complete an ADA-accredited supervised practice after graduation and pass the National Registration Exam for Dietitians.

Two-year transfer in nutrition management

RIT makes every effort to facilitate transfer credit. Due to specific areas of study required by the American Dietetic Association and RIT, the amount of transferable credit and estimated time to complete work for the BS degree must be determined by each individual's transcript. A minimum grade point average of 3.2 is required for admission to this program.

Nutrition management, BS degree, typical course sequence**

		Qtr. Cr. Hrs.
First Year	Service Management Careers in Hospitality Industry 0619-220	2
	Contemporary Nutrition 0620-213	4
	Principles of Food Production 0621-225	4
	Sanitation and Safety 0621-314	2
	Orientation to Computers in Hospitality 0619-221	2
	Survey of General Chemistry, Lab 1011-201, 205	5
	Survey of Organic Chemistry, Lab 1011-202, 207	5
	Biochemistry 1011-203	3
	Algebra for Management Science 1016-225	4
	Liberal Arts*	12
	Principles of Microeconomics 0511-211	4
	Wellness Education†	2
	Cooperative Education 0621-499	Co-op
Second Year	Financial Accounting 0101-301	4
	Principles of Marketing 0105-363	4
	Microbiology 1004-210	4
	Anatomy and Physiology I, II 1026-350, 360	10
	Data Analysis I 1016-319	4
	Liberal Arts*	12
	Food and Beverage Management 0621-318	4
	Free Electives	8
	Cooperative Education 0621-499	Co-op
Third Year	Assessment of Service Quality 0619-410	4
	Technology in Service Systems 0619-426	4
	Human Resources Management 0619-480	4
	Product Development 0621-416	4
	Dietetic Environment 0620-402	4
	Restaurant Operations 0621-331	6
	Nutrition in Life Cycle 0620-554	5
	Techniques of Dietetic Education 0627-519	4
	Liberal Arts*	8
	Cooperative Education 0621-499	Co-op
Fourth Year	Leadership Management in Service Culture 0619-470	4
	Senior Project 0619-490	4
	Medical Nutrition Therapy I, II 0620-525, 526	9
	Community Nutrition 0620-550	4
	Nutrition and Alternative Medicine 0620-510	2
	Free Electives	4
	Liberal Arts*	12
	General Education	8
	Total Quarter Credits	***189***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
***The nutrition management program has been granted initial accreditation by the American Dietetic Association Commission on Dietetic Education/CADE, 120 South Riverside Plaza, Suite 2000, Chicago, Ill. 60606-6995.*

Center for Multidisciplinary Studies

James Myers, Director

www.rit.edu/cms

Through the Center for Multidisciplinary Studies, students interested in more than one area of study have the option of creating personalized undergraduate programs directly related to their interests and aspirations. Today's professional workplace looks for and values individuals with a diverse academic background. The center offers students this valuable opportunity through their applied arts and science degree programs and specialized

certificate programs. These programs provide students with a multidisciplinary approach to learning that can be applied to the professional environment. The diverse nature of the applied arts and science program also is an asset for any corporation looking to do more with less.

Like the center itself, students participating in the multidisciplinary studies program are anything but typical. Some are adults with families and careers attending classes online or at night, while others are full-time undergraduate students with nontraditional ideas about what they want in a college degree. Through the center's flexible, multidisciplinary programs, students tailor their plans of study to their individual interests by incorporating courses or sets of courses from the center or other RIT departments. The center's programs include:

- applied arts and science undergraduate degree programs—a comprehensive undergraduate program with BS and/or AAS options that allow students to pursue unique and customized plans of study that include several areas of concentration;
- AAS degrees in business administration and human resources;
- a management development program (certificate and diploma); and
- several specialized certificate programs.

Enrollment policies

The Center for Multidisciplinary Studies allows a student to enroll in any course for which he or she has sufficient background. Many courses have prerequisites that students are expected to meet before enrolling. Academic advisers are available throughout the year to answer questions regarding course or program choices.

In support of and in compliance with RIT's policy of assuring competency in written communication, all students matriculated in a BS degree program must satisfy a writing competency requirement. Information about this requirement, and the various methods for satisfying it, is available at the CMS office or by visiting the center's website.

Students matriculated in the center's baccalaureate degree programs are expected to complete their degrees within seven years.

Academic advising

The Center for Multidisciplinary Studies provides academic advising for educational and career goals. Faculty and academic advisers are experienced and trained across academic disciplines. They help match educational and career goals with an appropriate program of study. With an adviser's help, each program begins by taking into account what the student already knows and has accomplished. For example, college credits earned at RIT or other accredited institutions are reviewed to see how they might be applied to the program of study; professional certifications and experiences are evaluated for the possibility of receiving credit; and credits may be earned (by examination, portfolio reviews, or other documentation) for college-level learning that was gained on the job or through other educational experiences.

Transfer credit

Degree programs in the center are structured to permit transfer of credit from other accredited institutions. When a student matriculates into a specific program, a complete evaluation is made of prior academic work. The student will know immediately how much transfer credit is awarded and what courses will be needed to earn a specific degree.

Transfer credit also may be awarded for courses included in the New York State Education Department publication "Guide to Educational Programs in Non-Collegiate Organizations."

Assessment of prior learning and credit by experience

Students with substantial work experience in a specific field may receive academic credit for their life experience. Their adviser will assist them in identifying and preparing the appropriate documentation to prove that their experience is at least equivalent to the breadth and depth of a college-level course. These materials, presented as *portfolios of prior learning experience,* are reviewed by faculty members within the center. There is a $150 fee per quarter credit hour for any credit awarded through the assessment.

Military experience

Students who have previously served in the armed forces and participated in any number of training programs may be eligible to receive credit for their responsibilities through the American Council of Education (ACE). Students should contact Veterans Enrollment Services at (585) 475-6641 or efcvet@rit.edu for an evaluation and recommendation of college credit for their military experience. RIT also is an institutional member of the Servicemembers Opportunity Colleges (SOC), which is a consortium of more than 1,500 colleges and universities that provide educational opportunities for service members and their families. SOC is funded by the Department of Defense and managed by the Defense Activity for Non-Traditional Education Support (DANTES).

Faculty

Full- and part-time faculty members use their extensive industry experiences to guide their classroom instruction. Our faculty are selected for their professional competence, academic background, and teaching ability.

Online learning

The center offers a variety of courses through online learning, with students having the option of completing certificates, diplomas, and AAS and BS degrees online. Online learning allows students flexibility in completing their courses while maintaining a class atmosphere through online discussions via chat/e-mail conferencing. Courses taught through online learning use textbook readings, assignments, and exams to deliver course work. Students have access to instructors by e-mail, computer, telephone, or individual appointments.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants. Active U.S. Army Reserve and National Guard members are eligible for benefits that pay up to 90 percent of tuition.

Center for Multidisciplinary Studies Scholarship

The Center for Multidisciplinary Studies offers a scholarship to matriculated students in the center's programs who have earned a minimum GPA of 2.0. Awards are based upon merit and financial need. Students can learn more about this scholarship from their academic adviser or by visiting www.rit.edu/cms/financial.html.

Course scheduling options

The center's courses and programs are offered during the day, at night, on Saturdays, and online. The center also works with employers to design multidisciplinary programs that are specially suited to meet their employees' needs. Please visit the "corporate" link on the center's website to learn more.

Applied arts and science degrees

The center offers students the opportunity to create individualized undergraduate programs of technical and professional study through its applied arts and science program. In this program, students work closely with faculty and advisers to design unique, multidisciplinary plans of study that combine several areas of professional knowledge.

The applied arts and science program is particularly appropriate for individuals who have prior college-level learning, are interested in changing majors, or want to prepare themselves for a career that requires skills and expertise from several disciplines. There are three levels:

Bachelor of science (BS) degree: 180 quarter credit hours total; 90 core credits in general education plus 90 credits in two to four areas of concentration

Associate of applied science (AAS) degree: 90 quarter credit hours total; 52 core credits in general education plus 38 credits in one to two areas of concentration

Diploma: 36 quarter credit hours; one area of concentration

Diploma, AAS, and BS degrees are available to full-time day students, part-time evening students, and online students. These degrees allow students to pursue several different professional and technical areas of study, selected specifically to meet individual career and personal goals.

For their professional concentrations, students may draw upon a wealth of educational resources from across RIT's colleges and departments. Examples of professional concentrations include:

Business/management focus

- Management
- Quality Management
- Health Systems Administration
- Print Management Studies
- International Logistics and Transportation

Computer/technical focus

- Applied Computing
- Technical Communications
- Computer Science Studies
- Engineering Technology Studies
- Telecommunications
- Computer Graphics
- Geographic Information Systems
- Mechanical Technology

Liberal arts focus

- History
- Psychology Studies
- Creative Writing
- Cultural Studies

No two applied arts and science programs will be exactly alike because each takes into account the student's previous learning and brings together a special combination of courses that are right for his or her career and professional development. For example, one individualized program might lead to a bachelor's degree with concentrations in information technology, graphic arts, and management, while another could lead to a bachelor's degree that combines the fields of technical communication and health systems administration.

As career plans evolve and the demands of their technical and professional fields change, students meet regularly with advisers to review and update plans of study.

Common features

All applied arts and science degrees have certain features in common: an approved program of study developed with an individual adviser and reviewed by the center's degree review committee, which consists of faculty and advisers; general education courses in mathematics, computer literacy, science, and the liberal arts (52 credits for the AAS, 90 for the BS); and one or more professional concentrations that provide each student with the opportunity to develop a multidisciplinary program tailored to specific career and personal objectives. Students must achieve a minimum program GPA of 2.0 in order to be certified for completion or graduation.

Business and Management AAS Degree Programs

The center offers associate degrees in business administration and human resources administration. All business and management degree programs include a core group of business courses in organization and management, accounting, management, and business law. Approximately half of the credits in degree programs are earned through these professional courses. In addition, all business and management degree programs include a broad spectrum of courses in communication, behavioral/social sciences, humanities, math, and science. Students must achieve a minimum GPA of 2.0 in order to be certified. The AAS degrees in business administration and human resources administration are fully transferable into the bachelor of science degree in applied arts and science.

Professional concentration requirements, business and management AAS programs

Business administration	Qtr. Cr. Hrs.
History or Fine Arts Elective	4
0680-315 Legal Environment of Business	4
Business Electives	12
Total Quarter Credit Hours	*20*

Human resource administration	Qtr. Cr. Hrs.
0619-480 Human Resource Administration	4
0626-234 Interviewing Techniques	4
Choose one of the following:	

0680-311 Business Law I	4
0680-315 Legal Environment of Business	4
Business Electives	4
Total Quarter Credit Hours	*20*

The management development program

The management development program has two components, the management certificate and the management diploma. The program is structured to first provide a broad foundation in applied general management and then tailor that foundation with a focused study in a specialized field.

Students may take one or both parts of the program, and both may be completed in one academic year. Credits earned in the program can be applied to various degree programs. Students must achieve a minimum GPA of 2.0 in order to be certified for completion/graduation.

Certificate in Management Development

The management development certificate focuses on practical applications of management theory; management problems, solutions, and ideas; and personal development as an effective manager.

The certificate's three courses offer a comprehensive, integrated study of supervisory management with topics that cover effective motivation, decision making, team building, conflict resolution, problem solving, time and stress management, communication techniques and strategies, planning, organizing, staffing, performance appraisal, and leadership.

In this program students associate with others who have similar career aspirations, job responsibilities, and challenging problems on the job. Through case studies, role play, simulations, and other instructional methods, students learn effective supervisory and management practices. Students must achieve a minimum GPA of 2.0 in order to be certified for completion/graduation.

Certificate in management development	**Qtr. Cr. Hrs.**
0681-200 Management Process I	4
0681-201 Management Process II	4
0681-202 Management Process III	4
Certificate Total	*12*

Management Diploma

Students in the management diploma program concentrate their studies in one of three areas (general management, marketing, human resource administration). The diploma is earned by completing 16 quarter credit hours in addition to the management certificate. However, the small business management certificate also may be taken as a component of the diploma.

Courses applied toward a management diploma also may be counted as professional courses in appropriate degree programs. Students must achieve a minimum GPA of 2.0 in order to be certified for completion/graduation.

Diploma in general management	**Qtr. Cr. Hrs.**
0681-200, 201, 202 Management Process (or approved alternative)	12
0680-201 Financial Accounting	4
0680-203 Managerial Accounting	4
Business Elective	4
0681-361 Marketing	4
Total Quarter Credit Hours	*28*

Diploma in marketing	**Qtr. Cr. Hrs.**
0681-200, 201, 202 Management Process (or approved alternative)	12
0681-361 Marketing	4
0681-261 Effective Selling	4
0681-263 Advertising Principles	4
Business Elective	4
Total Quarter Credit Hours	*28*

Diploma in human resource administration	**Qtr. Cr. Hrs.**
0681-200, 201, 202 Management Process (or approved alternative)	12
0619-480 Human Resource Management	4
0626-234 Interviewing Techniques	4
0680-311 Business Law I	4
Business Elective	4
Total Quarter Credit Hours	*28*

Specialized certificates

Specialized certificates appeal to professionals looking to upgrade their current skills or take on a new direction professionally or personally. The center provides specialized certificate programs in a number of areas: computer graphics, e-business, human resource development, international logistics and transportation, manufacturing technology (computer-aided drafting, fundamentals of manufacturing management, manufacturing processes, and robotics), organizational change and leadership, public relations (graphic communication and professional writing options), quality management (basic quality and quality implementation options), small business management, and technical communication (basic and advanced options).

All certificate programs are applicable to the applied arts and science degree or diploma programs as professional concentrations.

Computer Graphics

Today's graphic communicators rely on computers for nearly every step of the creative process. This certificate's courses develop and enhance the computer graphic skills of students who find that their job responsibilities have broadened to include aspects of graphic design. The program will benefit technical communicators, administrators, public relations practitioners, educators, sales and marketing staff, and technical and business professionals who are called upon to design and produce effective brochures, advertising materials, presentations, proposals, flyers, and other communication products. In addition, this program provides an excellent transition path for practicing graphic designers who need to upgrade their skills and move into the arena of computer design.

Students develop skill in the use of a number of popular graphic design, illustration, presentation, photo manipulation, and Internet software programs. They learn to combine typography, images, and graphic elements into striking designs for both printed and online use and can develop a portfolio of professional-quality work.

Certificate in computer graphics	**Qtr. Cr. Hrs.**
0688-271 Basic Computer Graphics	2
0688-371 Designing with Computers I	3
0688-372 Designing with Computers II	3
0688-373 Electronic Presentation Design	3
0688-381 Photographic Imaging with Computers I	3
0688-382 Photographic Imaging with Computers II	3
0688-383 Introduction to Internet Design	3
Total Quarter Credit Hours	*20*

A number of elective courses are offered through the program and may be substituted with the permission of the program chair. Students may earn one or more of the certificates. Students not interested in taking an entire certificate program may take individual courses for which they have the proper prerequisites. Students must achieve a program GPA of at least 2.0 in order to be certified for completion or graduation.

e-Business

The e-business certificate is designed to help professionals understand how to do business on the Web. Students establish a foundation in the technologies, strategies, and tactics that make e-business initiatives successful. This certificate can be completed online.

Certificate in e-business	Qtr. Cr. Hrs.
0112-310 Introduction to e-Business Technologies	4
0105-445 Business-to-Business e-Commerce	4
0112-510 Designing the e-Business Organization	4
0105-440 Internet Marketing	4
Two Business Electives*	8
Total Quarter Credit Hours	***24***

**Business electives require approval from an academic adviser.*

Human Resource Development

The human resource development certificate blends the traditional human resource elements of interviewing, compensation, and benefits with the essentials of the organization as a whole—corporate culture dynamics and the challenges of learning how to create a collaborative learning environment for employees. From navigating employees through complex retirement packages to affirming that workers can expect personal attention if questions arise, these skills are used by the human resource department and all management-bound professionals.

Certificate in human resource development	Qtr. Cr. Hrs.
0697-442 The Learning Organization	4
0697-431 Understanding Corporate Culture	4
0626-234 Interviewing Techniques	4
0619-480 Human Resource Management	4
0626-390 Compensation and Benefits	4
Total Quarter Credit Hours	***20***

International Logistics and Transportation

Logistics deals with managing the flow of goods from an organization's suppliers through its facilities and on to its customers. Successful logistics requires knowledge of such diverse fields as transportation, inventory management, warehousing, procurement and order processing, materials handling, packaging, supply chain management, product support, fulfillment, and customer service. Logistics also involves planning the arrival of raw materials, pre-manufactured assemblies, labor, and other resources at a manufacturing or assembly point; the warehousing and dispatch of products for sale; and the deployment of training, spare parts, support equipment, documentation, maintenance, and upgrades for equipment that is in the field. Independent third-party logistics service suppliers have emerged to create a new and important service sector in the last decade. Courses in this certificate program are offered through the online learning format only.

Certificate in international logistics and transportation	Qtr. Cr. Hrs.
0681-451 Introduction to Logistics and Transportation	4
0681-525 Strategic Logistics Management	4
0681-526 Logistic Law and Economics	4
Total Quarter Credit Hours	***12***

Manufacturing Technology

A number of certificates are available in manufacturing technology, including computer-aided drafting, fundamentals of manufacturing management, manufacturing processes, and robotics.

Certificate in computer-aided drafting*	Qtr. Cr. Hrs.
0608-211 Engineering Graphics with CAD	4
0614-262 Solid Modeling and Design (solid works)	4
0610-220 Design, Dimensioning, and Tolerance (solid works)	4
0617-460 Computer-Aided Design (Unigraphics)	4
Total Quarter Credit Hours	***16***

**Prerequisite: Computer Literacy*

Certificate in fundamentals of manufacturing management*	Qtr. Cr. Hrs.
0617-436 Engineering Economics	4
0617-440 Production and Operations Management I**	4
0617-441 Production and Operations Management II**	4
Total Quarter Credit Hours	***12***

**Prerequisites: College Algebra, Statistics, Computer Literacy*

***These courses are available online.*

Certificate in manufacturing processes*	Qtr. Cr. Hrs.
0617-220 Manufacturing Processes I	4
0617-420 Manufacturing Processes II	4
0617-471 Computer Numerical Control	4
Total Quarter Credit Hours	***12***

**Prerequisites: Engineering Drawing, Computer Literacy*

Certificate in robotics	Qtr. Cr. Hrs.
0618-231 Technical Programming I	4
0617-470 Controls for Manufacturing Automation	4
0617-485 Robots in Manufacturing	4
Total Quarter Credit Hours	***12***

Organizational Change and Leadership

The organizational change and leadership certificate will help students understand corporate culture and develop the skills needed to manage organizational and individual change. Courses cover topics in leadership, corporate culture, change management, organizational behavior, and teams. Courses in this certificate are offered on campus and through online learning.

Certificate in organizational change	Qtr. Cr. Hrs.
0697-430 Survey of Organizational Change	4
0697-432 Managing Organizational Change	4
0697-431 Understanding Corporate Culture	4
0697-435 Global Forces and Trends	4
0697-434 Change and Leadership Project	4
Elective	4
Total Quarter Credit Hours	***24***

Public Relations

Public relations is vital to virtually every business endeavor. Almost every organization employs individuals, either in house or through public relations agencies, who can prepare press releases, brochures, newsletters, annual reports, point-of-purchase promotions, and other persuasive, informative materials in a variety of media.

The certificate program in public relations covers two key areas: writing and graphic communication. A set of core courses provides an introduction to public relations and teaches widely used principles and techniques of advertising, project management, and persuasion. The professional writing option provides specialized instruction in writing marketing materials, inbound and outbound publications, corporate-level communications, speeches, and scripts. The graphic communication option (designed for non-artists) focuses on the components of the advertising process, the use of effective design principles in the preparation of layouts, and the combination of creative and technical skills to achieve design success.

These programs are for individuals who wish to enter the field of public relations or take on similar responsibilities, those who have been working in a particular aspect of public relations and wish to upgrade or broaden their skills, or those who have been

performing public relations tasks for which they have had little formal preparation.

The prerequisite for the core courses is demonstration (by examination, portfolio, or transcript) of a command of standard written English.

The certificates may be completed in four quarters of part-time study. Students may earn one or both certificates. Students may also take individual courses. The professional writing option is offered online.

Core Courses	**Qtr. Cr. Hrs.**
0688-350 Introduction to Public Relations	2
0688-356 Strategic Communications	2
0681-264 Advertising Evaluation and Techniques	4
0688-348 Managing the Project	2
Total Quarter Credit Hours	***10***

Certificate in professional writing	**Qtr. Cr. Hrs.**
Core Courses	10
0688-352 Writing for the Organization	2
0688-357 Media Relations	2
0688-347 Promotional Writing	2
0688-353 Scripting and Audio Video Presentations	2
0688-354 Speechwriting	2
Total Quarter Credit Hours	***20***

Certificate in graphic communication	**Qtr. Cr. Hrs.**
Core Courses	10
0688-355 Coordinating Publication Production	2
Electives–Choose three of the following courses:*	
0688-371 Designing with Computers I	3
0688-372 Designing with Computers II	3
0688-373 Electronic Presentation Design	3
0688-381 Photographic Imaging with Computers I	3
0688-382 Photographic Imaging with Computers II	3
0688-383 Introduction to Internet Design	3
0688-374 Designing with Corel	3
0688-384 Designing with QuarkXPress	3
Total Quarter Credit Hours	***21***

**With adviser's approval*

Core Requirements, All Business and Management AAS Programs

Professional program requirements are added to these core requirements

Course requirements, AAS and BS Degrees in Applied Arts and Science (See adviser for course options.)

	Math/Computer/Science	**Credit**	**Liberal Arts**	**Credit**	**Professional Core(s) 1 to 2**	**Credit**
AAS	Computer/Technology Elective	4	Writing 0502-227§	4	One to two professional concentrations* to be developed by student and adviser.	38
			Arts of Expression 0504-319	4		
	Math Electives	8	Communication Elective	4		
	Science Electives	8	Humanities Electives	8		
	Math/Science	4	Behavioral Science Electives	8		
BS	no additional required		General Education‡	30	Two to four professional concentrations* to be developed by student and adviser.	48
			Liberal Arts Concentration#	12		
			Multidisciplinary Life† 0697-510	4		
			Free Electives	12		

**A concentration equals 20 (or more) quarter credit hours in one subject area (e.g., applied computing, business, communication, etc.).*

§A writing pre-test is required. Students completing the BS degree must also pass a writing competency test.

‡See adviser for a list of accepted general education electives.

#Students choosing a liberal arts area for a professional concentration must choose their liberal arts concentration and electives in other disciplines or interdisciplinary areas in the College of Liberal Arts.

†Multidisciplinary Life is required by all BS students and can be taken as part of the general education requirements or as part of a professional concentration.

Professional Courses (in addition to the above)	**Credit**	**General Education**	**Credit**	**Math, Statistics and Science**	**Credit**
Financial Accounting 0680-201	4	Writing and Arts of Expression 0502-227/0504-319 **or** Communicating in Business and Writing 0688-325 /0502-227	8	Science Electives†	8
Managerial Accounting 0680-203	4			College Math for Business I, II 0692-211, 212	8
Organization and Mgmt. 0681-205	4		8	Statistics I, II 0692-311, 312	8
Computer Elective	4	Micro and Macro Economics 0511-211, 402	8		v
Principles of Marketing 0681-361	4	Psychology 0514-210	4		
Management Science 0680-353	4	Sociology 0515-210	4		
Professional Concentration Courses (see above)	20				
Total	**44**	**Total**	**24**	**Total**	**24**

In sequentially numbered courses, the lower-number course is prerequisite.

†Science electives may include any of the following:

0692-231 Contemporary Science/Biology

0692-232 Contemporary Science/Chemistry

0692-233 Contemporary Science/Physics

0692-234 Contemporary Science/Oceanus

1026-305 Sports Physiology and Life Fitnessv

1026-306 Fitness Prescription/Programming

1026-307 Exercise Prescription

0634-311 Earth Science

0634-321 Man-Made Hazards

Quality Management

Poor quality in manufacturing and service can cost companies as much as 20 percent of revenue in rework, scrap, brand switching, and loss of goodwill. Organizations have begun to understand that prevention saves more time and money than the discovery of flaws after the fact.

The center's management-oriented certificate programs focus on quality as a priority. Developed in cooperation with industry, the courses can help students develop a total quality management environment to combine the theory and practice of statistical quality control with leadership, teamwork, and problem-solving concepts and skills.

The certificate in quality management teaches the nuts and bolts of a quality organization, prepares students to introduce quality concepts to their organization, and teaches how to put quality principles to work. Overall, the certificate can prepare students to work as quality trainers, facilitators, team leaders, or managers at various levels of an organization.

Certificate in quality management	**Qtr. Cr. Hrs.**
0684-310 Introduction to Quality	4
0684-340 Quality Data Analysis	4
0684-410 Introduction to Lean Six Sigma	4
Choose one of the following courses:	
0684-420 Statistical Quality Tools	4
0684-430 Management for Quality	4
Total Quarter Credit Hours	***16***

Small Business Management

The certificate program in small business management is designed for enterprising individuals who want to launch a new venture or improve an existing small business. It is especially appropriate for entrepreneurs, members of family-owned businesses, and key employees in companies with sales under $2 million.

The program's three courses are tightly integrated to provide a solid foundation in managing, marketing, and financing small businesses. The faculty includes academically qualified entrepreneurs who have managed their own small companies. This program is taught online only.

Certificate in small business management	**Qtr. Cr. Hrs.**
0681-221 New Venture Development	4
0681-222 Small Business Management and Finance	4
0681-223 Small Business Marketing and Planning	4
Total Quarter Credit Hours	***12***

Technical Communication

In this age of rapidly expanding technologies, technical communication is an essential, challenging, and rewarding profession, one that can be practiced within an organization or outside, through independent contracting.

As uses of technology expand, so does the need for communicators skilled in conveying many kinds of information, in many different forms, to diverse audiences. Industrial, business, scientific, medical, and nonprofit sectors have recognized the importance of communication to their success. The ability to present information effectively—in forms such as manuals, brochures, data sheets, promotional materials, systems documentation, reports, trade and professional journals, websites, and videos—is a highly valued asset in the workplace today.

The following sequence of courses provides a strong, practical foundation in technical communication skills. The certificate may be completed in three quarters of online, part-time study.

Certificate in basic technical communication	**Qtr. Cr. Hrs.**
0688-333 Technical Writing and Editing	4
0688-363 Technical Document Design	4
Choose one of the following courses:	
0688-361 Research Techniques	4
0688-476 Instructional Design Principles	4
Total Quarter Credit Hours	12
Prerequisites include a command of standard written English as demonstrated by examination, portfolio, or transcripts.	

Advanced Technical Communication

For those interested in more advanced professional development and instruction in specialized topics, the center offers the certificate in advanced technical communication, which may be completed in three quarters of study. These courses may also be taken simultaneously with courses in the basic technical communication certificate.

Certificate in advanced technical communication	**Qtr. Cr. Hrs.**
0688-544 Writing in the Sciences	4
0688-477 Managing Media Presentations	4
0688-475 Writing Software User Documentation	4
Total Quarter Credit Hours	***12***

Technical Information Design (0688-510), Technical Proposals (0688-514), Technical Procedures (0688-512), and Document Usability (0688-511) may be substituted for one of the required advanced courses with permission of the program chair. In addition, various special topics courses (0688-398) offered in areas such as technical journalism, usability, and communications management may be substituted for one of the required courses with permission of the program chair. A course used as a substitute may not be used to fulfill the requirements of the certificate in basic technical communication. Students must achieve a minimum GPA of 2.0 to be certified for completion or graduation. Both certificate programs are presented online only.

Department of Military Science

Reserve Officers' Training Corps (ROTC)—ARMY

Lt. Col. Lynn Lubiak, Professor of Military Science

www.rit.edu/cast/armyrotc

The Army Reserve Officers' Training Corps prepares students for leadership in a civilian or military career. ROTC is a campus-based program that consists of classroom instruction, physical training, and practical-application laboratories designed to enhance organizational leadership, decision making, and problem-solving skills.

The first two years of ROTC classes are open to all students with the approval of the professor of military science. No military obligation is required unless a student has received an ROTC scholarship or contract. Upon graduation, and the successful completion of Army ROTC, cadets are commissioned as second lieutenants and may serve in the active Army, the Army Reserve, or the Army National Guard. Veterans and members of the Army Reserve or National Guard may be eligible for advanced placement in the program.

Those who join Army ROTC become cadets in a dynamic and challenging program. Throughout the year, the program offers a variety of fun activities that reinforce leadership skills, teamwork, and confidence. Cadets are able to participate in events unique to the military such as Dining Out, a military dinner steeped in tradition. They also have the opportunity to participate in high-adventure training weekends on U.S. military installations, where they learn skills such as navigating with a map and compass, rappelling as part of mountaineering instruction, or completing a high ropes or confidence course. Students may join the Ranger Challenge Team, an ROTC varsity sport that competes in military skills and physical stamina competitions with other colleges throughout the Northeast. Army ROTC has a marksmanship team and the Pershing Rifle organization. ROTC members also conduct community activities and provide color guard and drill teams to campus, community, and athletic events.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants. Army ROTC awards multi-year scholarships to assist in covering tuition, fees, books, and housing. A four-year ROTC scholarship currently covers tuition and fees, and room and board. Visit the Cadet Command website (armyrotc.com or www.army.rotc.rit.edu) for additional information. High school students and enlisted soldiers may apply for Army ROTC scholarships by using the online application process on the Army ROTC website (armyrotc.com). Current college students can apply for campus-based scholarships through the ROTC department.

Basic course

The Army ROTC program is a four-year program divided into two components: the Basic Course and the Advanced Course. The Basic Course occurs during the first two years of the program (normally the freshman and sophomore years) and emphasizes the development of academic and life skills to increase students' potential as future army officers or leaders in tomorrow's dynamic business environment. During the Basic Course, students learn time management and study skills, basic military organization, military customs and courtesies, small-unit leadership, and problem solving. Students register for a class (and its lab requirement) and Army Conditioning Drills, which fulfills the wellness education credit while meeting the ROTC physical fitness requirements. Students may enroll in Basic Course classes at any time during their first two years of college. Upon completion of the Basic Course, eligible students can progress to the Advanced Course. Eligible Basic Course cadets also can compete to attend off-campus army training opportunities such as Army Airborne School or Air Assault School.

Advanced course

The Advanced Course is for students entering their last two academic years of college (co-op excluded). The Advanced Course is similar to the Basic Course in organization and style, but its focus is more heavily on organizational leadership, decision-making, and professional skills. Although instruction in military tactics is an integral part of the Advanced Course, it is designed to serve as a vehicle for enabling cadets to apply the full range of leadership skills they are learning in the classroom. Planning, organizing, and leading others through various training activities is emphasized. Upon entering their last year in the program, Advanced Course cadets are ranked against their peers in academics, performance at the Leader Development and Assessment Course (LDAC) (the required summer program after year three), and general on-campus performance. Based on these factors, the Army makes duty placement and job selections for each cadet. Advanced Course cadets also have the opportunity to participate in a variety of off-campus Army training opportunities such as Army Airborne School, Air Assault School, Northern Warfare, and Mountain Warfare training courses. After completing Advanced Camp, cadets also may participate in the Cadet Troop Leadership Training Program, a paid, practical leadership experience where they are assigned for up to three weeks to serve as leaders in an active army unit in the United States or elsewhere around the world.

Leader's training course

The Leader's Training Course is an option for students who are considering Army ROTC, but have not completed the Basic Course requirements and are entering their last two academic years (co-op excluded). LTC is a 28-day course held at Fort Knox, Kentucky, where students obtain the necessary skills and training to qualify for entry into the last two years of the Army ROTC program. Students learn basic military skills that emphasize leadership development. Those who successfully complete this course are offered the opportunity to formally contract into the Advanced Course for their last two years of college (co-op excluded). Interested students should contact the Army ROTC office as soon as possible, but no later than the beginning of spring quarter.

Veterans

Qualified students with prior military service and members of the Army Reserve or National Guard who have attended Basic Training may enroll directly into the Advanced Course. However, they must have two years of academic work remaining. Those who have more than two years of academic work remaining, but wish to participate in the Army ROTC program, are encouraged to enroll in any of the Basic Course classes. Interested students should visit the department for more information.

Leader development and assessment course (LDAC)

The Advanced Course includes attendance at the ROTC Leader Development and Assessment Course at Fort Lewis, Washington, which normally occurs in the summer between the third and fourth years of college. During this course, Army ROTC cadets from across the nation gather for five weeks to demonstrate their leadership skills and potential. They are repeatedly placed in leadership positions and face problem-solving challenges that bring together all of the classroom and practical instruction they received on campus. Participants might be assigned to lead a 120-person cadet company as they prepare for training or to plan and lead a 10-person squad on a tactical night patrol. Regard-

less of the task, participants have the opportunity to demonstrate their leadership potential to their army evaluators. Attendees' travel expenses are paid for and students earn a salary for participating in this challenging and greatly rewarding experience.

Department of military science four-year program, typical course sequence

		Qtr. Cr. Hrs.
First Year, MS I	Introduction to Military Science 0640-201	2
	Introduction to Military Leadership 0640-202	2
	Introduction to Tactical Leadership 0640-203	2
Second Year, MS II	Military Geography 0640-301	2
	Psychology and Leadership 0640-302	2
	The Military and American Society 0640-303	2
Third Year, MS III	Military Tactics 0640-401	3
	Military Communications 0640-402	3
	Military Operations 0640-403	3
	Survey of American Military History 0640-520	4
Fourth Year, MS IV	Army Training Systems 0640-501	3
	Military Administration and Logistics Management 0640-502	3
	Military Ethics 0640-503	3
	Total Quarter Credit Hours	*34*

Please note: A leadership lab (1114-011) which is conducted on a weekly basis for two hours and Conditioning Drills (1114-010) are an integral part of each course listed in the typical course sequence chart.

Department of military science two-year program, basic camp completion/advanced placement/summer compression, typical course sequence

		Qtr. Cr. Hrs.
Third Year, MS III	Military Tactics 0640-401	3
	Military Communications 0640-402	3
	Military Operations 0640-403	3
Fourth Year, MS IV	Army Training Systems 0640-501	3
	Military Administration and Logistics Management 0640-502	3
	Military Law and Ethics 0640-503	3
	Total Quarter Credit Hours	*18*

Please note: A leadership lab (1114-011), which is conducted on a weekly basis for two hours, and Conditioning Drills (1114-010) are an integral part of each course listed on the typical course sequence.

Department of Aerospace Studies—Air Force

Reserve Officer Training Corps (AFROTC)—Air Force

Lt. Col. Mark Avery, Professor of Aerospace Studies

www.rit.edu/cast/afrotc/

Participation in Air Force Reserve Officer Training Corps provides students a firsthand view of the Air Force while attending college. The program allows students to join the cadet corps and participate in varied activities, including classroom academics, leadership training, base visits, summer professional development, and physical fitness training.

Characteristics

The department of aerospace studies has designed a curriculum that is compatible with the four- and five-year cooperative education plans offered by most of the university's academic programs. The curriculum will develop well-rounded individuals fully prepared to enter into their chosen career fields and become future leaders in the armed forces and society.

Four-year program

The program has three distinct parts: the General Military Course, the Professional Officer Course, and Summer Field Training.

The General Military Course is for students entering the program directly from high school but not later than the sophomore year of college. As freshmen and sophomores, students will study Air Force Doctrine, Mission and Organization, the nature of conflict, and the development and evolution of air and space power.

Every cadet must complete a four-week Summer Field Training Course, offered during the summer between the sophomore and junior years. The field training curriculum includes leadership training, drill and ceremony, officer training, a confidence course, tactical skills, and physical fitness training. Field training evaluates a student's leadership potential and qualifies the cadet for entry into the Professional Officer Course. Cadets who did not complete the entire General Military Course spend an extra week at Field Training completing the academic work from that program.

The Professional Officer Course is an advanced aerospace studies curriculum conducted during the junior and senor years. This curriculum prepares cadets for entry into the Air Force as second lieutenants by teaching them the fundamentals of leadership and management, ethics, staff planning and coordination, national security affairs, and foreign policy.

Leadership and management experience is gained through a series of leadership laboratories, conducted in the fall, winter, and spring quarters throughout the four- and five-year college curricula. The lab is managed by the cadet corps staff with a detachment officer overseeing all activities. Practical command and staff leadership experience, drill and ceremonies, customs and courtesies, and career decision making are all part of the curriculum.

Other programs

Several other programs are offered to cadets. During the academic year cadets have the opportunity to attend Air Force base visits and participate in extracurricular activities such as the drill team, honor guard, or become a member of the Arnold Air Society (a community service organization). Throughout the summer, cadets may also volunteer to attend many professional development programs such as freefall parachute school, Space Orientation, or even shadow Office of Special Investigation (OSI) agents. Opportunities also exist to travel abroad with the international, cultural and language immersion programs.

Wellness education requirement

RIT's Wellness Education requirement can be satisfied by completing the physical training course. Students must be enrolled in AFROTC to participate in the program.

Qualifications and selection procedure

To qualify for AFROTC, students must pass the Air Force Officer Qualifying Test, complete an interview, and pass a physical exam and a physical fitness test. Please contact the AFROTC office at (585) 475-5197 for complete details.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants. AFROTC offers multi-year scholarships in technical and nontechnical fields. Competition is selective, and the needs of the Air Force dictate which scholarships will be offered on a yearly basis to college students. High school students can apply online at www.afrotc.com to compete for scholarships through a national board process. Every scholarship cadet and all Professional Officer Course cadets receive a tax-free monthly stipend between $300–$500 and $900 in books.

Minor in military studies and leadership

Students completing the entire four-year AFROTC program may earn a minor in military studies and leadership. Refer to the Minors section of this bulletin for more information.

Department of aerospace studies—AFROTC, typical course sequence*

		Qtr. Cr. Hrs.
First Year	Air Force Today I, II, III 0650-210, 211, 212	3
	Leadership Lab 1114-002	0
	Physical Training 1114-001	0
Second Year	History of Air Power I, II, III 0519-201, 202, 203	4
	Leadership Lab 1114-002	0
	Physical Training 1114-001	0
Third Year	Air Force Leadership and Management I, II 0102-310, 311	10
	Leadership Lab 1114-002	0
	Physical Training 1114-001	0
Fourth Year	Leadership Lab 1114-002	0
	Physical Training 1114-001	0
Fifth Year	National Security Affairs I, II 0513-401, 402	9
	Leadership Lab 1114-002	0
	Physical Training 1114-001	0
	Total Quarter Credit Hours	*26*

**NOTE: This typical course sequence chart is a typical flow, but junior- and senior-level academic courses can be taken in years three and five or years four and five. Five-year AFROTC students enrolled at RIT but not taking Air Force junior- or senior-level course must be enrolled in Leadership Lab and Physical Training..*

E. Philip Saunders College of Business

Ashok Rao, Dean

saunders.rit.edu

Success in today's business environment requires leadership and management attuned to rapid changes in technology and increasingly vigorous global competition. The E. Philip Saunders College of Business offers a portfolio of comprehensive, rigorous programs of study. Our curriculum produces graduates who are able to convert managerial learning into pragmatic business applications.

To achieve these educational aims, the Saunders College offers academic programs comprised of four components: business core courses, a program of study, required liberal arts and sciences courses, and cooperative education experience. The liberal arts and sciences component includes courses in the humanities, mathematics, science, and social sciences. Students are expected to display proficiency in oral and written forms of communication and to a liberal arts concentration or minor.

Business core

All students in the Saunders College must complete a set of required business core courses that provide a foundation for their program of study as well as an understanding of all facets of business. These courses serve as a platform for advanced study in a specific area of interest. The required foundation courses include:

0101-301 Financial Accounting
0101-302 Management Accounting
0102-260 Business 1: Ideas and Creativity
0102-305 Careers in Business
0102-320 Organizational Behavior
0102-438 Business Ethics
0102-530 Managing Innovation and Technology
0102-551 Strategy
0104-350 Corporate Finance
0105-363 Principles of Marketing
0106-401 Operations and Supply Chain Management
0102-265 Business 2: Business Plan Development
0112-270 Business Software Applications
0112-285 Business 3: Commercialization
0113-310 Global Business: An Introduction
0511-211 Principles of Microeconomics
0511-402 Principles of Macroeconomics
0535-352 Professional Communication for Business
1016-226 Calculus for Management Science
1016-319 Data Analysis I
1016-320 Data Analysis II and Lab

Programs of study

Students concentrate their study in a specific business career field. The college offers the following majors:

Accounting
Finance
International Business*
Management
Management Information Systems
Marketing
New Media Marketing

**International business requires a co-major. Please see program description for more information.*

Undeclared business option

For students whose interests fall into the business realm, but who are unclear which program of study to choose from, the **undeclared business option** is a good place to begin. By building on the liberal arts and sciences and business core components, the undeclared business option provides students up to a year and a half to declare a major. During this time, students complete required courses that provide an understanding of all facets of business and serve as a foundation for the undeclared option as well as advanced study in a specific area of interest. Advisers are available to assist students in selecting a major that matches their area of interest.

Admission

For more information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Faculty

The college's faculty members are world class. They are actively involved in applied research, and many are consultants to the business community, which enables them to bring real-world experience into the classroom. More than 40 full-time teaching professionals ensure that the educational experience is dynamic and relevant. In the classroom, faculty and students engage in case studies, problem set analyses, experiential exercises, lectures, group discussions, and team presentations.

Facilities

RIT is a national leader when it comes to incorporating computer technology into the classroom. Saunders College students have access to extensive resources and utilize the same business software used by Fortune 100 companies worldwide. The college's classrooms and study areas feature wireless access.

Cooperative education

Cooperative education is an integral part of the college's curriculum. Students obtain paid, practical work experience in an area related to their chosen field of interest. Co-op is part of each student's career exploration and helps relate their classroom studies to the world of business.

Students are required to successfully complete two quarters of cooperative education. These work blocks take place during the junior or senior year. While RIT and the Saunders College cannot guarantee cooperative education experience, RIT's Office of Cooperative Education and Career Services is a valuable resource in assisting students in their co-op and job search efforts.

Accreditation

The Saunders College is accredited by the nationally recognized Middle States Association of Colleges and Schools and the Association to Advance Collegiate Schools of Business (AACSB International), the premier accrediting agency for schools of business in the U.S.

Advising

RIT is committed to providing advising services throughout a student's academic program. Through the Student Services Office, all students are assured administrative support to effectively deal with registration, records, and scheduling. In addition, the administrative staff provides students with information about other support areas within RIT. Students are assigned an individual faculty adviser, who becomes an integral part of their advising network.

Academic enrichment

Academic enrichment includes the Honors program, study abroad, and minors.

Honors Program: Students who demonstrate a high level of achievement at the high school level may be invited to join the Honors program. These students will participate in Honors course work throughout their program of study and experiential learning activities under the guidance of a faculty mentor. Honors students will be selected during the admissions process.

Study Abroad: RIT encourages all students to consider a study abroad program to enhance their understanding of global business and other cultures. Students may study full time at a variety of host schools and are able to select both business and liberal arts classes. RIT's Study Abroad Office has information about foreign study options and opportunities. All business majors may request a study abroad experience to replace one of their required cooperative education work blocks.

Minors: Students also may choose to develop an additional area of business knowledge by completing one of the minors offered by the college. Minors are available in accounting, business administration, digital business, entrepreneurship, finance, international business, management, management information systems, and marketing. Advisers assist students in choosing a business minor that complements their area of study or their personal interests. Business majors may pursue any of the business minors with the exception of business administration. Students may also choose from more than 90 other minors to enhance their program of study or pursue a secondary area of professional interest.

Graduate programs

The college offers the following graduate degree programs: master of business administration (traditional, Executive MBA, and Online Executive MBA options), master of business administration–accounting (which meets the New York State education requirements for CPA examination candidacy), master of science in finance, master of science in management, and master of science in innovation management. These programs are available on a full- or part-time basis and prepare students for all aspects of business management. Details are contained in the Graduate Bulletin, available from the Office of Graduate Enrollment Services.

Accelerated dual degree option

Undergraduate business students may want to consider the 4+1 MBA program, an accelerated dual degree program that allows students to complete both the BS and MBA degrees in five years.

Accounting

saunders.rit.edu/undergraduate/accounting/index.php

The accounting curriculum provides broad exposure to the liberal arts as well as science and management concepts. Beyond this core, students choose an option that best fits their career interests. Students planning a career in public accounting may select undergraduate course work preparing them to enter RIT's MBA-Accounting program. Completion of both the BS and MBA-Accounting degrees satisfies the New York State CPA education requirements (see electives). Students may tailor the program to meet diverse career opportunities in the commercial, government, and not-for-profit sectors.

Accounting, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Discovery/Pathways 1720-051, 052	2
	Business 1: Ideas and Creativity 0102-260	4
	Business 2: Business Plan Development 0102-265	2
	Business Software Applications 0112-270	2
	Business 3: Commercialization 0112-285	2
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	Professional Communication for Business 0535-352	4
	Calculus for Management Science 1016-226	4
	Data Analysis I, II 1016-319, 320	10
	Liberal Arts*	12
	Wellness Education†	0
Second Year	Financial and Management Accounting 0101-301, 302	8
	Accounting Information Systems 0101-345	4
	Careers in Business 0102-305	1
	Global Business: An Introduction 0113-310	4
	Corporate Finance 0104-350	4
	Legal Environment of Business 0110-319	4
	Liberal Arts*	12
	General Education	8
	Laboratory Sciences	8
Third Year	Financial Reporting and Analysis I 0101-408	4
	Financial Reporting and Analysis II 0101-409	4
	Personal and Small Business Taxation 0101-522	4
	Organizational Behavior 0102-320	4
	Business Ethics 0102-438	4
	Principles of Marketing 0105-363	4
	Liberal Arts*	12
	Free Electives	8
	Cooperative Education‡	Co-op
Fourth Year	Financial Accounting and Reporting Issues 0101-550	4
	Strategy 0102-551	4
	Operations and Supply Chain Management 0106-401	4
	Managing Corporate Assets and Liabilities 0104-452	4
	Cost Accounting 0101-431	4
	Managing Innovation and Technology 0102-530	4
	Free Elective	4
	General Education	8
	Total Quarter Credit Hours	***183***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Two quarters of cooperative education are required and must be completed within the third and fourth years.

The program contains four free electives. Students planning to obtain an MBA-Accounting degree and a career in public accounting should take the following electives: Advanced Taxation (0101-523), Auditing (0101-530), Advanced Accounting (0101-540), and Commercial Law (0110-320).

For students seeking careers outside of public accounting, the following recommendations suggest ways in which electives may benefit additional career goals:

- Obtain a minor in management information systems.
- Select electives and other course work to strengthen communication skills to prepare for a legal co-op or for law school, with corporate law as a career goal.
- Complete electives in accounting, business, and the liberal arts to prepare for careers in government service.

Finance

saunders.rit.edu/undergraduate/finance/index.php

The finance major prepares students for management positions in financial, commercial, industrial, and governmental organizations. Students are taught the principles of financial decision making and build an understanding of the economic, legal, and financial environment in which they will operate. Career options exist in government, industry, service, and not-for-profit organizations.

Finance, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Discovery/Pathways 1720-051, 052	2
	Business 1: Ideas and Creativity 0102-260	4
	Business 2: Business Plan Development 0102-265	2
	Business Software Applications 0112-270	2
	Business 3: Commercialization 0112-285	2
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	Professional Communication for Business 0535-352	4
	Calculus for Management Science 1016-226	4
	Data Analysis I, II 1016-319, 320	10
	Liberal Arts*	12
	Wellness Education†	0
Second Year	Financial and Management Accounting 0101-301, 302	8
	Careers in Business 0102-305	1
	Global Business: An Introduction 0113-310	4
	Corporate Finance 0104-350	4
	Legal Environment of Business 0110-319	4
	Liberal Arts*	12
	Free Electives	8
	General Education	4
	Laboratory Sciences	8
Third Year	Organizational Behavior 0102-320	4
	Business Ethics 0102-438	4
	Managing Corporate Assets and Liabilities 0104-452	4
	Intermediate Investments 0104-453	4
	Principles of Marketing 0105-363	4
	Liberal Arts*	12
	Free Elective	4
	General Education	4
	Cooperative Education‡	Co-op
Fourth Year	Strategy 0102-551	4
	Financial Analysis and Modeling 0104-460	4
	Finance Electives	8
	Finance in a Global Environment 0104-504	4
	Operations and Supply Chain Management 0106-401	4
	Managing Innovation and Technology 0102-530	4
	Free Elective	4
	General Education	8
	Total Quarter Credit Hours	***183***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Two quarters of cooperative education are required and must be completed within the third and fourth years.

International Business

saunders.rit.edu/undergraduate/international_business/index.php

Students in the international business program develop the foundation necessary to understand business as well as political and cultural diversity. Proficiency in a foreign language is an integral part of the program. A co-major is chosen in one of the following areas: accounting, finance, management, management information systems, or marketing. The co-major provides students with the functional tools needed in their career.

International business positions include substantial personal and professional benefits. Overseas assignments typically bring long hours and hard work, yet the reward of upward mobility within the corporate world continues to lure young executives to global assignments.

International business, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Discovery/Pathways 1720-051, 052	2
	Business 1: Ideas and Creativity 0102-260	4
	Business 2: Business Plan Development 0102-265	2
	Business Software Applications 0112-270	2
	Business 3: Commercialization 0112-285	2
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	Professional Communication for Business 0535-352	4
	Calculus for Management Science 1016-226	4
	Data Analysis I, II 1016-319, 320	10
	Liberal Arts*	12
	Wellness Education†	0
Second Year	Financial and Management Accounting 0101-301, 302	8
	Careers in Business 0102-305	1
	Global Business: An Introduction 0113-310	4
	Corporate Finance 0104-350	4
	Principles of Marketing 0105-363	4
	Foreign Language§	12
	Liberal Arts*	12
	Laboratory Sciences	8
Third Year	Organizational Behavior 0102-320	4
	Business Ethics 0102-438	4
	Co-major Courses	8
	Liberal Arts*	12
	Choose three of the following:	12
	Managing in the Global Environment 0113-400	
	Global Business: Special Issues 0113-430	
	Finance in a Global Environment 0104-504	
	Marketing in the Global Environment 0113-450	
	Cooperative Education‡	Co-op
Fourth Year	Strategy in the Global Environment 0113-500	4
	Strategy 0102-551	4
	Operations and Supply Chain Management 0106-401	4
	Managing Innovation and Technology 0102-530	4
	Co-major Courses	8
	Free Electives	8
	General Education	4
	Choose one of the following:	4
	Business, Government and Society 0102-507	
	Legal Environment of Business 0110-319	
	Total Credit Hours	***183***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Two quarters of cooperative education are required and must be completed within the third and fourth years.
§ Language credit may be used as liberal arts upper-division credit.
Note: Fluency in a foreign language offered by RIT is a requirement of this program. It can be met with the satisfactory completion of three quarters of language instruction or by passing a language department examination. It is strongly recommended that students take an additional three quarters of instruction in their language of choice. Entering students with fluency in one foreign language are encouraged to take at least three quarters of instruction in another foreign language.

Management

saunders.rit.edu/undergraduate/management/index.php

The management major prepares students for management and specialist careers in a variety of enterprises and organizations. Through this focused area of study, students develop the skills and concepts needed to become effective leaders, ethical decision makers, and creative innovators. The management curriculum provides both depth and flexibility in its offerings so that students can maximize their educational experience.

Management, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Discovery/Pathways 1720-051, 052	2
	Business 1: Ideas and Creativity 0102-260	4
	Business 2: Business Plan Development 0102-265	2
	Business Software Applications 0112-270	2
	Business 3: Commercialization 0112-285	2
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	Professional Communication for Business 0535-352	4
	Calculus for Management Science 1016-226	4
	Data Analysis I, II 1016-319, 320	10
	Liberal Arts*	12
	Wellness Education†	0
Second Year	Financial and Management Accounting 0101-301, 302	8
	Careers in Business 0102-305	1
	Global Business: An Introduction 0113-310	4
	Corporate Finance 0104-350	4
	Principles of Marketing 0105-363	4
	Liberal Arts*	12
	Free Electives	8
	General Education	4
	Laboratory Sciences	8
Third Year	Organizational Behavior 0102-320	4
	Business Ethics 0102-438	4
	Human Resource Management 0102-455	4
	Entrepreneurship 0102-490	4
	Liberal Arts*	12
	Free Elective	4
	General Education	8
	Cooperative Education‡	Co-op
Fourth Year	Leadership in Organizations 0102-460	4
	Managing Innovation and Technology 0102-530	4
	Business, Government, and Society 0102-507	4
	Strategy 0102-551	4
	Operations and Supply Chain Management 0106-401	4
	Management Elective	8
	Free Electives	8
	General Education	4
	Total Quarter Credit Hours	***183***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
‡ Two quarters of cooperative education are required and must be completed within the third and fourth years.

Management Information Systems

saunders.rit.edu/undergraduate/mis/index.php

The management information systems program prepares students for careers involving leading-edge enterprise technologies and the analysis, design, and management of computer-based information systems. The curriculum provides students with the opportunity to analyze existing business processes and learn to utilize digital technologies to improve and/or design new models.

As a result of the program, students are able to apply the concepts of enterprise resource planning and work with sophisticated enterprise systems to help companies achieve their goals. Students also are able to design systems that are usable, practical, and cost-effective. Major career directions for graduates include business analysis, enterprise resource planning analysis and consulting, database application development and administration, network design and administration, website development and administration, and the management of information systems projects.

Management information systems, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Discovery/Pathways 1720-051, 052	2
	Business 1: Ideas and Creativity 0102-260	4
	Business 2: Business Plan Development 0102-265	2
	Business Software Applications 0112-270	2
	Business 3: Commercialization 0112-285	2
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	Professional Communication for Business 0535-352	4
	Calculus for Management Science 1016-226	4
	Data Analysis I, II 1016-319, 320	10
	Liberal Arts*	12
	Wellness Education†	0
Second Year	Financial and Management Accounting 0101-301,302	8
	Careers in Business 0102-305	1
	Global Business: An Introduction 0113-310	4
	Corporate Finance 0104-350	4
	Principles of Marketing 0105-363	4
	Developing Business Applications 0112-331	4
	Database Management Systems 0112-340	4
	Systems Analysis and Design 0112-370	4
	Liberal Arts*	12
	Laboratory Sciences	8
Third Year	Organizational Behavior 0102-320	4
	Business Ethics 0102-438	4
	Legal Environment of Business 0110-319	4
	Emerging Business Technologies 0112-390	4
	Liberal Arts*	12
	Free Electives	8
	General Education	4
	Cooperative Education‡	Co-op
Fourth Year	Strategy 0102-551	4
	Operations and Supply Chain Management 0106-401	4
	MIS Capstone 0112-525	4
	Managing Innovation and Technology 0102-530	4
	MIS Elective	8
	Free Electives	4
	General Education	12
	Total Quarter Credit Hours	*183*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Two quarters of cooperative education are required and must be completed within the third and fourth years.

Marketing

saunders.rit.edu/undergraduate/marketing/index.php

Marketing has long been recognized as a critical element in the success of modern business operations. The overall process of entering markets, creating value for customers, and developing profits is the fundamental challenge for the contemporary marketing manager. These marketing basics apply to governmental agencies, not-for-profit organizations, service organizations, and for-profit firms.

In the marketing program, students learn theory and gain practical experience by creating tactically enabled strategic marketing plans. Through projects, they learn to work independently and in teams to achieve organizational objectives. Marketing majors develop leadership and communication skills through classroom experiences and their work on real and simulated business challenges. Upon completing the program, students have gained proficiency in analyzing and understanding buyers, developed and delivered professional sales presentations, and designed and implemented marketing research projects. Students graduate with the ability to create and critically evaluate strategic marketing plans.

Marketing, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Discovery/Pathways 1720-051, 052	2
	Business 1: Ideas and Creativity 0102-260	4
	Business 2: Business Plan Development 0102-265	2
	Business Software Applications 0112-270	2
	Business 3: Commercialization 0112-285	2
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	Professional Communication for Business 0535-352	4
	Calculus for Management Science 1016-226	4
	Data Analysis I, II 1016-319, 320	10
	Liberal Arts*	12
	Wellness Education†	0
Second Year	Financial and Management Accounting 0101-301, 302	8
	Careers in Business 0102-305	1
	Global Business: An Introduction 0113-310	4
	Corporate Finance 0104-350	4
	Principles of Marketing 0105-363	4
	Liberal Arts*	12
	Free Elective	4
	General Education	8
	Laboratory Sciences	8
Third Year	Organizational Behavior 0102-320	4
	Buyer Behavior 0105-505	4
	Professional Selling 0105-559	4
	Marketing Elective	8
	Liberal Arts*	12
	General Education	8
	Cooperative Education‡	Co-op
Fourth Year	Business Ethics 0102-438	4
	Business, Government and Society 0102-507	4
	Strategy 0102-551	4
	Marketing Metrics and Research 0105-551	4
	Operations and Supply Chain Management 0106-401	4
	Managing Innovation and Technology 0102-530	4
	Marketing Management 0105-550	4
	Free Electives	12
	Total Quarter Credit Hours	*183*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Two quarters of cooperative education are required and must be completed within the third and fourth years.

New Media Marketing

saunders.rit.edu/undergraduate/new_media_marketing/index.php

The new media marketing program is an interdisciplinary major with curriculum that covers marketing, imaging, graphic arts, information systems, and management. The program provides an overall assessment of the current and future state of the graphic communication industry and was designed to meet the industry's need for broadly educated marketing, new media, and management professionals. This is a joint program between the Saunders College and the College of Imaging Arts and Sciences.

New media marketing, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Discovery/Pathways 1720-051, 052	2
	Business 1: Ideas and Creativity 0102-260	4
	Business 2: Business Plan Development 0102-265	2
	Business Software Applications 0112-270	2
	Business 3: Commercialization 0112-285	2
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	Professional Communication for Business 0535-352	4
	Calculus for Management Science 1016-226	4
	Data Analysis I, II 1016-319, 320	10
	New Media Elective	4
	Liberal Arts*	8
	Wellness Education†	0
Second Year	Financial and Management Accounting 0101-301, 302	8
	Careers in Business 0102-305	1
	Global Business: An Introduction 0113-310	4
	Corporate Finance 0104-350	4
	Principles of Marketing 0105-363	4
	New Media Electives	8
	Liberal Arts*	16
	Laboratory Sciences	8
Third Year	Organizational Behavior 0102-320	4
	Business Ethics 0102-438	4
	Internet Marketing 0105-440	4
	Search Engine Marketing and Analytics 0105-442	4
	Business/Media Electives	8
	Liberal Arts*	12
	General Education	4
	Cooperative Education‡	Co-op
Fourth Year	Business, Government and Society 0102-507	4
	Strategy 0102-551	4
	Advanced Internet Marketing 0105-520	4
	Operations and Supply Chain Management 0106-401	4
	Managing Innovation and Technology 0102-530	4
	Free Electives	8
	General Education	12
	Total Quarter Credit Hours	*183**

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Two quarters of cooperative education are required and must be completed within the third and fourth years.

B. Thomas Golisano College of Computing and Information Sciences

Jorge L. Díaz-Herrera, Dean

www.gccis.rit.edu

The B. Thomas Golisano College of Computing and Information Sciences is one of the largest colleges at RIT and has become one of the most comprehensive computing colleges in the United States. The college offers 17 bachelor's and master's degree programs in computing.

Since the college was established in 2001, more than 5,000 students have graduated with undergraduate and graduate degrees. The college's programs address the growing need for experts in the fields of computing. With more than 100 faculty, 3,000 students, 40 technical and support staff, and state-of-the art facilities dedicated to learning, teaching, research, and development, the college has quickly risen in recognition around the country.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please see the Undergraduate Admission section of this bulletin.

Faculty

The college's faculty is a dedicated group of teacher-scholars and scholar-teachers, performing use-inspired research with an emphasis on student involvement and career preparation. Faculty members provide leadership by implementing innovative teaching techniques while anticipating and meeting the needs of students and our industrial partners. Many have significant industrial experience in addition to outstanding academic credentials.

Facilities and resources

The highly technical nature of our programs demands cutting edge, state-of-the art facilities and equipment. The college prides itself on offering the very best to support students' success. The Golisano building is equipped with more than 2,000 workstations housed in 56 labs, studio labs, and classrooms, all with the latest technology.

Each department has extensive laboratories dedicated to undergraduate education. These labs contain powerful PCs and workstations as well as appropriate, up-to-date software. The labs are available to students 16–18 hours a day, except when they are being used during designated class times. High-speed Internet access, along with a wireless network, is available to ensure our students have the tools necessary to complete their assignments and projects.

A 126,500-square-foot wireless building houses the college's specialized labs, such as those dedicated to wireless networking, security, entertainment technology, AI, streaming media, Honors, and computer vision, as well as academic departments, faculty offices, classrooms, and study and lounge space. The close proximity of the college's departments and labs encourages joint projects as well as interaction among students in different programs outside the college.

Advising

As part of its commitment to student success, the Golisano College provides both academic advising and career counseling. Students have access to their department chairperson, a faculty adviser, a professional adviser, the academic advising office in the College of Liberal Arts, and program coordinators from the Office of Cooperative Education and Career Services. In addition, the department office staff provides support for registration and help with records and scheduling. Part-time and evening students can arrange for these services at night by appointment.

Cooperative education

All programs in the Golisano College have a cooperative education requirement. Co-op generally starts after completing two years of the program and ends so that the last quarter attended is in residence. Co-ops may be one or two quarters in length and at any company that satisfies the program's requirements. Please refer to each program for specific information regarding cooperative education requirements. Academic counselors also can provide students with information concerning the co-op experience.

Computing and Informatics Exploration

Wiley McKinzie, Exploration Coordinator

www.gccis.rit.edu/exploration

The computing and informatics exploration program is for freshman students who have an interest in computing and informatics but are unsure as to which of the college's degree programs best fit their career goals. The Golisano College offers two undeclared options to help students explore the programs in the college and choose the right one for their intended career path.

Both options include a 1-credit course, Introduction to Computing and Informatics, which provides an overview of six academic programs. The course provides students with an opportunity to learn about each program's course of study as well as career opportunities in each field. During the first year, students take a three-course programming sequence and mathematics courses appropriate for each option. Each student is assigned an academic adviser, who will provide guidance on programs, career fields, and course selection. Students may choose a major at the end of any quarter. Course work completed as a computing or informatics exploration student will count toward the student's respective degree program. Students who begin in the exploration program will normally complete their academic program on time.

Computing Exploration Option

Jim Vallino, Computing Exploration Faculty Coordinator

The computing exploration option is designed for students who are interested in computing but are unsure which program, computer science or software engineering, is the best choice to fulfill their career objectives. Students may spend their first and part of their second year exploring the computer science and software engineering fields before selecting a major.

The computing exploration option has been carefully designed so that students may explore each program without wasting credits toward graduation. Each student is assigned an adviser who will provide guidance on course selection, minors, and career options.

Computing exploration option, freshman year course sequence

		Qtr. Cr. Hrs.
Fall Quarter	Introduction to Computing and Informatics	1
	Problem-based Introduction to Computer Science 4003-241	4
	Project-based Calculus 1016-281	4
	Liberal Arts*	8
	First-Year Enrichment 1720-050	1
Winter Quarter	Data Structures for Problem Solving 4003-242	4
	Project-based Calculus II 1016-282:	4
	Discrete Mathematics I 1016-265	4
	Liberal Arts*	4
	First-Year Enrichment 1720-051	1
Spring Quarter	OOP Using Java 4003-243	4
	Project-based Calculus III 1016-283	4
	Discrete Mathematics II 1016-366	4
	Liberal Arts*	4
	Wellness Education†	0
Fall Quarter	Introduction to Software Engineering 4010-361	4
	Introduction to Computer Science Theory 4003-380	4
	University Physics 1017-311	4
	Liberal Arts*	4
	Total Quarter Credit Hours	*67*

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Informatics Exploration Option

Luther Troell, Director, School of Informatics and Informatics Exploration Faculty Coordinator

The informatics exploration option is designed for students who have an interest in computing but are unsure which program best meets their career goals. Students in the informatics exploration option will spend their first year exploring four programs of study—applied networking and system administration, information security and forensics, information technology, and medical informatics—before selecting one program as their major. The informatics exploration option has been carefully designed so that students may explore each program without wasting credits toward graduation. Each student will have an assigned academic adviser to provide guidance on course selection, minors, and career options.

Informatics Exploration Option, freshman year course sequence

		Qtr. Cr. Hrs.
Fall Quarter	Introduction to Computing and Informatics	1
	Programming for IT I 4002-217	4
	Choose one of the following:	4
	Algebra/Trigonometry 1016-204	
	Discrete Math for Technologists I 1016-205	
	Liberal Arts*	4
	Introduction to Multimedia 4002-320	4
	First-Year Enrichment 1720-050	1
Winter Quarter	Programming for IT II 4002-218	4
	Choose one of the following:	4
	Cyber Self-Defense 4050-220/221	
	Introduction to Medical Informatics 4006-240	
	Liberal Arts*	4
	Choose one of the following:	4
	Discrete Math for Technologists I 1016-205	
	Discrete Math for Technologists II 1016-206	
	First-Year Enrichment 1720-051	1
Spring Quarter	Programming for IT III 4002-219	4
	Choose one of the following:	4
	Discrete Math for Technologists II 1016-206	
	Introduction to Database and Data Modeling 4002-360	
	Lab Science Elective	4
	Computer System Fundamentals 4050-3504	
	Wellness Education†	0
	Total Quarter Hours	*47*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Computer Science

Paul T. Tymann, Chair

www.cs.rit.edu

The department of computer science offers programs leading to a bachelor or master of science degree in computer science. At the undergraduate level, high school graduates enter as first-year students, and students with prior college work may enter as first- or second-year students or even upper-division students, depending on the amount and nature of prior work. In addition, the computer science program is offered to part-time students in an evening format.

The bachelor of science program, which is fully accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700, attracts students who are interested in both the mathematical theory and technical applications of computer science. Most employers look for students who not only are good computer scientists but also understand the tools and techniques of mathematics, science, and industry and are able to communicate effectively. The BS program is for the mathematically adept student who wishes to become a computing professional with knowledge of relevant applications areas. The program also is attractive to students transferring to RIT with an associate degree in computer science and course work in mathematics and science.

The demands of industry and government require college graduates to master both the fundamentals and the applied aspects of their profession. To meet this requirement, two applied educational experiences are woven into the program. Students are required to complete a cooperative educational experience as well as an extensive set of laboratory experiences, many as members of a team. The laboratories that support these experi-

ences are limited to 16 to 20 students each, providing an effective means of student-faculty interaction.

Computer science covers a wide spectrum of areas within the field of computing, ranging from the theoretical to the practical. A computer scientist can specialize in areas such as artificial intelligence, computer graphics, computer theory, networking, security, robotics, parallel computation, database, data mining, computer architecture, or systems software. Programming is necessary, but computer scientists also must be adaptable as well as adept at problem solving and analytical reasoning, able to understand design principles, and fluent in using computers.

An undergraduate computer science student takes a core of computer science courses that provide a solid foundation for advanced work. Building on this base, students can explore a variety of specializations in their third, fourth, and fifth years. In addition, students have the opportunity to develop a broad appreciation of computer applications and the effects of computers on society via computer science electives, liberal arts courses, and various electives, which can be used to complete minors, if so desired.

Computer science, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Problem-Based Introduction to Computer Science 4003-241	4
	Data Structures for Problem Solving 4003-242	4
	Object-Oriented Programming 4003-243	4
	Calculus I, II, III 1016-281, 282, 283	12
	Discrete Mathematics I, II 1016-265, 1016-366	8
	Liberal Arts*	16
	First-Year Enrichment I, II 1720-051, 052	2
	Wellness Education†	0
Second Year	Computer Science 4 4003-334	4
	Software Engineering 4010-361	4
	Computer Organization 4003-345	4
	Professional Communications 4003-341	4
	Probability 1016-351	4
	Lab Science**	12
	Liberal Arts*	12
	Free Elective#	4
	Wellness Education†	0
Third, Fourth and Fifth Years	Introduction to Computer Science Theory 4003-380	4
	Operating Systems I 4003-440	4
	Data Communications and Networks I 4003-420	4
	Programming Language Concepts 4003-450	4
	Computer Science-Related Electives‡	8
	Computer Science Electives	16
	Related Electives§	12
	Liberal Arts*	24
	Science Electives**	8
	Free Elective#	8
	Cooperative Education (four quarters required)	Co-op
	Total Quarter Credit Hours	***190***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
***Students complete a lab science sequence by selecting University Physics (1017-311, 312, 313), General and Analytical Chemistry (1011-215, 216, 217, 205, 206, 227, or General Biology (1001-201, 202, 203, 205, 206, 207). 4003-241, 4003-242, 4003-243 replaced the previous sequence of 4003-231, 232, 233. (If a lab science sequence calls for more than 12 quarter credit hours then science electives are reduced by the corresponding amount.)*
#Any course open to computer science majors may be taken as a free elective subject to restrictions published in the Undergraduate Advising Handbook.
‡The computer science-related electives requirement states that at least two courses are related according to department definitions. The general areas from which related electives may be selected are systems programming, data communications and networks, parallel computing, digital systems design, computer science theory, software engineering, computer graphics, and artificial intelligence. The computer science Undergraduate Advising Handbook has a complete list.
§Related electives may be chosen from any discipline other than computer science or software engineering.

Evening programs

The BS program may be taken on a part-time basis during evening hours. The typical evening student requires approximately 25 quarters for a BS degree (this assumes no previous course work). Students with a strong associate degree in computer science can complete the BS degree requirements in approximately 13 quarters.

Computer Science, BS degree, evening program, typical course sequence

		Qtr. Cr. Hrs.
Computer Science	Problem-Based Introduction to Computer Science 4003-241	4
	Data Structures for Problem Solving 4003-242	4
	Object-Oriented Programming 4003-243	4
	Computer Science 4 4003-334	4
	Professional Communications 4003-341	4
	Software Engineering 4010-361	4
	Computer Organization 4003-345	4
	Introduction to CS Theory 4003-380	4
	Programming Language Concepts 4003-450	4
	Data Communications and Networks I 4003-420	4
	Operating Systems I 4003-440	4
	Computer Science-Related Electives‡	8
	Computer Science Electives	16
Liberal Arts	Liberal Arts*	52
	Wellness Education†	0
Mathematics and Science	Calculus I, II, III 1016-281, 282, 283	12
	Probability 1016-351	4
	Discrete Mathematics 1016-265, 366	8
	Science Electives **	8
	Choose one science sequence§	12
	University Physics 1017-311, 312, 313	
	General and Analytical Chemistry I, II, III 1011-215, 216, 217, 205, 206, 227	
	General Biology 1001-201, 202, 203, 205, 206, 207	
Other	First-Year Experience I (1720-050/051)	2
	Wellness Education†	0
	Free Electives	12
	Related Electives	12
	Cooperative Education (four quarters required)	Co-op
	Total Quarter Credit Hours	***190***

** Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
4003-241, 242, 243 replace the previous sequence of 4003-231, 232, 233.
‡The computer science-related electives requirement states that at least two courses must be related according to department definitions. The general areas from which related electives may be selected are systems programming, data communications and networks, parallel computing, digital systems design, computer science theory, software engineering, computer graphics, and artificial intelligence. The computer science Undergraduate Advising Handbook has a complete list.
§Related electives may be chosen from any discipline other than computer science or software engineering. If a lab science calls for more than 12 quarter credit hours then science electives are reduced by the corresponding amount.

Information Sciences and Technologies

Jeffrey A. Lasky, **Chair**

www.ist.rit.edu

The programs offered by the department of information sciences and technologies prepare graduates to design, build, and deploy systems to meet the information needs of end users in all sectors of society. The department offers programs in information technology and medical informatics.

Information Technology

The role of an IT professional, or information technologist, is diverse and multifaceted. To develop and maintain truly effective systems, information technologists need core competencies in four essential areas: Web design and development and interactive media; database, programming, and application development; networking and system administration, which includes the design, deployment, and security of computing infrastructure; and technology integration and deployment in user communities, including needs assessment, user-centered design, technology transfer, and ongoing support.

The fourth competency area is the defining expertise for information technology professionals. To design and develop the best possible systems, professionals must see the world through the users' eyes and learn about what user communities need to contribute to organizational goals and success. This requires skills in information gathering, user-centered design, and effective deployment practices in organizations with differing user environments and cultures, as well as strong communication and people skills.

These core competencies provide a foundation for developing greater depth in specialized concentration areas. Students must choose two concentrations from the following: website development, database technology, game design and development, interactive multimedia development, network and system administration, learning and performance development, medical informatics, and advanced application development. In addition, with department permission, students can create a special-topics sequence for one of their two concentrations. Most students select advanced technical courses for developing a deep competency in one or two of the specialization areas. Other students choose a broader path to prepare for general IT practitioner jobs, which are prevalent in virtually every enterprise.

When first introduced in 1992, RIT's BS degree program in information technology was the first such program in the world, and was the only undergraduate program of its kind in the United States for several years thereafter. RIT was a founding member of the Association for Computing Machinery's Special Interest Group for IT Education. In 2005, RIT's IT program became the first information technology program to become accredited by the Computing Accreditation Commission of ABET, Market 111 Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700. In sum, RIT has been the leader in defining information technology as an academic discipline, and our program provides students with unrivaled career preparation as well as with a strong foundation for pursuing graduate studies.

Cooperative education

The program requires students to complete three quarters of cooperative education. Students may begin their co-op requirement after completing all second-year academic requirements. A typical schedule might include cooperative education in the summer quarter following the second year and in the spring and summer quarters of the third year.

Part-time study

The AAS and BS degrees in information technology are available on a part-time basis. Courses in these programs are available during the day and in the evening to accommodate those who work. The typical evening student requires approximately 12 quarters to complete all the course requirements for an associate-level degree and approximately 23 quarters for a BS degree (this assumes no previous course work). Students with a strong associate degree may be able to complete the BS degree requirements in 12 quarters.

Information technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 4002-201	1
	Introduction to Multimedia: The Internet and the Web 4002-320	4
	Programming for Information Technology I, II, III 4002-217, 218, 219	12
	Cyber Self-Defense 4050-220	4
	Discrete Math for Technologists I, II 1016-205, 206	8
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Computer System Fundamentals 4050-350	4
	Network Fundamentals 4050-351	4
	Interactive Programming 4002-331	4
	Introduction to Database and Data Modeling 4002-360	4
	HCI 1: Human Factors 4002-425	4
	Data Analysis I 1016-319	4
	Liberal Arts*	12
	Lab Science Elective	8
	Free Elective	4
Third and Fourth Years	Cooperative Education (3 quarters required after year two)	Co-op
	Needs Assessment 4002-455	4
	HCI 2: Interface Design and Development 4002-426	4
	Technology Transfer 4002-460	4
	IT Concentration Courses‡	24
	Liberal Arts*	12
	Free Electives	20
	General Education Electives	18
	Data Analysis II 1016-320	4
	Total Quarter Credit Hours	***181***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Two three-course concentrations are required. Concentrations include website development, interactive multimedia development, game development, network and system administration, database, learning and performance technology, advanced application development, and special topics. A six-course Web-database integration track also is available.

Information technology, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Multimedia: The Internet and the Web 4002-320	4
	Programming for Information Technology I, II, III 4002-217, 218, 219	12
	Cyber Self-Defense 4050-220, 221	4
	Algebra and Trigonometry 1016-204	4
	Discrete Math for Technologists I, II 1016-205, 206	8
	Liberal Arts*	12
Second Year	Interactive Programming 4002-331	4
	Computer System Fundamentals 4050-350	4
	Network Fundamentals 4050-351	4
	Introduction to Database and Data Modeling 4002-360	4
	HCI 1: Human Factors 4002-425	4
	IT Electives	8
	Lab Science Electives	8
	Liberal Arts*	8
	Free Elective	4
	Wellness Education†	0
	Total Quarter Credit Hours	***92***

** Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Medical Informatics

Nicolas A. Thireos, Program Director

www.medinfo.rit.edu

The BS degree in medical informatics is one of only a few programs in the United States that responds to the increasing use of computers in every aspect of heath care as well as biomedical research and education. Developed by the college's departments of computer science and information technology in partnership with the College of Science, the program gives students training in the medical sciences, computer science, and information technology, with an emphasis on clinical applications. The program trains students to develop computer applications for the solution of clinical problems and to provide computing support to medical practice, medical research, and education. ABET does not accredit programs in this field.

Students can choose one of two tracks: computer science, for those interested primarily in developing computer software for medicine; or information technology, for those interested in providing computer support for clinical information systems, databases, networks, and Web applications.

Students consult with faculty advisers to tailor their academic programs to individual career goals. Upper-level electives prepare graduates for specialized employment opportunities within medical informatics, for graduate school in the sciences or computer science/information technology, or for postgraduate professional school.

Cooperative education

A minimum of two academic quarters of co-op is required after the completion of the second year of study. Co-op allows students to gain relevant, hands-on work experience in the medical informatics field, provides students with the opportunity to apply their classroom knowledge in real-life situations, and gives students the chance to network with professionals in the field before they graduate. Students will alternate quarters of academic study with quarters of paid employment, starting with the summer between the second and third years. These experiences enhance students' education and make them more valuable to prospective employers.

Optional premedical track

Medical informatics is also a premedical program. Those students interested in applying to medical, dental, or veterinary school after graduation should follow the computer science track or the information technology track but should replace some of the computing courses with physics and organic chemistry. For more information, contact the program director, Nicolas Thireos, at (585) 475-6511, or e-mail at natvkm@rit.edu.

Accelerated dual degree option

The college offers an accelerated dual degree option enabling students to earn a BS degree in medical informatics and an MS degree in computer science with one additional year of study. Students must declare their intention to pursue the MS degree by their third year of undergraduate study.

Requirements for the BS in medical informatics

Students must meet the minimum requirements of the university as described in this bulletin and, in addition, complete the requirements contained in this program. Transfer students may be required to take additional course work, depending on the program they have studied at their previous school. Specific requirements will be determined by the department for each transfer student.

Medical informatics, BS degree, typical course sequence, computer science track

		Qtr. Cr. Hrs.
First Year	Computers in Medicine 4006-230	4
	Introduction to Medical Informatics 4006-240	4
	Computer Science 4003-231, 232, 233	12
	Introduction to Multimedia: Web 4002-320	4
	Medical Terminology 1026-301	3
	Project-Based Calculus 1016-281, 282	8
	Discrete Mathematics 1016-265	4
	Liberal Arts*	8
	Freshman Seminar 4002-201	1
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Developing Medical Applications 4006-310	4
	The Electronic Health Record 4006-410	4
	Medical Informatics Seminar 4006-345	1
	Computer Science 4 4003-334	4
	Database Concepts 4003-485	4
	Medical Database Architectures 4006-420	4
	General Biology I, II, III 1001-201, 202, 203	9
	General Biology Lab 1001-205, 206, 207	3
	Probability and Statistics 1016-351	4
	Liberal Arts*	4
	Free Elective	4
Third Year	Medical Application Integration 4006-430	4
	Computer Organization 4003-345	4
	Data Communication and Networks 4003-420	4
	Software Engineering 4010-361	4
	Computing Elective	4
	Anatomy and Physiology 1026-350, 360	10
	Diagnostic Medical Imaging 1026-205	2
	Liberal Arts*	8
	Free Elective	4
	Wellness Education†	0
	Cooperative Education 4002-499	Co-op
Fourth Year	Computing Electives	12
	General and Analytical Chemistry 1011-215, 216, 217	10
	General and Analytical Chemistry Lab 1011-205, 206, 227	3
	Liberal Arts*	16
	Free Elective	4
	Cooperative Education 4002-499	Co-op
	Total Quarter Credit Hours	184

**** Please see Liberal Arts General Education Requirements for more information.***
† Please see Wellness Education Requirement for more information.

Medical informatics, BS degree, typical course sequence, information technology track

		Qtr. Cr. Hrs
First Year		
	Computers in Medicine 4006-230	4
	Introduction to Medical Informatics 4006-240	4
	Programming for Information Technology 4002-217, 218, 219	12
	Introduction to Multimedia: Web 4002-320	4
	Medical Terminology 1026-301	3
	Algebra for Management 1016-225	4
	Discrete Math for Tech 1016-205, 206	8
	Liberal Arts*	8
	Freshman Seminar 4002-201	1
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0

Second Year	Developing Medical Applications 4006-310	4
	The Electronic Health Record 4006-410	4
	Medical Informatics Seminar 4006-345	1
	Database and Data Modeling 4002-360	4
	Fundamental Data Modeling 4002-461	4
	Medical Database Architectures 4006-420	4
	General Biology I, II, III 1001-201, 202, 203	9
	General Biology Lab 1001-205, 206, 207	3
	Data Analysis 1016-319	4
	Liberal Arts*	4
	Free Elective	4
Third Year	Medical Application Integration 4006-430	4
	Information Technology Electives	8
	Computer System Fundamentals 4050-350	4
	Network Fundamentals 4050-351	4
	Anatomy and Physiology 1026-350, 360	10
	Diagnostic Medical Imaging 1026-205	2
	Liberal Arts*	8
	Free Elective	4
	Wellness Education†	0
Fourth Year	Information Technology Electives	12
	General and Analytical Chemistry 1011-215, 216, 217	10
	General and Analytical Chemistry Lab 1011-205, 206, 227	3
	Liberal Arts*	16
	Free Elective	4
	Cooperative Education 4002-499	Co-op
	Total Quarter Credit Hours	*184*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Interactive Games and Media Department

***Andrew Phelps,* Chair**

www.igm.rit.edu

The study of media-centric computing has recently emerged as a unique academic discipline that focuses on creating new technology as a means of expression and as a tool for the conveyance of message. Students entering our programs typically arrive with questions such as: How can I create video games? How can I build experiences/entertainment I can share with others online? Can I impact the ways people communicate with each other online? How can I express myself with a computer?

The degree programs in the interactive games and media department are designed to look for new ways of using games, multimedia, and social connections for a wide range of applications and uses. The programs focus on more than just the technology; they emphasize the systems used to drive message and deliver content. Our goal is to create highly technical applications and installations to create meaningful, memorable, and entertaining experiences.

The department offers two degree programs. The BS in game design and development, which focuses on entertainment software and related areas such as simulation, visualization, and interactive software development, and a BS in new media interactive development, which explores a wide range of media computing topics in tandem with its partner programs in new media located within the College of Imaging Arts and Sciences. ABET does not accredit programs in these areas at this time.

Laboratories

Students in interactive games and media have access to specialized facilities within the department, as well as campus-wide resources. The game design and development laboratory offers students a state-of-the-art facility designed in consultation with industry leaders at major game development companies. Stocked with hardware from Alienware®, and a plethora of development packages, and the latest 3D animation software, this laboratory is a premier facility of its kind. The department offers access to the new media laboratory, which is specifically designed around workflow issues for multi-disciplinary teams, and features software that was provided to the lab through our status as an Adobe® Education Developer Partner.

Game Design and Development

Andrew Phelps, Chair

www.igm.rit.edu

The BS in game design and development allows students to explore the entertainment technology landscape, as well as related areas, while pursuing a broad-based university education. The program has its technical roots in computing and information sciences. Simultaneously, students explore the breadth of development processes through involvement in topics such as game design, design process, and animation.

The program focuses on development while meeting the industry need for developers who will be involved in the design process from inception through completion. The degree is for students who aspire to careers within the professional games industry or a related field such as simulation, edutainment, or visualization. It focuses on producing graduates who understand the technical roots of their medium, the possibilities that creative application of software development affords, and the way in which their industry operates. This degree also provides students with a core computing education that prepares them for graduate study in a number of computing fields and for employment in more general computing professions.

Program overview

The program is a four-year undergraduate program in which students complete a core of required course work and then pursue advanced studies that can be customized to individual interests and career goals. In addition, all students complete general education requirements in the liberal arts, social sciences, mathematics, and laboratory sciences. Students can further customize their experience through both general education electives and free electives.

In particular, the program integrates strong programming skills, which are mandatory in the game development field, with game design and collaborative skills essential to success in the games industry, where multifaceted professionals are in high demand to work on game development teams.

Cooperative education

Students are required to complete three quarters of cooperative education in this program. Co-op students have found work in the games industry and related domains, both regionally and nationally, at companies both large and small. Co-op gives students real-world experience, which gives them an edge when applying for jobs after graduation.

The design of this program had considerable input from leaders in the games industry. Companies want employees who can work in interdisciplinary teams, and they actively recruit our graduates into the games industry.

Game design and development, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar in Game Design and Development 4080-201	1
	Game Software Development I, II, III4080-221, 222, 223	12
	Introduction to Interactive Media 4080-295	4
	Algebra and Trigonometry 1016-204	4
	Discrete Math for Technologists I, II 1016-205, 206	8
	College Physics I, II 1017-211, 212	8
	Liberal Arts*	12
	Wellness Education†	0
	First-Year Enrichment 1720-050, 052	2
Second Year	Interactive Digital Media 4080-330	4
	Introduction to Database and Data Modeling 4002-360	4
	2D Animation for Interactive Media 4080-346	4
	3D Modeling and Animation for Interactive Media 4080-347	4
	Introduction to Website Design 4080-309	4
	Fundamentals of Game Design and Development I, II 4080-380, 381	8
	Data Structures and Algorithms for Game Design and Development I 4080-387	4
	Networking Essentials 4050-210	4
	Analytic Geometry 1016-228	4
	Liberal Arts*	8
Third and Fourth Years	Cooperative Education‡	Co-op
	Visual C++ for Programmers 4080-417	4
	Programming for Digital Media 4080-434	4
	HCI1: Human Factors 4002-425	4
	Data Structures and Algorithms for Game Design and Development II 4080-487	4
	Advanced Studies**	20
	Liberal Arts*	16
	General Education Electives	18
	Free Electives	12
	Total Quarter Credit Hours	***181***

** Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirements for more information.
‡ Three quarters of cooperative education are required after year two.
*** Five courses chosen from a pool of 16 advanced game design and development electives in areas such as computer graphics programming, multi-user interactivity, animation, artificial intelligence, writing for interactive media, and database/server programming*

New Media Interactive Development

Andrew Phelps, Chair

www.igm.rit.edu

The last decade has seen unprecedented innovation in technologies for communication, computation, interactivity, and delivery of information. New media touches nearly all of us daily through online games, search engines, dynamic and personalized websites, high definition home entertainment, handheld devices, and instant connectivity. Educators, advertising agencies, design studios, and a wide variety of industries use new media to reach target audiences for advertising, entertaining, training, transacting business, and expressing creative ideas.

Two huge underlying factors—Internet connectivity and computer processing—have transformed the media landscape dramatically. New media is dynamic, personalized, and connected. It changes the way we learn, communicate, affiliate, and play. For the world to benefit from these changes there is a need for practitioners who can integrate evolving technologies with creative disciplines.

In a field that is changing rapidly, successful practitioners must have a solid foundation in cutting-edge technologies, a well-honed sense of design, and the skills to put creative ideas into practice. The new media interactive development program has been carefully formulated to provide students with a balanced background in design and technology, and an emphasis on independent problem solving in a constantly evolving field.

Program overview

The BS degree in new media interactive development features core courses; specialty courses in the areas of graphic design, photographic imaging, video, publishing, programming, and interactive games and media; and a senior project that brings together all of the curriculum into a singular project at the conclusion of the academic program.

The senior project tackles real-world new media issues and provides an opportunity for students to hone their skills in collaboration with students from different disciplines in a setting that mirrors current industry practice.

Leaders from the new media industry had considerable input to the design and structure of the program. The course work ensures that students gain experience working on interdisciplinary teams and brings the value of their senior project and cooperative education experiences together to enhance the overall educational experience.

Cooperative education

In addition to the senior project, new media interactive development students are required to complete three quarters of cooperative education. This gives students real-world experience, and an edge when applying for jobs after graduation.

New media interactive development , BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to New Media Interactive Development 4080-229	4
	Introduction to Interactive Media 4080-295	4
	Principles: Imaging for New Media 2009-221	4
	Introduction to Programming for New Media 4080-230	4
	Programming II for New Media 4080-231	4
	Elements of Graphic Design 2009-213	3
	Networking Essentials 4050-210	4
	Introduction to Website Development 4080-309	4
	Wellness Education†	0
	Algebra and Trigonometry 1016-204	4
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
Second Year	Programming for New Media III, IV 4080-333, 334	8
	New Media Studio Electives**	6-8
	Design of the Graphical User Interface 4080-323	4
	New Media Web Technologies I, II 4080-431, 432	8
	Discrete Math for Technologists I, II, 1016-205, 206	8
	Liberal Arts*	12
	Cooperative Education (three quarters required)	Co-op
Third and Fourth Years	New Media Advanced Electives‡	24
	Data Analysis 1016-319	4
	Lab Science Electives	8
	Liberal Arts*	12
	General Education Electives	18
	Free Electives	12
	New Media Team Project I, II 4080-560, 565	8
	Total Quarter Credit Hours	***180-182***

†Please see Wellness Education Requirement for more information.
** Please see Liberal Arts General Education Requirements for more information.*
*** Two courses selected out of a pool of five courses on topics such as animation, video, typography, and game design*
‡Six advanced new media courses forming a track decided by the student, in consultation with his or her adviser

Networking, Security, and Systems Administration

Sylvia Perez-Hardy, Chair

www.nssa.rit.edu

Almost all business enterprises employ and depend on the flow of information, which depends on networks. Servers within networks act as repositories for this information and provide it to end users when needed.

The Internet has elevated the importance of computer networking and system administration. At the same time, the Web has exposed networks and servers, and the enterprises that depend on them, to a new level of security threat. Being able to balance the need for instant information while securing it is a critical need for any business.

Students preparing to enter careers as providers of this technology, or as watchdogs of the information it contains, need skills in many areas, including:

- Computer system design and configuration
- Operating system architecture
- Data communications and networking protocols
- Local area network (LAN) design and implementation
- Routing and switching protocols
- Network services installation, configuration, and protocol design
- Network design and performance
- Server installation, configuration, and performance
- Network and server security
- Computer and network forensics
- Unix and Windows operating systems
- Programming and scripting
- Security audits
- Enterprise systems

Students can choose the BS in applied networking and system administration for an in-depth education in networking/systems administration, or they can select the BS degree in information security and forensics if they choose to specialize in network and computer systems security.

The BS program in applied networking and system administration is fully accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

RIT has been designated a National Center of Academic Excellence in Information Assurance Education by the National Security Agency. More than 90 percent of the curriculum that supports this designation comes from curriculum developed and taught by the NSSA department's faculty.

Applied Networking and System Administration

Networking is the technology of interconnecting multiple computers so that information can flow between them. As the number of computers in the network scales up, the task becomes more difficult, involving design tradeoffs, performance considerations, and cost issues. Applied networking refers to the design, construction, operation, and maintenance of computer networks using off-the-shelf components. This includes activities as simple as cable construction to those as complex as the configuration of services and protocols to enable an entire intranet and the support of that environment.

Systems administration is the installation, configuration, operation, and support of computer systems. This includes the specification and implementation of server hardware and software.

Both areas are concerned with the security and privacy of the information that servers maintain. In today's information-rich environment, servers exist at the heart of a network and often work together to provide services and a central repository for information.

The BS degree in applied networking and system administration is designed to teach students to be the designers, implementers, operators, and maintainers of computing networks and networked systems (both clients and servers). Graduates will evaluate existing networks and computing systems, suggest improvements, monitor such systems for faults, and plan for growth. They work in small- to large-scale companies.

An important goal of the program is to provide students with a level of specialization in this area beyond that provided by information systems or information technology programs. To accomplish this, the program focuses specifically on the network or computing system and overall favors depth over breadth. It is this approach that allows faculty to guide students in their exploration of the technologies.

Program overview

Students must complete 182 credit hours to graduate from the program. Entering freshmen will earn most (if not all) of those credits at RIT. For transfer students, up to two years worth of credits may be transferred from course work completed at previous schools.

The networking and system administration degree contains required core courses and advanced track curriculum. The core includes a programming sequence, competency courses in multimedia and database, and a sequence in user-centered deployment. These are in addition to fundamental courses in computer networking and system administration. In addition to 60 credits of core courses, students will select 20 credits of advanced work.

Advanced study

The advanced track of study for the program requires students to choose five of the following courses:

- 4050-403 Wireless Network Concepts
- 4050-422 System Administration II
- 4050-423 System Administration III
- 4050-519 Network Troubleshooting
- 4050-521 Perl for System Administration
- 4050-530 Telephony Integration
- 4050-550 VoIP Security and QoS
- 4050-540 Network Design and Performance
- 4050-545 Advanced Routing and Switching
- 4050-582 Wireless Ad-Hoc/Sensor Networks
- 4050-590 Large-Scale Systems

Students may also select themed groupings, such as the following:

Network Administration
4050-519 Network Troubleshooting
4050-521 Perl for System Administration
4050-540 Network Design and Performance
4050-545 Advanced Routing and Switching
4050-582 Wireless Ad-Hoc/Sensor Networks

Systems Administration
4050-422 System Administration II
4050-423 System Administration III
4050-521 Perl for System Administration
4050-540 Network Design and Performance
4050-590 Large-Scale Systems

Cooperative education

Students will complete three quarters of cooperative education. Students have found co-op positions in nearly every type of business that requires a computer network or server. These vary from small- or medium-sized businesses to large international companies, from computing-centric organizations (network hardware manufacturers, software services providers) to those that are users of information technology (manufacturing companies, school districts, and the entertainment industry). Co-op gives students real-world experience and an edge when applying for jobs after graduation. Typically, co-ops occur during the summers following the second and third years and during one of the academic quarters in the third year. Students must complete their co-op requirement prior to completing their course work and preferably prior to their senior year.

Part-time study

The program is available on a part-time basis. Courses are available during the day and in the evening to accommodate those who work. The typical evening student requires 26 quarters to complete the BS degree. Please refer to the part-time undergraduate bulletin for more information on this option.

Applied networking and system administration, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to UNIX/Linux Seminar 4050-202	1
	Programming for Information Technology I, II, III 4002-217, 218, 219	12
	Computer System Fundamentals 4050-350	4
	Cyber Self-Defense 4050-220	4
	Introduction to Multimedia: The Internet and the Web 4002-320	4
	College Algebra 1016-204	4
	Discrete Math for Technologists I, II 1016-205, 206	8
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Networking Fundamentals 4050-351	4
Second Year	Scripting in Perl 4050-302	4
	Introduction to Routing and Switching 4050-515	4
	System Administration I 4050-421	4
	Application of Wireless Networks 4050-413	4
	Introduction to Database and Data Modeling 4002-360	4
	Data Analysis 1016-319	4
	Lab Science Electives	8
	Liberal Arts*	12
	Co-op Preparation Seminar 4050-203	1
Third and Fourth Years	Cooperative Education (three quarters required after year two)	Co-op
	Network Services 4050-516	4
	Needs Assessment 4002-455	4
	Technology Transfer 4002-460	4
	Advanced Track Courses‡	20
	Liberal Arts*	12
	Free Electives	20
	General Education Electives	14
	Communication Elective	4
	Wellness Education†	0
	Total Quarter Credit Hours	***182***

** Please see Liberal Arts General Education Requirement for more information.*
†Please see Wellness Education Requirement for more information.
‡A five-course advanced work track is required.

Information Security and Forensics

The scope of computer networks and the span of these systems increases in organizations every day. At the same time, industry and society's dependence on these technologies is growing, as is the creation of damaging software that attacks computing systems and networks. Security has become a major concern. The result is an increased need for people and technologies that can secure information infrastructures and protect them from attack.

The BS degree in information security and forensics produces professionals who understand people and processes. In addition to possessing state-of-the-art knowledge in the preservation of information assets, students will become experts in the identification of computer security vulnerabilities. Students will also understand the forensic requirements needed to prove an attack occurred, identify its origin, assess the extent of the damage or loss of information, and design strategies that ensure data can be recovered.

An important goal of the program is to provide students with a level of specialization in information security and forensics beyond what is provided by more general programs offered in information systems or information technology. RIT accomplishes this by focusing on network and computing system security and forensics. The program favors depth over breadth, affording students sufficient time to explore the issues and technologies of computer and network security.

Program overview

The BS degree in information security and forensics requires students to complete 182 quarter credit hours. For transfer students, some of these credits may be transferred from course work completed at other accredited institutions.

The program features both required core courses and the advanced track. The core includes a programming sequence, an ethics course, a computer networking and system administration sequence, and foundation courses in computer and network security. In addition to 64 credit hours of core courses, students will select one of two advanced tracks for 16 credit hours.

Advanced study

Students will select one of the following two tracks. Before beginning either advanced track, they must successfully complete Ethics in Information Technology (4002-415).

Network and wireless security advanced track

4050-517 Network Forensics and Security
4050-523 Security of Wireless Networks
4050-525 Wireless Ad-hoc and Sensor Network Security
4050-585 Networks and System Security Audits

Computer system security advanced track

4050-422 System Administration II
4050-580 Computer System Security
4050-581 Computer System Forensics
4050-585 Networks and System Security Audits

Cooperative education

Students will complete three quarters of cooperative education. Co-op students have the opportunity to work in a variety of organizations, from small- or medium-sized businesses to large international companies or law enforcement organizations that require computer systems or computer networks. These may be security-centric businesses (law enforcement agencies, security auditors) to users of information technology (manufacturing companies, school districts, health care). Completing a co-op gives students real-world experience and an edge when applying for jobs after graduation. Typically, the first co-op occurs during the summer following the second year. The remaining co-ops may occur during the summer following the third year or during one of the academic quarters in the student's third or fourth years. Students must complete their co-op requirement prior to completing their course work.

Part-time study

The program also is available on a part-time basis. Courses can be completed during the day and in the evening to accommodate those who work, regardless of their schedules. The typical evening student requires 26 quarters to complete the BS degree. Please refer to our part-time undergraduate bulletin for more information on this option.

Information security and forensics, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to UNIX/Linux Seminar 4050-202	1
	First-Year Enrichment 1105-051, 052	2
	Cyber Self-Defense 4050-220	4
	C++ Programming I, II 4002-208, 210	8
	Computer System Fundamentals 4050-350	4
	Network Fundamentals 4050-351	4
	College Algebra 1016-204	4
	Discrete Math for Technologists I, II 1016-205, 206	8
	Liberal Arts*	16
Second Year	Application of Wireless Networks 4050-413	4
	Scripting in PERL 4050-302	4
	Client/Server Programming 4050-212	4
	Information Security Policies 4050-360	4
	Introduction to Routing and Switching 4050-515	4
	System Administration I 4050-421	4
	Cryptography and Authentication 4050-365	4
	Data Analysis 1016-319	4
	Lab Science Electives	8
	Liberal Arts*	8
	Wellness Education†	0
	Co-op Preparation Seminar 4050-203	1
Third and Fourth Years	Cooperative Education (three quarters required after year two)	Co-op
	Introduction to Computer Malware 4050-460	4
	Network Services 4050-516	4
	Ethics in Information Technology	4
	Needs Assessment 4002-455	4
	Advanced Track Courses‡	16
	Liberal Arts*	12
	Free Electives	20
	Communications Elective	4
	General Education Electives	14
	Wellness Education†	0
	Total Quarter Credit Hours	***182***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education for more information.
‡A four-course advanced track is required. Students must complete either the networking security track or the computer system security track.

Software Engineering

James Vallino, Chair

www.se.rit.edu

As software becomes ever more common in everything from airplanes to appliances, there is an increasing demand for engineering professionals who can develop high-quality, cost-effective software systems. RIT has created a unique program that combines traditional computer science and engineering with specialized course work in software engineering.

Students in the software engineering program learn principles, methods, and techniques for the construction of complex and evolving software systems. The program encompasses technical issues affecting software architecture, design, and implementation as well as process issues that address project management, planning, quality assurance, and product maintenance. Upon graduation, students are prepared for immediate employment and long-term professional growth in software development organizations.

An important component of the curriculum is complementary course work in related disciplines. As with other engineering fields, mathematics and the natural sciences are fundamental. In addition, students must complete courses in related fields of engineering, business, or science. Three engineering electives, plus a three-course sequence in an application domain, provide the opportunity to connect software engineering principles to areas in which they may be applied. A required course in economics or finance bridges software engineering with the realities of the business environment.

The liberal arts component of the software engineering program consists of six core courses and a three-course concentration. A required ethics course helps students develop a sense of professionalism and social responsibility in the technical world.

Senior projects in software engineering

One of the hallmarks of RIT's engineering programs is a senior project sequence that each student completes before graduation. Software engineering students take this two-course sequence during the winter and spring quarters prior to graduation. The goal of the course is to have seniors synthesize and apply the knowledge and experience they have gained at RIT and on co-op assignments.

Winter quarter: At the start of the winter quarter, students organize themselves into teams, based on the number and complexity of the projects available. The bulk of the winter quarter is primarily devoted to requirements elicitation and architectural design, but also may include detailed design, prototyping, and even production, depending on the nature of the project. In addition, teams are responsible for assigning specific roles to team members and developing a project plan that includes scheduled, concrete milestones.

Spring quarter: The spring quarter is devoted to tactical issues of development and deployment. It is during this quarter that the careful planning and disciplined design from the winter quarter bear fruit in the construction, integration, testing, and demonstration of a complete system.

Companies and other organizations with challenging technical problems frequently contact software engineering faculty, and in many cases these problems are appropriate for assignment to a senior project team.

Companies and organizations that have sponsored senior projects include Nortel Networks, Northrup Grumman Security Systems, Intel Corp., Webster Financial Group, Primavera Systems, Nokia, IBM Thomas Watson Research, PaeTec Communications, Alstom Signaling Inc., Eastman Kodak Co., RIT Information and Technology Services, Harris Corporation (RF Communications Division), the Air Force Research Laboratory, Excellus Blue Cross Blue Shield, Telecom Consulting Group NE Corp. (TCN), and Videk.

Laboratories

Students in software engineering have access to specialized facilities within the department as well as campus-wide facilities. Equipped with the latest technology, the department's facilities include three student instructional studio labs, a specialized embedded systems lab, and a general users lab. In addition, our freshmen are encouraged to take advantage of the department's mentoring lab. Staffed by advanced software engineering students, the mentoring lab offers our newest students an environment where they can learn from those who have successfully fulfilled most of the program's academic requirements.

Students enrolled in software engineering courses also can use any of the department's 11 team rooms. Equipped with a computer and projector, Ethernet connections, a meeting table, comfortable seating for six and generous whiteboard space, these rooms support the department's commitment to teamwork, both inside and outside the classroom.

Senior software engineering students have unrestricted access to the department's projects lab for the duration of their senior projects. All of these facilities are connected to the campus network and to the Internet.

Cooperative education

Students in the software engineering program must complete four quarters of cooperative education prior to graduation. Students typically begin co-op in their third year of study, alternating academic quarters and co-op blocks. To ensure that co-op is integrated with the academic program, students must complete their final co-op block prior to taking Software Engineering Project I (4010-561).

Software engineering, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 4010-101	1
	Computer Science 1, 2, 3 4003-241, 242, 243	12
	Calculus I, II, III 1016-281, 282, 283	12
	Discrete Mathematics I, II 1016-265, 366	8
	Liberal Arts*	8
	Wellness Education†	0
	First-Year Enrichment I, II 1720-050 052	2
Second Year	Personal Software Engineering 4010-350	4
	Software Engineering 4010-361	4
	Engineering of Software Subsystems 4010-362	4
	Professional Communications 0535-351	4
	University Physics 1 1017-311	4
	Choose one of the following science sequences:	8
	University Physics II, III 1017-312, 313	
	Chemical Principles I, II, and Labs 1011-215, 216 205, 206	
	General Biology I, II, and Labs 1001-201, 202,205, 206	
	Engineering and Statistics 1016-314	4
	Engineering Fundamentals of Computer Systems 0306-340	4
	Introduction to Computer Science Theory 4003-380	4
	Liberal Arts*	8
	Wellness Education†	0
Third, Fourth and Fifth Years	Math/Science Elective**	4
	Software Process and Project Management 4010-456	4
	Engineering Methods for Software Usability 4010-444	4
	Principles of Concurrent Systems 4010-441	4
	Principles of Software Architecture and Design 4010-540	4
	Formal Methods of Specification and Design 4010-420	4
	Software Requirements Engineering 4010-555	4
	Software Engineering Project 1, 2 4010-561, 562	8
	Software Engineering Electives‡	12
	Application Domain Electives§	12
	Engineering Electives#	12
	Free Electives	12
	Liberal Arts*	20
	Cooperative Education (four quarters required)	Co-op
	Total Quarter Credit Hours	***187***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
***Software engineering majors are required to take one 4-credit math/science elective from the following list. The elected course must be taken during or after the year given in parenthesis:*
1011-208 College Chemistry (First Year)
1011-201 General Biology (First Year)
1016-331 Matrix Algebra (Second Year)
1016-365 Combinatorial Mathematics (Second Year)
or
1016-306 Differential Equations (Second Year)
1016-467 Theory of Graphs and Networks (Third Year)
‡ Students must choose three of the following four courses:
4010-442 Principles of Distributed Software Systems
4010-443 Principles of Information Systems Design
4010-450 Software Process and Product Quality
4010-452 Software Testing
4010-556 Agile Software Development
§ Each student must complete a three-course sequence in an application domain related to software engineering. Current domains include industrial and systems engineering, bioinformatics, business applications, computational mathematics, computer security, economics, interactive entertainment, public policy, remote sensing, usability, computer engineering, artificial intelligence, scientific and engineering computing, imaging and publishing technology.
 # Each student must complete three separate or related engineering electives. Choices can be made from software engineering, industrial and systems engineering, computer engineering, and other pre-approved computer science courses. Prerequisites apply.

Kate Gleason College of Engineering

Harvey Palmer, Dean

www.rit.edu/kgcoe

The programs offered by the Kate Gleason College of Engineering prepare students for careers in industry or for graduate study in engineering and related fields. Students develop a strong intellectual foundation for lifelong learning through a balance of course work in the liberal arts, physical sciences, and professional studies. The college offers programs leading to bachelor of science degrees in biomedical, chemical, electrical, computer, industrial, mechanical, and microelectronic engineering. All students participate in a five-year program that integrates the college's comprehensive four-year academic program with five quarters of cooperative education experience.

Our engineering programs are strongly oriented toward mathematics and the physical sciences. The first two years of each program emphasize these subjects to establish a foundation for the applied sciences and engineering subjects that follow in the third, fourth, and fifth years. Students acquire hands-on design experience in their first year, and engineering fundamentals are introduced as early as possible into the curriculum. This helps students develop a strong appreciation for the engineering discipline and to prepare them for meaningful work experience in their first co-op job, which occurs sometime during the third year of study. Advanced courses in the discipline, as well as applications, are taught in the fourth and fifth years.

Each program of study has a full complement of technical and free electives so that students may tailor their educational experiences to address special interests and career goals. In particular, all programs in the college offer the flexibility of pursuing minors in the full range of academic disciplines at RIT, from business to foreign languages to the arts. In their fifth year, all students participate in Senior Design. This course challenges students to work together to find solutions to industry-inspired engineering problems. A distinctive element of the Kate Gleason College is its broad-based, multidisciplinary design initiative that provides the opportunity for teams of students from a variety of disciplines to generate creative and innovative solutions to real-life problems.

In addition to the foundation and engineering courses in each program, students take a variety of other courses that enhance their education. In modern society, engineering decisions are rarely made without considering the ethical and socio-economic impacts. Because the ability to communicate clearly and effectively with others is indispensable to an engineer, a significant portion of each program's curriculum is devoted to the liberal arts. These courses sensitize students to the factors that surround most decision-making situations, improving their ability to communicate with others, making their professional lives more meaningful, and encouraging their positive impact on society.

Goals

The overarching goals of the engineering program are:

- to educate students to be engineering professionals who are highly marketable and will make an immediate impact in the workplace, and
- to provide graduates with the educational foundation needed to succeed in selective graduate programs across the nation.

The Kate Gleason College accomplishes these goals by:

- integrating cooperative education into the program for all students,
- providing a strong foundation in mathematics and science as well as an appropriate balance between liberal arts studies and technical courses,
- establishing an appropriate balance between the engineering design and engineering science components of the program,
- incorporating a strong laboratory component in the program with outstanding laboratory facilities, and
- having a diverse faculty committed to engineering education.

Advances in engineering and technology are occurring at a rapid rate. Our career-oriented programs allow us to respond quickly to these changes, keeping our curriculum current with industry needs.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Faculty

The college's faculty is dedicated to teaching, research, and professional development with an emphasis on student involvement and success. Many faculty members have significant industrial experience that enhances their ability to convey the relevance of the subject matter in multiple contexts. Over 90 percent of the faculty members hold doctoral degrees.

Facilities and resources

The engineering programs of the Kate Gleason College reside in a building complex that includes almost 300,000 square feet of classrooms, machine shops, computer-based design capabilities, and specialized laboratories for teaching and research. Highlights include an integrated circuit design center, computer labs with industry-standard CAD software packages, more than 10,000 square feet of clean-room laboratory space for the fabrication of integrated circuits, a machining and manufacturing center equipped with state-of-the-art computer numerically controlled

(CNC) machinery, and a first-rate engineering design center to teach product development and innovation. The engineering complex offers wireless access throughout.

We take pride in the effectiveness with which engineering practice is integrated into our academic programs. All programs incorporate classroom and laboratory instruction, engineering research projects, and special projects to prepare students for their industrial work assignments or for advanced study in graduate school.

Cooperative education

RIT's cooperative education requirement enhances the knowledge students acquire in the classroom with on-the-job experience. The exposure is invaluable in bringing the engineering discipline to life for students, providing a meaningful context for the abstract concepts that are scrutinized in the classroom. Co-op experiences also acquaint students with the constraints imposed by the industrial environment on the solution of real-life engineering problems and help them decide which career path would be most rewarding. Each student makes co-op employment arrangements with assistance from a co-op coordinator in the Office of Cooperative Education and Career Services.

Students typically begin co-op in their third year of study, at a time when their educational background qualifies them for jobs that require meaningful engineering expertise. Two examples (A and B) of how cooperative education may be integrated into the academic program are shown.

Year		Fall	Winter	Spring	Summer
One and two		RIT	RIT	RIT	—
Three and four	A	RIT	Co-op	RIT	Co-op
	B	Co-op	RIT	Co-op	RIT
Five	A	RIT	Co-op	RIT	—
	B	Co-op	RIT	RIT	—

Accreditation

All of the college's bachelor of science programs are fully committed to achieving and maintaining national accreditation by ABET (Accreditation Board of Engineering and Technology), which is a prerequisite for licensure as a Professional Engineer in many states. In their final quarter of study, all graduating seniors are eligible and encouraged to sit for the Fundamentals of Engineering section of the New York State Professional Engineering examination.

Academic advising

Upon entry into the Kate Gleason College, each student is assigned an adviser who is available for academic advising and career counseling. In addition, the college's Student Services Office provides specialized co-curricular programs and individual counseling to meet students' needs.

Honors program

The Honors program is designed to enrich the academic and professional experiences of some of the best students who apply to RIT. Honors participants have access to distinctive courses, receive special advising within the college, and enjoy privileges such as early registration and access to special housing.

Engineering students enrolled in the Honors program will participate in curriculum that focuses on product innovation for a global economy and strives to educate students about how engineers become leaders who shape the future of our society. Highlights include all-expenses-paid trips to key industry centers. These trips expose students to best practices in the conceptualization, development, design, and manufacture of innovative products from both a domestic and global perspective. Travel destinations have included a variety of major city centers known for their diverse portfolio of engineering companies (e.g., Seattle, San Francisco, Austin, Texas; and Guadalajara, Mexico). In the fourth or fifth year, students may choose to take advantage of a growing number of opportunities for study abroad, co-op placement outside the United States, or a design partnership with students at an international university. Seminars and social events with engineering faculty and advisers round out the program.

Careers

Graduates are well-prepared to enter the workforce and provide immediate value to their employer in the full spectrum of engineering-related jobs, including applied research, product and process development, engineering design, systems engineering, project management, technical marketing, and sales. In addition, an engineering education provides an excellent foundation for continued study in business, law, and medicine. Many of our graduates continue their education, pursuing a master of science, master of engineering or doctor of philosophy degree.

Women and minorities in engineering

The Kate Gleason College is proud of its many co-curricular programs that have helped build a strong sense of community among its students and faculty. Focused on student success, the college's Office of Student Services manages a variety of special programs to enhance the quality of the educational experience for female and minority engineering students. In addition, student chapters of professional organizations such as the Society of Women Engineers, the National Society of Black Engineers, and the Society of Hispanic Professional Engineers offer students opportunities for personal and professional growth.

Writing competency

All students are required to be proficient in writing the English language. This is accomplished through required courses in the liberal arts and through writing requirements established and monitored by individual departments. A passing grade on the college's writing test, administered in the third, fourth, or fifth year, is required for graduation.

Graduate degrees

Programs leading to a master of science degree are offered in computer, electrical, industrial, mechanical, and microelectronic engineering as well as applied statistics. Because many of the courses are offered in the late afternoon and early evening, these programs may be pursued on a full- or part-time basis. In addition, the college offers post-baccalaureate professional programs leading to the master of engineering degree, which emphasizes engineering practice and leadership. Study may be pursued in

industrial engineering, mechanical engineering, engineering management, microelectronics manufacturing engineering, systems engineering, and sustainable engineering. These graduate programs also may be pursued on a full- or part-time basis.

The college also offers a program leading to the master of science degree in materials science and engineering in conjunction with the College of Science, and a dual degree program leading to a BS in engineering and an MS in science, technology, and public policy. This BS/MS program is offered in collaboration with the College of Liberal Arts. Two MS degree programs also incorporate significant study in the E. Philip Saunders College of Business: one in manufacturing leadership and the other in product development.

Engineering Exploration

www.rit.edu/kgcoe/undergrad/undeclared

The engineering exploration option is for students who prefer additional time in which to decide their engineering major. Students may choose a major at the end of the fall, winter, or spring quarter of their first year.

During their first year students take the foundation courses required by all the engineering disciplines. Course work taken as an engineering exploration student will transfer into all engineering programs without any loss of credits toward graduation.

During the fall quarter, engineering exploration students take a one-credit course, Introduction to Engineering (0302-210). This course provides an overview of all seven programs plus the opportunity to learn about the course of study in each program, career opportunities in each of the engineering disciplines and an introduction to the faculty and students of each program. Other career-oriented activities available during the freshman year include participating in small group discussions with faculty and other students, observing classroom presentations of senior engineering design projects, exploring engineering laboratory facilities, and consulting one-on-one with an academic adviser regarding engineering courses.

Engineering exploration option, typical first-year schedule**

		Qtr. Cr. Hrs.
Fall	Calculus I 1016-281	4
	College Chemistry 1011-208	4
	Introduction to Engineering 0302-210	1
	Liberal Arts*	8
	Discovery 1720-050, 051	1
Winter	Calculus II 1016-282	4
	Engineering class of interest	4
	University Physics I 1017-311	4
	Liberal Arts*	4
	Pathways course‡	1
Spring	Calculus III 1016-283	4
	Engineering class of interest	4
	University Physics II 1017-312	4
	Liberal Arts*	4
	Wellness Education†	0
	Total Quarter Credit Hours	*51*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
*** For suggested quarterly schedule, consult with your academic adviser.*
‡ Students are required to complete one Pathways course. Students may choose from Innovation/Creativity (1720-052), Leadership (1720-053), or Service (1720-054). These courses may be completed in the winter or spring quarter.

Biomedical Engineering

Steven Weinstein, Head, Chemical and Biomedical Engineering; Dan Phillips, Director, Biomedical Engineering Program

www.rit.edu/kgcoe/biomedical

Educational objectives

The bachelor of science degree program in biomedical engineering prepares graduates to:

- apply fundamental knowledge, skills, and tools of engineering in a wide variety of biomedical application domains;
- possess a broad education and knowledge of contemporary issues relevant to the practice of the biomedical engineering profession;
- engage in lifelong learning as a means of adapting to change, refining skill level, and remaining aware of professional and societal issues;
- communicate effectively as individuals and within and across teams;
- accept the professional and ethical responsibilities to function as a biomedical engineer in society;
- work as engineering professionals in the private or public sector; and
- enter graduate education programs and obtain advanced degrees, if desired.

Program

Biomedical engineers are intimately involved in the development of devices and techniques to address health-state issues. Such development is inherently a multidisciplinary endeavor requiring expertise from a wide range of professionals, and in particular engineers from the classical disciplines such as chemical, electrical, and mechanical engineering. This is true whether in industrial, research, or clinical settings. A fully successful multidisciplinary team must have at least one member who possesses a comprehensive understanding of the highly variable and intricate nature of the biomedical system of interest. This team member must possess the quantitative and analytical engineering skills needed to precisely define the challenge that is being addressed and assess the relative effectiveness of plausible solution strategies. This crucial role can be performed effectively by a biomedical engineer expressly educated to meet those requirements and qualifications.

The BS degree program in biomedical engineering delivers a focused curriculum that targets the biomedical enterprise from a highly quantitative and analytically rigorous perspective. The goal is to enable participants to compete successfully for engineering-related positions immediately upon graduation or to pursue post-graduate education in engineering, science, or medicine. Undergraduates will have the ability to contribute significantly to the development of new knowledge, understanding, and innovative solutions in the health care industry and across a wide variety of health-care-related research applications.

Curriculum

Biomedical engineering is a five-year program consisting of the following course requirements: biomedical engineering core (74 credit hours), professional technical electives (12 credit hours),

science and mathematics (62 credit hours), liberal arts (36 credit hours), free electives (12 credit hours), wellness education and First-Year Enrichment (2 credit hours), and 50 weeks of cooperative employment experience. The program culminates in the fifth year with a two course multidisciplinary design sequence, a capstone design experience that integrates engineering theory, principles, and processes within a collaborative environment that bridges engineering disciplines.

Biomedical engineering, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Discovery Biomedical Engineering 0310-051	1
	Pathways course‡ 1720-052	1
	Biomedical Engineering Seminar 0310-181	1
	Introduction to Biomedical Engineering I, II, 0310-182, 183	2
	General Chemistry I, II, III 1011-215, 216, 217	10
	General Chemistry Lab I, II, III 1011-205, 206, 227	3
	University Physics I, II and Labs 1017-311, 312	10
	Calculus I, II, III 1016-281, 282, 283	12
	Liberal Arts*	12
	Wellness Education†	0
Second Year	Functional Anatomy and Lab 0310-200	4
	Engineering Analysis I 0310-250	4
	Mechanics of Bio Systems and Lab 0310-320	4
	Thermo I: Single Component 0310-310	4
	Biomaterials Science and Lab 0310-370	4
	Bio E&M and Lab 0310-330	5
	Fluid Mechanics I 0309-320	4
	Multiple Variable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Cell & Molecular Bio for Eng I, II and Lab 1004-240, 241	8
	Biocompatibility and the Immune System 1004-242	3
	Wellness Education†	0
Third Year	System Physiology I, II and Labs 0310-410,411	8
	BME Signals and Analysis and Lab 0310-440	5
	Engineering Analysis II 0310-450	4
	Probability and Statistics for Eng I, II 0307-361, 362	8
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
Fourth Year	System Physiology III and Lab 0310-412	4
	Biomedical Device Engineering 0304-646	4
	DOE for BME 0307-420	4
	Dynamics and Control of Biomedical Systems 0310-550	5
	Professional Technical Elective	4
	Liberal Arts*	8
	Free Elective	4
	Cooperative Education (2 quarters)	Co-op
Fifth Year	Multidisciplinary Design I, II 0309-591, 592	8
	Professional Technical Electives	8
	Liberal Arts*	8
	Free Electives	8
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***198***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Students are required to complete one Pathways course. Students may choose from Innovation/Creativity (1720-052), Leadership (1720-053), or Service (1720-054). These courses may be completed in the winter or spring quarter.

Concentrations

Biomedical device and system design
Students will develop the ability to propose and assess innovative ideas and understand the type of analysis and assessment tools that are key elements in the process of developing robust designs. Constraints on such designs are safe and efficient devices, systems, and processes for biomedical applications. This represents a need in industrial, research, and clinical environments, and includes developments which are therapeutic, rehabilitative, and research oriented in nature.

Biomedical signal processing
Biological systems are inherently complex and are composed of processes, mechanisms, and phenomena that interact, often in parallel and across a wide range of scales and environments. The ability to determine key aspects of those systems for biomedical applications requires a rigorous and in-depth capability to detect, process, and interpret signals that can be extracted and measured, often in the midst of noise and confounding information. Producing reliable information that can be used to assess or understand available signals.

Physiological modeling, dynamics and control
Homeostasis is fundamentally a feedback process. Generally, biological systems contain a myriad of interrelated and interacting feedback systems that are inherently non-deterministic in nature and usually have a variety of optimal or satisfactory operating points. If the goal of a therapeutic or rehabilitative system or intervention is to predict the outcome of some intended action, then it becomes essential to accurately model the behavior of the relevant characteristics of the targeted system. This type of analysis can be used to support fundamental research as well as help provide guidance to develop a new device or system. A concentration in this area builds on the core elements of the curriculum as well as an understanding, from a systems perspective, of human physiology.

Biomaterials
An important feature of materials intended for biomedical applications is their compatibility with the environment in which they are employed. This presumes a solid knowledge and understanding of a wide variety of biologically compatible materials. Similarly, the dynamic behavior of the materials in response to stress, strain, and wear must often be assessed in terms of efficacy, safety, and durability. Useful and rigorous modeling, as well as the design and evaluation of material performance, requires a strong foundation in physics, chemistry, and mathematics (including statistics) along with an understanding of appropriate and accurate analysis methods. Courses for this type of work are provided in the core curriculum of the program. However, electives that provide additional expertise in this area (e.g.: material science, probability and statistics, chemistry and chemical engineering) may be obtained by selecting the biomaterials concentration.

Chemical Engineering

Steven Weinstein, Head

www.rit.edu/kgcoe/chemical

Educational objectives

The bachelor of science degree in chemical engineering prepares students to:

- apply fundamental knowledge, skills, and tools of chemical engineering in a wide variety of application domains;
- possess a broad education and knowledge of contemporary issues relevant to the practice of the chemical engineering profession;
- engage in lifelong learning as a means of adapting to change, refining skill level, and remaining aware of professional and societal issues;
- communicate effectively as individuals within and across teams;
- accept the professional and ethical responsibilities to function as a chemical engineer in society; and
- work as engineering professionals in the private or public sector or enter graduate programs to obtain advanced degrees, if desired.

Program

Chemical engineering is the branch of engineering that applies the core scientific disciplines of chemistry, physics, biology, and mathematics to transform raw materials or chemicals into more useful or valuable forms, invariably in processes that involve chemical change. All engineers employ mathematics, physics, and engineering art to overcome technical problems in a safe and economical fashion. Yet, it is the chemical engineer alone who provides the critical level of expertise needed to solve problems in which chemical specificity and change have particular relevance. In research and development, chemical engineers not only create new, more effective ways to manufacture chemicals, they also work collaboratively with chemists to pioneer the development of high-tech materials for specialized applications. Chemical engineers have made well-known contributions, among them: the development and commercialization of synthetic rubber, synthetic fiber, pharmaceuticals, and plastics. Chemical engineers contribute significantly to advances in the food industry, alternative energy systems, semiconductor manufacturing, and environmental modeling and remediation. The breadth of scientific and technical knowledge inherent in the chemical engineering curriculum encourages some to describe the chemical engineer as the "universal engineer." Indeed, this breadth explains why chemical engineers excel in leading multidisciplinary teams. Moreover, the special focus within the discipline on process engineering cultivates a "systems perspective" that makes chemical engineers extremely versatile and capable of handling a wide spectrum of technical problems.

Students graduating from the BS program in chemical engineering will have a firm and practical grasp of engineering principles and underlying science associated with traditional chemical engineering applications, and will also learn to tie together phenomena at the nano-scale with the behavior of systems at the macro-scale. While chemical engineers have always excelled at analyzing and designing processes with multiple length scales, modern chemical engineering applications require this knowledge to be extended to the nano-scale, and our program addresses this emerging need.

Curriculum

The chemical engineering BS degree is a five-year program consisting of the following course requirements: chemical engineering core (76 credit hours), professional technical electives (12 credit hours), science and mathematics (60 credit hours), liberal arts (36 credit hours), free electives (12 credit hours), wellness education and First-Year Enrichment (2 credit hours), and 50 weeks of cooperative education.

The core of the program consists of 23 courses, which provide students with a solid foundation in engineering principles and their underlying science. The program culminates in the fifth year with 20 weeks of multidisciplinary design, a capstone design experience that integrates engineering theory, principles, and processes within a collaborative environment that bridges engineering disciplines. Students also choose three professional technical electives to form a concentration in one of five key application domains: biomedical, alternate energy systems, advanced materials, semiconductor processing, and environmental issues. Other concentration areas are also possible with the guidance of a faculty adviser, and can be chosen to reflect current societal needs and student interest. Students choose professional technical electives from a department-approved list of courses offered throughout the university in addition to those offered by the chemical engineering department.

Rounding out the program are courses in mathematics and science, which help to develop students' knowledge of science and its significance in the field of chemical engineering. Free electives provide students the opportunity to choose additional course work to enhance a personal or professional interest, and liberal arts courses help to develop students' broader understanding of society, the humanities, and the arts.

Cooperative education is a key component of the chemical engineering program. The 50-week requirement is met with five co-op blocks of 10-week duration. These full-time, paid experiences enable students to apply what they've learned in the classroom to real work scenarios. Students will also have the chance to network with professionals in the field and learn in a hands-on environment.

Chemical engineering, BS degree, typical course sequence**

		Qtr. Cr. Hrs.
First Year	Discovery Chemical Engineering 0309-051	1
	Pathways course‡ 1720-052	1
	Chemical Engineering Insights I, II, III 0309-181, 182, 183	3
	General Chemistry I, II, III 1011-215, 216, 217	10
	General Chemistry Lab I, II, III 1011-205, 206, 227	3
	University Physics I, II and Labs 1017-311, 312	10
	Calculus I, II, III 1016-281, 282, 283	12
	Wellness Education†	0
	Liberal Arts*	8

Second Year	Chemical Process Analysis 0309-230	4
	Thermo I: Single Component 0309-310	4
	Thermo II: Multiple Component 0309-410	4
	Fluid Mechanics I, II 0309-320, 420	8
	Math Tech for Chemical Engineers 0309-301	3
	Organic Chemistry I, II 1013-431, 432	6
	Organic Chemistry Lab I, II 1013-435, 436	2
	Multiple Variable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Wellness Education†	0
	Liberal Arts*	12
Third Year	Reaction Engineering I, II 0309-340, 440	8
	Heat Transfer 0309-421	4
	Mass Transfer Operations 0309-330	4
	Chemical Engineering Principles Lab 0309-391	2
	Math Tech for Chemical Engineers II 0309-302	2
	University Physics III and Lab 1017-313	4
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Materials Science 0304-344	4
	System Dynamics and Controls 0309-401	4
	Micro-scale Phenomena 0309-450	4
	Analysis of Micro-scale Processes 0309-550	4
	Chemical Engineering Processes Lab 0309-392	2
	Professional Technical Elective	4
	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
Fifth Year	Multidisciplinary Design I, II 0309-591, 592	8
	Design with Constraint 0309-590	4
	Professional Technical Electives	8
	Free Electives	12
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***198***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
*** For suggested quarterly schedule, consult with your academic adviser*
‡ Students are required to complete one Pathways course. Students may choose from Innovation/Creativity (1720-052), Leadership (1720-053), or Service (1720-054). These courses may be completed in the winter or spring quarter.

The following is a sampling of technical electives available to students.

Biomedical Technical Electives

0304-461 Contemporary Issues in Bioengineering
0304-645 Introduction to Biomaterials
0304-646 Biomedical Device Engineering
0304-756 Aerosols in the Respiratory Tract
0303-732 Biomechanics

Alternate Energy Systems Technical Electives

0304-629 Renewable Energy Systems
0304-633 Sustainable Energy Management and the Built Environment
0304-639 Alternative Fuels and Energy Efficiency for Transportation
0304-710 Fuel Cell Technology

Environmental Technical Electives

1006-202 Concepts in Environmental Science
1006-203 Environmental Science Field Studies
1001-340 General Ecology
0304-460 Contemporary Issues in Energy and the Environment
1001-471 Freshwater Ecology
1001-567 Environmental Microbiology
1015-520 Environmental Chemistry
1015-521 Atmospheric Chemistry
1015-522 Aquatic Toxicology and Chemistry
0304-633 Sustainable Energy Management and the Built Environment
0303-792 Design for the Environment

Advanced Materials Technical Electives

1029-301 Introduction to Polymer Technology
0304-343 Materials Processing
0304-644 Introduction to Composite Materials
0304-645 Introduction to Biomaterials

Semiconductor Processing Technical Electives

0305-350 IC Technology
0305-643 Thin Film Processes
0305-666 Microlithography Materials and Processes

Computer Engineering

Andreas E. Savakis, Head

www.ce.rit.edu

Educational objectives

The computer engineering department has established the following program educational objectives, which describe the accomplishments of its graduates during the first few years following graduation:

Career focus: Graduates successfully contribute to the professional workforce typically by applying their knowledge in various areas of computer engineering related to hardware, software and/or systems.

Graduate study: Many graduates have pursued, are pursuing, or plan to pursue graduate study in computer engineering, related disciplines, or business.

Independent learning: Graduates are engaged in lifelong learning and stay current with advancements in their chosen field through independent learning and/or continuing education.

Professionalism: Graduates conduct themselves in a professional and ethical manner and function as responsible members of society.

Program

The computer engineering program focuses on the design and development of computer and computer-integrated systems, with due consideration to such engineering factors as function, performance, and cost. Computer engineers design and build these systems to meet application requirements with attention to the hardware-software interaction. The program spans topics from formal specifications to heuristic algorithm development; from systems architecture to computer design; from interface electronics to software development, especially real-time applications; and from computer networking to VLSI circuit design and implementation.

As an engineering discipline, computer engineering emphasizes the careful adoption of design methodology and the application of sophisticated engineering tools. The intensive programming and laboratory work requirements ensure significant experience with modern facilities and up-to-date design tools.

The cooperative education program enables students to apply the principles and techniques of computer engineering to real industrial problems and provides them with a stronger framework on which to build their academic courses. These co-op work pe-

riods alternate with academic quarters throughout the last three years of the program.

The faculty members of the computer engineering department are committed to quality engineering education and student success.

The BS program in computer engineering is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Principal field of study

For students matriculated in the interdisciplinary computer engineering program, the principal field of study is defined as all courses taken in the Kate Gleason College of Engineering and the departments of computer science and software engineering.

Computer engineering, BS degree, typical course sequence**

		Qtr. Cr. Hrs.
First Year	Introduction to Computer Engineering 0306-200	1
	Freshman Seminar 0306-201	1
	Introduction to Digital Systems 0306-341	4
	Computer Science I, II, III 4003-231, 232, 233	12
	Calculus I, II, III 1016-281, 282, 283	12
	University Physics I 1017-311	5
	Liberal Arts*	12
	Discovery 1720-050 or 051	1
	Pathways course‡ 1720-052	1
	Wellness Education†	0
	Discrete Math I 1016-265	4
Second Year	Assembly Language Programming 0306-250	4
	Hardware Description Languages 0306-351	4
	Circuits I with Lab 0301-381	4
	Computer Science IV 4003-334	4
	Software Engineering 4010-361	4
	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Linear Algebra I 1016-331	4
	University Physics II, III 1017-312, 313	9
	Liberal Arts*	8
	Wellness Education†	0
Third Year	Computer Organization 0306-550	4
	Digital Systems Design 0306-561	4
	Circuits II 0301-382	4
	Electronics I 0301-481	4
	Applied Programming 0306-381	4
	Operating Systems 4003-440	4
	Engineering Statistics 1016-314	4
	Free Elective	4
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Digital Signal Processing 0306-451	4
	Data and Computer Communications 0306-694	4
	Interface and Digital Electronics 0306-560	4
	Introduction to VLSI Design 0306-630	4
	Senior Design Projects I 0306-654 or 656	4
	Liberal Arts*	8
	Math/Science Elective	4
	Cooperative Education (2 quarters)	Co-op
Fifth Year	Computer Architecture 0306-551	4
	Senior Design Projects II 0306-657 or 659	4
	Professional Electives	8
	Free Electives	8
	Liberal Arts*	8
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	*198*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
*** For suggested quarterly schedule, consult with your academic adviser.*
‡ Students are required to complete one Pathways course. Students may choose from Innovation/Creativity (1720-052), Leadership (1720-053), or Service (1720-054). These courses may be completed in the winter or spring quarter.

Professional electives (partial list)
0306-553 Digital Control Systems
0306-615 Wireless Networks
0306-620 Design Automation of Digital Systems
0306-624 High-Performance Architectures
0306-631 Advanced VLSI Design
0306-632 Low-Power Design
0306-663 Real-Time and Embedded Systems
0306-672 Special Topics in Computer Engineering*
0306-674 Modeling of Real-Time Systems
0306-675 Robotics
0306-676 Robust Control
0306-710 Network Modeling Design and Simulation
0306-722 Advanced Computer Architecture
0306-756 Multiple Processor Systems
0306-758 Fault Tolerant Digital Systems
0306-684 Digital Image Processing Algorithms
0306-685 Computer Vision
0306-699 Independent Study

** Special Topics in Computer Engineering (0306-672) includes: Computational Intelligence, Wireless Communications, Performance Engineering of Real-Time and Embedded Systems.*

Approved upper-level courses from other disciplines may be used as professional electives; e.g., courses from electrical engineering, software engineering, and computer science.

Optional concentrations in computer engineering

Students in the computer engineering program may pursue one of the following optional concentrations by selecting the specified courses as electives:

VLSI Design Concentration
0301-482 Electronics II
Plus two of the following courses as professional electives:
0306-620 Design Automation of Digital Systems
0306-631 Advanced VLSI Design
0306-632 Low-Power Design
0301-726 Mixed Signal IC Design

Embedded Systems Concentration
0306-663 Real-Time and Embedded Systems
Plus two of the following courses as professional electives:
0306-674 Modeling of Real-Time Systems
0306-672 Special Topics: Performance Engineering of Real-Time and Embedded Systems

Networking Concentration
0306-615 Wireless Networks
Plus one of the following courses as a professional elective:
0306-710 Network Modeling, Design, and Simulation
0306-672 Special Topics: Wireless Communications

Robotics Concentration
0306-675 Robotics
Plus the following courses as professional electives:
0306-553 Digital Control Systems
0306-685 Computer Vision
0306-663 Real-Time and Embedded Systems

Image Processing Concentration

The following courses as professional electives:

0306-684 Digital Image Processing Algorithms

0306-685 Computer Vision

and one of the following courses as a free elective:

0306-672 Special Topics: Computational Intelligence

0301-770 Pattern Recognition

0301-803 Digital Video Processing

Additional information on the computer engineering department is available online at www.ce.rit.edu.

Electrical and Microelectronic Engineering

Sohail Dianat, Department Head
Robert Pearson, Director, Microelectronic Engineering
www.rit.edu/kgcoe/electrical

Electrical Engineering

Educational objectives

The electrical engineering faculty, in conjunction with its constituents, has established the following educational objectives for each of its students:

- graduates will practice the profession of engineering using a systems perspective and be able to analyze, design, develop, optimize, and implement complex electrical systems;
- graduates will be able to immediately contribute to industrial, service, and/or government organizations by applying their cooperative educational experiences;
- graduates will be well-prepared for graduate education;
- graduates will possess a broad base of knowledge to draw upon in providing engineering solutions within the appropriate technological, global, societal, ethical, and organizational context.

Program

Electrical engineering addresses the high-technology needs of business and industry by offering a rich academic program that includes analog and digital integrated circuits, digital signal processing, microwave electronics, optical electronics, bioelectronics, radiation and propagation, power electronics, control systems, communications and information theory, circuit theory, computer-aided design, solid-state devices, microelectromechanical systems (MEMs), robotics, and pattern recognition. Our nationally recognized program combines the rigor of theory with the reality of engineering practice.

The program prepares students for exciting careers within the varied electrical engineering and allied disciplines and for positions in business management. Our graduates also have the foundation to pursue advanced study at the most prestigious graduate schools. A degree in electrical engineering from RIT is a stepping stone to entering and changing the future.

The electrical engineering department curriculum, co-op program, and facilities are designed to accomplish the program's educational objectives. Since the ability to design is an essential part of electrical engineering, the student is presented with challenging problems of design in a number of courses beginning with the first hands-on course, Electrical Engineering Practicum (0301-205), in the freshman year.

To strengthen students' applied knowledge in electrical engineering, laboratories are an integral part of many courses. The department offers a number of classes in studio-style lecture labs, where the instructor presents the lecture in a fully instrumented room that allows immediate observation and implementation of important engineering ideas. Many of our alumni report that the college's facilities are comparable to the best in the industry.

The highlight of the applied engineering experience is the senior project. Students work on a challenging project under the tutelage of an experienced faculty adviser. While experiencing the satisfaction of completing an interesting project and exploring the latest in technology, students develop engineering management and project organization skills. They learn to communicate their ideas effectively within a multidisciplinary team and present their project and ideas to a diverse audience of students, faculty, and industrial partners.

The first two years of the curriculum are devoted to establishing a foundation in mathematics and physical science that is essential to the study of electrical engineering. In other courses, students learn about electrical engineering principles such as circuits and digital systems. The practicum courses introduce students to electrical engineering practice and computer-aided design (CAD) tools that are used throughout the five-year program.

In the third and fourth years, students build on this foundation and focus on the subjects that form the core of electrical engineering. Courses in circuits, electronics, linear systems, electromagnetic fields, semiconductor devices, communication systems, control systems, and microelectromechanical systems are taught.

During the fifth year, students specialize in an area of their professional interest. They complete their capstone engineering project, the senior design project, as part of the graduation requirements.

The BS in electrical engineering program is accredited by the EAC Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Electrical engineering, BS degree, typical course sequence**

		Qtr. Cr. Hrs.
First Year	Electrical Engineering Freshman Practicum 0301-205	1
	Digital Systems 0301-240	4
	College Chemistry I 1011-208	4
	Calculus I, II, III 1016-281, 282, 283	12
	University Physics I, II 1017-311, 312	10
	Liberal Arts*	20
	Wellness Education†	0
	Discovery 1720-050, 051	1
	Pathways course‡ 1720-052	1
Second Year	Semiconductor Devices 0301-360	4
	Microcomputer Systems 0301-365	4
	Circuits I, II with Lab 0301-381, 382	8
	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Engineering Mathematics 1016-328	4
	University Physics III 1017-313	4
	Choose one of the following courses:	4
	Restricted Science Elective 0301-370	
	Modern Physics I 1017-314	
	Liberal Arts*	4
	Free Elective	4
	Matlab and C for Electrical Engineers 0301-344	3

Third Year	Linear Systems I, II 0301-453, 554	8
	Electromagnetic Fields I, II 0301-473, 474	9
	Electronics I, II with Lab 0301-481, 482	8
	Complex Variables 1016-420	4
	Free Elective	4
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Probability and Statistics for Engineers 1016-345	4
	Computer Architecture 0301-347	4
	Control Systems Design 0301-514	5
	Communication Systems 0301-534	4
	Digital Electronics 0301-545	4
	Free Elective	4
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
	Individual Design 0301-497	3
Fifth Year	Mechatronics 0301-531	4
	Professional Electives	12
	Senior Design Project I, II 0301-697, 698	8
	Liberal Arts*	4
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	*197*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Students are required to complete one Pathways course. Students may choose from Innovation/Creativity (1720-052), Leadership (1720-053), or Service (1720-054). These courses may be completed in the winter or spring quarter.

Each of the listed professional electives includes significant design experience. For convenience, the courses have been grouped by interest areas. Some courses apply to more than one area.

Professional electives

Electromagnetic Fields and Optics
0301-601 Modern Optics for Engineers

Control Systems
0301-615 State Space Control
0301-636 Biorobotics/Cybernetics
0301-647 Artificial Intelligence
0301-685 Principles of Robotics

Communications
0301-677 Digital Filters and Signal Processing
0301-692 Communication Networks
0301-693 Digital Data Communications

Signal Processing
0301-677 Digital Filters and Signal Processing
0301-679 Analog Filter Design

Digital and Computer Systems
0301-650 Design of Digital Systems
0301-651 Physical Implementation
0301-655 Microcomputer Software I
0301-664 Embedded Microcontroller Systems

Devices and Integrated Circuits
0301-610 Analog Electronic Design
0301-612 Semiconductor Devices III
0301-646 Power Electronics
0301-650 Design of Digital Systems
0301-679 Analog Filter Design

Biomedical
0301-630 Biomedical Instrumentation
0301-631 Biomedical Sensors and Transducers I
0301-632 Fundamental Electrophysiology
0301-633 Biomedical Signal Processing

MEMS
0301-686 Microelectromechanical Devices
0301-688 MEMS System Evaluation

Robotics
0301-636 Biorobotics/Cybernetics
0301-647 Artificial Intel Explore
0301-685 Principles of Robotics

BS in electrical engineering with computer engineering option

The department of electrical engineering offers a bachelor of science degree in electrical engineering with a computer engineering concentration. This is ideal for those who want to be educated within the framework of the traditional electrical engineering program but also would like to incorporate the skills required in designing modern computing systems. Students in this program meet all the requirements for the BS degree in electrical engineering and receive instruction in areas ranging from C programming, object-oriented programming, assembly language, microprocessor interfacing, and logic design to data structures and computer operating systems.

Students pursuing a BS degree in electrical engineering with the computer engineering option must meet all the requirements of the BSEE degree with certain specifications.

The program includes the following computer-specific courses:

- 0301-240 Digital Systems
- 0301-365 Microcomputer Systems
- 0301-346 Advanced Programming for Engineers
- 0301-347 Computer Architecture
- 4003-440 Operating Systems (or equivalent)

One of the two required professional electives must be chosen from the following:

- 0301-650 Design of Digital Systems
- 0301-651 Physical Implementation of ICs
- 0301-655 Microcomputer Software I
- 0301-664 Embedded Microcontroller

BS in electrical engineering with biomedical engineering option

Biomedical engineering has played, and will continue to play, a crucial role in understanding the fundamental principles of human life sciences, especially those related to health care and clinical medicine. Incorporating these findings and principles into practical medical systems and devices requires the expertise of professionals trained in the core engineering disciplines such as electrical engineering. The biomedical engineering option in electrical engineering is designed to provide students with the necessary expertise in the analysis and design of devices and systems used in sensing, control, and analysis of electrical signals within human biological processes. Biomedical engineering is expanding into the nano level of tissue, cell, molecule, and gene studies as well as nanotechnology research. RIT provides the environment to address these studies. The focus of the option is the application of the principles of electrical engineering and related disciplines to the fields of both biology and medicine in clinical and research settings.

The biomedical engineering option augments the foundation

of the electrical engineering curriculum with two courses from the College of Science and two option-specific electrical engineering courses as outlined below.

All courses in the biomedical engineering option have a strong design emphasis and incorporate project-oriented assignments to allow students an opportunity to investigate and demonstrate concepts discussed in class. This option culminates in a biomedical, multidisciplinary, capstone senior design project. Examples of such projects include integrated biosensor design and fabrication, clinical and laboratory instrumentation design, telemedicine, and telemetry applications and equipment, including Internet-enabled monitoring and health-care delivery systems. These projects typically involve university-wide interaction with departments in the Kate Gleason College, the College of Science, the College of Imaging Arts and Sciences, and the B. Thomas Golisano College of Computing and Information Sciences, as well as a close affiliation with Rochester-area hospitals.

Students pursuing a BS in electrical engineering with the biomedical engineering option must meet all the requirements of the BSEE degree with certain specifications. The program includes the following biomedical-specific courses:

- 0301-630 Biomedical Instrumentation
- 0301-632 Fundamental Electrophysiology
- 1026-355 Physiology and Anatomy I
- 1026-365 Physiology and Anatomy II

One of these required professional electives must be chosen:

- 0301-631 Biomedical Sensors and Transducers I
- 0301-633 Biomedical Signal Processing

BS in electrical engineering with robotics option

The department of electrical engineering offers a BS degree in electrical engineering with a robotics option that is ideal for those who want to be educated within the framework of the traditional electrical engineering program but also want to incorporate the theoretical and practical skills required in designing robots and robotics devices. Robotics is coming into everyday life with social and financial implications. Robots and robotic devices become a part of our daily life as a robotic cleaner or a robotic toy. Students in this option receive instructions in areas from advanced programming, robotics systems, principles of robotics, and advanced robotics. Students in the robotics option are introduced to robotics systems in their third year and experience designing components of a mobile robot. In the fourth year, they study principles of robotics covering kinematics and dynamics of robotics manipulators, mobile robots, locomotion types, and complete experiments using various arm and mobile robots. In the final year, they take an advanced robotics course where they study dynamics of manipulators, dynamics of mobile robots with advance locomotion techniques, and path planning.

Students pursuing a BS degree in electrical engineering with the robotics engineering option must meet all the requirements of the BS degree with certain specifications. The program includes the following robotics-specific courses:

0301-346 Advanced Programming for Engineers
0301-585 Robotics Systems
0301-685 Principles of Robotics

One of the two required professional electives must be:

0301-895 Advanced Robotics

Microelectronic Engineering

Semiconductor microelectronics technology remains important for the world economy. The semiconductor industry is a star performer in U.S. manufacturing. Fostering a vigorous semiconductor industry in our country is important for the nation's economic growth, long-term security, and the preparation and maintenance of a capable high-tech workforce. The Kate Gleason College of Engineering developed the first bachelor of science degree program in microelectronic engineering in the U.S., and the college continues to provide highly educated and skilled engineers for the semiconductor industry.

Educational objectives

Our constituents include students, graduate schools, faculty, and the semiconductor industry. The educational objectives of the microelectronic engineering program are to produce graduates who have the following skills or characteristics:

- A sound knowledge of the fundamental scientific principles involved in the operation, design, and fabrication of integrated circuits;
- A comprehensive understanding of relevant technologies such as integrated circuit process integration and manufacturing. This includes microlithography, and the application of engineering principles to the design and development of current and future semiconductor technologies.
- A professional approach to problem solving, using analytical, academic, and communication skills effectively, with special emphasis on working in teams;
- An enthusiasm for learning and the continuous improvement of skills throughout one's career, exemplified by learning about emerging technologies and adapting to and accepting change within the field;
- A desire to achieve leadership positions in industry or academia;
- A breadth of knowledge, including the multidisciplinary nature of microelectronic engineering, as well as the broad social, ethical, safety, and environmental issues within which engineering is practiced.

Program

One of the great challenges in integrated circuit manufacturing is the need to draw on scientific principles and engineering developments from such an extraordinarily wide range of disciplines. The design of microelectronic circuits requires a sound knowledge of electronics and circuit analysis. Optical lithography tools, which print microscopic patterns on wafers, represent one of the most advanced applications of the principles of Fourier optics. Plasma etching involves some of the most complex chemistries used in manufacturing today. Ion implantation draws upon understanding from research in high-energy physics. Thin films on semiconductor surfaces exhibit complex mechanical and electrical behavior that stretches our understanding of basic materials properties.

Scientists and engineers who work in the semiconductor field need a broad understanding of and the ability to seek out, integrate, and use ideas from many disciplines. This ABET-accredited, five-year program provides the broad interdisciplinary

background in electrical and computer engineering, solid-state electronics, physics, chemistry, materials science, optics, and applied math and statistics necessary for success in the semiconductor industry.

The curriculum begins with introductory courses in microelectronic engineering and microlithography (micropatterning) for integrated circuits. The first two years of the program build a solid foundation in mathematics, physics, and chemistry. The fundamentals of statistics and their applications in the design of experiments, semiconductor device physics and operation, and integrated circuit technology are covered in the second year. This prepares students for their first cooperative education experience. The third year comprises the electrical engineering course work necessary for understanding semiconductor devices and integrated circuits. The fourth and fifth years are dedicated to VLSI design, optics, microlithography systems and materials, semiconductor processing, professional electives, and a two-quarter capstone senior project. In the capstone course, students propose and conduct individual research/design projects and present their work at the Annual Microelectronic Engineering Conference, which is organized by the department and well-attended by industrial representatives.

A choice of professional electives and the senior project offer students an opportunity to build a concentration within this unique interdisciplinary program, such as advanced CMOS, VLSI chip design, analog circuit design, electronic materials science, microelectromechanical systems (MEMS), or nanotechnology. Three free elective courses are built into the program to allow students a minor program in any other discipline.

Computing skills are necessary to design, model, simulate, and predict processes and device behavior that are vital to manufacturing. A comprehensive knowledge of statistics is required to manipulate data and process control. As the devices shrink in size, approaching the nanoscale regime where molecular and atomic scale phenomena come into play, elements of quantum mechanics become important.

Important issues such as the technology road map, ethics, societal impact, and global perspectives are built into the program beginning with first-year courses. The program is laid out in a way that keeps students connected with their home department throughout the course of study.

Students gain hands-on experience in the design, fabrication, and testing of integrated circuits (microchips), the vital component in almost every advanced electronic product manufactured today. RIT's undergraduate microelectronics engineering laboratories, which include modern integrated circuit fabrication (clean room) and test facilities, are the best in the nation. At present, the program is supported by a complete complementary metal oxide semiconductor line equipped with diffusion; ion implantation; plasma; and chemical vapor deposition (CVD) processes; chemical mechanical planarization; and device design, modeling, and test laboratories. The microlithography facilities include Canon i-line and GCA g-line wafer steppers, and a Perkin Elmer MEBES III electron beam mask writer.

Students participate in the required co-op portion of the program after completing their second year of study. Microelectronic engineering co-op students work for many of the major integrated circuits manufacturers across the United States. Upon graduation, students are well-prepared to enter the industry or graduate school. This program also prepares students to work in emerging technologies such as nanotechnology, microelectromechanical systems, and microsystems.

With the worldwide semiconductor industry growing at an astounding pace, RIT graduates are a valuable resource to the industry. This program offers students an unparalleled opportunity to prepare for professional challenges and success in one of the leading modern areas of engineering. Faculty committed to quality engineering education, state-of-the-art laboratories, strong industrial support, co-op opportunities with national companies, and smaller class sizes make this one of the most value-added programs in the nation.

The BS in microelectronic engineering program is accredited by the EAC Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Microelectronic engineering, BS degree, typical course sequence**

		Qtr. Cr. Hrs.
First Year	Introduction to Microelectronics 0305-201	4
	Introduction to Micro/Nano Lithography 0305-221	4
	College Chemistry I 1011-208	4
	Calculus I, II, III 1016-281, 282, 283	12
	University Physics I, II 1017-311, 312	10
	Introduction to Digital Systems 0306-341	4
	Liberal Arts*	12
	Wellness Education†	0
	Discovery 1720-050, 051	1
	Pathways course‡ 1720-052	1
Second Year	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Engineering Mathematics 1016-328	4
	University Physics III 1017-313	4
	Modern Physics 1017-314	4
	Matlab and C 0301-344	3
	Semiconductor Devices I 0305-460	4
	Statistics for Engineers 0307-315	4
	Design of Experiments 0305-320	4
	Integrated Circuit Technology 0305-350	4
	Circuits 0301-381	4
	Free Elective	4
	Wellness Education†	0
Third Year	Circuit Analysis II 0301-382	4
	Principles of Electromagnetic Fields 0305-515	4
	Free Elective	4
	Electronics I, II with Labs 0301-481, 482	8
	Semiconductor Devices II 0305-560	4
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Optics for Microelectronics 0305-525	4
	Silicon Processes 0305-632	4
	Microlithography Systems with Lab 0305-563, 573	4
	VLSI Design 0305-520	4
	Thin Film Processes 0305-643	4
	Linear Systems 0301-453	4
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
Fifth Year	CMOS Processing Lab 0305-650	4
	Microlithography Materials and Processes with Lab 0305-666, 676	4
	Senior Design Project I, II 0305-681, 691	6
	Two Professional Electives	8
	Free Elective	4
	Liberal Arts *	8
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	*197*

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
‡ Students are required to complete one Pathways course. Students may choose from Innovation/Creativity (1720-052), Leadership (1720-053), or Service (1720-054). These courses may be completed in the winter or spring quarter.

Professional electives (partial list)

0305-704 Semiconductor Process and Device Modeling
0305-705 Quantum and Solid State Physics for Nanostructures
0305-706 SiGe and SOI Devices and Technology
0305-707 Nanoscale CMOS and Beyond
0305-714 Micro/Nano Characterization
0305-732 Microelectronics Manufacturing II
0305-830 Metrology for Yield and Failure Analysis
0306-561 Digital System Design
0306-631 Advanced VLSI Design
0301-726 Analog IC Design
0301-730 Advanced Analog IC Design
0305-870 Microelectromechanical Systems

Graduate-level courses from other related engineering, mathematics, or science disciplines may be used as professional electives with the permission of the academic adviser and course instructor. (See the Graduate Bulletin for descriptions.)

Accelerated dual degree option

An accelerated dual degree (BS/MS) option is available for electrical engineering students. Enrollment in this program requires the successful completion of at least 232 quarter credit hours. After completing this requirement, the student is awarded the BS and MS degrees simultaneously. Students may apply to this program in the second quarter of their second year, providing that a minimum cumulative grade point average of 3.4 has been obtained at the end of the previous quarter. Although admission requirements are stricter for this program, graduation requirements are consistent with university policies.

The first three years of the program are identical for the BSEE and the combined BS/MS program, with the exception of the work period between the second and third years being used to earn early cooperative education credit. Additional information can be obtained from the department of electrical engineering at (585) 475-2165. A typical fourth- and fifth-year program sequence follows.

Electrical engineering, BS/MS option, typical course sequence**

		Qtr. Cr. Hrs.
First Year-Third Year†		133
Fourth Year	Engineering Statistics 1016-314	4
	Computer Architecture 0301-347	4
	Liberal Arts*	4
	Communication Systems 0301-534	5
	Matrix Methods in Electrical Engineering 0301-703	4
	Control Systems Design 0301-514	5
	Digital Electronics 0301-545	4
	Random Signals and Noise 0301-702	4
	Professional Electives	12
	Thesis 0301-890	2
	Cooperative Education (1 quarter)	Co-op
Fifth Year	Graduate Courses	20
	Mechatronics 0301-531	4
	Professional Electives	4
	Senior Design I, II 0301-697, 698	8
	Liberal Arts*	8
	Thesis 031-890	7
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***227***

** Please see Liberal Arts General Education Requirements for more information.*
***For suggested quarterly schedule, consult with your academic adviser.*
Note: Two of the professional electives will be counted twice, once toward the BS degree and once toward the MS degree. The free elective will be replaced by a graduate course for the BSEE.
†The first three years of the program are identical to the first three years of the BS program in electrical engineering.

Accelerated dual degree options

BS/MS premedical/biomedical

This option prepares the student for a career in electrical engineering/medical science. Upon successful completion, students will receive a BS and MS degree in electrical engineering and be prepared to apply to medical school. This is a rigorous academic curriculum, and the student must maintain very high academic standing to be eligible for admission to medical school. Students must meet with a premed adviser to understand the program requirements.

BS/MS analog and mixed signal

The analog and mixed-signal BS/MS accelerated dual degree option in electrical engineering introduces the student to a broad range of subject material considered essential for a career in analog circuit design. It emphasizes the actual design and fabrication of complex analog and mixed-signal integrated circuits. Digital and analog signal processing principles are presented in a coordinated design environment.

BS/MS material science

Many areas of endeavor within electrical engineering require an understanding of materials-related issues. This BS/MS option offers a grounding in both areas. Students earn a BS degree in electrical engineering and an MS degree in materials science and engineering. Graduates will have a significantly stronger background in the materials engineering associated with emerging devices, circuits, and systems in addition to the design and applications knowledge gained from the electrical engineering curriculum. Furthermore, students will be better prepared for graduate research and the possibility of entering RIT's doctorate program in microsystems engineering.

BS/MS microelectronic engineering and material science

A cross-disciplinary dual degree BS/MS degree option between two colleges is available in the microelectronic engineering program. Students may work to earn a BS in microelectronic engineering from the Kate Gleason College of Engineering and an MS in materials science and engineering from the College of Science.

This unique program was inspired by trends involving convergence of advanced materials with nanofabrication and microelectronics in modern microdevices and systems. The five-year option requires the successful completion of 225 credits, with a minimum of 45 graduate course credits and a graduate thesis. One co-op quarter is substituted for the graduate course work to

make it an accelerated five-year option requiring a minimum of 13 quarters of academic course work. A student may apply for admission to this option in the fall quarter of the third year with a grade point average of at least 3.0 at the end of the previous quarter.

Microelectronic engineering materials science and engineering, BS/MS option, typical course sequence**

		Qtr. Cr. Hrs.
First Year	Same as BS (Microelectronic Engineering)	52
Second Year	Same as BS (Microelectronic Engineering)	49
Third Year	Same as BS (Microelectronic Engineering)	32
Fourth Year	Optics for Microelectronics 0305-525	4
	Microlithography Systems and Lab 0305-563, 573	4
	Silicon Processes 0305-632	4
	Thin Film Processes 0305-703	4
	VLSI Design 0305-520	4
	Free Elective	4
	Liberal Arts*	8
	Cooperative Education (1 quarter)	Co-op
	Introduction to Materials Science 1028-701	4
	Introduction to Theoretical Methods 1028-704	4
	Introduction to Experimental Techniques 1028-705	4
	MSE Graduate Elective	4
Fifth Year	CMOS Processing Lab 0305-650	4
	Microlithography Materials and Processes with Lab 0305-666 , 721	3
	Senior Design Project I, II 0305-381, 691	6
	Free Elective	4
	Liberal Arts*	8
	Solid State Science 1028-703	4
	Introduction to Polymer Science 1028-702	4
	MSE Graduate Elective	4
	MSE Research 1028-879	8
	MSE Seminar/Defense 1028-890	1
	Total Quarter Credit Hours	*225*

** Please see Liberal Arts General Education Requirements for more information.*
***For a suggested quarterly schedule, please consult with an academic adviser.*

Industrial Engineering

Jacqueline R. Mozrall, Head

www.rit.edu/kgcoe/ise/

Educational objectives

The industrial and systems engineering faculty, in conjunction with its constituents, has established the following educational objectives for the industrial and systems engineering program:

Systems integrators—Graduates will draw upon broad knowledge to develop integrated systems-based engineering solutions that include the consideration of realistic constraints within contemporary global, societal, and organizational contexts.

Life-long learners—Graduates will develop engineering solutions using the skills and knowledge acquired through formal education and training, independent inquiry, and professional development.

Graduate education—Graduates will successfully pursue graduate degrees.

Engineering professionals—Graduates will work independently as well as collaboratively with others and demonstrate leadership, accountability, initiative, and ethical and social responsibility.

Program

With rapidly changing work environments, students need a well-rounded education that will allow them to apply engineering principles to new situations.

Industrial engineers design, optimize, and manage the process by which products are made and distributed across the world (i.e., global supply chain) or the way services are delivered in industries such as banking, health care, or entertainment. Industrial engineers ensure that high-quality products and services are delivered in a cost-effective manner.

Industrial engineering is ideal for those who enjoy both technology and working with people. Industrial engineers frequently spend as much time interacting with other engineers and product users as they do at their desks and computers. Typical computer work involves developing applied simulations of processes to evaluate overall system efficiency.

A degree in industrial engineering offers graduates a significant opportunity for a flexible long-term career. Employers have consistently praised the quality of RIT's industrial engineering graduates, noting that the range of their abilities includes both strong technical knowledge and communication skills. Graduates have used their technical base as a springboard to careers in management, consulting, manufacturing, sales, medicine, law, and teaching.

Because of the flexible nature of the program, the industrial engineering student can gain breadth of knowledge in many different areas of industrial engineering, including, but not limited to, information systems, lean production, quality, distribution/logistics, and sustainable design and development. Students may choose free and professional electives for this purpose. The industrial and systems engineering faculty are committed to high-quality engineering education as well as the program's educational objectives.

The industrial engineering curriculum covers the principal concepts of engineering economics and project management, facilities planning, human performance, mathematical and simulation modeling, production control, applied statistics and quality, and contemporary production processes that are applied to solve the challenges presented by the global environment and economy of today. The curriculum stresses the application of contemporary tools and techniques in solving engineering problems.

As described by the Institute of Industrial Engineers on the organization's website:

"Industrial engineering (IE) is about choices. IE gives you the opportunity to work in a variety of businesses. The most distinctive aspect of industrial engineering is the flexibility that it offers: shortening a rollercoaster line, streamlining an operating room in a hospital, distributing products worldwide, or manufacturing superior products.

"As companies adopt management philosophies of continuous productivity and quality improvement to survive in the increasingly competitive world market, the need for industrial engineers is growing. Why? Industrial engineers function as productivity and quality improvement specialists.

"Industrial engineers figure out how to do things better. They engineer processes and systems that improve quality and productivity. They work to eliminate waste of time, money, materials, energy and other commodities. Most important of all, industrial engineers save companies money. This is why more and more companies are hiring industrial engineers and then promoting them into management positions."

Industrial engineers are "big-picture" thinkers, much like systems integrators. IEs spend most of their time out in the work environment, using scientific approaches to solve today's problems while they develop solutions for the future.

The BS in industrial engineering program is accredited by the EAC Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Accelerated dual degree options

The ISE department offers accelerated dual degree (BS/MS and BS/ME) options, where select students may complete a BS and an MS or ME in industrial engineering in five years. An arrangement with the E. Philip Saunders College of Business allows for an accelerated BS/MBA option. For more information, contact the ISE department at (585) 475-2598, or visit their website.

Facilities

The industrial and systems engineering department of the Kate Gleason College is located in the James E. Gleason Building. The department houses several state-of-the-art laboratories, including the Brinkman Machine Tools and Manufacturing Lab, the Metrology and Rapid Prototyping Lab, the Toyota Production Systems Lab, the Human Performance Lab, the Advanced Systems Integration Lab, the Sustainable Engineering Research Group (SERG) Lab, and the Print Research and Image Systems Modeling (PRISM) Lab. Ample computing facilities reside within each of these specialized labs, as well as a dedicated PC computer lab. These labs offer an extensive library of software to support industrial engineering course work, project work, and research, including conventional word processing, spreadsheet, and presentation applications (e.g., Microsoft Office), database management (e.g., Microsoft ACCESS), data acquisition (e.g., Lab View), statistical analysis (e.g., Minitab, SAS), facilities layout (e.g., AutoCad, Factory Flow, Factory Plan, LayoutIQ), manufacturing (e.g., MasterCam Cambridge Engineering Selector Software), optimization (e.g., ILOG OPL-CPLEX, LINDO, KNITRO, AMPL, GUROBI, Mathematica), systems simulation software (e.g., Solver, Arena, Promodel), and lifecycle assessment and costing tools (e.g., SimaPro, CES Eco-Audit).

Careers

In order to optimize processes and systems, industrial engineers apply their knowledge in a wide range of areas, including systems simulation modeling, quality, logistics and supply chain management, ergonomics and human factors, facilities layout, production planning and control, manufacturing, management information systems, and project management. Upon graduation, our students work for a wide array of companies, including Boeing, IBM, Toyota, Xerox, Intel, General Electric, Hershey, Walt Disney World, Ortho-McNeil Pharmaceutical, Lockheed Martin, and Wegmans, to name a few.

Balance, as well as specialization, has allowed our graduates to pursue varied paths. Examples of the diversity, along with the roles in which an industrial engineer might function, are reflected in the following list of sample industrial engineering co-op assignments.

In manufacturing industries:

- Perform product life studies
- Lay out and improve work areas
- Design production processes to improve productivity
- Investigate and analyze the cost of purchasing new vs. repairing existing equipment
- Investigate delivery service, including scheduling, route modification, and material handling
- Create computer programs to track pricing policies and truck scheduling
- Perform downtime studies of various operations using time study and work sampling
- Develop and computerize a forecasting model
- Perform ergonomic studies and evaluations of workstations and product designs
- Participate in the design process of products and processes to ensure ease of manufacture, maintenance, and remanufacture or recycling

In service industries:

- Design information systems
- Monitor safety and health programs
- Manage hazardous and toxic materials storage and disposal programs
- Manage a facility's projects to ensure they are completed on time and on budget
- Conduct cost analysis of procedures to support decision making
- Schedule operations and manage information flow
- Design supply-ordering systems
- Improve processes in a hospital
- Evaluate waiting time and space utilization in an amusement park

Industrial engineering, BS degree, typical course sequence **

		Qtr. Cr. Hrs.
First Year	Fundamentals of Industrial Engineering 0303-201	4
	Computer Tools for Increased Productivity 0303-204	2
	College Chemistry 1011-208	4
	Calculus I, II, III 1016-281, 282, 283	12
	University Physics I, II 1017-311, 312	10
	Materials Processing 0303-343	3
	Liberal Arts*	16
	Discovery Industrial Engineering 0303-051	1
	Pathways course‡ 1720-052	1
	Wellness Education†	0
Second Year	Mechanics I 0304-331	3
	Mechanics II 0304-332	3
	Multivariable Calculus 1016-305	4
	Computing for Engineers 0303-302	4
	Differential Equations 1016-306	4
	Matrix Algebra 1016-331	4
	University Physics III 1017-313	4
	Human Biology II 1004-212	3
	Materials Science 0304-344	4
	Free Elective	4
	Liberal Arts*	12
	Wellness Education†	0
Third Year	Liberal Arts*	4
	Engineering Economy 0303-520	4
	Introduction to Operations Research 0303-401	4
	Probability and Statistics I, II 0307-361, 362	8
	Ergonomics 0303-415	4
	Engineering Management 0303-481	4
	Systems and Facilities Planning 0303-422	4
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Applied Statistical Quality Control 0303-510	4
	Applied Linear Regression Analysis 0303-511	4
	Production Control 0303-402	4
	Systems Simulation 0303-503	4
	Human Factors 0303-516	4
	Design and Analysis of Production Systems 0303-526	4
	Professional Elective	4
	Liberal Arts*	4
	Cooperative Education (2 quarters)	Co-op
Fifth Year	Advanced Systems Integration 0303-630	4
	Multidisciplinary Senior Design I, II 0303-560, 561	8
	Professional Electives	12
	Free Electives	8
	Cooperative Education (1 quarter)	Co-op
	Total Quarter Credit Hours	***198***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Students are required to complete one Pathways course. Students may choose from Innovation/Creativity (1720-052), Leadership (1720-053), or Service (1720-054). These courses may be completed in the winter or spring quarter.

Professional electives (partial list)
A full listing of electives can be found at www.rit.edu/kgcoe/ise. Graduate-level courses, as well as courses from the other engineering disciplines, may be used as professional electives with the permission of the adviser and course instructor.

0303-704 Logistics Management
0303-728 Production Systems Management
0303-732 Biomechanics
0303-734 Safety Engineering
0303-758 Design of Experiments
0303-760 Product and Process Development and Design
0303-761 Rapid Prototyping
0303-790 Fundamentals of Sustainable Design
0303-791 Lifecycle Assessment and Costing
0303-792 Design for the Environment

Mechanical Engineering

Edward C. Hensel, Head
www.rit.edu/kgcoe/mechanical/

Educational objectives
The objectives of the mechanical engineering program are to prepare graduates to:

- practice mechanical engineering in support of the design of engineered systems through the application of the fundamental knowledge, skills, and tools of mechanical engineering;
- enhance their skills through formal education and training, independent inquiry, and professional development;
- work independently as well as collaboratively with others, while demonstrating the professional and ethical responsibilities of the engineering profession; and
- successfully pursue graduate degrees at the master's and/or doctoral levels, should they choose.

Program
Mechanical engineering is perhaps the most comprehensive of the engineering disciplines. The mechanical engineer's interests encompass the design of automotive and aerospace systems, bioengineering devices, and energy-related technologies. The spectrum of professional activity for the mechanical engineering graduate runs from research through design and development to manufacturing and sales. Because of their comprehensive training and education, mechanical engineers often are called upon to assume management positions.

The mechanical engineering department offers professional courses in the areas of bioengineering, energy systems, applied mechanics, manufacturing, materials science, systems analysis, computer-aided graphics and design, robotics, and automotive and aerospace engineering. The department's laboratories are equipped to provide extensive experimentation in these areas. Laboratory facilities include a well-instrumented wind tunnel, a particle imaging velocimetry laser system for flow visualization, advanced heat transfer systems, robotics, a proton exchange membrane fuel cell, engine dynamometers, fluid flow loops, refrigeration systems, tensile testers, compression testers, torsion testers, hardness testers, X-ray diffractometer, atomic force microscope, dynamic system simulators, a spectrum analyzer, and a well-equipped machine shop.

Students have an opportunity to participate in regional and national design competitions such as the Formula SAE Autosports Competition team, the SAE Aerodesign Club, and the Human-Powered Vehicle Competition team. They also are encouraged to participate in the student chapters of professional societies such as the American Society of Mechanical Engineers, the Society of Women Engineers, the National Society of Black Engineers, the Society of Hispanic Professional Engineers, the American Institute of Aeronautics and Astronautics, and the Society of Automotive Engineers.

The program provides students with a broad academic base complemented by hands-on laboratory activities and cooperative education experience. Students devote their first two years to the study of mathematics, physics, chemistry, liberal arts, and

engineering sciences, while the third and fourth years emphasize engineering science, design, and systems.

A student may then specialize by choosing appropriate technical and free elective courses in an area of interest. Each of the listed technical electives includes a significant design project. In the fifth year, each student is required to complete the capstone design courses, Senior Design I and II (0305-630, 631).

The liberal arts component of the mechanical engineering program consists of 36 credit hours of study in accordance with the university's liberal arts general education requirements. In the third year, all students must demonstrate writing competency in the English language by successfully completing a college writing exercise evaluated by faculty from the Institute Writing Committee. For some students, this may require work with the Academic Support Center, the English Language Center, or additional course work in the College of Liberal Arts.

The BS in mechanical engineering program is accredited by the EAC Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Program options

The program offers a number of course options students may select to gain specialized study in a particular discipline of mechanical engineering. Options include aerospace engineering, automotive engineering, bioengineering, and energy and environment. Participation in one of these options is not required. However, they are offered for those students who seek to pursue a career in one of these specialized fields of mechanical engineering. Students must maintain a GPA of at least 2.0 within the option sequence of courses to remain in the option. The degree requires students to complete four technical electives and three free electives.

Students may elect to complete the program without an option and instead customize their academic study in support of their career plans. The mechanical engineering program is relatively flexible and allows students to pursue options, minors, and even multiple degrees.

The aerospace engineering option

The aerospace engineering option allows for specialized study in the engineering aspects of air- and space-borne vehicles and starts with a course introducing students to the aerospace field. The sequence starts in the third year with Introduction to Aerospace Engineering (0304-560), which counts as a free elective. Students who elect the aerospace option must take Aerodynamics (0304-575) in place of Transport Phenomena (0304-550). Students then select three technical electives from courses such as Aerospace Structures (0304-671), Propulsion (0304-678), Introduction to Composite Materials (0304-644), Fundamentals of Fatigue and Fracture Mechanics (0304-754), Control Systems (0304-643), Flight Dynamics (0304-682), and Orbital Mechanics (0304-683. In addition, students choosing this option are expected to work on an aerospace engineering design project in Senior Design I and II (0304-630, 631) and to pursue co-op employment in a related field.

The automotive engineering option

The automotive engineering option offers a series of specialized technical and free elective courses during the fourth and fifth years that provides an introduction to vehicle power plants, dynamics, and control systems. The sequence starts in the third year with Introduction to Auto Design and Manufacturing (0304-540), which counts as a free elective. Students then select three technical electives from courses such as High Performance Vehicle Engineering (0304-622), Powertrain Systems and Design (0304-623), Vehicle Dynamics (0304-624), Design of Machine Systems (0304-638), Internal Combustion Engines (0304-640), Control Systems (0304-643), Fundamentals of Tribology and Lubrication (0304-752), Fuel Cell Technology (0304-710), and Design for Manufacture (0303-801). In addition, students choosing this concentration are expected to work on an automotive senior design project in Senior Design I and II (0304-630, 631) and to pursue co-op employment in a related field.

The bioengineering option

The bioengineering option provides an introduction to engineering sciences and design based upon a foundation of biological sciences. The course sequence starts with a biological science elective, which counts as a free elective. Students then select three technical electives from courses such as Contemporary Issues in Bioengineering (0304-461), and three technical electives chosen from a wide variety of offerings, such as Aerosols in the Respiratory Tract (0304-756), Biomechanics (0304-732), Control Systems (0304-643), Introduction to Biomaterials (0304-645), and Biomedical Device Engineering (0304-646). Students choosing this option are expected to work on a bioengineering design project in Senior Design I and II (0304-630, 631) and to pursue co-op employment in a related field.

The energy and environment option

This option consists of electives that provide students with exposure to a wide range of opportunities and careers associated with energy-intensive systems and how they relate to the environment. This option increases the number of opportunities students have for careers in the fields of building energy systems, alternative and renewable energy, and direct energy conversion. The sequence starts in the third year with Contemporary Issues in Energy and the Environment (0304-460)), which counts as a free elective. Students then select three technical electives from courses such as Renewable Energy Systems (0304-629), Sustainable Energy Management (0304-633), Alternative Fuels and Energy Efficiency (0304-639), Advanced Thermodynamics (0304-680), Fuel Cell Technology (0304-710), and Heating, Refrigeration and Air Conditioning (0304-660). Students choosing this option are expected to work on an energy systems design project in Senior Design I and II (0304-630, 631) and to pursue co-op employment in a related field.

Accelerated dual degree options

Three accelerated dual degree options offer outstanding mechanical engineering students an opportunity to earn bachelor of science and master of science degrees within approximately five years. Two dual degree options are available—a bachelor of science/master of engineering degree (BS/ME), which has a strong career focus for students who plan to seek employment immediately after graduation; and a bachelor of science/master of science degree (BS/MS), which has a strong research focus and is primarily directed toward students who plan to continue their education in the pursuit of a doctoral degree. All students enrolled in the BS/MS options are required to complete a graduate thesis and conduct scholarly research.

The ME department also offers a dual degree option enabling students to earn a BS in mechanical engineering and an MS in science, technology, and public policy. This dual degree option has a public policy research focus and is designed for students interested in using their technical preparation as an engineer to help shape future policy decisions. It is a cliché that technology has become a major driver, perhaps the most important driver, of social, political, and economic change. It follows then that engineers will increasingly shape the direction of those changes, and it is important that engineers understand how their future actions directly and indirectly affect all of our lives.

A student enrolled in the dual degree option is required to successfully complete 230-235 quarter credit hours, after which the BS and MS or ME degrees are awarded simultaneously. A student may apply for admission to this program in the winter quarter of the second year. A transfer student may apply after completing one quarter of study at RIT. Admission is based on a cumulative grade point average of at least 3.4, letters of recommendation from the faculty, and a letter of application from the student. Students are admitted first to the BS/ME option but may change to the BS/MS option upon approval of a thesis proposal. While in the program, students are required to maintain a cumulative grade point average of at least 3.2.

Mechanical engineering, BS degree, typical course sequence**

		Qtr. Cr. Hrs.
First Year	Discovery Mechanical Engineering 0304-051	1
	Pathways course‡ 1720-052	1
	Students will be enrolled in one of the calculus sequences below:	
	Calculus I, II, III 1016-281, 282, 283	12
	Calculus A, B, C 1016-271, 272, 273	
	Chemistry I 1011-208	4
	Materials Processing 0304-343	3
	Liberal Arts*	12
	University Physics I, II 1017-311, 312	10
	Engineering Design Graphics 0304-214	2
	Measurements, Instrumentation, Controls Lab 0304-280	2
	Problem Solving with Computers 0304-342	3
	Wellness Education†	0
Second Year	Science Electives	8
	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Matrices and Boundary Value Problems 1016-318	4
	University Physics III 1017-313	4
	Thermodynamics 0304-413	4
	Fluid Mechanics 0304-415	4
	Statics 0304-336	4
	Mechanics of Materials 0304-347	4
	Mechanics of Materials Lab 0304-348	1
	Dynamics 0304-359	5
	Liberal Arts*	4
	Wellness Education†	0
Third Year	Engineering Statistics 1016-314	4
	Materials Science 0304-344	4
	Cornerstone Design Projects Lab 0304-261	2
	Design of Machine Elements 0304-437	4
	Numerical Methods 0304-440	4
	Heat Transfer 0304-514	4
	Thermal Fluids Lab I 0304-416	1
	Circuits I 0301-381	4
	Liberal Arts*	8
	Cooperative Education (2 quarters)	Co-op
Fourth Year	Advanced Computational Techniques 0304-518	4
	Liberal Arts*	4
	Systems Dynamics 0304-543	5
	Transport Phenomena 0304-550	4
	Thermal Fluids Lab II 0304-551	1
	Cooperative Education (3 quarters)	Co-op
Fifth Year	Technical Electives	16
	Free Electives	12
	Liberal Arts*	8
	Senior Design I, II 0304-630, 631	8
	Total Quarter Credit Hours	***194***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Students are required to complete one Pathways course. Students may choose from Innovation/Creativity (1720-052), Leadership (1720-053), or Service (1720-054). These courses may be completed in the winter or spring quarter.

Elective courses

Technical/Graduate Electives

0304-701 Research Methods (Primarily for BS/MS Students)
0304-730 Design Project Management (Primarily for BS/ME Students)

General Technical Electives

0303-620 Engineering Economy
0304-610 Topics in Mechanical Engineering Design
0304-615 Robotics
0304-618 Computer-Aided Engineering
0304-635 Heat Transfer II
0304-638 Design of Machine Systems
0304-652 Turbomachinery
0304-672 Dynamics of Machinery
0304-658 Engineering Vibrations
0304-745 Micro/Nano Characterization of Materials

Aerospace Technical Electives

0304-644 Introduction to Composite Materials
0304-643 Control Systems
0304-671 Aerostructures
0304-678 Propulsion
0304-682 Flight Dynamics
0304-683 Orbital Mechanics
0304-743 Intermediate Control Systems
0304-754 Fundamentals of Fatigue and Fracture Mechanics

Automotive Technical Electives

0304-622 High Performance Vehicle Engineering
0304-623 Powertrain Systems and Design
0304-624 Vehicle Dynamics
0304-640 Internal Combustion Engines
0304-643 Control Systems
0304-710 Fuel Cell Technology
0304-752 Fundamentals of Tribology and Lubrication
0303-801 Design for Manufacture

Bioengineering Technical Electives

0304-645 Biomaterials
0304-646 Biomedical Device Engineering
0304-756 Aerosols in the Respiratory Tract
0303-732 Biomechanics

Energy and Environment Technical Electives

0304-629 Renewable Energy Systems
0304-633 Sustainable Energy Management and the Built Environment
0304-639 Alternative Fuels and Energy Efficiency for Transportation
0304-640 Internal Combustion Engines
0304-643 Controls Systems
0304-660 Refrigeration and Air Conditioning
0304-680 Advanced Thermodynamics
0304-710 Fuel Cell Technology

Additional technical electives are available outside of the department. Students wishing to complete external technical courses may request departmental approval.

A number of free electives are also available. These courses may NOT be used as technical electives:

0303-520 Engineering Economy
0304-540 Introduction to Automotive Design and Manufacturing
0304-560 Introduction to Aerospace Engineering
0304-461 Contemporary Issues in Bioengineering
0304-460 Contemporary Issues in Energy and the Environment

College of Imaging Arts and Sciences

Frank Cost, Interim Dean

http://cias.rit.edu

The College of Imaging Arts and Sciences includes the schools of Art, Design, American Crafts, Film and Animation, Photographic Arts and Sciences, and Print Media. Students from throughout the United States and foreign countries are enrolled in these six schools. Students in most of the baccalaureate and master's degree programs complete foundation courses for fundamental studio course work and historical grounding in the visual arts.

The School of Art

The School of Art enrolls approximately 250 students in programs leading to the following degrees:

Bachelor of fine arts (BFA) in illustration, medical illustration, and fine arts studio (painting, printmaking, sculpture, new forms)

Master of science for teachers (MST) in visual arts (all grades)

Master of fine arts (MFA) in medical illustration and fine arts studio (painting, printmaking, sculpture, new forms)

The School of Design

The School of Design enrolls more than 650 students in programs leading to the following degrees:

Bachelor of fine arts (BFA) in graphic design, interior design, industrial design, new media design and imaging, and 3-D digital graphics

Master of fine arts (MFA) in computer graphics design, graphic design, and industrial design

The School for American Crafts

The School for American Crafts enrolls more than 120 students in programs leading to the following degrees:

Associate in occupational studies (AOS) in wood

Bachelor of fine arts (BFA) in ceramics, glass, metals, and wood

Master of fine arts (MFA) in ceramics, glass, metals, and wood

The School of Film and Animation

The School of Film and Animation enrolls more than 250 students in programs leading to the following degrees:

Bachelor of science (BS) in digital cinema

Bachelor of fine arts (BFA) in stagecraft, live-action production and animation

Master of fine arts (MFA) in live-action filmmaking with options in production or scripting, animation with options in 2D or 3D aminimation.

The School of Photographic Arts and Sciences

More than 700 students are enrolled in the School of Photographic Arts and Sciences, which offers programs leading to the following degrees:

Bachelor of science (BS) in biomedical photographic communications and imaging and photographic technology

Bachelor of fine arts (BFA) in visual media and professional photographic illustration, with options in advertising photography, photojournalism, and fine art photography

Master of fine arts (MFA) in imaging arts, with concentrations in photography, related media, and museum studies

The School of Print Media

The School of Print Media has approximately 225 students enrolled in the following degree programs:

Bachelor of science (BS) in new media publishing

Master of science (MS) in print media

**AAS degrees in the College of Imaging Arts and Sciences are being discontinued. No new students will be admitted as of September 2010.*

Undeclared options

If students have a passion for the visual arts, but are undecided about which program of study to pursue, they may consider either the undeclared art and design or the undeclared crafts option. Students in the School of Art, School of Design, and the School for American Crafts begin their studies in a Foundation Studies program, which provides them with a broad set of introductory experiences in several areas of the visual arts. Students interested in one of the programs in the School of Art or the School of Design should apply for the Undeclared Art and Design option, while students interested in programs in the School for American Crafts should apply for the Undeclared Crafts option.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Admission to the schools of Art, American Crafts, and Design require a combination of academic performance and creative visual skills that are evaluated via a portfolio review. Faculty will review each student's portfolio to evaluate creative visual skills as well as the potential for success in the student's selected program.

The schools of Photographic Arts and Sciences and Print Media do not require a portfolio for acceptance into their undergraduate programs. However, a portfolio is required if students are requesting the transfer of credits to satisfy program requirements. A portfolio is optional for applicants to the School of Film and Animation.

Visits to campus are encouraged. Students may contact the Office of Undergraduate Admissions for more information about any of the programs featured in the College of Imaging Arts and Sciences to arrange an admission interview or to visit the campus and the college's facilities.

Guidelines for portfolio submission:

1. Portfolios for the schools of Art, American Crafts, and Design will be evaluated on the basis of drawing and design ability, original ideas, and craftsmanship. Portfolios should consist of 10 to 20 digital files of a student's best artwork, saved in a JPEG file format on a CD. There should be a minimum of five samples of drawings made from direct observation. These should include figure, perspective, still life, and object drawing (not copied from photographs, comics or "fantasy"). Other work may include painting, photography, page layout design, two-dimensional design, sculpture, models, mechanical drawings, and marker renderings. The clarity of the digital file is of the utmost importance. Portfolios that do not meet the correct specifications will not be reviewed.

2. All digital files and documents submitted should be clearly labeled. Each digital file should be submitted with the student's last name and a number beginning with two zeros (e.g., smith001.jpg, smith002.jpg) with no spaces. The CD must be labeled with the student's full name, address, phone number, and e-mail address (if available). Please write legibly and directly on the face of the CD with a black or blue permanent marker. Package the finished CD in a plastic case for protection.

3. The CD must be accompanied by a separate sheet of paper listing each work by corresponding number with title, size, media, and assignment. Exhibition/award notations may be included. Make certain to include the student's full name, address, phone number, and e-mail address (if available) on the list.

4. Medical illustration applicants should include at least six samples of natural forms such as shells, figures, or animals rendered in a single medium.

5. School for American Crafts applicants are encouraged to include works produced in the medium of their intended major, if possible. Although portfolios are required, in extenuating circumstances a portfolio waiver can be considered. Contact the School for American Crafts (585) 475-6114, sac@rit.edu, for details/consideration.

6. Portfolios are not required by applicants to the School of Film and Animation but may be submitted. Portfolios are likely to be reviewed in cases where final determination of acceptance must be made between similar academically competitive applicants. Most portfolios will not be reviewed. Applicants must present their best work, and films or videos should total 15 minutes or less in length. A complete work is preferable to a "demo reel." If there are no short works, then a 15-minute excerpt of a longer piece is acceptable.

7. Transfer students in art, design, and crafts should clearly represent their basic foundation experience as well as any advanced or applied work. Students considering transfer should notify RIT at the earliest possible moment. Catalog course descriptions assist in transfer credit evaluation.

8. Digital portfolios will not be returned. It is recommended that students make additional copies of their portfolio CD for their own records.

9. While every precaution is taken to ensure proper handling, the university assumes no responsibility for lost or damaged portfolios.

10. The schools participate in open house programs hosted by RIT's Office of Undergraduate Admissions and selected National Portfolio Days. These events allow for the presentation and review of original work and, for the exceptional portfolio, a means for on-site acceptance of portfolio. For information on National Portfolio Days, call the foundation department at (585) 475-2647. For dates of open houses and general admission information, call the Office of Undergraduate Admissions at (585) 475-6631.

11. For further information on submitting a digital portfolio, please visit our website at http://www.rit.edu/emcs/admissions/application-forms.

Facilities

The College of Imaging Arts and Sciences provides students with specialized laboratories, studios, advanced computer facilities, and a wide range of equipment, placing our college on the cutting edge of technological developments in the career fields of photography, publishing media and printing, film and animation, art, design, and crafts.

The college houses archives, as well as exhibition and display spaces. Exhibitions regularly feature the work of contemporary painters, designers, photographers, illustrators, graphic artists, filmmakers, and faculty and student work. Receptions and a speaker series provide students with the invaluable opportunity to meet and learn from guest artists and professionals. A comprehensive art library and a variety of educational resources are available in RIT's library.

Major college resources available to students include:

- Thirty fully equipped photographic studios;
- More than 20 fully ventilated darkrooms;
- Extensive professional 16mm film and digital video field production equipment, including newly renovated film and animation facilities, 60 digital film editing stations, three animation labs, three stop-motion studios, two sound stages, and prop shop;
- More than $40 million worth of printing and publishing equipment in 17 laboratories;
- Wallace Library, rich in photography, graphic arts publications, and contemporary periodicals in design, arts, crafts for study, and research; ARTstor, an online image collection; and electronic reserve course materials;
- Cooperative efforts with George Eastman House International Museum of Photography and Film, with access to the museum's collections of photography, rare books, motion pictures, and technology;
- Library of the Kodak Research Laboratories;
- The Melbert B. Cary Jr. Graphic Arts Collection, containing more than 20,000 volumes of rare books and additional resources that illustrate fine printing, the history of printing, book design and illustration, papermaking, binding, and other aspects of the graphic arts;
- Bevier Gallery and the School of Photographic Arts and Sciences (SPAS) Gallery, the college's on-campus exhibition spaces;

- Gallery r, the university's off-campus, student-managed contemporary art gallery, is overseen by the School of Art. The gallery actively educates and encourages viewers to examine the relevance of art and cultural exposure in their own lives. Gallery r is an educational laboratory presenting art to the widest possible audience snd maintaining a select collection of student and alumni artwork for on-site consignment and sales.

Cooperative education

Students may participate in cooperative education experiences or internships. Co-op allows students the opportunity to evaluate career goals before making employment decisions, develop insight into their chosen fields, gain professional experience that enhances their resumes, and increase their potential for placement and rapid career advancement after graduation. As part of the student's career exploration, co-op experiences provide an opportunity to observe and perform work directly related to the student's major.

Co-op is required in the School of Print Media and in the bachelor of science programs in the School of Photographic Arts and Sciences. Although co-op is not required in the BFA programs in the schools of Art, Design, American Crafts, Film and Animation, or Photographic Arts and Sciences, many students choose to co-op during the summer quarter to enhance their learning while gaining valuable experience.

While students are responsible for identifying co-op positions, the Office of Cooperative Education and Career Services offers services and resources such as one-on-one job search advice and a Web-based employment database.

Accreditation

All programs offered in the College of Imaging Arts and Sciences are fully accredited and approved by the New York State Department of Education and the Middle States Association of Colleges and Secondary Schools. In addition, the National Association of Schools of Art and Design accredits the BFA and MFA programs in the schools of Art, Design, American Crafts, Photographic Arts and Sciences, and Film and Animation. The School of Design's interior design program is accredited by the Foundation for Interior Design Education Research.

Additional information

Policy regarding student work: RIT assumes the right to make a record of student work for use in the classroom or for promotion. This may entail photography or a variety of electronic imaging/recording.

Attendance regulations: Some of the programs in the college utilize experiential learning as an essential part of the educational program. Therefore, it is imperative that the student regularly attend all classes unless specifically excused for special projects or activities by the instructor. Failure to attend classes or complete assignments will be taken into consideration in grading.

School of Art

Don Arday, Administrative Chair

http://cias.rit.edu/art

The School of Art educates students to be fine artists and illustrators who contribute to their professions, communicate effectively within their disciplines, have a lifelong attitude of inquiry, and make a positive impact on society. The School of Art fulfills this mission through its nationally recognized programs. We promote an innovative educational community that balances expression, imaginative problem solving, aesthetic understanding, critical thinking, and creativity within a studio environment. Gallery r, an art gallery in downtown Rochester operated by School of Art students, solidifies the learning experience by bringing the work of our students to the greater Rochester community.

The educational objectives of the School of Art are to encourage imagination, creative ability, and artistic discrimination; develop the skills essential for professional competence; relate the various arts and help students find the means to enjoy them; and incorporate studies in the College of Liberal Arts for social and cultural growth, inspiring students to make maximum contributions as creative artists and citizens.

Credit requirements

The credit requirements for students admitted in the School of Art's medical illustration, illustration, and fine arts studio programs are as follows:

	Qtr. Cr. Hrs.
Required Major	93–94
Professional Electives	15
Open Electives	21
Liberal Arts	36
General Education	12
Art History	9
Art History/General Education	9
Total Quarter Credit Hours	***183–184***

A freshman kit is suggested for art, design, and craft students; it costs approximately $400. Students are generally responsible for the cost of additional supplies.

Electives*

Students have the opportunity to select electives that enhance their studies or allow them to pursue an area of personal or professional interest. Electives are available in the following areas:

Graphic Design
Illustration
Graphic Visualization
Industrial Design
Interior Design
Fine Arts Studio
Environmental Design
Ceramics
Glass
Metals
Textiles
Woodworking
Introduction to Filmmaking
Still Photography
Imaging Technology

Art History (select three)
Students are required to select three art history electives to broaden their understanding of the historical development of the arts. Art history electives include:

2039-300 History of Design
2039-306 Architecture Interior and Furniture Design I
2039-307 Architecture Interior and Furniture Design II
2039-308 Architecture Interior and Furniture Design III
2039-310 History of Crafts
2039-315 Pre-Columbian Art
2039-316 Florence and Rome 1400-1470
2039-317 Florence and Rome 1470-1520
2039-318 Florence and Rome 1520-1590
2039-320 History of Art Criticism
2039-330 Philosophy in Art
2039-340 Symbols and Symbol Making
2039-355 Latin American Art
2039-360 18th and 19th Century Art
2039-368 Scandinavian Modernism
2039-375 20th Century Art Since 1950
2039-376 Renaissance Painting in Flanders
2039-385 Installation Art
2039-390 Native American Art and Culture
2039-395 Theory and Criticism of 20th Century Art
2039-410 The Art of Art History
2039-415 Thinking About Making
2039-425 Public Art/Public Spaces
2039-430 Dada and Surrealism
2039-433 What Is Post Modernism?
2039-435 Art of the Last Decade
2039-438 Body in Art
2039-440 Conceptual Art
2039-443 Art and Technology: From the Machine Aesthetic to the Cyborg Age
2039-452 Art and Activism
2039-459 Art Central Italy 1250-1400
2039-469 Baroque Rome

**Electives prerequisite: Completion of foundation program or permission of instructor. Additional selections offered as special topics.*
†Required for interior design majors and School for American Crafts wood majors.

Programs

Programs of study offered in the School of Art include illustration, medical illustration, and fine arts studio. Beginning in the second year, students pursue their major course of study. The first year forms the foundation for the major concentration with courses required in drawing and two- and three-dimensional design.

Illustration majors solve communication problems by translating concepts and ideas into images. They study traditional and electronic media and design to prepare themselves for their professional goals.

Fine arts studio serves the student who is interested in a career in the fine arts across a variety of two- and three-dimensional disciplines and media, both traditional and technological. While painting, printmaking, and sculpture are the areas of greatest emphasis, new forms of expression are encouraged through course discipline work.

Medical illustration students learn to provide visual support for communications and instruction in medicine and allied health sciences. Graduating students rely on their course work in biology, anatomy, and art in their professional roles.

Illustration, fine arts studio, and medical illustration, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	**Foundation Studies:**	
	Foundation Vector Imaging 2013-215	1
	Foundation Raster Imaging 2013-216	1
	Freshman Electives	6
	Drawing I, II, III 2013-211, 212, 213	9
	2D Design I, II, III 2013-231, 232, 233	9
	3D Design I, II, III 2013-241, 242, 243	9
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Liberal Arts*	12
	Wellness Education†	0
	Illustration majors:	
	Illustration I 2019-301	3
	Head, Hands, Facial Expressions 2019-306	3
	Digital Illustration I 2019-311	3
	Illustration Techniques I 2019-345	3
	Dimensional Illustration I 2019-361	3
	Studio Electives	9
	Fine Arts Studio majors:	
	Introduction to Fine Arts Drawing 2021-xxx	3
	Introduction to Painting 2021-305	3
	Intermediate Painting 2021-xxx	3
	Figure in Motion 2021-xxx	3
	Introduction to Non-Toxic Printmaking 2021-315	3
	Intermediate Non-Toxic Printmaking 2021-xxx	3
	Introduction to Sculpture 2021-xxx	3
	Intermediate Sculpture 2021-383	3
	Studio Elective	3
	Medical Illustration majors:	
	Digital Illustration I 2019-311	3
	General Biology 1001-201	4
	Human Biology II, III 1004-212, 259	8
	Choose three of the following courses:	9
	Illustration I 2019-301	
	Head, Hands, Facial Expressions 2019-306	
	Zoological and Botanical Illustration 2019-323	
	Illustration Techniques I 2019-345	
	Figure in Motion 2021-xxx	
Third Year	Art History Elective	9
	Studio Electives	6
	Open Elective	3-4
	Liberal Arts*	12
	Illustration majors:	
	Junior-level courses from major concentration	12
	Program Electives	6
	Fine Arts Studio majors:	
	Junior-level courses from Fine Arts Studio I	9
	Sculpture Ideation and Series 2021-471	3
	Figure Studies course	3
	Medical Illustration majors:	
	Human Gross Anatomy 2020-431, 432	8
	Anatomic Figure Drawing 2019-xxx	3
	Anatomic Wet Media Illustration 2020-407	3
	Anatomic Drawing and Illustration 2020-406	3
	Computer Application Anatomic Illustration 2020-408	3
	Anatomic Drawing II	3
	Anatomic Illustration Mixed Media 2020-410	3

Fourth Year	Studio Elective	3
	Open Electives	18-24
	Illustration majors:	
	Illustration Marketing and Business 2019-513	3
	Portfolio Preparation 2019-563	3
	Senior-level courses from major concentration	15
	Fine Arts Studio majors:	
	Business Practices for the Fine Arts 2021-572	3
	Senior-level courses from Fine Arts Studio II	15
	Medical Illustration majors:	
	Advanced Medical Illustration 2020-501	3
	Surgical Drawing and Illustration I 2020-504	3
	Surgical Drawing and Illustration II 2020-505	3
	Computer Animation in Medical Illustration 2020-506	3
	Marketing and Business Practices 2020-507	3
	Medical Illustration Portfolio 2020-508	3
	Total Quarter Credit Hours	*182-186*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

School of Design

Patti Lachance, Administrative Chair

http://cias.rit.edu/design

The School of Design provides quality design education and preparation for professional practice. Our internationally recognized programs educate students to be designers who make valuable contributions to their professions, communicate effectively, maintain a lifelong attitude of inquiry, and make a positive impact on society. Within the School of Design, programs, faculty, and students form an inquisitive and dynamic educational community in which creativity, critical thinking, innovative problem solving, aesthetic understanding, cross-disciplinary study, professionalism, and social responsibility are explored, cultivated, and promoted.

Programs

The School of Design offers BFA degree programs in graphic design, interior design, industrial design, new media design and imaging, and 3D digital graphics. All of these programs integrate major courses, studio and open electives, the liberal arts, and art/design history. Computer skills, design perspectives, career preparation, and exposure to the related areas of publishing, photography, engineering, and information technology are integrated into the curriculum.

Our faculty members bring a variety of experiences and expertise to the curriculum. Students have the opportunity to supplement their academic experience with participation in internships, guest speaker presentations, seminars, field trips, and student chapters of professional organizations.

The school maintains memberships in a variety of professional organizations, including Industrial Designers Society of America, ACM Siggraph, Society of Environmental Graphic Designers, American Society of Interior Designers, American Institute of Architects, ICOGRADA, American Institute of Graphic Arts, and International Interior Design Association.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Transfer credits from accredited institutions are evaluated on a course-by-course basis. These credits are awarded on the basis of a required portfolio review and courses related to the major with a grade of C or better (see portfolio guidelines). A summer transfer program or series of summer courses and workshops may be required.

Electives

Students can take a variety of electives at the university. Studio/professional electives are offered within the college. Open electives are universitywide, including within this college.

Credit requirements

The credit requirements for students admitted to School of Design programs are as follows:

Graphic Design	**Qtr. Cr. Hrs.**
Major (including freshman core)	92
Studio Electives	18
Open Electives	18
Liberal Arts	36
General Education Electives	9
Design and Art History	18
Wellness Education†	0
First-Year Enrichment	2
Total Quarter Credit Hours	***184***

Industrial Design	**Qtr. Cr. Hrs.**
Major (including freshman core)	90
Studio Electives	18
Open Electives	9
Liberal Arts*	36
General Education Electives	9
Design and Art History	18
Wellness Education†	0
First-Year Enrichment	2
Total Quarter Credit Hours	***182***

Interior Design	**Qtr. Cr. Hrs.**
Major (including freshman core)	93
Studio Electives	18
Open Electives	9
Liberal Arts*	36
General Education Electives	9
Design and Art History	18
Wellness Education†	0
First-Year Enrichment	2
Total Quarter Credit Hours	***185***

New Media Design and Imaging	**Qtr. Cr. Hrs.**
Major (including freshman core)	107
Studio Electives	6
Open Electives	6
General Education Electives	9
Liberal Arts*	36
Design and Art History	18
Wellness Education†	0
First-Year Enrichment	2
Total Quarter Credit Hours	***184***

3D Digital Graphics	**Qtr. Cr. Hrs.**
Major (including freshman core)	67
Professional Electives	46
Open Electives	18
General Education Electives	9
Liberal Arts*	36
Design and Art History	6
Wellness Education†	0
First-Year Enrichment	2
Total Quarter Credit Hours	***184***

**Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Graphic Design

Graphic design is the study and practice of communicating ideas and information through printed, environmental, and digital presentations. Typography and images are integrated to express messages that interest, inform, and persuade intended audiences. With the addition of visual movement, navigation, and sound,

digital presentations also are developed. Using research, critical thinking, creativity, and a range of problem-solving principles, graphic designers solve complex visual communication problems within the constraints of time, space, budget, and technology. Areas of study include publication design, signage and environmental design, corporate identity, interactive media, packaging design, and information design.

Graphic design, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year (Foundation Studies)	Foundation Studies:	
	Freshman Elective	2
	Vector Imaging 2010-216	2
	Raster Imaging 2010-211	2
	Drawing I, II, III 2013-211, 212, 213	9
	2D Design I, II 2013-231, 232	6
	3D Design I, II, III 2013-241, 242, 243	9
	Elements of Graphic Design 2010-301	3
	Design Survey 2015-222	2
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Typography I 2010-302	3
	Introduction to Time-Based Design 2010-313	3
	Typography II 2010-401	3
	Imagery in Design 2010-402	3
	Studio Electives	9-12
	Liberal Arts*	12
	Wellness Education†	0
Third Year	History of Graphic Design 2010-471	3
	Art History Electives**	6
	Symbol and Icon Design 2010-403	3
	Design for Publications 2010-404	3
	Information Design 2010-405	3
	Environmental Design 2010-406	3
	Introduction to Interactive Media Design 2010-512	3
	Career Skills and Professional Practice 2010-501	2
	Introduction to Web Design 2010-561	3
	Studio Electives	9
	Liberal Arts*	12
Fourth Year	Open Electives	18-24
	Majors must take an additional eight senior-level courses from the list below:	
	Corporate Design 2010-502	3
	Design Systems 2010-504	3
	Advertising Design 2010-505	3
	Concept and Symbolism 2010-506	3
	Design for Marketing 2010-507	3
	Advanced Information Design 2010-511	3
	Introduction to Interactive Media Design 2010-512	3
	Senior Project 2010-513	3
	Editorial Design 2010-514	3
	Senior Internship 2010-523	3
	Portfolio Development and Presentation 2010-524	3
	Advanced Web Design 2010-562	3
	Total Quarter Credit Hours	***184***

**Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
***Please refer to the list of art history electives.*

3D Digital Graphics

Students in the 3D digital graphics program will learn to use 3D computer graphics in computer and video games, medical and scientific simulations, data visualization, models for architects and engineers, motion or broadcast graphics, instructional media accident reconstruction, and more. Traditional design skills using commercial 3D software are integrated with principles relating to time, motion, and lighting.

3D digital graphics, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to 3DDG Modeling 2014-221	4
	Introduction to 3DDG Materials 2014-222	4
	Introduction to 3DDG Motion 2014-223	4
	Technical Drawing 2014-231	2
	Drawing Motion 2014-233	3
	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Imaging for New Media 2083-206	4
	Liberal Arts*	12
	Open Electives	6-8
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Digital Video for MM 2014-363	4
	Basic Design I 2012-201	2
	Flowcharts and Storyboards 2014-343	2
	Anatomical Drawing I 2019-304	3
	Problem-Based Introduction to Computer Science 4003-241	4
	Data Structure Problem Solving 4003-242	4
	Major Electives**	12
	Liberal Arts*	12
Third Year	Project Planning 2014-411	2
	Senior Thesis Assist 2014-432	4
	Introduction Production Pipeline 2014-463	4
	Major Electives**	22
	Liberal Arts*	12
	Open Elective	3-4
Fourth Year	Senior Thesis I, II 2014-511, 512	12
	Portfolio Development 2014-513	2
	Major Electives**	12
	History of Computer Graphics 2014-xxx	3
	Art History Electives†	6
	Open Electives	9-12
	Total Quarter Credit Hours	***184***

**Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
***Please refer to the list of major electives offered each quarter.*

Interior Design

Interior design is the creative integration of form, materials, function, and aesthetics within interior space. Students develop an understanding of, and sensitivity to, history, future technology, environment, economics, architecture, and societal needs by exploring projects that develop aesthetic understanding, technical proficiencies, and preparation for professional certification and licensing. The program is accredited by the Council for Interior Design Accreditation.

Interior design, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Foundation Studies:	
	Freshman Electives	4
	Vector Imaging 2010-216 or Raster Imaging 2010-211	2
	Drawing I, II, III 2013-211, 212, 213	9
	2D Design I, II, III 2013-231, 232, 233	9
	3D Design I, II, III 2013-241, 242, 243	9
	Design Survey 2015-222	2
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Majors must take each of the following courses to complete the sophomore year (prerequisite: completion of Foundation Studies):	
	Architectural Drawing 2015-305	3
	Perspective Drawing 2015-306	3
	Introduction to Interior Design 2015-307	3
	Computer-Aided Design Applications 2015-308	3
	Model Building and Human Dimension 2015-311	3
	Studio Electives	9-12
	Liberal Arts*	12
	Wellness Education†	0
Third Year	History of Architecture and Furniture 2039-306, 307, 308	9
	Majors must take each of these courses in sequence to complete junior year in interior design (pre-requisite: completion of sophomore year):#	
	Hospitality Design 2015-404	3
	Application of Color and Light 2015-405	3
	Retail Design 2015-406	3
	Building Construction Systems 2015-407	3
	Office Design and Planning 2015-408	3
	Interior Specifications 2015-409	3
	Studio Electives	9
	Liberal Arts*	12
Fourth Year	Majors must take these courses to complete senior year in interior design (prerequisite: completion of junior year):#	
	Multipurpose/Multistory Design 2015-504	4
	Building Codes and Regulations 2015-505	2
	Environmental Control Applications 2015-506	3
	Healthcare Design 2015-507	4
	Interior Design Business Practices 2015-508	2
	Career Planning 2015-509	2
	Working Drawings 2015-510	4
	Special Projects 2015-511	3
	Open Elective	18-24
	Total Quarter Credit Hours	*185*

**Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
 # Additional special topics courses may be required.

Industrial Design

Industrial design involves the integration of form and function as products are designed and created by combining materials, process, computer-aided design, and human factors. Blending technical instruction with studio assignments, studies also include package, exhibit, and furniture design. Aesthetic sensitivity, technical competence, and analytical thought are developed and applied to meet the challenge of designing products for human needs.

Industrial design, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Foundation Studies:	
	Freshman Elective	2
	ID Freshman Elective	2
	Vector Imaging 2010-216 or Raster Imaging 2010-211	2
	Drawing I, II, III 2013-211, 212, 213	9
	2D Design I, II, III 2013-231, 232, 233	9
	3D Design I, II, III 2013-241, 242, 243	9
	Design Survey 2015-222	2
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year‡	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Technical Drawing 2035-306	2
	Model Making 2035-311	2
	Graphic Visualization I, II, III 2035-321, 322, 323	6
	Form I, II 2035-331, 332	4
	Sophomore Design Studio 2035-348	4
	Studio Electives	9-12
	Liberal Arts*	12
	Wellness Education†	0
Third Year	History of Industrial Design 2035-442	3
	Art History	3
	Art History Elective**	3
	Materials and Process Applications 2035-405	3
	Consumer Product Design I 2035-406	3
	Human Factors Applications 2035-407	3
	Equipment Design 2035-408	3
	Consumer Product Design II 2035-410	3
	CAD Applications 2035-418	3
	Studio Electives	9
	Liberal Arts*	12
Fourth Year	Professional Practice 2035-510	3
	Career Planning 2035-513	3
	Choose one of the following:	
	Design Collaborative 2035-506	3
	Internship 2035-498	3
	Choose two of the following:	
	Furniture Design 2035-508	3
	Advanced Product Design 2035-512	3
	Toy Design 2035-522	3
	Packaging Design 2035-527	3
	Open Electives	18-24
	Total Quarter Credit Hours	*182*

**Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Upon completion of the second year, the associate in applied science degree is awarded.
***Please refer to the list of art history electives.*

New Media Design and Imaging

This program was created in response to the growing demand for college graduates with strong digital imaging skills, highly refined design sensitivities, and the ability to visualize concepts in two- and three-dimensional motion graphics and interactive projects. These students explore all forms of digital media as well as traditional imaging techniques to become creative and skilled multimedia designers. Students gain experience in concept development, design development, digital sound, two- and three-dimensional animation, interactivity, programming, digital photography and video, multimedia project development, and digital imaging. They also explore gaming, entertainment multimedia, virtual reality, and other facets of new media. Students prepare and deliver projects executed in all of the major media formats, including mobile broadcast and the Web. This program shares courses with the new media option of the interactive development program in the B. Thomas Golisano College of Computing and Information Sciences. This is an exciting and dynamic interdisciplinary curriculum in step with cutting-edge technology.

New media design and imaging, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Drawing I, II 2013-211, 212	6
	2D Design I, II 2013-231, 232	6
	Elements of Graphic Design for New Media 2009-213	3
	Typography for New Media 2009-311	3
	Introduction to Computer Imaging 2009-313	3
	Time-Based Imaging 2009-411	4
	Digital Video for Multimedia 2065-217	4
	Principles of Imaging for New Media 2009-221	4
	Introduction to Web 2009-xxx	4
	Studio Elective	3
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	3D Form and Space 2009-212	3
	Information Design for New Media 2009-312	3
	Introduction to Digital Animation 2009-328	4
	Advanced Design Networking 2009-401	3
	Introduction to Programming for New Media 4080-230	4
	Programming II for New Media 4080-231	4
	Introduction to Web Development 4080-309	4
	Studio Elective	3
	Liberal Arts*	12
	Wellness Education†	0
Third Year	Art History Electives**	9
	Design of Graphical User Interface 2009-323	4
	Emerging Multimedia Design and Imaging Tools 2009-402	3
	Dynamic Information Design 2009-403	3
	Dynamic Typography 2009-412	3
	Advanced 3D Techniques 2009-413	3
	New Media Elective	3
	Open Elective	3
	Liberal Arts*	12
Fourth Year	Dynamic Persuasion 2009-501	3
	QTVR and Multimedia Design 2009-511	3
	Choose two of the following:	
	QTVR and Multimedia Design 2009-511	3
	Experimental New Media 2009-xxx	3
	Studio Electives	6
	Career Skills in New Media 2009-516	3
	New Media Team Project I, II 2009-542, 543	8
	Open Electives	12-16
	Total Quarter Credit Hours	***184***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
***Please refer to the list of art history electives.*

School for American Crafts

Don Arday, Administrative Chair

http://cias.rit.edu/crafts

As an internationally recognized school that merges art with craft, the School for American Crafts is a leader in crafts education. Our programs provide an educational experience that balances technical expertise with aesthetic expression in the creative and practical understanding of wood, metal, clay, and glass.

Our educational objectives seek to stimulate creative imagination and technical invention, develop knowledge of process and command of skills, and foster appreciation not only of the crafts but also the related arts. The programs strive to inspire the student to seek continual improvement through analysis and self-evaluation.

Programs of study

BFA programs: The School for American Crafts offers a full-time program of study with the opportunity to major in one of four craft fields: ceramics, glass, metals, or wood. After the satisfactory completion of two years of study, the associate in occupational studies degree is awarded in woodworking and furniture design. After successful completion of the four-year program, the bachelor of fine arts degree is awarded. The credit requirements for the bachelor of fine arts are as follows:

	Qtr. Cr. Hrs.
Required Craft Major Studio	90
Required Electives	9
Business Practices	9
Open Elective	3
Liberal Arts*	36
General Education	9
Art History	18
Freshman Elective	6
Wellness Education†	0
Total Quarter Credit Hours	***182–185***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information

AOS program: A two-year associate degree in occupational studies also is offered in woodworking and furniture design. The credit requirements are as follows:

	Qtr. Cr. Hrs.
Required Wood Major	36
Drawing	9
2D Design	9
3D Design	9
Advanced Drawing	9
Art History Electives**	9
Professional Business Practices	9
Open Elective	3
Wellness Education†	0
Total Quarter Credit Hours	***93***

***Please refer to the list of art history electives.*
† Please see Wellness Education Requirement for more information

Crafts residence program

The School for American Crafts offers a crafts residence program for participants accepted in the ceramics, glass, metals, and wood studio disciplines. Residence positions are limited and will be awarded based on the review of an application, which consists of a portfolio, transcripts, and references. An interview also is required. Accepted studio residents are required to register for at least two credits of independent study during every quarter of residence. These two credits can be taken as an audit, thus reducing the tuition cost to the resident.

Accepted residents are expected to attend their major studio courses during class hours and to contribute up to 10 hours of work per week in the major studio. These work hours will be coordinated and overseen by the faculty in the program area. In exchange, the school will provide workspace, access to facilities, and supportive instruction. The residents are invited to participate in the full range of studio activities.

Residence program participants may be individuals seeking additional studio experience prior to undergraduate or graduate study, early career professionals, or teachers on leave who wish to work in an academic studio environment. The faculty in each program area will make decisions concerning appropriate candidates.

Ceramics, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Elective	6
	Drawing I, II, III 2013-211, 212, 213	9
	2D Design I, II, III 2013-231, 232, 233	9
	3D Design I, II, III 2013-241, 242, 243	9
	Open Elective	3
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year‡	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Materials and Processes Ceramics, Sophomore 2040-301, 302, 303	18
	Concept Drawing 2045-311	3
	Craft Technical Drawing 2045-312	3
	Design Processes 2045-xxx	3
	Wellness Education†	0
Third Year	Materials and Processes Ceramics, Junior 2040-401, 402, 403	18
	Art History**	9
	Open Electives	9
	Liberal Arts*	12
Fourth Year	Materials and Processes Ceramics, Senior 2040-501, 502, 503	18
	Planning a Career in the Crafts 2045-511	3
	Crafts Promotional Package 2045-512	3
	Operating a Business in the Crafts 2045-513	3
	Open Electives	9-12
	Total Quarter Credit Hours	*182-188*

**Please see Liberal Arts General Education Requirements for more information.*
‡Upon completion of second year, the associate in applied science degree is awarded.
† Please see Wellness Education Requirement for more information.
***Please refer to the list of art history electives.*

Glass, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Elective	6
	Drawing I, II, III 2013-211, 212, 213	9
	2D Design I, II, III 2013-231, 232, 233	9
	3D Design I, II, III 2013-241, 242, 243	9
	Open Elective	3
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year‡	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Materials and Processes Glass, Sophomore 2041-301, 302, 303	18
	Concept Drawing 2045-311	3
	Craft Technical Drawing 2045-312	3
	Design Processes 2045-xxx	3
	Wellness Education†	0
	Liberal Arts*	12
Third Year	Materials and Processes Glass, Junior 2040-401, 402, 403	18
	Art History Electives**	9
	Open Electives	9-12
	Liberal Arts*	12
Fourth Year	Materials and Processes Glass, Senior 2041-501, 502, 503	18
	Planning a Career in the Crafts 2045-511	3
	Crafts Promotional Package 2045-512	3
	Operating a Business in the Crafts 2045-513	3
	Open Electives	9-12
	Total Quarter Credit Hours	*182-185*

**Please see Liberal Arts General Education Requirements for more information.*
‡Upon completion of second year, the associate in applied science degree is awarded.
†Please see Wellness Education Requirement for more information.
*** Please refer to the list of art history electives.*

Metals, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Elective	6
	Drawing 2013-211, 212, 213	9
	2D Design 2013-231, 232, 233	9
	3D Design 2013-241, 242, 243	9
	Open Elective	3
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year‡	Survey of Western Art and Architecture 2039-225, 226, 227	9
	Materials and Processes Metals, Sophomore 2042-301, 302, 303	18
	Concept Drawing 2045-311	3
	Craft Technical Drawing 2045-312	3
	Design Processes 2045-xxx	3
	Wellness Education†	0
	Liberal Arts*	12
Third Year	Materials and Processes Metals, Junior 2042-401, 402, 403	18
	Art History Electives**	9
	Open Electives	9
	Liberal Arts*	12
Fourth Year	Materials and Processes Metals, Senior 2042-501, 502, 503	18
	Planning a Career in the Crafts 2045-511	3
	Crafts Promotional Package 2045-512	3
	Operating a Business in the Crafts 2045-513	3
	Open Electives	9-12
	Total Quarter Credit Hours	*182-185*

*Please see Liberal Arts General Education Requirements for more information.
‡Upon completion of second year, the associate in applied science degree is awarded.
†Please see Wellness Education Requirement for more information.
**Please refer to the list of art history electives.

Wood, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Elective	6
	Drawing I, II, III 2013-211, 212, 213	9
	2D Design I, II, III 2013-231, 232, 233	9
	3D Design I, II, III 2013-241, 242, 243	9
	Open Elective	3
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year‡	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Materials and Processes Wood, Sophomore 2044-301, 302, 303	18
	Concept Drawing 2045-311	3
	Craft Technical Drawing 2045-312	3
	Design Processes 2045-xxx	3
	Wellness Education†	0
	Liberal Arts*	12
Third Year	Materials and Processes Wood, Junior 2044-401, 402, 403	18
	Architecture, Interior Furniture Design History 2039-306, 307, 308	9
	Open Electives	9
	Liberal Arts*	12
Fourth Year	Materials and Processes Wood, Senior 2044-501, 502, 503	18
	Planning a Career in the Crafts 2045-511	3
	Crafts Promotional Package 2045-512	3
	Operating a Business in the Crafts 2045-513	3
	Open Electives	9-12
	Total Quarter Credit Hours	*182-185*

*Please see Liberal Arts General Education Requirements for more information.
‡Upon completion of second year, the associate in applied science degree is awarded.
†Please see Wellness Education Requirement for more information.
**Please refer to the list of art history electives.

Wood, AOS degree, typical course sequence

		Qtr. Cr. Hrs.
	Drawing I, II, III 2013-211, 212, 213	9
	3D Design I, II, III 2013-241, 242, 243	9
	Materials and Processes Wood, Sophomore 2044-301, 302, 303	18
	Concept Drawing 2045-311	3
	Craft Technical Drawing 2045-312	3
	Crafts Design Process 2045-xxx	3
	Open Elective	3
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	2D Design I, II, III 2013-231, 232, 233	9
	Architecture, Interior Design, and Furniture Design History 2039-306, 307, 308	9
	Materials and Processes Wood, Junior 2044-401, 402, 403	18
	Planning a Career in the Crafts 2045-511	3
	Crafts Promotional Package 2045-512	3
	Operating a Business in the Crafts 2045-513	3
	Wellness Education†	0
	Total Quarter Credit Hours	*93*

†Please see Wellness Education Requirement for more information.

School of Film and Animation

Malcolm Spaull, Administrative Chair

http://cias.rit.edu/~sofa

The BFA degree program in film/video production and animation is for students who recognize the moving image as an expressive force uniquely important to modern life. The school will develop students' production skills and acquaint each with film, video, and animation as creative media.

The curriculum emphasizes production, with students beginning their first quarter working in 16mm film and animation and continuing with production work every quarter until they graduate. Students may choose to specialize in motion pictures, video, or traditional or computer animation. The school's goal is to prepare students who are able to produce, creatively and practically, their own independent work and/or fulfill professional production responsibilities in any medium suitable to their interests and abilities.

Through lectures and laboratories, students develop individual skills in moving-image communications and learn the aesthetic principles governing the art. Technology and technique are never taught as an end in themselves but in terms of learning to use the tools necessary to achieve a creative goal in relation to the audience.

Students in the film and animation program produce several short films or animations by working through all phases of production: scripting, production planning, budgeting, shooting, editing, and sound design. Students further their learning of visual and sound artistry through hands-on experience with camera and sound equipment. Film, video, and animation projects are designed by individual students. A wide variety of styles and intentions are expressed in the department's work.

The BS degree program in digital cinema provides a science and engineering-based education in the fundamental imaging technologies used for the motion picture industry. By joining a core curriculum in practical filmmaking from the College of Imaging Arts and Sciences and image science from the College of Science, this program trains students in the art and science of feature film, television, and animation production. Topics include film and digital image capture, film scanning, digital image manipulation, color science, visual effects, and digital and traditional projection. New facilities at RIT provide students with hands-on experience on the same equipment being used in major motion picture production today.

Utilizing research, critical thinking, creativity, and a range of problem-solving principles, students are taught to address complex motion imaging workflow issues within the constraints of time, space, budget, and technology. Graduates of the BS program will enjoy a variety of career opportunities, from feature

film and television post-production to imaging equipment design and essential motion imaging technology research and development.

Portfolio guidelines

Please see portfolio guidelines listed in the introductory section for this college for specific instructions on portfolio submission for applicants to the film and animation program. The review committee is looking for work that is original in concept and content. It does not necessarily need to be motion media, but should be visual or aural. Examples include films/videos, photos, drawings, paintings, sculpture, stop-motion puppets, scripts, storyboards, and original music.

An inventory sheet or table of contents should accompany portfolios. Videos should be on mini-DV, DVCAM, VHS, DVD, or DVDROM. The movie files on a DVDROM must be in QuickTime or MPEG2 format. No AVI or other digital video architectures files. NTSC or ATSC (HD) only. Still images should be on DVDROM or CDROM in jpeg or tiff format. Slides in 35mm format are acceptable, but they must be presented in sleeves. No boxes or carousel trays will be accepted. Sound design should be no longer than 10 minutes in length and must be presented in CD format.

Graduate programs

The School of Film and Animation offers two MFA degrees in live-action filmmaking with concentrations in production or scripting, and animation with options in 2D or 3D animation. The MFA degrees are described in the *Graduate Bulletin*, available from the Office of Graduate Enrollment Services or online at www.rit.edu/programs/grad/.

Summer session

The School of Film and Animation offers a limited selection of courses during the summer quarter. These range from beginning courses to those requiring a substantial background. For information on summer courses, please e-mail the school: sofa@rit.edu.

Memberships

The school maintains memberships in a number of professional organizations: Animation World Network, College Art Association, Rochester Audio Visual Association, Society of Motion Picture and Television Engineers, University Film and Video Association, Siggraph, and BEA. The school also is a certified Apple Training Center for Professional Applications.

Freshman and transfer admission

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Transfer credit from accredited institutions is evaluated on a course-by-course basis. Transfer credits for film animation courses are awarded on the basis of a transcript in addition to course work with a grade of C or better. An optional portfolio will be reviewed by the department chair.

Writing policy

The School of Film and Animation has a minimum writing requirement within each of its degree programs. A copy of the school's official writing competency policy may be obtained from the department or from the Office of Academic Student Services.

Film/video/animation, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Film Production 2065-201	4
	Digital Production I, II 2065-202, 203	8
	Story and Structure 2065-206	2
	Fundamentals of Computer Imaging 2065-216	3
	Materials and Processes of Moving Image 2065-221	2
	Film Language 2065-222	4
	Single-Frame Motion 2065-263	2
	Introduction to Animation 2065-331	4
	Scriptwriting I 2065-342	3
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 051	2
	Wellness Education†	0
Second Year	Post-production Processes 2065-344	4
	Liberal Arts*	12
	Wellness Education†	0
	Production Emphasis:	
	Production Processes 2065-316	5
	Live-Action Pre-production 2065-324	3
	Scriptwriting II 2065-343	3
	Film/Video Production Workshop	4
	Film Animation History and Aesthetics	12
	Film/Animation Electives	9-12
	Animation Emphasis:	
	Animation Pre-production 2065-352	4
	2D Computer Animation 2065-427	4
	Introduction to 3D Modeling Animation 2065-457	4
	Foundation Drawing 2013-211, 212	6
	Choose one of the following:	4
	Animation Production Workshop 2065-333	4
	Experimental Animation Workshop 2065-447	4
	Choose one of the following:	
	Foundation Drawing 2013-213	3
	2D Design 2013-231	3
	3D Design 2013-241	3
	Film/Animation History and Aesthetics	6-8
	Film/Animation Elective	3-4
Third Year	Senior Project Seminar 2065-413	1
	Open Electives	8
	Liberal Arts*	12
	Production Emphasis:	
	Choose one of the following:	
	Writing the Short Film 2065-387	4
	Dramatic Structure for Film/TV 2065-376	4
	Choose one of the following:	
	Production Workshop: Documentary/Experimental/Fiction	8
	Writing the Short Film 2065-387	
	Film/Animation History and Aesthetics	6-8
	Film/Animation Elective	8
	Animation Emphasis:	
	Choose one of the following:	4
	Introduction to 3D Computer Animation I 2065-361	
	3D Computer Animation II 2065-478	
	Advanced Animation Tools 2065-332	
	Scriptwriting for Animation 2065-363	3
	Advanced Animation Workshop I 2065-437	4
	Advanced Animation Workshop II 2065-438	4
	Film/Animation History and Aesthetics	3-4
	Film/Animation Elective	6-8

Fourth Year	Open Elective	4
	Liberal Arts*	9-12
	Production Emphasis and Animation Emphasis:	
	Senior Project 1, 2, 3 2065-507, 508, 509	12
	Senior Forum 2065-512	2
	Career Preparation 2065-513	2
	Film/Animation History and Aesthetics	3-4
	Film/Animation Electives	9-12
	Total Quarter Credit Hours	***184-195***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.

Digital cinema, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Project-Based Calculus I, II, III 1016-281, 282, 283	12
	University Physics I, II 1017-311, 312	8
	Introduction to Film Production 2065-201	4
	Digital Film Production 2065-202	4
	Film Language 2065-222	4
	Film/Video Materials and Technology, 2065-231	4
	Liberal Arts*	8
	Wellness Education†	0
	First-Year Enrichment 1720-050, 051	2
Second Year	University Physics III 1017-313	4
	Programming for Imaging Science 1051-211	4
	Linear Math for Imaging 1051-320	4
	Vision and Psychophysics 1051-350	4
	Radiometry 1051-370	4
	Production Process 2065-316	5
	Introduction to Animation I 2065-331	4
	Post-production Processes 2065-344	4
	Sound Recording 2065-452	3
	Liberal Arts*	12
	Wellness Education†	0
Third Year	Geometric Optics 1051-303	4
	Digital Image Process I 1051-361	4
	Color Science 1051-402	4
	Digital Imaging Processing II 1051-462	4
	Introduction to 3D Computer Animation 2065-361	4
	Image Capture and Production Technology I, II 2065-411, xxx	8
	Special Effects and Digital Post 2065-xxx	4
	Film/Animation History and Aesthetics	3
	Free Elective	4
	Liberal Arts*	8
Fourth Year	Senior Project 1, 2, 3 2065-xxx, 508, 509	9
	Film Projection and Digital Cinema 2065-xxx	4
	Film/Animation Electives	9-12
	Film/Animation History and Aesthetics	3
	Free Electives	12
	Liberal Arts*	8
	Total Quarter Credit Hours	***185-188***

** Please see Liberal Arts General Requirements for more information.*
† Please see Wellness Education Requirement for more information.

School of Photographic Arts and Sciences

Therese Mulligan, Administrative Chair, BS/BFA programs
Michael Peres, Associate Chair, BS/BFA programs

http://cias.rit.edu/photo

The programs of the School of Photographic Arts and Sciences are designed to prepare students for a wide range of careers in photographic and related imaging fields. Studies in photographic practices provide both technical and creative experiences for visual problem solving. The principles of imaging are taught through courses investigating the tools and processes used to make pictorial-, data-, and information-based images. All first-year BFA and BS students are required to have their own hand-held small- or medium-format digital SLR camera and a professional light meter.

Students have the opportunity to supplement their course work with participation in cooperative education, internships, study abroad programs, field trips, presentations by invited guests/guest lecturers, departmental student organizations, and related activities.

Students are urged to take advantage of Rochester's historic connection with photography. A comprehensive schedule of programs, including exhibitions, lectures, and seminars, is offered by the city's array of cultural institutions.

Degrees offered

BFA degrees are offered in visual media and professional photographic illustration, with options in advertising photography, fine art photography, and photojournalism. BS degrees are offered in imaging and photographic technology and biomedical photographic communications**.**

Graduate programs

The School of Photographic Arts and Sciences offers the MFA in imaging arts as well as graduate-level courses of study in photographic preservation and archival practice. The MFA degree is described in the *Graduate Bulletin*, available from the Office of Graduate Enrollment Services or online at www.rit.edu/programs/grad/.

Summer session

The School of Photographic Arts and Sciences offers summer session photographic courses. These range from first-year photography courses to those requiring a substantial photographic background.

Memberships

The school maintains memberships in a number of professional organizations including: Photo Marketing Association International, Photo Imaging Educators Association, College Art Association, Bio Communications Association, National Press Photographer Association Student Chapter, Ophthalmic Photographers Society, Society for Imaging Science and Technology, Society for Photographic Education, International Society for Optical Engineering, International Panoramic Photographers Association, and American Society of Media Photography.

Cooperative education

Cooperative education is a program in which students gain valuable work experience in their field of study. Co-op experiences not only provide students with valuable insight into potential career opportunities but also open up newly discovered career paths. Co-ops feature full-time, paid work experience alternating with periods of study on campus. The College of Imaging Arts and Sciences does not award academic credit for co-op experiences.

The Office of Cooperative Education and Career Services as-

sists students in arranging co-op placements as well as full-time employment upon graduation. The office hosts two annual career fairs, when employers seek to hire co-op and full-time positions, and also schedules on-campus employer visits. Co-op and career counselors conduct interview workshops, assist students in creating résumés, and help connect students with employers.

Co-op is required in the bachelor of science degree programs in the School of Photographic Arts and Sciences. Co-op placements in the bachelor of fine arts programs are optional.

Internships

Internships are experiential learning opportunities typically arranged under the supervision of a faculty member or a department. Internships may be salaried or volunteer work experiences for which a student may earn academic credit. Internship experiences are evaluated by a member of the academic staff, and a student is assigned a merit grade based on his or her achievement of pre-established requirements.

Internships are not required by any of the programs in the School of Photographic Arts and Sciences, but they are strongly encouraged. The recognition and experience internships provide enhance a student's résumé and marketability for employment.

Admission guidelines

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Transfer credit from accredited institutions is evaluated on a course-by-course basis. Transfer credit for photography, art studio, and art history courses is awarded on the basis of a portfolio, in addition to course work with a grade of C or better. The portfolio is reviewed by the program chair. (Please see portfolio guidelines for more information.)

Summer transfer programs

Students who meet the requirements for course and portfolio work may be accepted into one of several summer transfer programs. These 10-week sessions of intensive study bring students to a second- or third-year technical and aesthetic level in their photography programs. Descriptions of the requirements for each program and year level follow.

Second-year transfer credit requirements

Imaging and photographic technology—To enter in the fall quarter at the sophomore or second-year level, transfer candidates should complete the department's summer transfer program and should have previously completed the following college-level course work: at least one year of mathematics, including an introductory calculus course; at least three liberal arts courses; and courses in digital photography. Additional photography courses may exempt a transfer student from the summer Photography I class. Credit for this is evaluated by a transcript and the submission of a portfolio. Other earned credits also may be accepted for transfer to upper-level years. These include college physics, liberal arts, technical writing, chemistry, and additional mathematics.

Biomedical photographic communications—To enter the fall quarter at the sophomore or second-year level, it is suggested that transfer candidates have previously earned the following college-level credits: 12 quarter hours in the liberal arts, eight quarter credits in science, and 12 credits in photography. Applicants may submit a transcript and request a transfer credit audit. Transfer credit for Photography I may be based on a comprehensive portfolio review, satisfactory completion of an appropriate college photography course, and/or evidence of appropriate work experience.

Advertising photography, fine art photography, photojournalism, or visual media—Normally a minimum of 30 quarter credit hours, of which 12 are in the liberal arts, and 18 in photography, studio art, or an accepted equivalent. The student may be required to complete the 10-week intensive summer course.

Third-year transfer credit requirements

Advertising photography, fine art photography, or photojournalism—Normally an applicant must have completed the associate degree or the equivalent of two years of college with a major in photography (a minimum of 30 quarter credit hours of photography), plus a minimum of nine quarter credit hours in studio art courses, 24 quarter credit hours in the liberal arts, and nine quarter credit hours of art history. The student also must complete the 10-week intensive summer courses and Photographic Arts 4, 5 and 6, and must enroll in History and Aesthetics of Photography (2067-306, 307, 308). A portfolio is required.

Advanced entry into advertising photography, fine art photography, or photojournalism requires a portfolio review as well as evaluation of transfer credit.

If a student has completed two or more years of intensive study in photography at an accredited school, he or she may submit a portfolio for evaluation by the program chair.

Biomedical Photographic Communications

Christye Sisson, Program Chair

http://biomed.rit.edu

RIT has the only program in the nation that grants a bachelor of science degree in biomedical photographic communications, an exciting area of visual communication that combines photography, visual communications, and science. The program prepares students for photographic and imaging careers in various institutions such as forensic labs, pharmaceutical companies, and military bases, or in ophthalmic photography, the only form of diagnostic photography. Because of the unique blend of courses, recent graduates have been very successful finding positions not only in biomedical imaging but also in the electronic imaging field as technical service representatives, multimedia producers, and Web publishers.

During the first two years of the program, students receive a solid foundation in digital photography and desktop and Web publishing. Included in these classes are topics such as close-up and high-magnification photography, studio lighting, ethics, ophthalmic photography, and imaging technologies. Students also take biology, liberal arts, and general education courses. In the third and fourth years the curriculum becomes more flexible,

allowing students to choose elective courses and build a photographic concentration from a wide variety of courses taught in the College of Imaging Arts and Sciences, the College of Science, and the B. Thomas Golisano College of Computing and Information Sciences. This flexibility, coupled with the personal attention of faculty advisers, allows students to focus on their career and educational goals. It is not uncommon for graduates to continue their studies in graduate school programs in imaging, medicine, or information technology.

Cooperative education

At least one co-op or internship is required for graduation. Co-ops are an opportunity for students to gain experience in their field and are generally completed between their second and third academic years. Co-ops are full- or part-time paid positions usually eight to 10 weeks in length. The Office of Cooperative Education and Career Services can assist students in identifying co-op placements and opportunities.

Careers

Since 1968, various visual communication companies have actively recruited most of the program's nearly 600 graduates. Many of our graduates have become directors and leaders in their respective institutions and companies. Today, the biomedical photographic communications program boasts a placement rate of well over 85 percent.

Biomedical photographic communications, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Biomedical Photo I, II 2061-xxx, xxx	15
	Materials and Process of Photography 2076-211, 212, 213	9
	Survey of Biomedical Photography 2061-213	1
	General Education	4
	Math or Science#	8
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
	Cooperative Education (summer)	Co-op
Second Year	Applications of Scientific Photography 2061-301, 302, 303	12
	Preparation of Biomedical Visuals I, III 2061-311, 313	6
	General Education	8
	Open Elective	4
	Math or Science#	4
	Liberal Arts*	12
	Wellness Education†	0
	Cooperative Education (optional)	Co-op
Third Year	Digital Media in Biomedical Photography I 2061-316,	4
	Web Design Using Photography 2061-361	4
	Advanced Photography in Biomedical Communication 2061-403	4
	Open Electives	12
	Math or Science#	8
	General Education	4
	Liberal Arts*	12
Fourth Year	Photographic Concentration 2061-501, 502, 503	12
	AV Production I 2061-401	4
	Advanced Photography in Biomedical Communication 2061-402	4
	General Education	18
	Open Electives	4-6
	Total Quarter Credit Hours	*191*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
 # Math or Science requirement includes:
1004-211, 212, or 213, Human Biology I, II, or III (8 credits)
1026-301, Medical Terminology (3 credits)
or
1004-211, 212 or 213, Human Biology I, II, III

Imaging and Photographic Technology

Michael Peres, Acting Program Chair

http://phototech.rit.edu

The imaging and photographic technology curriculum blends experiences in contemporary digital photography with a diverse and specialized education exploring technical, professional, or scientific imaging applications that lead to careers as professional photographers or positions that use related imaging technologies. Imaging and technical skills are complemented by courses in mathematics, computing, physics, technical writing, and the liberal arts.

Various aspects of photography are investigated across all four years of the program, with explorations in black-and-white photography; color photography; and specialized areas such as high-speed, architectural, and nature photography. Some required courses include Photographic Sensitometry (2076-301); Photographic Chemistry (2076-302); Photographic Optics (2076-303); Digital Image Processing I (2076-481); and courses in color theory, color measurement, and imaging systems. Beginning in the first year, electronic imaging and computing are emphasized in all courses.

Third- and fourth-year students can develop expertise in professional or technical fields by selecting electives or minors from across the university. Within the department electives are available in holography, photonics, scanning electron microscopy, photo instrumentation, technical photography, imaging chemistry, still photography, graphic arts, optics, imaging systems, business, science, and engineering. Opportunities for independent study also are available. While each student's core program is similar, graduates' academic backgrounds often vary with their choice of concentration electives.

Cooperative education

At least two cooperative education placements, each normally 10 weeks in length, are required before graduation. Co-ops are an opportunity for students to gain experience in their field and are generally completed full- or part-time paid positions. They offer between their second and third academic years. The Office of Cooperative Education and Career Services can assist students in identifying co-op placements and opportunities.

Career opportunities

An employment survey conducted by the School of Photographic Arts and Sciences indicates the need for graduates with imaging and photographic technology backgrounds will exist well into the future. Recent graduates are employed as applications engineers; imaging/photographic technologists; technical sales representatives; technical illustrators; high-speed photographers; corporate, industrial, advertising, and commercial photographers; and research associates in the private, government, and entrepreneurial sectors.

The Technical Photography Student Association promotes professional and social interaction among students and profes-

sionals from the imaging and photographic technology industry. The association regularly invites alumni in professional imaging fields to present lectures and demonstrations.

Imaging and photographic technology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Photography I, II, III 2076-xxx, xxx, xxx	15
	Materials and Processes of Photography 2076-211, 212, 213	9
	College Algebra and Trigonometry 1016-204	4
	Calculus for Engineering Technology I 1016-231**	4
	Data Analysis 1016-319	4
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Photographic Sensitometry 2076-301	4
	Technical Photographic Chemistry 2076-302	4
	Photographic Optics 2076-303	4
	Color Photo Design 2076-311	4
	Color Printing Theory 2076-312	4
	Color Measurement 2076-313	4
	College Physics I, II, III 1017-211, 212, 213‡	9
	College Physics I, II, III Lab 1017-271, 272, 273‡	3
	Liberal Arts*	12
	Cooperative Education (summer quarter)	Co-op
Third Year	Color Management for Photographers 2076-412	4
	System Design/Graphic Presentations 2076-401	3
	Introduction to Digital Imaging 2076-491	4
	Technical Writing 0502-444	4
	Choose one of the following:	4
	Principles and Technology of Photomacrography 2061-357	
	Photo and the Microscope 2061-463	
	Nature Photography 2076-471	
	Architectural Photography 2076-478	
	Scanning Electron Microscopy 2076-572	
	General Education Elective	4
	Liberal Arts*	12
	Open Electives	12
	Cooperative Education (summer quarter)	Co-op
Fourth Year	Introduction to Research 2076-501	3
	Survey of Nonconventional Imaging 2076-503	3
	High-Speed/Time Lapse 2076-511	3
	General Education Electives	24
	Open Electives	12
	Total Quarter Credit Hours	***190***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
***Calculus I and II may be substituted for College Algebra and Trigonometry, Calculus for Engineering Technology I, and/or Data Analysis.*
‡University Physics I, II, and III and the related labs can be substituted for College Physics.
Notes: Minors or concentrations in general education can be selected only from such offerings by the College of Science or the College of Liberal Arts. Minors offered by other colleges can be applied to open electives.

Advertising Photography

Douglas Manchee, Program Chair

http://cias.rit.edu/photography

The advertising photography program prepares students to utilize their skill and creativity in the challenging world of commercial photography. Whether creating images for advertising agencies, magazines, or designer projects, students learn the technical and artistic skills necessary to create successful photographs. Graduates receive a bachelor of fine arts degree in professional photographic illustration.

The advertising photography program is flexible enough to develop each student's particular talents, with the ultimate goal of providing art for commerce. During their junior and senior years, students can choose from courses that include editorial, food, portraiture, architectural, and still life photography. Additional courses include advanced studio and location photography, publication design and production, and collaborative courses with graphic design students. All advertising photography courses emphasize visual communications and professional business practices.

Professional photographic illustration, advertising photography option, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Photo Arts 1, 2, 3 2067-201, 202, 203	15
	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Materials and Processes of Photography 2076-211, 212, 213	9
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Photo Arts 4, 5, 6 2067-xxx	15
	History and Aesthetics of Photography 2067-306, 307, 308	9
	Drawing I 2013-211	3
	2D Design I, II 2013-231, 232	6
	Career Seminar 2067-xxx	1
	Liberal Arts*	12
	Wellness Education†	0
Third Year	Advertising Photography 2067-411, 412	10
	Advertising Core‡	5
	Minor or CIAS Electives§	18-20
	Business Elective	4
	Liberal Arts*	12
Fourth Year	Advertising Core‡	10
	Portfolio Development 2067-473	5
	Minor or CIAS Electives#§	12-20
	Open Electives¶	12-15
	Total Quarter Credit Hours	***184***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Advertising core, minimum of 15 credits required
§ RIT-approved minor and/or CIAS elective, minimum 20 credits required
¶ Open electives, minimum of 12 credits required

Fine Art Photography

Dan Larkin, Program Chair

http://cias.rit.edu/photography/

The fine art photography program is designed to encourage and facilitate a student's artistic development, sensitivity, and uniqueness as a visual artist. The department's objective is to provide each with a rich potential for personal growth and change as well as a lifetime of interesting and challenging work in creative imaging and related fields. Students majoring in fine art photography receive the BFA degree in professional photographic illustration.

Career opportunities

Graduates of the program find careers as exhibiting artists, teachers, picture editors, art directors, photographers' representatives, photographic archivists, museum and gallery staff, multimedia specialists, self-employed photographers, custom-image printers, and film/video artists or animators. Many students choose to pursue graduate work and earn an MFA degree in the arts.

Admission requirements

For information on undergraduate admission, including fresh-

man and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

For students who wish to transfer into the program from a variety of academic majors, however, more rapid advancement toward the BFA degree is facilitated if previous course work is in photography or a related area of the arts, including painting, graphic design, communication arts, multimedia, film, or art history.

Professional photographic illustration, fine art photography option, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Photo Arts 1, 2, 3 2067- 201, 202, 203	15
	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Materials and Processes of Photography 2076-211, 212, 213	9
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 0512	2
	Wellness Education†	0
Second Year	Photo Arts 4, 5, 6 2067-xxx	15
	History and Aesthetics of Photography 2067-306, 307, 308	9
	Drawing I 2013-211	3
	2D Design I, II 2013-231, 232	6
	Career Seminar 2067-xxx	1
	Liberal Arts*	12
	Wellness Education†	0
Third Year	Photography as a Fine Art I, II, III 2067-406, 407, 408	12
	Contemporary Issues 2067-416, 417	8
	Modern Art History Elective	3
	Art History/Critical Study/Open Elective	3-4
	Minor or CIAS Electives §	6-9
	Liberal Arts*	12
Fourth Year	Photography as a Fine Art II 2067-506, 507, 508	12
	Minor or CIAS Electives§	18-22
	Open Electives	9-12
	Total Quarter Credit Hours	*181*

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
§ RIT-approved minor and/or CIAS elective, minimum 28 credits required.

Photojournalism

William Snyder, Program Chair

http://cias.rit.edu/photography/

World events often are etched in the public's mind not by words but by photographs. The photojournalism program, which leads to a bachelor of fine arts degree in professional photographic illustration, provides an education in both photographic technique and craft. Since 1979, many graduates of this program have earned professional acclaim. Ten alumni have been awarded the Pulitzer Prize for photojournalism.

Within the program, students will have the opportunity to explore photography-related disciplines such as electronic publishing, video documentary, multimedia for photojournalists, and sound gathering and editing, to name a few.

Internships

Our students apply for internships with some of the nation's most respected newspapers and magazines. They work behind the camera on a variety of stories and have the opportunity to learn from photographers, editors, and other professionals in the newsroom. Students receive assistance from their professors, as well as from the Office of Cooperative Education and Career Services, in identifying and applying for internships. Internships provide real-world work experience, which is an invaluable part of our students' educational experience.

National Press Photographers Association

Photojournalism students are the driving force in our National Press Photographers Associate (NPPA) student chapter, which was named the 2004 Chapter of the Year by the national association. Students regularly attend activities sponsored by the NPPA. The chapter hosts guest speakers and alumni who share their experiences in photojournalism and review student portfolios. Chapter members participate each year in NPPA short courses and publish their own website.

Career opportunities

Our photojournalism graduates go to work for some of today's best newspapers and magazines, working either initially as interns or as full-time employees. A significant number of our students also become freelance photographers. They seek freelance assignments with news organizations, picture agencies, stock photo agencies, and editorial photographers.

Professional photographic illustration, photojournalism option, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Photo Arts 1, 2, 3 2067-201, 202, 203	15
	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Materials and Processes of Photography 2076-211, 212, 213	9
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Photo Arts 4, 5, 6 2067-xxx	15
	History and Aesthetics of Photography 2067-306, 307, 308	9
	Drawing I 2013-211	3
	2D Design I, II 2013-231, 232	6
	Career Seminar 2067-xxx	1
	Liberal Arts*	12
	Wellness Education†	0
Third Year	Photojournalism I 2067-401, 402, 403	15
	Photojournalism Core‡	4-5
	Photojournalism Ethics 2067-xxx	4
	Portfolio Development 2067-xxx	5
	Minor or CIAS Electives§	8
	Liberal Arts*	12
Fourth Year	Photojournalism II 2067-xxx	15
	Photojournalism Core‡	8-10
	Minor or CIAS Electives§	12
	Open Electives#	12-15
	Total Quarter Credit Hours	*189*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Photojournalism core, minimum of 12 credits required
§ RIT-approved minor and/or CIAS elective, minimum 20 credits required
 # Open electives, minimum of 12 credits required

Visual Media

William DuBois, Program Chair

http://cias.rit.edu/photography/

The computer has helped unite the industries of photography, graphic design, and print media. All three of these career fields are using the same tools for communication and production. As a result, employers search for graduates with a strong base in photography and the ability to work efficiently with graphic designers, print media specialists, and multimedia professionals.

The visual media program broadens photography students' skill base to include graphic design and/or print media. Graduates work within these disciplines to coordinate, drive and direct the production of visual projects.

Students choose a focus in either graphic design or print media. The flexibility of the electives and management courses allows for an even broader skill set in the field. Students will be prepared for careers in photographic studio management, graphic design production management, and printing management industries.

Professional photographic illustration, visual media option, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Photo Arts 1, 2, 3 2067-201. 202, 203	15
	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Materials and Processes of Photography 2076-211, 212, 213	9
	Liberal Arts*	12
	First-Year Enrichment 1720-050, 052	2
	Wellness Education†	0
Second Year	Photo Arts 4, 5, 6 2067-xxx	15
	History and Aesthetics of Photography 2060-301, 302, 303	9
	Drawing I 2013-211	3
	2D Design I, II 2013-231, 232	6
	Career Seminar 2060-xxx	1
	Liberal Arts*	12
	Wellness Education†	0
Third Year	Visual Media Focus§ (graphic design or print media)	8-9
	Management Process I, II, III 0681-200, 201, 203	12
	Minor or CIAS Electives	12
	Liberal Arts*	12
Fourth Year	Visual Media Capstone Project 2067-512	4
	Visual Media Focus or Elective§	4
	Minor or CIAS Electives¶	10
	Photo Electives‡	16
	Open Electives#	12
	Total Quarter Credit Hours	*184*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
§ Visual media focus, minimum of 12 credits required
¶ RIT-approved minor and/or CIAS elective, minimum 20 credits required
‡ Photo electives, minimum of 16 credits required in fine art photography, biomedical photographic communications, photographic arts and sciences and imaging and photographic technology
 # Open electives, minimum of 12 credits required

School of Print Media

Patricia Sorce, Administrative Chair

http://cias.rit.edu/printmedia

The rapid innovation of digital technology has blurred the roles that traditionally differentiated printers, publishers, advertising agencies, graphic designers, website developers, and mail and fulfillment houses. Because of these evolving roles, the School of Print Media's program encourages customized study in other course areas to develop and enhance the individual talents and skills of our students.

The ability to tailor our programs differentiates RIT from other universities. Another primary differentiating factor is the school's facilities. Students have access to more than $40 million in state-of-the-art equipment in 17 laboratories.

Scholarships and financial aid

Please refer to the Financial Aid and Scholarships section of this bulletin for extensive information regarding student aid, scholarships, grants, student employment, and loans.

The Education Council of the Graphic Arts Industry offers scholarships. Early in their senior year, high school students should submit their application. Students may obtain information about these scholarships by visiting the Print and Graphics Scholarship Foundation website at www.pgsf.org.

Cooperative education

The School of Print Media requires two quarters of cooperative education, which may be completed separately or as one long co-op block. Co-op enhances a student's education by complementing formal classroom learning with practical work experience. The Office of Cooperative Education and Career Services assists students in identifying co-op opportunities with a large number of firms in the United States and throughout the world.

Co-op students have been employed by a variety of organizations, including advertising agencies, Web design firms, government agencies, industrial organizations, commercial printers, publishing companies, and service industries. A few students each year co-op as assistant printers on Cunard cruise line's Queen Mary 2 and Queen Victoria cruise ships.

Transfer credit

The School of Print Media accepts transfer students from other colleges and programs. Transfer credit is granted on a course-by-

course basis. Please call the Office of Undergraduate Admissions for more information on transfer admission and transfer credit.

New Media Publishing

Barbara Birkett, Program Chair

http://cias.rit.edu/printmedia/

In the new media publishing program students learn how to create, transform, and publish text and images. This might mean publishing to the Web, to a cell phone, to an iPod, or any other medium. This program reflects the convergence of technologies that enable content to be created, stored, and repurposed across multiple output media, as well as shared among millions of people while at the same time personalizing each message. Students build skills in traditional publishing, database management, and new media production in preparation for working closely with designers, photographers, marketers, IT professionals, and all of the players in the publishing process.

In their sophomore year, students begin a concentration comprised of four courses from one of the following seven areas: advertising and media strategy, contemporary publishing, content management, digital imaging and pre-media, print production, print quality, and three-dimensional computer graphics. The concentrations give students an opportunity to gain in-depth knowledge in an area of particular interest to them.

Graduates find challenging positions with advertising and marketing agencies, publishers, news organizations, print media firms, website developers, corporate communication departments, direct marketers, and a host of other firms across many industries.

New media publishing, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	New Media Perspectives 2083-201	3
	Imaging for New Media 2083-206	4
	Digital Foundations 2083-216	4
	Typography and Page Design 2083-217	4
	Liberal Arts*	16
	Algebra for Management Science 1016-225	4
	Lab Science	4
	General Education	4
	First-Year Enrichment 1720-050, 052	2
Second Year	Professional and Technical Writing 2082-303**	4
	Digital Asset Management 2082-337	3
	Information Architecture for Publishing Systems 2083-328	4
	Print Production Workflow 2083-346	4
	SPM Concentration	3-4
	Database Management Systems 0112-340	4
	Data Analysis I, II 1016-319, 320	10
	Lab Science‡	4
	Web Foundations 4002-206	4
	Choose one of the following:	4
	Introduction to Programming for New Media 4002-230	
	Rapid Online Presence 4002-406	
	Liberal Arts*	4
	Wellness Education†	0
	Cooperative Education	Co-op
Third Year	Media Business Basics 2083-416	4
	Professional Elective	4
	SPM Concentration	9-12
	Liberal Arts*	16
	Open Elective	4
	General Education	12
	Cooperative Education	Co-op
Fourth Year	New Media Team Project 2083-542	4
	General Education	16
	Professional Elective	4
	Open Elective	16
	Total Quarter Credit Hours	***182***

** Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
*** Students must take the Writing Competency Test if they earn less than a grade of "B" in this class.*
‡School of Print Media students are required to complete two approved laboratory science courses. The following courses will meet this requirement:
Biology 1004-211 and 1004-231; 1004-212 and 1004-232
Chemistry 1011-201 and 1011-205; 1011-202 and 1011-207; 1011-271 and 1011-205; 1011-273 and 1011-277; 1011-215 and 1011-205; 1011-216 and 1101-206
Physics 1017-211; 1017-212; 1017-202; 1017-311; 1017-312 (note: 1017-311 has a pre-requisite of 1016-272 or 1016-281 and 1017-312 has a pre-requisite of 1016-273 or 1016-382 as well as 1017-311)
Medical Science 1026-222
Math 1016-225 or 1016-226; 1016-319, 1016-320
Astronomy 1017-230 and 1017-231; 1017-235 and 1017-236
Imaging Science 1051-215; 1051-217
Environmental Science 1006-202; 1006-203
Environmental Geology 0630-370 and 0630-372

Accelerated dual degree option

A joint program between the School of Print Media and the E. Philip Saunders College of Business, the accelerated BS/MBA dual degree option enables students to earn a BS degree and an MBA in five years. Students who qualify for this option receive a waiver of up to six MBA courses for specific undergraduate management courses completed with a grade of B or better.

Students interested in this dual degree should discuss the option's requirements with their advisers as early as possible during their undergraduate program. Students must meet the admission requirements for the MBA program, which include minimum Graduate Management Admission Test scores and undergraduate grade standards. Students must satisfy all of the requirements of their undergraduate degree and the MBA degree before each degree can be awarded.

College of Liberal Arts

Robert C. Ulin, Dean

www.rit.edu/cla/

The College of Liberal Arts plays three important roles at RIT: it offers a variety of undergraduate and graduate degree programs in the social sciences and humanities; it provides general education courses required of all students pursuing baccalaureate and associate degrees; and it creates opportunities for students and the RIT community to participate in cultural and academic experiences such as theater, music, creative writing, public speaking, and lectures.

The college offers undergraduate degree programs in advertising and public relations, criminal justice, economics, international studies, journalism, museum studies (formerly cultural resource studies), philosophy, political science, professional and technical communication, psychology, public policy, and urban and community studies. The Liberal Arts Exploration option is a two-year undeclared program for students who are undecided about their choice of liberal arts major.

Recognizing that future leaders will work in an increasingly interconnected and complex world, the College of Liberal Arts provides students with a rigorous curriculum in the liberal arts. This curriculum is designed to help one forge comprehensive links between a major field of study and the ethical, social, cultural, and communicative demands of the modern world. As a result, the Liberal Arts general education requirements for undergraduate students include introductory and upper-level courses in the humanities and the social and behavioral sciences.

The Liberal Arts general education curriculum seeks to help students develop specific kinds of knowledge, such as:

- understanding the connections among humanistic, professional, and technological studies;
- building critical awareness of the interactions among society, culture, science, and technology;
- understanding and appreciating diverse social and cultural perspectives;
- understanding local, national, and global forms of citizenship and community;
- establishing knowledge and critical understanding of the responsibilities and rights of living in a participatory democracy;
- understanding human development and behavior;
- broadening critical awareness of the interactions between society and the environment;
- creating, interpreting, and evaluating artistic expression and understanding the aesthetic dimension of other forms of expression and experience;
- understanding the nature and implications of work and career;
- reasoning critically and creatively;
- reasoning through ethical and values issues and relating that reasoning to one's judgments and practice;
- understanding and demonstrating proficiency in written, oral, visual, and nonverbal forms of communication; and
- demonstrating proficiency in the analysis and interpretation of quantitative and qualitative data.

Finally, the college provides cultural opportunities for students to engage in activities and classes in the theater, music, and creative writing disciplines. Faculty members offer extracurricular leadership for student groups, recitals, and productions, as well as for *Signatures,* the student literary magazine. In addition, the college sponsors several lecture series that bring speakers, poets, writers, and civic leaders to campus.

Admission guidelines

For more information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Faculty

College of Liberal Arts faculty are recruited from the top graduate schools, and nearly all have doctorates or other terminal degrees. They are dedicated to providing students with outstanding educational experiences and access to cutting-edge research.

Advising

Liberal arts academic advising: Upon entry into the College of Liberal Arts, each student is assigned an academic adviser. These faculty members help students formulate career goals and offer support with registration, scheduling, and cooperative education. In addition, academic advisers in the college's Office of Student Services can provide assistance with registration, scheduling, academic records, and referrals to other support areas within RIT.

Liberal arts general education advising: The advising staff in the college's Office of Student Services offers support to all RIT students as they select liberal arts courses to fulfill the required general education curriculum for their degree programs. The advising staff provides guidance that is consistent with the general education policies of the university. The office also evaluates liberal arts courses as transfer credits for all RIT students.

Part-time and evening programs

In the evening, the college offers many upper-division humanities and social science courses as well as the core courses of the Liberal Arts general education curriculum required in the baccalaureate programs of part-time evening students.

Courses are scheduled one or two nights a week, Monday through Thursday, or on Saturday. Each course is four quarter credit hours. Part-time students can register for liberal arts courses offered during daytime hours if their schedules permit. Diploma or certificate courses normally will not be used toward completion of the Liberal Arts General Education Requirements.

It is not necessary to be enrolled in an RIT degree program to register for liberal arts courses on a part-time basis. Part-time and evening students are strongly encouraged to contact the college's Office of Student Services at (585) 475-2444 for assistance in selecting and registering for courses.

Summer courses

The college offers a number of courses each summer in English, foreign languages, science and humanities, and social sciences as well as degree program courses in the college's academic areas of study. Information concerning summer courses can be obtained by contacting the Liberal Arts Office of Student Services at (585) 475-2444 or by requesting information from the Office of Part-time Enrollment Services at (585) 475-2229.

Advertising and Public Relations

Bruce A. Austin, Department Chairperson

www.rit.edu/apr

The bachelor of science degree in advertising and public relations prepares students to create persuasive messages for a variety of media. Students will learn to analyze audiences, write copy, select media, and manage campaigns. Upon graduation, many students find work in the commercial, education, entertainment, government, or nonprofit sectors.

The fields of advertising and public relations are rapidly changing now that the Internet has added global reach, interactivity, and convergence to traditional media. Professionals will face unique opportunities as well as exciting challenges. No one is better prepared to succeed than graduates from our program, which is one of the few in the country to combine advertising, public relations, and marketing to address the overlapping roles of communication professionals. The program was formed through a partnership between the college's department of communication and the department of marketing in the E. Philip Saunders College of Business. Our program is distinguished by a senior thesis requirement and 20 weeks of work experience gained through internships and/or cooperative education.

Professional core

As part of the program's degree requirements, students take a professional core of four courses (16 quarter credit hours) from the department of marketing in the E. Philip Saunders College of Business. All students are required to take Principles of Marketing (0105-363) as well as three other courses from among the following: Internet Marketing (0105-440), Business to Business e-Commerce (0105-445), Buyer Behavior (0105-505), Database Marketing (0105-554), Marketing in the Global Environment (0105-555), Professional Selling (0105-559), and Integrated Marketing Communications (0105-560).

Senior thesis

Students conduct original research on a subject of their choosing. Two faculty members advise students on how to investigate their topic, select a research method, implement the project, and present their results. Department of communication students often present their research at conferences.

Curriculum

Required communication courses (64 quarter credit hours)

0535-200 Foundations of Communication
0535-315 Quantitative Research Methods
0535-316 Qualitative Research Methods
0535-421 Public Relations
0535-445 Theories of Communication
0535-450 Visual Communication
0535-460 Copywriting and Visualization
0535-461 Principles of Advertising
0535-462 Digital Design in Communication
0535-463 Campaign Management and Planning
0535-464 Public Relations Writing
0535-467 Media Planning
0535-481 Persuasion
0535-482 Mass Communications
0535-501 Public Speaking
0535-595 Senior Thesis in Communication

University-wide electives (24 quarter credit hours)

Six courses (chosen as electives)

Professional core (16 quarter credit hours)

0105-363 Principles of Marketing

Plus any *three* of the following:

0105-440 Internet Marketing
0105-445 Business to Business e-Commerce
0105-505 Buyer Behavior
0105-554 Database Marketing
0105-559 Professional Selling
0105-560 Integrated Marketing Communication
0113-450 Marketing in the Global Environment

Advertising and public relations, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Foundations of Communication 0535-200	4
	Public Relations 0535-421	4
	Public Speaking 0535-501	4
	Digital Design in Communications 0535-462	4
	Web Foundations 4002-206	4
	Liberal Arts*	8
	Mathematics and Science Requirements**	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Persuasion 0535-481	4
	Principles of Advertising 0535-461	4
	Visual Communication 0535-450	4
	Mass Communications 0535-482	4
	Media Planning 0535-467	4
	Professional Core	12
	Liberal Arts*	16
	Wellness Education†	0
Third Year	Theories of Communication 0535-445	4
	Campaign Management and Planning 0535-463	4
	Professional Core	4
	General Education Electives	8
	Liberal Arts*	8
	Mathematics Requirement**	4
	University-wide Electives	8
	Cooperative Education (two quarters)	Co-op

Fourth Year	Quantitative Research Methods 0535-315	4
	Qualitative Research Methods 0535-316	4
	Public Relations Writing 0535-464	4
	Copywriting and Visualization 0535-460	4
	Senior Thesis in Communication 0535-595	4
	Liberal Arts*	12
	University-wide Electives	16
	Total Quarter Credit Hours	*182*

**Please see Liberal Arts General Education Requirements for more information.*
***Please see Mathematics and Science General Education Curriculum for more information.*
† Please see Wellness Education Requirement for more information.

Cooperative education

Students are required to complete two quarters of cooperative education or an internship experience in a professional position. This experience gives students the opportunity to apply their classroom learning to a professional work environment. There are many opportunities to choose from, including positions with advertising agencies and public relations firms as well as businesses and nonprofit organizations. The Office of Cooperative Education and Career Services can assist students in identifying co-op and internship positions as well as permanent placement upon graduation.

Advisers

Every advertising and public relations student is assigned a faculty adviser, who is available for both academic advising and career counseling. Students find that frequent consultation with their adviser is helpful in planning course scheduling, co-ops, and post-graduation work. In addition to their faculty adviser, students are assigned a co-op and placement adviser, who is located in the Office of Cooperative Education and Career Services. Finally, peer mentors—other advertising and public relations students—are available to answer questions about classes, clubs on campus, student-run activities, and other matters from the student's perspective.

Faculty

Nearly all of the department's 14 faculty members hold the highest degrees in their fields. Many have won awards for teaching, and all have been published within their areas of expertise.

Freshman and transfer admission

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Most students who transfer into the advertising and public relations program with associate degrees can complete the program in two years. Transfer credit is evaluated on a course-by-course basis and is assigned where it is most appropriate. Students also can transfer into the program from within RIT.

Careers

Upon graduation, students will be well-qualified for positions in business, government, and the not-for-profit sectors. Graduate work also is an option. The department of communication offers an MS degree in communication and media technologies. Visit the program website (www.rit.edu/cmt) or refer to RIT's *Graduate Bulletin* for more information.

Accelerated dual degree option

An accelerated dual degree option is available through an agreement with the E. Philip Saunders College of Business. The option allows students to earn a BS in advertising and public relations and an MBA in five years. For further information about this accelerated dual degree option, contact an adviser.

Criminal Justice

LaVerne McQuiller Williams, Department Chairperson

www.rit.edu/cla/criminaljustice

The bachelor of science degree in criminal justice offers students a broad education. The curriculum prepares students for a wide range of careers in criminal justice, provides continuing education for professionals already employed in criminal justice positions, and offers a strong academic foundation for graduate or law school. The criminal justice program is unique in its broad core curriculum, the scope of professional course offerings, and an intensive field experience, where students blend knowledge gained in the classroom with a career-oriented internship.

RIT's approach to the study of criminal justice combines theoretical perspectives with practical experience. The emphasis within the areas of crime, criminal behavior, social control mechanisms, administration, planning, and management is on problem-solving techniques based on the growing body of research in the field as well as students' own guided research.

The Center for Public Safety Initiatives is housed in the criminal justice department. The organization works with the Rochester Police Department and other community groups. Several students work at the CPSI and gain valuable experience working with crime mapping, data gathering, and data analysis. Students work closely with faculty on various projects including Operation IMPACT, Ceasefire and Project Safe Neighborhoods, and the Rochester Police Department. The CPSI supports the development, implementation, and evaluation of criminal justice and community-based anti-crime and anti-violence interventions. For additional information please see www.rit.edu/cpsi.

The criminal justice department also offers a master of science degree that focuses on program analysis and evaluation. Please see the *Graduate Bulletin* for more information.

Career planning

Upon acceptance into the criminal justice program, each student is assigned a faculty adviser who assists in formulating career goals and planning a field of study in accordance with those goals.

Through core courses, students are exposed to the widest possible range of perspectives from which to view crime and the nature of criminal justice administration, thus broadening their career options.

Career opportunities

Alumni have entered a variety of careers in the criminal justice system directly following graduation or after completing graduate studies. Many graduates are engaged in law enforcement careers in agencies at all levels of government. At the state and federal level, graduates are pursuing careers in agencies such as the Federal Bureau of Investigation, the Secret Service, the U.S. Marshals Service, Naval Intelligence Service, U.S. Customs and

Border Patrol, the Immigration and Naturalization Service, the Centers for Disease Control, the Department of the Interior, and the National Park Service, among others. The Rochester Police Department, the Monroe County Sheriff's Department, and suburban departments throughout the Rochester area employ a substantial number of our graduates. A number have advanced in rank to positions of command, including several chiefs and deputy chiefs.

Other alumni work as correctional officers, counselors, probation officers, and parole officers, with many advancing to administrative positions. A significant number of alumni have used the program as a foundation for law school and have entered the legal profession as prosecutors, public defenders, and private practice lawyers. We have many graduates serving in U.S. Attorneys General offices. Others serve the legal profession as investigators or paralegals.

Consistent with the liberal arts/social science nature of the program, some graduates have attained advanced degrees in related areas and entered teaching careers at the secondary and college levels. Others have become psychologists, social workers, drug and alcoholism counselors, youth service specialists, and victim assistance/rape crisis counselors. Many have completed advanced degrees in business, public policy, public administration, criminology, and criminal justice.

Prelaw study

The criminal justice curriculum prepares students for law school by combining a broad liberal arts background with intensive study in criminal justice. Students work closely with a faculty adviser to select appropriate professional and liberal arts electives. During their senior year, prelaw students spend 10 weeks (25 hours a week) as interns working with attorneys in the office of the district attorney, public defender, or state attorney general; with private law firms; or in any number of public or private organizations dealing with litigation. RIT's Prelaw Association publishes student research papers each year in *Legal Research at RIT.*

Field experience

During their senior year, students have the opportunity to choose an internship from a number of agencies and organizations in the areas of law, law enforcement, institutional and non-institutional corrections, courts, juvenile advocacy and counseling programs, and security. For one quarter (10 weeks), students work 25 hours a week under an agency field supervisor and meet regularly with an adviser and with peers who are doing field placements in other agencies. Placements are individualized to fit a student's career objectives.

Cooperative education

Students may have the opportunity to participate in cooperative education as part of their undergraduate program. In general, they may apply for co-op employment after three quarters of full-time study in the criminal justice program. Cooperative education provides a working experience in a criminal justice-related field but does not carry academic credit hours.

Honors program

Students with a 3.0 grade point average at the end of their junior year may apply for admission to the departmental Honors program. The program requires students to complete Honors Research, which involves original research or problem solving under the direction of a faculty member. The program provides excellent experience and evidence of independent work for potential employers or graduate and law schools.

The faculty

The eight full-time faculty members in the criminal justice program hold advanced degrees, have had professional experience in criminal justice, have proven teaching ability, and are committed to continuing professional growth in their areas of expertise. They spend many nonteaching hours in their offices with an open-door policy, in order to assist students with academic or personal concerns and questions. The full-time faculty members are supplemented by a strong cadre of adjunct instructors, many of whom are leading criminal justice practitioners in the region.

Criminal justice, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Criminology 0501-400	4
	Seminar in Criminal Justice 0501-201	4
	Liberal Arts*	12
	Technology in Criminal Justice 0501-406	4
	Courts 0501-456	4
	Corrections 0501-441	4
	Law Enforcement in Society 0501-443	4
	Mathematics and Science Requirement**	8
	Current Issues in Criminal Justice 0501-460	2
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Juvenile Justice 0501-440	4
	Criminal Justice Electives	8
	Concepts in Criminal Law 0501-444	4
	University-wide Elective	
	Liberal Arts*	12
	Mathematics and Science Requirement‡	12
	Current Issues in Criminal Justice 0501-460	2
	Wellness Education†	0
	Cooperative Education (optional)	Co-op
Third Year	Theories of Crime and Criminality 0501-528	4
	Management in Criminal Justice 0501-410	4
	Research Methods I, II 0501-401, 541	8
	Criminal Justice Electives	
	University-wide Electives	12
	Liberal Arts*	12
	Cooperative Education (optional)	Co-op
Fourth Year	Field Experience 0501-403	8
	Interviewing and Counseling in Criminal Justice 0501-510	4
	Criminal Justice Electives	8
	University-wide Electives	12
	Seminar in Criminal Justice and Public Policy 0501-526	4
	Liberal Arts*	8
	Total Quarter Credit Hours	*182*

** Please see Liberal Arts General Education Requirements for more information.*
*** Please see Mathematics and Science Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Advisers

Every student is assigned a faculty adviser who provides academic advising and career counseling. All of the fine arts department faculty members in cultural resource studies hold the highest degrees in their field and all have been published within their areas of expertise.

Economics

Michael J. Vernarelli, Department Chairperson

www.rit.edu/cla/economics

The BS in economics emphasizes the quantitative analytical approach to dealing with economic problems in both the public and private sectors, providing students with marketable skills and the intellectual foundation for career growth. Graduates with a BS degree in economics are prepared for entry-level positions in management and quantitative analysis or to pursue graduate study in economics, business, or law.

Curriculum

The economics curriculum prepares students by developing communication, computer, and management skills in addition to economic reasoning and quantitative abilities. Students in the program are involved in a wide variety of management and analytical positions, both during co-op and after graduation.

The program's required courses are specifically designed to develop the ability to apply economic analysis to real-world problems. Liberal arts courses enhance the student's oral and written communication skills. Business courses include accounting and finance. Quantitative analytical skills are developed by a course sequence that includes computer science, mathematics, and statistics. Free electives allow students to pursue advanced study in their individual areas of interest and/or develop a double major. Along with finance, marketing, mathematics, statistics, or computer science, there are many other possibilities. Faculty advisers help students develop professional options that will assist them in attaining their career goals.

Academic enrichment

Economics faculty members serve as mentors and are available to enhance students' personal and professional growth. There are many special opportunities for students in the economics program. They may work as teaching assistants for professors in Principles of Economics courses or learn about research techniques as research assistants for the faculty. For both of these activities, students receive a stipend. Finally, students can engage in independent research, receiving academic credit and obtaining funding for their research needs.

Cooperative education

Students in the economics program who participate in co-op may be placed with financial and brokerage institutions, government offices, and large corporations. Co-op can be taken during any quarter, including summer, after the sophomore year.

Double major in economics

Because of the flexibility of the economics curriculum, many students choose to pursue a double major in economics and a secondary field of study. Students are able to graduate in four years.

Accelerated dual degree options

In cooperation with the E. Philip Saunders College of Business, students may choose to pursue an accelerated BS/MBA option that permits qualified students to obtain a BS degree in four years and an MBA degree after one additional year of study. In cooperation with the public policy program, qualified students obtain a BS degree in economics and the MS degree in science, technology, and public policy in approximately five years of study. Students are encouraged to speak with an adviser to discuss courses and planning for this option.

Economics, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Foundational Seminar in Economics 0511-200	1
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	Managerial Economics 0511-459	4
	Calculus Requirement**	12
	Computer Science/Information Technology/ Management Information Systems Elective	4
	Liberal Arts*	16
	Wellness Education†	0
Second Year	Monetary Analysis and Policy 0511-452	4
	Applied Econometrics 0511-457	4
	Economic Forecasting 0511-458	4
	Data Analysis 1016-319	4
	Financial Accounting 0101-301	4
	Choose one of the following:	
	Management Accounting 0101-302	4
	Game Theory: Economic Applications 0511-464	4
	Liberal Arts*	4
	General Education Electives	12
	Laboratory Science	8
	Wellness Education†	0
Third Year	Intermediate Microeconomic Theory 0511-453	4
	Intermediate Macroeconomic Theory 0511-455	4
	Mathematical Methods for Economics 0511-460	4
	Corporate Finance 0104-441	4
	Free Electives	8
	Computer Science/Information Technology/ Management Information Systems Electives	8
	Liberal Arts*	12
Fourth Year	International Trade and Finance 0511-454	4
	Industrial Organization 0511-456	4
	Benefit Cost Analysis 0511-450	4
	Free Electives	19
	General Education Electives	8
	Total Quarter Credit Hours	*180*

**See Liberal Arts General Education Requirements for more information.*
***Economics majors are required to take three pre-calculus and calculus courses and complete the equivalent of Calculus B.*
†See Wellness Education Requirement for more information.

International Studies

Christine Kray, Department Chairperson

www.rit.edu/cla/sociology/internationalstudies

The bachelor of science in international studies highlights interdisciplinary approaches for understanding global processes, such as the impact of globalization on local communities, regions, and environments and how people in different parts of the world can promote equitable and sustainable development in the future.

The program seeks to educate a new generation of global citizens who will acquire the expertise to assess and analyze salient issues such as flexible capitalism, consumer culture, economic opportunities, international migration, social change, political violence, and terrorism. The program prepares graduates for careers that demand an understanding of the social, economic, political, and environmental issues that are central to globalization.

Curriculum

The international studies program allows students to choose a specialization that is focused on either a world region or a function. The regional fields are East Asia, Latin America, Europe, the Middle East, and Africa. The two functional tracks are international business, and science, technology, and society.

It is expected that students with a regional specialization will study a language that corresponds to that region: for example Chinese or Japanese in the East Asia track; Portuguese or Spanish in the Latin American track; or French, German, Portuguese, Russian, Italian, or Spanish in the European track.

Accelerated dual degree options

In cooperation with the E. Philip Saunders College of Business, students may choose to pursue an accelerated BS/MBA option that permits qualified students to obtain a BS degree in four years and an MBA degree after one additional year of study. In cooperation with the public policy program, qualified students obtain a BS degree in international studies and an MS degree in science, technology, and public policy in approximately five years of study. Students are encouraged to speak with an adviser to discuss courses and planning for this option.

International experience

The program requires students to participate in an international experience, which includes approved study abroad programs, cooperative education or internships in foreign countries, or employment in an international organization or in the international division of U.S. firms with foreign operations.

Career opportunities

Graduates with a BS degree in international studies are prepared for a range of careers in the private, governmental, and nonprofit sectors. There is increased demand by companies with foreign operations in Africa, the Middle East, East Asia, Latin America, and Europe for graduates who are competent to interact with people from different cultures and societies, comprehend science and technology policy issues, are cognizant of the international dimensions of business operations, and are able to communicate in the languages commonly spoken in these parts of the world. In addition, the international studies program prepares students for graduate study in public and international affairs, business, law, and social science studies.

International studies, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Liberal Arts*	12
	Mathematics and Science Requirement**	8
	Foreign Language Requirement	12
	Introduction to International Studies 0524-210	4
	Introduction to International Relations 0513-214	4
	Modern U.S. Foreign Relations 0507-441	4
	Cultures in Globalization 0510-440	4
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	International Trade and Finance 0511-454	4
	Liberal Arts*	12
	Mathematics and Science Requirement**	8
	Data Analysis I and II 1016-319, 320	10
	Foreign Language Requirement	12
	Web Foundations 4002-200	4
	Wellness Education†	0
Third Year	International Studies Track	8
	Foreign Language Requirement	16
	Liberal Arts*	12
	Mathematics and Science Requirement**	4
	Open Electives	8
	International Experience	0
Fourth Year	International Studies Track	8
	Capstone Seminar 0524-501	4
	Liberal Arts*	12
	Open Electives	12
	Total Quarter Credit Hours	*182-184*

** Please see Liberal Arts General Education Requirements for more information.*
*** Please see Mathematics and Science General Education Curriculum.*
† Please see Wellness Education Requirement for more information.

Journalism

Bruce A. Austin, Department Chairperson

www.rit.edu/journalism

The bachelor of science degree in journalism offers a unique and multifaceted educational experience that prepares students to gather, critically analyze, and synthesize verbal and visual information in order to communicate accurate and clear news stories across multiple media platforms. In addition to writing and reporting, students learn to prepare audio and visual content for dissemination in a variety of media, making them a valuable asset to any future employer specializing in news reporting and factual story-telling.

The journalism degree is enhanced by RIT's reputation for using cutting-edge technology, yet is grounded in the traditional reporting and writing skills needed by professional journalists. The program prepares students for a converged digital media world. They will learn the conceptual and practical skills demanded by the digital newsroom through a combination of journalism, communication, and applied professional courses, along with a professional core offered through the College of Imaging Arts and Sciences.

The professional core

The program's professional core consists of six courses from the School of Print Media, the School of Film and Animation, and the department of photographic arts. The professional core provides an in-depth understanding of design principles, still photography, audio and video production, news and information management, and methods of new media publishing.

Senior project

This capstone course provides students an opportunity to integrate, synthesize, and apply prior learning to a project similar to one they would encounter in their profession. Students produce a long-form piece of journalism, a website, and a digital portfolio of select works.

Curriculum

Required communication courses (60 quarter credit hours)

0535-201 Introduction to Journalism
0535-405 Information Gathering
0535-416 Newswriting
0535-417 Newswriting II
0535-445 Theories of Communication
0535-462 Digital Design
0535-464 Public Relations Writing
0535-470 Law and Ethics of the Press
0535-471 History of Journalism
0535-472 News Editing
0535-473 eJournalism
0535-474 Reporting in Specialized Fields
0535-476 eJournalism II
0535-482 Mass Communications
0535-590 Senior Project

The Professional Core (21-23 quarter credit hours)

2067-264 Intro Photo/non-Photo
2065-222 Film Language
2065-357 History and Aesthetics of the Moving Image: Documentary

Choose one of the following:

2065-217 Digital Video for Multimedia
2065-243 Introduction to Portable Video I

Choose two of the following:

2083-317 News Production Management
2083-412 Digital News System Management
2082-371 Principles of Printing
2082-337 Digital Asset Management

University-wide electives (20 quarter credit hours)

Five courses

Journalism elective (4 quarter credit hours)

One course

Journalism, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Journalism 0535-201	4
	Mass Communications 0535-482	4
	History of Journalism 0535-471	4
	Newswriting 0535-416	4
	Web Foundations 4002-206	4
	Liberal Arts*	12
	Mathematics and Science Requirement**	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Information Gathering 0535-405	4
	Newswriting II 0535-417	4
	Digital Design in Communication 0535-462	4
	Reporting in Specialized Fields 0535-474	4
	News Editing 0535-472	4
	Theories of Communication 0535-445	4
	eJournalism 0535-473	4
	General Education Elective	4
	Liberal Arts*	8
	Professional Core	6-8
	Wellness Education†	0
Third Year	eJournalism II 0535-476	4
	Law and Ethics of the Press 0535-470	4
	Professional Core	6-8
	Liberal Arts*	12
	General Education Electives	8
	University-wide Electives	8
	Mathematics Requirement**	4
	Cooperative Education (two quarters)	Co-op
Fourth Year	Public Relations Writing 0535-464	4
	Journalism Elective	4
	Senior Project 0535-590	4
	Professional Core	6-8
	Liberal Arts*	4
	General Education Electives	8
	University-wide Electives	12
	Total Quarter Credit Hours	*187-189*

** Please see Liberal Arts General Education Requirements for more information.*
***Please see Mathematics and Science General Education Curriculum for more information.*
†Please see Wellness Education Requirement for more information.

Cooperative education

Students are required to complete two quarters of cooperative education or an internship experience in a professional position. This experience gives students the opportunity to apply their classroom learning to a professional work environment. Past co-op positions have included placements at newspapers, including the *Democrat and Chronicle*, Rochester's daily newspaper. The Office of Cooperative Education and Career Services can assist students in identifying co-op and internship positions as well as permanent placement upon graduation.

Advisers

Every student is assigned a faculty adviser, who is available for both academic advising and career counseling. Students find that frequent consultation with their adviser is helpful in planning course scheduling, co-ops, and post-graduation work. In addition to their faculty adviser, students are assigned a co-op and placement adviser, who is located in the Office of Cooperative Education and Career Services. Finally, peer mentors—other journalism students—are available to answer questions about classes, clubs on campus, student-run activities, and other matters from the student's perspective.

Faculty

Nearly all 14 faculty members in the department of communication hold the highest degrees in their fields. Many have won awards for teaching, and all have been published within their areas of expertise.

Freshman and transfer admission

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Students can transfer into journalism from other colleges and universities, as well as from within RIT. Most students who transfer with associate degrees can complete the journalism degree in two years. Transfer credit is evaluated course by course and is assigned where it is most appropriate.

Careers

Journalism majors have a wide range of career options to choose from. It is expected that the market for writers and editors will increase by nearly 20 percent in the next few years and graduates with experience in new media technologies will have a significant edge. The program also is ideal for those who wish to pursue graduate study in journalism or communication. The department of communication offers an MS degree in communication and media technologies. Please consult RIT's *Graduate Bulletin* for more information.

Museum Studies *(formerly Cultural Resource Studies)*

Tina Olsin Lent, Department Chairperson

www.rit.edu/cla/crs

The bachelor of science degree in museum studies is an innovative, interdisciplinary, technically-based program that prepares students for careers in museums, archives, photo collections, and libraries. The program includes a set of introductory and advanced core courses to familiarize students with the fundamentals of museum studies, including the history, theory, and practice of institutional collecting, conservation, and the technical investigation of art. To broaden and deepen their knowledge, students will also choose to pursue one of two specialized professional tracks: cultural resource and information studies or art conservation.

Professional tracks: Both professional tracks include course work that meets the criteria established by professionals in the field and reflects current opinion about necessary skill sets. Since 2000, the International Council of Museums (ICOM) and the Committee on Museum Professional Training (COMPT) have called for revisions in the training of museum professionals that reflect evolving needs for management, leadership, information technology, fundraising, and grant writing skills—all of which the cultural resource and information studies track includes. The art conservation track features the traditional criteria for entry into the field as well as course work in chemistry and studio arts, two areas that have been identified as deficient in other undergraduate programs.

Internships: The program requires students to complete a 200-hour internship in a cultural institution. This experience gives students the opportunity to apply what they've learned in the classroom to a professional setting and gain valuable work experience before they graduate.

Career opportunities: Upon graduation students will be prepared to work in public and private institutions that collect cultural objects, such as museums of various types, historical sites, historical societies, libraries, archives, and corporations. Students are also prepared to further their education in graduate programs, such as an MA in museum studies, art history, informatics, or arts management; an MLS in library and information studies; or an MBA. The Bureau of Labor Statistics reports that there were approximately 27,000 archivists, curators, and museum technicians in the U.S. in 2004 and about 159,000 librarians. Both areas are expected to grow as current professionals reach retirement age and will have to be replaced with those whose education has prepared them for the new responsibilities of the field.

Curriculum

Cultural Resource and Information Studies Track

Program core

0533-370 Introduction to Museums and Collecting
0533-423 Art Materials: Photography
0533-422 Art Materials: Panel Painting
0533-438 Conservation of Cultural Materials
0533-424 Legal and Ethical Issues for Collecting Institutions
0533-425 Display and Exhibition Design
0533-426 Collections Management and Museum Administration
0533-427 Fundraising, Grant Writing, and Marketing for Nonprofit Institutions
0533-437 Forensic Investigation of Art and Research Methods
0533-510 Senior Thesis in Cultural Resource Studies

Art history and studio arts

2039-225, 226, 227 Survey of Western Art and Architecture I, II, III
Freshman-level studio (select two courses):
2042-215 Freshman Metals and Jewelry
2044-215 Freshman Wood and Woodworking
2040-215 Freshman Ceramics
2041-215 Freshman Glass and Glass Sculpture
2021-251 FTDN: Fine Arts Studio
2067-264 Introduction to Photography for Non-majors

Business core

0101-301 Financial Accounting
0102-430 Organizational Behavior
0105-363 Principles of Marketing

Management information systems

0112-325 Applying Business Technology
0112-331 Business Application Development
0112-340 Database Management Systems
0112-370 Systems Analysis and Design
0112-390 Emerging Business Technologies

General education electives

Institute free electives

Art Conservation Track

Program Core

0533-370 Introduction to Museums and Collecting
0533-423 Art Materials: Photography
0533-422 Art Materials: Panel Painting
0533-438 Conservation of Cultural Materials

0533-424 Legal and Ethical Issues for Collecting Institutions
0533-437 Forensic Investigation of Art and Research Methods
0533-510 Senior Thesis in Cultural Resource Studies

Art history and studio arts

2039-225, 226, 227 Survey of Western Art and Architecture I, II, III
Freshman-level studio (select two courses):
- 2042-215 Freshman Metals and Jewelry
- 2044-215 Freshman Wood and Woodworking
- 2040-215 Freshman Ceramics
- 2041-215 Freshman Glass and Glass Sculpture

2021-251 FTDN: Fine Arts Studio
2067-264 Introduction to Photography for Non-majors
2012-211, 212, 213 Drawing I, II, III
Sophomore-level studio (select one sequence):
- 2042-301, 302, 303 Sophomore Metals Studio I, II, III
- 2044-301, 302, 303 Sophomore Wood and Woodworking I, II, III
- 2040-301, 302, 303 Sophomore Ceramics Studio I, II, III
- 2041-301, 302, 303 Sophomore Glass Studio I, II, III
- 2021-305, 315, 361 Painting, Printmaking, Sculpture

Mathematics and science

1013-231, 232, 233 Organic Chemistry I, II, III and Labs

General education electives

Institute free electives

Museum studies, BS degree, typical course sequence, museum studies track

		Qtr. Cr. Hrs.
First Year	Introduction to Museums and Collection 0533-370	4
	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Freshman Studio	2
	Introduction to Photography 2067-264	4
	Liberal Arts*	12
	Mathematics and Science Requirements**	13
	First-Year Enrichment 1105-051, 052	2
Second Year	Art Materials: Photography 0533-423	4
	Art Materials: Panel Painting 0533-422	4
	Freshman Studio	2
	Liberal Arts*	24
	Mathematics and Science Requirements**	8
	General Education Electives	8
	Wellness Education†	0
Third Year	Display and Exhibition Design 0533-425	4
	Collections Management and Museum Administration 0533-426	4
	Fundraising, Grant Writing, and Marketing for Nonprofit Institutions 0533-427	4
	Business Core	12
	Management Information Systems Track	12
	Institute Free Elective	12
Fourth Year	Conservation of Cultural Materials 0533-438	4
	Legal and Ethical Issues for Collecting Institutions 0533-424	4
	Forensic Investigation of Art and Research Methods 0533-437	4
	Senior Thesis 0533-510	4
	Management Information Systems Track	8
	General Education Electives	12
	Institute Free Elective	4
	Total Quarter Credit Hours	***184***

** Please see Liberal Arts General Education Requirements for more information.*
*** Please see Mathematics and Science Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Museum studies, BS degree, typical course sequence, art conservation track

		Qtr. Cr. Hrs.
First Year	Introduction to Museums and Collection 0533-370	4
	Survey of Western Art and Architecture I, II, III 2039-225, 226, 227	9
	Freshman Studio	2
	Introduction to Photography 2067-264	4
	Liberal Arts*	12
	Mathematics and Science Requirements**	13
	First-Year Enrichment 1105-051, 052	2
Second Year	Art Materials: Photography 0533-423	4
	Art Materials: Panel Painting 0533-422	4
	Freshman Studio	2
	Organic Chemistry I, II, III 1013-231, 232, 233	12
	Liberal Arts*	16
	Mathematics and Science Requirements**	4
	General Education Electives	8
	Wellness Education†	0
Third Year	Drawing I, II, III 2013-211, 212, 213	9
	Liberal Arts	8
	General Education Electives	8
	Institute Free Electives	17
Fourth Year	Conservation of Cultural Materials 0533-438	4
	Legal and Ethical Issues for Collecting Institutions 0533-424	4
	Forensic Investigation of Art and Research Methods 0533-437	4
	Senior Thesis 0533-510	4
	Sophomore Level Studio	18
	General Education Electives	8
	Institute Free Elective	5
	Total Quarter Credit Hours	***185***

** Please see Liberal Arts General Education Requirements for more information.*
*** Please see Mathematics and Science Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Philosophy

Brian Schroeder, Department Chairperson

www.rit.edu/cla/philosophy

The BS degree in philosophy offers a curriculum that provides a thorough grounding in the three main areas of philosophy (history, value theory, and reasoning/epistemology), as well as a four-course specialization within philosophy. The program concludes with a senior thesis integrating philosophy with a field of application.

Most of the skills required for student and career success—how to learn, how to apply that learning in professional and personal environments, and how to communicate that knowledge—are central to philosophical training. Philosophy students are taught to evaluate complex problems, identify and examine underlying principles, investigate issues from diverse perspectives, and communicate clearly in both written and oral forms.

Students combine philosophy with a core competence (or even a double major) in another discipline, encouraging them to creatively pursue cross-disciplinary relationships. The program is designed for students to obtain employment after graduation, or to pursue an advanced degree.

Curriculum

Philosophy Core

History of Philosophy

Required courses:

0509-456 Ancient Philosophy
0509-457 Modern Philosophy

Choose one of the following:

0509-462 Contemporary Philosophy
0509-467 Medieval Philosophy
0509-469 19th Century Philosophy

Value Theory

Required course:

0509-476 Ethical Theory

Choose one of the following:

0509-442 Philosophy of Art/Aesthetics
0509-445 Social and Political Philosophy
0509-446 Philosophy of Law

Reasoning/Epistemology

Choose one of the following:

0509-441 Logic
0509-443 Philosophy of Science
0509-455 Theories of Knowledge

Philosophy specialization

Students complete four courses in an area of specialization within philosophy, usually related to the their professional core. Five pre-approved specializations are provided, but students may develop additional options with faculty advising.

Philosophy of Mind and Cognitive Science

0509-441 Logic
0509-458 Philosophy of Mind
0509-468 Metaphysics
0509-472 Minds and Machines
0509-473 Technology and Embodiment
0509-474 Philosophy of Language
0509-444 Great Thinkers
0509-449 Special Topics

Philosophy of Science and Technology

0509-441 Logic
0509-443 Philosophy of Science
0509-452 Philosophy of Technology
0509-455 Theories of Knowledge
0509-473 Technology and Embodiment
0509-444 Great Thinkers
0509-449 Special Topics

Applied Ethics

0509-446 Philosophy of Law
0509-447 Contemporary Moral Problems
0509-448 Philosophy of Peace
0509-451 Professional Ethics
0509-453 Environmental Philosophy
0509-444 Great Thinkers
0509-449 Special Topics

Philosophy of the Social Sciences and Political Philosophy

0509-445 Social and Political Philosophy
0509-446 Philosophy of Law
0509-447 Contemporary Moral Problems
0509-448 Philosophy of Peace
0509-453 Environmental Philosophy
0509-454 Feminist Theory
0509-459 Philosophy of the Social Sciences
0509-460 East Asian Philosophy
0509-473 Technology and Embodiment
0509-444 Great Thinkers
0509-449 Special Topics

Philosophy of Art and Aesthetics

0509-442 Philosophy of Art and Aesthetics
0509-445 Social and Political Philosophy
0509-470 Philosophy and Literary Theory
0509-471 Philosophy of Film
0509-475 Philosophy of Vision and Imaging
0509-444 Great Thinkers
0509-449 Special Topics

Seminar in philosophy

This course is an examination of a selected area or topic of philosophy at an advanced undergraduate level.

Senior thesis

This course is required during the senior year. Students choose a faculty member to serve as a primary adviser. With the adviser's assistance, students research and write a substantial paper on a specific philosophical topic. Students will be encouraged to investigate a particular question in depth, likely building on their philosophy specialization and their professional core. The finished thesis will be discussed and examined by a committee including two other faculty members.

Program electives

Program electives can include philosophy courses not used to satisfy program requirements or complementary courses outside of the department of philosophy. (Students are encouraged, with proper advising, to seek out non-philosophy courses that complement their philosophy specializations.)

Professional core

Students complete a series of courses designed to provide foundational knowledge in a professional/technical discipline outside of philosophy, which complements their studies in the program. The professional core can be fulfilled with a minor (outside of philosophy), by completing an individually designed professional core (subject to the approval of the student's philosophy adviser and the external department), or by completing a double major.

Please note that for transfer students, some (or even all) of the professional core requirements might be satisfied by courses already taken in the former department.

Philosophy, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Ancient Philosophy 0509-456	4
	Modern Philosophy 0509-457	4
	Ethical Theory 0509-476	4
	Professional Core or Free Electives	8
	Liberal Arts*	16
	Mathematics and Science Requirement**	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Philosophy Core Courses	12
	Professional Core or Free Electives	12
	General Education Electives	8
	Liberal Arts*	8
	Mathematics and Science Requirement**	8
	Wellness Education†	0
Third Year	Philosophy Specialization	12
	Professional Core or Free Electives	8
	Program Electives	12
	Liberal Arts*	12
	General Education Electives	4
Fourth Year	Seminar in Philosophy 0509-450	4
	Senior Thesis 0509-595	4
	Philosophy Specialization	4
	Professional Core or Free Elective	4
	Program Electives	12
	General Education Electives	12
	Total Quarter Credit Hours	*184-186*

** Please see Liberal Arts General Education Requirements for more information.*
***Please see Mathematics and Science General Education Curriculum for more information.*
†Please see Wellness Education Requirement for more information.

Advising

Each student is assigned a faculty adviser who will assist in planning course schedules, professional/technical core requirements, and a philosophy specialization area.

Faculty

The philosophy department's faculty are outstanding teachers. They are active scholars, publishing regularly in journals, editing and authoring books, and organizing and delivering papers at conferences at RIT and elsewhere in the United States and abroad.

Political Science

Sean Sutton, Department Chairperson

www.rit.edu/cla/politicalscience

The bachelor of science degree in political science tightly integrates the traditional fields of American government and international relations in order to prepare students for a life and a career in an increasingly globalized world. Moreover, the program includes tracks of courses in three areas: politics and life sciences, digital politics and the information age, and political institutions. Through these tracks students can study the influence of recent advances in biology and biotechnology on how we understand ourselves as human beings and citizens or the use of information technology for political organization and communication. There are few undergraduate political science programs in the country that so fully incorporate both these fields into their curricula, including the opportunity to take courses from the biology and information technology departments as part of their program requirements.

The program will prepare principled leaders and responsible citizens for fruitful careers in the public and private sectors.

Core courses

The program consists of four core courses, plus a capstone project, designed to introduce students to the general themes of the degree program. The program culminates in a political science capstone course, which will tie together the themes of the program through a seminar and significant writing project.

0513-310 Principles of American Politics
0513-311 Fundamentals of International Politics
0513-425 Politics and the Life Sciences
0513-426 Cyberpolitics
0513-500 Political Science Capstone

Program tracks

The overarching goal of the political science program is to prepare undergraduates for the challenges of life and a career in a world that is increasingly globalized, where the application of biotechnology and biomedicine will become common, and where social computing will shape and influence democratic government and the wider community. Students are required to choose one track so that they can study in depth the political impact of modern biology and biotechnology, the changing role of political institutions in a globalized world, or develop technical skills drawn from RIT's business school and information technology program to give them firsthand experience in the technologies that increasingly influence political organization and communication.

Politics and the life sciences (16 quarter credit hours)

Choose four courses:
1001-421 Genetics
1001-311 Cell Biology
1001-365 Evolutionary Biology
1001-359 Evolution, Creationism and Intelligent Design
0508-484 Environmental Policy
0509-473 Technology and Embodiment
0513-427 Evolutionary International Relations
0513-428 Evolution and Law
0513-429 Primate Politics

Digital politics and the information age (16 quarter credit hours)

Choose four courses:
0112-340 Database Management Systems
0112-440 Database Systems Development
0509-217 Ethics and the Information Age
0513-454 Political Parties and Voting
0535-410 Computer Mediated Communication
4002-320 Introduction to Multimedia: Internet and the Web
4002-310 Digital Video for the WWW
4002-360 Introduction to Database and Data Modeling
4002-409 Web Site Design and Implementation
4002-535 Network-based Multimedia
4002-484 Fundamentals of Database Client/Server Connectivity

Political institutions (16 quarter credit hours)

Choose four courses:

0513-451 Legislative Process
0513-452 The American Presidency
0513-456 Judicial Process
0513-487 International Law and Organizations
0513-461 Introduction to Comparative Politics
0513-490 International Political Economy

Electives

Students are required to take eight courses (32 quarter-credits) from the department's American politics and international relations/comparative government offerings with a minimum of three courses from each area. This requirement recognizes the increasing interdependence between domestic and international politics in this era of globalization. Students will focus their studies on American politics, international relations, and comparative politics to provide them with an integrated national and global political perspective.

Double majors

The political science program is designed to comply with RIT's emphasis on curricula creativity, flexibility, and innovation. The program includes five free electives (20 credits), and its interdisciplinary and intercollegiate character ensures that pre-approved double majors in political science and other degree programs within the college and the university as a whole are readily available to students. Students in diverse fields such as computer science, criminal justice, economics, and philosophy have already signed up for double majors with political science.

Accelerated dual degree option

The Saunders College of Business and the political science department in the College of Liberal Arts offer a 4+1 BS/MBA option that permits qualified students who have earned a BS degree in political science to pursue an MBA. Selected MBA courses may be waived based upon completion of certain undergraduate courses. Students may be able to complete the MBA program in as few as four or five academic quarters.

Experiential education

After completing 96 credit hours (or third-year status), students are eligible to participate in optional experiential learning experiences that may include an internship and cooperative education (co-op). An internship or co-op provides students with hands-on experience in a variety of environments, from government agencies, non-profits, nongovernmental agencies, to political campaigns. These opportunities provide students with employment experience as well as the opportunity to further develop skills in their chosen profession.

Study abroad

A study abroad opportunity provides students with a way to enhance their understanding of global politics and culture. They may study full time at a variety of host schools and are able to select courses in their major as well as liberal arts courses. To learn more about the Study Abroad program, please refer to the Academic Enrichment section of this book.

Career opportunities

A degree in political science will prepare undergraduate students for careers in law; local, state, and national government; foreign service; business; government relations; and other areas of the private and public sector in which knowledge of the political process and the strengths and limitations of modern democracy and modern society is appropriate. In addition, students are well-prepared for graduate study in a variety of fields, ranging from business and law to political science and public policy.

Advising

Each student in the political science program is assigned a faculty adviser who will help with registration, scheduling, course selection, academic concerns, and career counseling.

Faculty

The political science faculty have extensive experience in the classroom and are well-published in their fields of expertise. Faculty members have broad backgrounds in addition to their political science training, including criminal justice, literature, philosophy, political campaigning, political polling, and public policy. Several members have worked for the United Nations and in Washington, D.C., think-tanks.

Freshman and transfer admission

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Political science, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Principles of American Politics 0513 310	4
	Fundamentals of International Relations 0513-311	4
	Politics and the Life Sciences 0513-425	4
	Liberal Arts *	20
	Math and Science Requirements **	16
	First-Year Enrichment	2
	Wellness Education†	0
Second Year	Cyberpolitics 0513-426	4
	Political Science Program Electives	12
	Liberal Arts *	16
	Math and Science Requirements **	8
	Free Electives	8
	Wellness Activity†	0
Third Year	Political Science Track	12
	Political Science Program Electives	12
	Liberal Arts	16
	Free Electives	8
	Cooperative Education (optional) (summer)	Co-op
Fourth Year	Political Science Track	4
	Political Science Program Electives	12
	Political Science Capstone 0513-500	4
	Liberal Arts *	12
	Free Electives	4
	Total Quarter Credit Hours	182

** Please see Liberal Arts General Education Requirements for more information.*
*** Please see Mathematics ad Science General Education Requirements for more information. Students are encouraged to take the general biology sequence in preparation for the program's emphasis on politics and the life sciences.*
† Please see Wellness Education Requirement for more information.

Professional and Technical Communication

Bruce A. Austin, Department Chairperson

www.rit.edu/ptc

The bachelor of science degree in professional and technical communication unites advanced education in the theory and practice of spoken, written, and visual communication with extensive instruction in one of RIT's professional or technical programs. This unique combination fosters an understanding of the central concepts and processes associated with the field of communication and a working familiarity with the principles and practices of a particular professional/technical field.

Graduates are qualified for a number of different functions as communications specialists within a specific professional area. Their career opportunities are numerous and varied. The degree also prepares them for graduate work in communication and related academic disciplines.

Curriculum

Required courses

0535-200 Foundations of Communications
0535-311 Rhetorical Theory
0535-315 Quantitative Research Methods
0535-317 Critical Research Methods
0535-412 Communications Law and Ethics
0502-444 Technical Writing
0535-445 Theories of Communication
0535-446 Writing the Technical Manual
0535-450 Visual Communication
0535-462 Digital Design in Communication
0535-481 Persuasion
0535-482 Mass Communications
0535-501 Public Speaking
0535-532 Professional Writing
0535-595 Senior Thesis in Communication

Professional core

As part of their degree requirements, students complete a professional core of five courses focused on a professional or technical area of interest. These courses may be taken from programs within the College of Science, the College of Imaging Arts and Sciences, the E. Philip Saunders College of Business, or another RIT program. Alternatively, an individually designed professional core, one tailored to a student's specific study and career interests, is available with the approval of an academic adviser and the program chairperson.

University-wide electives (20 credit hours)

Five courses

Program elective (4 quarter credit hours)

One communication elective

Professional and technical communication, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Foundations of Communication 0535-200	4
	Rhetorical Theory 0535-311	4
	Public Speaking 0535-501	4
	Digital Design in Communication 0535-462	4
	Web Foundations 4002-206	4
	Liberal Arts*	8
	Mathematics and Science Requirement**	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Persuasion 0535-481	4
	Technical Writing 0502-444	4
	Visual Communication 0535-450	4
	Mass Communications 0535-482	4
	PTC Elective	4
	Professional Core	12
	Liberal Arts*	16
	Wellness Education†	0
Third Year	Theories of Communication 0535-445	4
	Communications Law and Ethics 0535-412	4
	Professional Core	8
	General Education Electives	16
	Mathematics Requirement**	4
	University-wide Elective	4
	Cooperative Education (two quarters)	Co-op
Fourth Year	Quantitative Research Methods 0535-315	4
	Critical Research Methods 0535-317	4
	Professional Writing 0535-532	4
	Writing the Technical Manual 0535-446	4
	Senior Thesis in Communication 0535-595	4
	Liberal Arts*	12
	University-wide Electives	16
	Total Quarter Credit Hours	*182*

** Please see Liberal Arts General Education Requirements for more information.*
***Please see Mathematics and Science General Education Curriculum for more information.*
†Please see Wellness Education Requirement for more information.

Cooperative education

Professional and technical communication students complete two quarters of cooperative education as part of the program. Co-op is paid, practical work experience that deepens students' knowledge of their academic fields, allows them to determine their suitability for a particular professional position, and increases their chances for advantageous placement upon graduation. Many students use the extra income earned on co-op to help offset college expenses.

A broad range of co-op opportunities is available. There is no restriction on geographic location as long as the co-op position is related to communication. The Office of Cooperative Education and Career Services assists students in identifying co-op and permanent placements with a large and diverse number of employers. Students have held co-ops across the United States at such organizations as Greenpeace, Bausch & Lomb, the Rochester Memorial Art Gallery, the Chicago Hearing Society, Eastman Kodak Co., City of New York Parks & Recreation, and the U.S. House of Representatives.

Students

The size of the program, averaging about 60 students, ensures close contact with the program's faculty and other students. The program attracts energetic students who are actively involved in numerous communication-related extracurricular activities, including RIT's FM radio station, WITR, and RIT's weekly

magazine, *Reporter.* Many students have served as residence hall advisers as well as representatives to, and leaders of, student government.

Advisers

Every student in the program is assigned a faculty adviser who is available for both academic advising and career counseling. Students find that frequent consultation with their adviser is helpful in planning course scheduling, co-ops, professional core areas, and post-graduation work. In addition to their faculty adviser, students are assigned a co-op and placement adviser, located in the Office of Cooperative Education and Career Services. Finally, peer mentors—other professional and technical communication students—are available to answer questions about classes, clubs on campus, student-run activities, and other matters from the student's perspective.

Faculty

Nearly all 14 faculty members in the department of communication hold the highest degrees in their fields. All have proven teaching ability and are committed to professional growth in their areas of expertise. In addition to their teaching, research, and other professional responsibilities, faculty members act as academic advisers for students in the program. The department also offers students the opportunity to participate in specialized course work and research with faculty members.

Freshman and transfer admission

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Students may transfer into the professional and technical communication program from other colleges and universities, as well as from within RIT. Most students who transfer with associate degrees can complete the professional and technical communication degree in two years. Transfer credit is evaluated course by course and is assigned where it is most appropriate.

Careers

Upon graduation, students are prepared for immediate employment and long-term professional growth within the broad field of communication. Graduates qualify for positions in business, government, and the not-for-profit sector, and are employed as technical editors and writers, sales and marketing coordinators, document specialists, broadcast news and segment researchers, public relations practitioners, and staff members for various federal and state government officials.

The program also prepares students for graduate study in law, public relations, communication, health services, and management. The department of communication offers an MS degree in communication and media technologies. Please consult RIT's Graduate Bulletin for more information.

Psychology

Andrew M. Herbert, Department Chairperson

www.rit.edu/cla/psychology

The bachelor of science degree in psychology provides students with a strong grounding in the discipline of psychology, integrated with a technological focus. Upon entry, students are assigned a faculty adviser to mentor their progress through the program. Students also are provided with curriculum planning strategies and career counseling through the program's Freshman Seminar.

Curriculum

The BS degree in psychology is unique and encompasses three key elements: the choice of four interdisciplinary tracks; a technical/professional concentration or minor; and a cooperative education requirement.

Interdisciplinary tracks: Students choose one of the following interdisciplinary tracks: visual perception, information processing, biopsychology, or clinical psychology. Technology is integrated into these tracks to produce a nontraditional and career-oriented psychology major. The tracks are also active fields of research in psychology, and students receive training that provides a strong foundation for graduate school.

The visual perception track focuses on human perceptual systems. Vision is presented as the integration of anatomy, physiology, and behavior. Students learn psychophysical methods. The track covers cutting-edge topics such as the retinal mosaic and the sensory system's amazing plasticity. It stresses current research showing that visual perception is a living and growing field.

The information processing track uses an interdisciplinary approach to study cognitive processes such as judgment and decision making, memory, learning, language, problem solving, attention, and perception. The track explores the interaction of human factors, psychology, and technology.

The biopsychology track studies the brain as the biological basis of behavior. It focuses on topics such as lateralization, cortical specialization, brain injury, and neuropsychological testing. Psychophysiological measures (including EEG, EMG, and skin conductance) are covered in depth along with the relationship between brain chemistry and behavior. Students perform laboratory work on the brain and its relationship to attention, memory, language, perception, and psychological disorders.

The clinical psychology track emphasizes the scientific and empirical foundations of clinical and applied work. Empirically based methods are introduced to understand and modify human psychological problems. This track prepares students for graduate programs in mental health.

Technical/professional concentration or minor: The program seeks students with an aptitude for technical and quantitative reasoning as well as an interest in psychology. There is sufficient curricular flexibility to permit completionj of a technical concentration or minor.

Cooperative education

The program requires that students complete a cooperative education experience for two quarters between the sophomore and senior years of course work. The co-op experience is in a psychology-related field and does not carry academic credit.

Freshman and transfer admission

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Under-

graduate Admission section of this bulletin.

Students from other institutions may apply for transfer into the program. The point of entry into the program is highly flexible, since there is only one fixed sequence: Introduction to Psychology (0514-210), Scientific Writing (0514-315), Psychological Statistics (0514-350), and Experimental Psychology (0514-400). The technical concentration component shares a number of common courses with other programs, providing internal flexibility for students from other RIT programs who may retain credits from some of the technical courses they have completed previously.

Career opportunities

The unique requirements of this program ensure that each student should be well-prepared for advanced study in psychology or a related field, employment in industry or in human service agencies, or other career opportunities.

Psychology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 0514-201	1
	Introduction to Psychology 0514-210	4
	Childhood and Adolescence 0514-440	4
	Cognitive Psychology 0514-443	4
	Social Psychology 0514-444	4
	Human Biology I, II with Lab 1004-211, 212, 231, 232	8
	Algebra for Management Science 1016-225	4
	Web Foundations or Higher 4002-206	4
	Liberal Arts*	12
	First-Year Enrichment I, II 1105-051, 052	2
	Wellness Education†	0
Second Year	Scientific Writing 0514-315	4
	Psychological Statistics 0514-350	4
	Experimental Psychology 0514-400	4
	Psychology of Personality 0514-446	4
	Abnormal Psychology 0514-447	4
	Industrial/Organizational Psychology 0514-448	4
	Data Analysis I, II 1016-319, 320	8
	Liberal Arts*	12
	Technical/Professional Concentration	4
	Cooperative Education (summer quarter)	Co-op
Third Year	Interdisciplinary Courses	12
	Technical/Professional Concentration	8
	Liberal Arts*	20
	University Electives	8
	Cooperative Education (summer quarter)	Co-op
Fourth Year	Interdisciplinary Course	4
	University Electives	12
	Senior Project in Psychology I, II 0514-596, 597	8
	General Education Electives	16
	Total Quarter Credit Hours	*183*

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirements for more information.

Public Policy

James J. Winebrake, Department Chairperson

www.rit.edu/cla/publicpolicy

The public policy program explores the intersection of public policy, technology, and our natural world. The program provides students with an opportunity to integrate their interests in science, technology, government, economics, and other social science fields. The BS degree combines an understanding of these fields with the analytical tools needed to study the impact of public policy on society. Through the program, students acquire policy analysis skills, with particular attention on analyzing policies that emerge in a technology-based society. The program has many key features, including:

Science and technology—Graduates are trained in the vernacular, methodologies, and problem-solving approaches of the sciences and technologies relevant to their chosen policy study track, and they possess a well-grounded familiarity in that area. Policy tracks include environmental policy, information and communications policy, energy policy, biotechnology policy, and others designed to meet the student's interests. Students have an option of tailoring a track to their interests.

Interdisciplinary—A sequence of eight public policy courses ensures the program provides integration of diverse disciplines. This sequence makes up the core of the curriculum and enables students to integrate diverse subjects and apply them to the analysis of public policy.

Integrated qualitative and quantitative skills—The program balances both quantitative and qualitative approaches to the analysis of public policy so that students are able to achieve a full systems-level grasp of policy issues.

Solid grounding in liberal arts—While our graduates will have quantitative and qualitative training, by the end of their academic career they also will have taken liberal arts courses with a broad disciplinary range. It is this grounding in humanistic values combined with technology and science that makes our program both balanced and unique.

The curriculum is designed to train students to think and analyze policy in terms of complex, interconnected systems. This training is in high demand in the public, private, and nonprofit sectors.

Accelerated dual degree option

Students can choose a four-year BS degree or an accelerated five-year option leading to a BS in public policy and an MS in science, technology, and public policy. The five-year BS/MS option provides graduates with a considerable advantage in many policy-related careers.

Cooperative education

Students complete a co-op or internship within the private, public, or nonprofit sectors. The co-op experience makes our students attractive to a wide range of agencies, businesses, and organizations.

Track courses

Six track courses demand that students apply skills acquired in public policy courses to specific policy areas or domains. Students can concentrate in areas such as environmental policy, information and communications policy, energy policy, and biotechnology policy, among others. Many track courses are offered through other programs and colleges of the university, including those that provide a firm grounding in the science and technology aspects of the chosen track. This gives students an opportunity to interact and study with researchers and faculty from a broad

range of disciplines.

Public policy colloquium

This required, noncredit-bearing colloquium meets twice each quarter. The colloquium is used to bring in policy practitioners and academics to talk about careers, research, and special topics. The colloquium series helps build and sustain a sense of community among policy majors by providing a context for their course work and research.

Employment opportunities

Exciting career opportunities await professionals who can integrate an understanding of science and technology with public policy decision making. RIT public policy graduates are uniquely positioned to take advantage of the growing job market in public policy, with career options in a range of fields within the private, government, and nonprofit sectors.

Faculty

Faculty have extensive experience in the classroom and as practitioners in their respective fields. In addition to public policy, faculty members have a broad range of backgrounds, including physics, engineering, law, environmental science, energy management, and information technology.

Public policy, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Public Policy Core	
	Foundations of Public Policy 0521-400	4
	Science and Technology Policy 0508-441	4
	Foundations	
	Principles of Microeconomics 0511-211	4
	Principles of Macroeconomics 0511-402	4
	American Politics 0513-211	4
	Mathematics and Science Requirement**	20
	Liberal Arts*	4
	Free Elective	4
	Policy Colloquium	0
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Public Policy Core	
	Values and Public Policy 521-401	4
	Qualitative Policy Analysis 521-406	4
	Foundations	
	Benefit-Cost Analysis 0511-450	4
	Data Analysis I 1016-319	4
	Choose one of the following:	
	Applied Econometrics 0511-457	4
	Data Analysis II 1016-320	4
	American Political Thought 0513-458	4
	Environment and Society 0508-460	4
	Liberal Arts*	20
	Policy Colloquium	0
	Wellness Education†	0
Third Year	Public Policy Core	
	Policy Analysis I, II, III 0521-402, 403, 404	12
	Public Policy Track Courses	12
	Liberal Arts*	12
	Free Electives	12
	Cooperative Education (Summer)	Co-op
	Policy Colloquium	0
Fourth Year	Public Policy Core	
	Senior Project I 0521-405	4
	Technological Innovation and Public Policy 0521-408	4
	Public Policy Track Courses	12
	Liberal Arts*	12
	Free Elective	4
	Total Quarter Credit Hours	*182*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
*** Please see Mathematics and Science General Education Curriculum for more information.*
Note: Students may take up to 12 quarter credit hours of MS classes in their fourth year if they are enrolled in the BS/MS program. This increases total quarter credit hours to 198.

Urban and Community Studies

Christine Kray, Department Chairperson

www.rit.edu/cla/sociology/urbancomm/

Eighty percent of U.S. residents work, learn, and raise families in metropolitan areas. Countries around the world are rapidly urbanizing, and the urban populations of the world are linked participants in a global economic and cultural system. Cities also present challenges regarding land use, access to resources, cross-cultural communication, pollution, crowding, and traffic. The prominence and interdependence of today's urban landscape create a pressing need for individuals who possess the skills, aptitude, and commitment to create sustainable cities and communities.

The bachelor of science program in urban and community studies provides an awareness of the institutional and structural forces that influence the development of urban and rural areas as well as the lives of their residents. The program's interdisciplinary combination of classes in the sciences, computing, and the liberal arts gives students a broad knowledge base that lets them approach urban issues from a number of perspectives.

Students will enter the work force technically grounded and knowledgeable of urban theories, policies, and practices. Upon graduation, students will be equipped to take on positions in many fields, including city government, social services, local or international development, and urban planning.

Curriculum

Program core courses (36 quarter credit hours)
0515-442 The Urban Experience
0515-413 Urban Planning and Policy
0515-406 Qualitative Methods
0526-440 Quantitative Methods
0515-444 Social Change
0510-445 Global Cities
0515-485 Diversity in the City
0526-441 GIS Applications in Urban and Community Studies
4002-320 Introduction to Multimedia: The Internet and the Web

Track courses (28 quarter credit hours)
Choose one of the following tracks:

Urban and community development
Communities in global perspective
Community: race, class and gender

Tracks

The urban and community studies program offers three distinct tracks, allowing students to focus their interests in one particular area. The urban and community development track investigates the role of public, private, and nonprofit organizations in how cities function, with an emphasis on topics such as housing, public health, land use, and transportation. A second track, communities in global perspective, is designed for students interested in regional economic and cultural issues within international settings. The third track, community: race, class, and gender, examines how political, economic, social, and environmental forces affect neighborhoods and entire regions. Special attention is paid to issues such as urban poverty, racial segregation, gender inequality, educational challenges, and urban family life.

Cooperative education and field experience

Students will perform field work with local agencies and organizations through summer- or quarter-long internships and co-op assignments.

Accelerated dual degree option

The college offers an accelerated BS/MS program for students interested in pursuing advanced study. They may obtain a BS degree in urban and community studies and an MS degree in science, technology, and public policy in approximately five years of study. Students are encouraged to speak with an adviser to discuss courses and planning for this option.

Urban and community studies, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Urban and Community Studies Core:	
	Choose one of the following courses:	4
	Foundations of Sociology 0515-210	
	Cultural Anthropology 0510-210	
	The Urban Experience 0515-442	4
	Social Change 0515-444	4
	Mathematics and Science Requirements**	22
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Urban and Community Studies Core:	
	Quantitative Methods 0526-440	4
	Qualitative Methods 0515-406	4
	Diversity in the City 0515-485	4
	Global Cities 0510-445	4
	Urban Planning and Policy 0515-413	4
	Introduction to Multimedia: The Internet and the Web 4002-320	4
	Liberal Arts*	24
	Wellness Education†	0
Third Year	Urban and Community Studies Core:	
	GIS Applications in Urban and Community Studies 0526-441	4
	UCS Track	24
	General Education Electives	20
	Cooperative Education or Internship (summer)	Co-op
Fourth Year	UCS Track	4
	General Education Electives	12
	Senior Thesis	4
	Free Electives	20
	Total Quarter Credit Hours	***184***

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
***Please see Mathematics and Science General Education Curriculum.*

Liberal Arts Exploration

John S. Smithgall, Program Director
www.rit.edu/cla/exploration

The liberal arts exploration program is an undeclared option designed to allow students to complete required liberal arts, mathematics, and science courses while actively pursuing career exploration and receiving individualized academic advising. Students may stay in the program for up to two years or 87 credit hours before they choose a major. This option offers students the flexibility and time to explore a variety of majors within the College of Liberal Arts without delaying their graduation.

Students will work closely with academic and faculty advisers to select courses each quarter based on ability, interests, and goals. Students will take on average 16 credits each quarter and may explore courses in any one of the college's degree programs. Through the exploration route, students may elect to complete a double major or multiple minors within the College of Liberal Arts.

Liberal Arts Exploration typical course sequence

		Qtr. Cr. Hrs.
First Year	Liberal Arts*	20
	Mathematics and Science Requirements**	8
	Liberal Arts Electives (chosen in consultation with an adviser)	12
	First-Year Enrichment 1105-051, 052	2
	Career Exploration Seminar 0520-201	1
	Wellness Education†	0
Second Year	Liberal Arts*	16
	Mathematics and Science Requirements**	12
	Web Foundations 4002-206	4
	Liberal Arts Electives (chosen in consultation with an adviser)	12
	Wellness Education†	0
	Total Quarter Credit Hours	***87******

**Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
***Please see Mathematics and Science General Education Curriculum.*
****Remaining degree requirements will be determined by selected major.*

College of Science

Sophia Maggelakis, Dean

www.science.rit.edu

Undergraduates in the College of Science receive a unique education, one that emphasizes the applications of science and mathematics in the professional world while providing a comprehensive liberal arts education in the humanities and social sciences. The College of Science curricula, under the direction of our faculty members, reflects current trends in the application of science and mathematics while preparing students for graduate study or for immediate employment in business, industry, government, and the medical science professions.

Within an academic community committed to diversity and student centeredness, our emphasis is on the practical aspects of science and mathematics as found in science and computer laboratories. While we are career-oriented, we recognize the value of the liberal arts for the intellectual enrichment of our students. In addition to technical competence, many of the skills acquired through the study of liberal arts also are required by employers for promotion and career advancement.

Admission requirements

For information on undergraduate admission, including transfer and freshman admission guidelines, please see the Undergraduate Admission section of this bulletin.

Faculty and research

The College of Science has more than 170 faculty members teaching in the fields of science, health, and mathematics. All are committed to the education of undergraduate and graduate students, and most hold a doctoral degree. A variety of faculty expertise means students are likely to find a faculty member with similar interests to serve as a mentor.

Our faculty members are dedicated professors who also practice their professions outside of the classroom, participating in research and professional activities. Our undergraduates are encouraged to work with faculty members as they pursue their research. Many joint student-faculty research projects have resulted in publication in professional literature.

Student research in the College of Science is conducted in campus laboratories and through field studies. Opportunities for research across disciplines develop from the collaboration of students and faculty who share common interests. The results of student research projects are recognized in weekly forums and at the Undergraduate Research Symposium at the end of summer.

Facilities

The College of Science's programs are conducted in three major facilities on campus: the Gosnell Building, the Chester F. Carlson Center for Imaging Science, and the Center for Bioscience Education and Technology.

The Gosnell Building has nine classrooms, 22 teaching laboratories, and 16 research laboratories that provide space for laboratory course work and student research projects. Some of the facilities within the Gosnell Building have specialized purposes. For example, we have a thin films laboratory, an animal care facility, a plasma etching laboratory, an electronics laboratory, and a nuclear magnetic resonance laboratory.

The Bates Science Study Center in the Gosnell Building provides a comfortable, wireless computing environment for study groups and individual tutoring sessions with faculty. The 60,000-square-foot south wing of the Gosnell Building—the Center for Excellence in Mathematics, Science, and Technology—has an additional nine media-supported classrooms, three computer laboratories, two statistical computing laboratories, five science laboratories, a laser light scattering laboratory, a greenhouse, and community areas, including the Bruce and Nora James Atrium.

The Chester F. Carlson Center for Imaging Science has teaching and research facilities, including laboratories for visual perception, digital imaging, astronomical imaging, microdensitometry, optics, biomedical imaging, and remote sensing. The Munsell Color Science Building is dedicated to the study of color science.

The Center for Bioscience Education and Technology provides a comprehensive environment to support academic, community, and career-training programs in biotechnology and the emerging life and medical sciences. The facility consists of multi-purpose, high-tech laboratories and classrooms for workforce development, academic programs, continuing education programs, research, K-12 student workshops, and secondary school training programs.

State-of-the-art computer facilities are available in the college as well as in labs throughout the university. A valuable resource for the college's programs, these facilities utilize computers in the application of mathematics, health-related work, and science. The College of Science also operates an observatory on campus.

Cooperative education

In our cooperative education plan, a student alternates quarters of paid work experience with on-campus academic study. Co-op employment experience has many advantages: It helps students gain insight into how classroom learning is applied in real work settings, gives them a chance to experience their professional field of study, and helps them acquire practical experience that is valuable in obtaining employment or applying to a graduate program. Salaries earned from cooperative education experiences enable students to offset a portion of the cost of their education.

Co-op is not a requirement in most of our programs, although it is strongly encouraged. Full participation in a co-op experience means a student will graduate in five years. The Office of Cooperative Education and Career Services assists students in obtaining co-op positions. The following tables outline the co-op options.

Cooperative education schedule for five-year programs in biology, biotechnology, computational mathematics, applied mathematics, applied statistics (A and B block), and physics (C block):

Year		Fall	Winter	Spring	Summer
1 and 2		RIT	RIT	RIT	—
3 and 4	A	RIT	Co-op	RIT	Co-op
	B	Co-op	RIT	Co-op	RIT
	C	RIT	RIT	Co-op	Co-op
5	A	RIT	Co-op	RIT	—
	B	Co-op	RIT	RIT	—
	C	RIT	RIT	Co-op	—

Cooperative education schedule for five-year chemistry, chemistry (environmental option), biochemistry, and polymer chemistry programs*:

Year		Fall	Winter	Spring	Summer
1		RIT	RIT	RIT	Co-op
2, 3 and 4	A	RIT	Co-op/RIT	RIT	Co-op
	B	Co-op	RIT	Co-op	RIT
5	A	RIT	Co-op	RIT	—
	B	Co-op	RIT	RIT	—

** Some students may elect to co-op for a double block (i.e., winter and spring).*

Students in the environmental science and imaging science programs are encouraged to participate in optional co-op blocks beginning the summer of the second year of their program. Students in the bioinformatics program are required to complete one cooperative education experience.

Internships

Students in the diagnostic medical sonography (ultrasound) and physician assistant programs do not participate in co-op. Instead, they spend three years on campus doing academic work and then gain invaluable clinical experience during the fourth year at clinical training sites.

Accreditation

Programs in chemistry, chemistry with an environmental option, biochemistry, and polymer chemistry are approved by the Committee on Professional Training of the American Chemical Society. The diagnostic medical sonography program is accredited by the Joint Review Committee on Education in Diagnostic Medical Sonography of the Commission on Accreditation of Allied Health Education Programs. The professional phase (years three and four) of the physician assistant program has accreditation from the Accreditation Review Committee for the Physician Assistant.

Additional information

Academic advising: Each student is assigned an academic adviser who provides counsel on course selection, advice about careers, and information on RIT services. It is common for a science major to have several mentors among the faculty who help with academic, career, and personal questions.

Our graduates: The best way to evaluate an academic program is to look at the success of its graduates. Recent surveys show that of College of Science graduates, more than 90 percent of respondents indicated that they are employed in a field related to their degree, and the same percentage expressed satisfaction with their work.

Employers report that graduates have good preparation for employment in business and industry and, because of their work experience, immediately fit into jobs with a high degree of initiative and purpose.

One-fourth of students enter graduate or professional school directly after graduation. More return for further education at the graduate level as part of their career development. Many RIT graduates find that their laboratory, research, and co-op experiences assist them in completing graduate-level research projects more easily than students from other universities.

Minors: RIT offers more than 90 minors to choose from; among those are minors offered by the College of Science. These include astronomy, environmental science, environmental modeling, exercise science, chemistry, imaging science, mathematics, optical sciences, physics, and statistics. A minor provides students with a secondary area of expertise to complement their major. Students interested in pursuing a minor are advised to consult with their faculty adviser and the College of Science department offering the minor. For more information, see www.science.rit.edu.

Graduate degrees: The College of Science offers master of science degrees in applied and computational mathematics, bioinformatics, chemistry, clinical chemistry, color science, environmental science, and imaging science. A master of science degree in materials science and engineering is offered jointly by the College of Science and the Kate Gleason College of Engineering. A master of science degree and a doctorate degree in astrophysical sciences and technology is offered jointly by the College of Science's department of physics, School of Mathematical Sciences, and Center for Imaging Science. The Center for Imaging Science also offers doctorate degrees in imaging science and color science.

Premedical Studies Advisory Program

Kristen M. Waterstram-Rich, Director

www.premed.rit.edu

The premedical studies advisory program is designed to provide guidance and assistance to all RIT students who are interested in continuing their education in one of the health professions; e.g., medicine, osteopathy, dentistry, optometry, podiatry, or veterinary science. Faculty members who participate in this program provide advice on the prerequisites (course selection, health-related experiences, extracurricular activities) needed for application to various health-related professional schools. In addition, they provide assistance with the application process.

Enrollment in premedical studies: The premedical studies advisory program is available to students who are enrolled in one of the degree granting programs offered at RIT or to nonmatriculated students taking the premedical core courses or preprofessional prerequisite courses. To enroll in the program, students must contact the premedical studies office in room 2102 in the College of Science or call (585) 475-7105 to arrange an appointment.

Premedical core courses and academic programs: To complete the academic requirements necessary to gain admission to doctoral programs in the health professions, a student may enroll in any BS program at RIT and combine that program's course requirements with the premedical core courses. The way in which program requirements are combined with the premedical core courses varies according to the program in which the student is enrolled. The curricula of certain programs—in particular, those in the College of Science—include all of the premedical core courses. Other programs require only a few of the required courses, so students in these programs may require additional time, perhaps summers, to complete all required courses. It is important that these courses be completed by the end of the third year or before the student expects to take the MCAT, DAT, OAT, GRE, or other standardized tests required for admission to a health-related professional school. Careful planning and scheduling, with the guidance of the premedical studies advisers, is crucial to success. The prerequisites for medical school, and most health-related professional schools, are provided as follows:

Biology	1 year	With laboratory
Chemistry	1 year	General and analytical chemistry, with laboratory
Organic chemistry	1 year	With laboratory
Physics	1 year	With laboratory
English	1 year	

Note: In addition to these core courses, which are required by nearly all U.S. medical schools, courses in mathematics, psychology/behavioral sciences, or biology may be required by specific medical schools. The admission requirements of each medical school are published and may be obtained from the premedical advising committee. Some medical schools refuse to accept advanced placement credit for these core courses.

Combining the requirements of a degree program in the College of Science with the science premedical core courses*

If you major in:	You will need to take the courses required for your major, plus:
Applied mathematics	†
Applied statistics	†
Biochemistry	None
Bioinformatics	One year of physics and one year of organic chemistry
Biology	None
Biomedical Sciences	None
Biotechnology	One year of physics
Chemistry	One year of biology
Computational mathematics	†
Diagnostic medical sonography	One year of organic chemistry and an additional quarter of mathematics
Environmental science	One year of organic chemistry
Imaging science	†
Physician assistant	One year of physics, one year of organic chemistry, and an additional quarter of mathematics
Physics	One year of biology and one year of organic chemistry
Polymer chemistry	One year of biology

** Some rearrangement of the typical pattern of course work within a program may be necessary.*
† Course credits beyond the usual 12 quarters needed to complete degree requirements may be necessary.
Note: Students enrolled in other RIT programs should consult with premedical advisers for assistance in planning a curriculum that includes the premedical core courses.

Health-related experience: All students interested in the health professions should obtain as much experience as possible in the profession of their choice. This may take the form of volunteer activities, internships, shadowing practitioners in the field, or actual employment in a health care setting.

General science exploration option

www.rit.edu/cos/uds/main.html

Many high school students are interested in the sciences, but may be undecided as to which major best meets their interests and career goals. The general science exploration program allows students to investigate various degree options before deciding on a program of study.

A customized schedule of courses in science and mathematics is developed for each student based on individual strengths, interests, and goals. During fall and winter quarters, students participate in an interdisciplinary first-year seminar, which includes a combination of academic support, career development, and science exploration activities. Along with a team of academic advisers, students will select courses that help them explore the traditional science options of biology, chemistry, physics, and math, as well as courses in the fields of environmental science, imaging science, or the medical sciences.

Students may choose a major at any time over the course of the academic year. Some students find the decision is easily made after only one quarter of course work. Others take advantage of a full year of exploration. Students in the general science exploration program are able to delay their choice of a major without losing time toward the completion of a degree.

General science exploration option, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar	2
	Mathematics or calculus sequence	10-12
	Choice of two laboratory sciences:	
	Biology	12
	Chemistry	13
	Physics	8-12
	Imaging Science	4
	Additional course choices:	
	Computer Science	4-8
	Liberal Arts*	4-12
	First-Year Enrichment	2
	Wellness Education†	0
	Total Credit Hours (each quarter)	***16-18***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

School of Biological and Medical Sciences

Gary Skuse, Interim Head
Heidi Miller, Interim Associate Head

www.rit.edu/cos/biology/SBMS.php

The School of Biological and Medical Sciences offers degrees in the biological sciences as well as in diagnostic medical sonography (ultrasound) and physician assistant. Students in the biological sciences may earn BS degrees in biology, biotechnology, biomedical sciences, bioinformatics, or environmental science. In addition to master of science degrees, the college offers accelerated dual degree programs (BS/MS) in bioinformatics or environmental science. The BS/MS programs may be completed in five years of study.

Biomedical Sciences

Kristen M. Waterstram-Rich, Program Director

www.rit.edu/cos/medical/biomedical_sciences.html

Biomedical sciences is an academic program designed to prepare students for advanced study in medical, dental, or graduate schools as they pursue careers in health care or biomedical research. Faculty from across the basic science disciplines, within and outside of the college, offer a diverse curriculum as well as research opportunities for students. In tracking through a highly flexible curricular structure, students will have access to myriad scientific professionals and educational experiences.

For the past 20 years, researchers in the biomedical fields have enjoyed rapid gains in employment due, in part, to the advances in biotechnology and an increase in staff in new medical research industries. Continued employment growth will occur with the increased need for more research in many areas of health care, including AIDS, diabetes, cancer, and neurological disorders. Courses and concentration options within biomedical sciences are designed to attract students interested in the broad spectrum of medically related jobs and to provide a knowledge base and the technical skills required to pursue their chosen careers.

Requirements for the BS degree in biomedical sciences

The curricular requirements for the BS degree in biomedical sciences are very flexible, consisting of a life sciences core and a broad range of flexible options. The life sciences core is designed to provide the student with a strong grounding in mathematics and science, a complement of liberal arts courses in preparation for a particular career path—e.g., entry into medical/dental school graduate studies—or a research position in an applied area of biomedical science. Upon completion of the life sciences core, a choice of concentration areas is available in which the student, in consultation with an academic adviser, may select and complete a series of required and elective courses. Concentration areas include focused study in forensic science, pre-health professions (premedical, pre-dental), exercise science, pathology, neuroscience, and genetics. Students also may choose to use elective credits to engage in undergraduate research with a faculty mentor and/or pursue a secondary field of study through a minor; e.g., in the liberal arts (communications, psychology, public policy, foreign language, etc.) or sciences (statistics, biochemistry, or imaging science), or possibly a second major.

Biomedical sciences, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Symposium 1001-200, 259	2
	General Biology I, II, III 1001-201, 202, 203	9
	General Biology Lab I, II, III 1001-205, 206, 207	3
	General and Analytical Chemistry I, II, III 1011-215, 216, 217	10
	Chemistry Principles I, II Lab 1011-205, 206	2
	General and Analytical Chemistry III Lab 1011-227	1
	Elementary Calculus I, 11 1016-214, 215	6
	Wellness Education†	0
	Liberal Arts*	12
	First-Year Enrichment	2
Second Year	Cell Biology 1001-311	4
	Molecular Biology 1001-350	4
	Anatomy and Physiology I, II 1026-350, 360	10
	Organic Chemistry I, II, III 1013-231, 232, 233	9
	Organic Chemistry I, II, III Lab 1013-235, 236, 237	3
	Data Analysis I 1016-319	4
	Science/Track Elective	4
	Liberal Arts*	12
Third Year	College Physics I, II, III 1017-211, 212, 213	12
	Science/Track Electives	16
	University-wide Electives	2-4
	Liberal Arts*	12
Fourth Year	Science/Track Electives	24
	University-wide Electives	17
	Total Quarter Credit Hours	*180-182*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Program Concentrations

Forensic science
Pre-health professions
Exercise science
Pathology
Genetics
Neuroscience

Sampling of Elective Courses

Bioinformatics	Immunology
Science of Forensics	Premedical Studies
Genetics	Medical Terminology
Introduction to Infectious Diseases	Patient Care
Biochemistry	Introduction to Microbiology
Sports Physiology and Life Fitness	Exercise Prescription
Fitness Programming and Prescription	Undergraduate Research*
Sports Nutrition	Medical Genetics
Histology	Introduction to Neuroscience
Medical Pathophysiology	Genetic Engineering
Human Gross Anatomy	Endocrinology
Developmental Biology	Virology
Introduction to Pharmacology	Evolutionary Biology

**Variable credit; requires at least two sequential quarters of participation*

Biology

Larry Buckley, Program Director

www.rit.edu/cos/biology/programs_degrees_BSBiology.html

The BS degree in biology prepares students for rewarding positions in occupations related to the life sciences, including: biomedical research, scientific management, science journalism, forensic science, ecology and environmental science, agriculture, genetic counseling, and education.

The program also includes all of the course work and support services to prepare students for entrance into schools of medicine, dentistry, veterinary medicine, optometry, podiatry, and chiropractic medicine.

Graduates are well-prepared to pursue a master's or doctoral degree in a wide variety of fields in the life sciences.

Requirements for the BS degree in biology

Students must meet the minimum graduation requirements of the university as described in this bulletin. In addition, the program requires successful completion of all courses listed in the typical course schedule.

Cooperative education

The biology degree curriculum provides opportunities for students to participate in our optional cooperative education program. More than 65 organizations in private industry, government, and academia employ our students in short-term (10 to 20 weeks), full-time paid positions directly related to the students' academic areas of interest. Co-op positions can be held during the summer and/or during the regular academic year. No tuition is charged for any co-op participation. If a student elects to hold a co-op position during the regular academic year, he or she will take the same number of academic class quarters but may need to extend the date of graduation beyond the traditional four years.

Biology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Symposium 1001-200	1
	Introduction to Biology I, II, III 1001-251, 252, 253	12
	General and Analytical Chemistry I, II, III 1011-215, 216, 217	10
	Chemical Principles Lab I, II 1011-205, 206	2
	General and Analytical Chemistry Lab 1011-227	1
	Elementary Calculus I, II 1016-214, 215	6
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Cell Biology 1001-311	4
	Molecular Biology 1001-350	4
	Evolutionary Biology 1001-365	4
	Organic Chemistry I, II, III 1013-231, 232, 233	9
	Organic Chemistry Lab I, II, III 1013-235, 236, 237	3
	Data Analysis I 1016-319	4
	Biology Elective‡	4
	Liberal Arts*	12
Third/Fourth Years§	General Ecology 1001-340	4
	Comparative Physiology 1001-413	4
	Genetics 1001-421	4
	Developmental Biology 1001-422	4
	College Physics I, II, III 1017-211, 212, 213	12
	Biology Electives‡	20
	Liberal Arts*	12
	General Education Courses	7
	University-wide Electives	23
	Cooperative Education 1001-499 (Optional)§	Co-op
	Total Quarter Credit Hours	***180***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Biology electives: minimum of 12 credits must be 400-level or above
§ If a student elects to participate in our optional co-op program, she or he may be scheduling courses in a fifth year but will be using the same number of academic quarters of classes to complete the degree.

Biotechnology

Michael Savka, Program Director

www.rit.edu/cos/biology/programs_degrees_BSBiotechnology.html

The BS degree in biotechnology prepares students to immediately assume challenging positions in research, development, and management in biotechnology research. Students are also well-prepared for positions in the fields of plant biotechnology, human genetics, agriculture, food products, pharmaceuticals and vaccine development, environment and energy, forensic science, and genetic counseling.

The advanced nature of the third- and fourth-year courses, as well as the opportunity to participate in faculty-sponsored undergraduate research, provides a sound foundation to those graduates wishing to pursue a master's or doctoral degree.

The program also can be designed to include the education necessary for the pursuit of a career in a medical field.

Specialized areas of emphasis include recombinant DNA, microbial and plant genetic engineering, mammalian and plant tissue culture, monoclonal antibody production and purification, large-scale fermentation techniques (bacterial and mammalian cell), and methods for characterization and separation of proteins and nucleic acids in yeast, bacterial, viral and plant systems.

Requirements for the BS degree in biotechnology

Students must meet the minimum graduation requirements of the university, as described in this bulletin. In addition, the program requires successful completion of all of the courses listed in the following typical course schedule. Below are upper-division elective courses suggested for students interested in certain subdisciplines of agricultural/plant, environmental, industrial, and medical biotechnology. Students may select courses from any suggested concentration for upper-division electives.

Concentrations

Agricultural/Plant

1001-416 Plant Biotechnology
1001-418 Plant Molecular Biology
1001-492 Genomics
1001-450 Genetic Engineering
1001-405 Plants, Medicine and Technology
1001-559 Special Topics*

**Special Topics courses include the following: Plant Pathology, Fundamentals of Plant Biochemistry, Bio-Separations: Principles and Practices*

Environmental

1001-567 Environmental Microbiology
1001-530 Bioremediation
1001-418 Plant Molecular Biology
1001-559 Special Topics*

**Special Topics courses include the following: Plant Pathology*

Industrial

1001-530 Bioremediation
1001-492 Genomics
1001-416 Plant Biotechnology
1001-315 Hybridoma Techniques
1001-450 Genetic Engineering
1001-403 Cell Physiology
1001-405 Plants, Medicine and Technology

Medical

1001-312 Immunology
1001-525 Eukaryotic Gene Expression
1001-406 Virology
1001-422 Developmental Biology
1001-451 Introduction to Infectious Disease
1001-715 Genetic Diseases and Disorders
1004-315 Medical Genetics
1001-315 Hybridoma Techniques
1001-502 Advanced Immunology
1001-427 Microbial and Viral Genetics
1001-492 Genomics
1001-559 Special Topics*

**Special Topics courses include the following: Cancer Biology, Infectious Disease: Impact on Society and Culture, Medical Parasitology, and Bacterial-Host Interactions.*

Cooperative education

The biotechnology degree provides students the option of participating in our cooperative education program. More than 65 organizations in industry, government, and academia employ our students in short-term (10 to 20 weeks), full-time paid positions directly related to students' academic areas of interest. Co-op positions can be held during the summer and/or during the regular academic year. Tuition is not charged while a student is on co-op. If a student elects to hold a co-op position during the regular academic year, he or she will take the same number of academic quarters and may need to extend the date of graduation beyond the traditional four years.

Biotechnology, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Symposium 1001-200	1
	Introduction to Biology I, II, III 1001-251, 252, 253	12
	General and Analytical Chemistry I, II, III 1011-215, 216, 217	10
	Chemical Principles Lab I, II 1011-205, 206	2
	General and Analytical Chemistry Lab 1011-227	1
	Elementary Calculus I, II 1016-214, 215	6
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Cell Biology 1001-311	4
	Immunology 1001-312	3
	Tissue Culture 1001-314	5
	Molecular Biology 1001-350	4
	Organic Chemistry I, II, III 1013-231, 232, 233	9
	Organic Chemistry Lab I, II, III 1013-235, 236, 237	3
	Data Analysis I 1016-319	4
	Liberal Arts*	12
Third and Fourth Years‡	Introductory Microbiology 1001-404	4
	Genetics 1001-421	4
	Analytical Chemistry: Separations 1008-312	3
	Analytical Chemistry: Separations Lab 1008-319	1
	Biochemistry: Conformation and Dynamics 1009-502	3
	Biochemistry: Metabolism 1009-503	3
	Biotechnology Electives	24
	Liberal Arts*	12
	General Education Courses	9
	University-wide Electives	27
	Cooperative Education 1001-499 (optional)‡	Co-op
	Total Quarter Credit Hours	***180***

** Please see Liberal Arts General Education Requirements for more information.*
†Please see Wellness Education Requirement for more information.
‡ If a student elects to participate in our co-op program, she or he may be scheduling courses in a fifth year but will be using the same number of academic quarters of classes to complete the degree.

Biotechnology, bioinformatics option, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Symposium 1001-200	1
	Introduction to Biology I, II, III 1001-251, 252, 253	12
	General and Analytical Chemistry I, II, III 1011-215, 216, 217	10
	Chemical Principles Lab I, II 1011-205, 206	2
	General and Analytical Chemistry Lab 1011-227	1
	Computer Science 1, 2 4003-231, 232	8
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Elementary Calculus I, II 1016-214, 215	6
	Cell Biology 1001-311	4
	Molecular Biology 1001-350	4
	Immunology 1001-312	3
	Tissue Culture 1001-314	5
	Computer Science 3 4003-233	4
	Organic Chemistry Lecture I, II, III 1013-231, 232, 233	9
	Organic Chemistry Lab I, II, III 1013-235, 236, 237	3
	Liberal Arts*	8
Third and Fourth Years‡	Introduction to Microbiology 1001-404	4
	Genetics 1001-421	4
	Genomics 1001-492	4
	Bioinformatics 1001-493	4
	Genetic Engineering 1001-450	5
	Biotechnology Electives	12
	Analytical Chemical Separations 1008-312, 319	4
	Biochemistry: Confirmation and Dynamics 1009-502	3
	Biochemistry: Metabolism 1009-503	3
	Introduction to Databases and Data Modeling 4002-360	4
	Computer Science 4 4003-334	4
	Data Analysis 1016-319	4
	Liberal Arts*	16
	University-wide Electives	13
	Cooperative Education 1001-499 (optional)‡	Co-op
	Total Quarter Credit Hours	***180***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ If a student elects to participate in our co-op program, she or he may be scheduling courses in a fifth year but will be using the same number of academic quarters of classes to complete the degree.

Bioinformatics

Michael Osier, Program Director

www.bioinformatics.rit.edu/

The BS program in bioinformatics is a truly interdisciplinary degree. The curriculum was developed by faculty in the departments of biological sciences, chemistry, computer science, mathematics and statistics, and information technology, with the guidance of individuals in the bioinformatics and biotechnology industries. The curriculum was designed with the needs of prospective employers in this challenging and rapidly changing field in mind.

Bioinformatics represents the marriage of biotechnology and the computing sciences. Bioinformaticists use computers to analyze, organize, and visualize biological data in ways that increase our understanding of this data and lead to new discoveries. Graduates receiving the BS degree are well-qualified for many rewarding careers, including those in bioinformatics software development, biomedical research, biotechnology, comparative genomics, genomics, molecular imaging, pharmaceutical research and development, proteomics, and vaccine development.

Requirements for the BS degree in bioinformatics

Students must meet the minimum graduation requirements of the university as described in this bulletin. In addition, the program requires successful completion of all the courses listed in the typical course schedule, plus one cooperative education experience.

Cooperative education

The bioinformatics degree requires the completion of one cooperative education experience. This experience permits the student to participate in applied bioinformatics, using current technologies to gain a practical perspective. More than 65 organizations in industry, government, and academia employ our students in short-term (10-20 week), full-time paid positions. Co-op positions can be held during the summer and/or the regular academic year. No tuition is charged for any co-op participation. If a student elects to pursue co-op during the regular academic year, he or she will take the same number of academic class terms and may need to extend the date of graduation beyond the traditional four years.

Accelerated dual degree option

The existing BS program may be combined with the MS program in bioinformatics, allowing undergraduate students to acquire both degrees in as few as five years. Undergraduate students with a minimum overall GPA of 3.2 may apply to the bioinformatics committee for entry before the completion of their third year of study. Students in the combined option will be required to take graduate-level courses during their fourth year and complete an approved MS thesis during their final year of study. Those who select this option will complete the undergraduate degree requirements and the 45 quarter credit hours required for the bioinformatics MS degree.

Bioinformatics, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Symposium 1001-200	1
	Introduction to Biology I, II, III 1001-251, 252, 253	12
	Unix Under the Hood 1001-265	2
	Introduction to Bioinformatics 1001-260	2
	Computer Science 1, 2 4003-231, 232	8
	Calculus I, II 1016-281, 282	8
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Cell Biology 1001-311	4
	Molecular Biology 1001-350	4
	Bioinformatics 1001-493	4
	Computer Science 3 4003-233	4
	General and Analytical Chemistry I, II 1011-215, 216	7
	Chemical Principles Lab I, II 1011-205, 206	2
	Discrete Math I, II 1016-265, 366	8
	Data Analysis 1016-319	4
	Liberal Arts*	12
Third and Fourth Years	Introduction to Microbiology 1001-404	4
	Introduction to Bioinformatics Computing 4002-462	4
	Genetic Engineering 1001-450	5
	Genetics 1001-421	4
	Genomics 1001-492	4
	Molecular Modeling and Proteomics 1001-494	4
	Advanced Bioinformatics Computing 4002-563	4
	Parallel Computing I 4003-531	4
	Biochemistry: Conformation and Dynamics 1009-502	3
	Organic Chemistry I 1013-231	3
	Organic Chemistry Lab I 1013-235	1
	Biochemistry: Metabolism 1009-503	3
	Introduction to Databases and Data Modeling 4002-360	4
	Computer Science 4 4003-334	4
	Statistical Analysis for Bioinformatics 1016-415	4
	Liberal Arts*	12
	University-wide Electives	18
	Cooperative Education (required) 1001-499	Co-op
	Total Quarter Credit Hours	***182***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Bioinformatics, BS/MS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Symposium 1001-200	1
	Introduction to Biology I, II, III 1001-251, 252, 253	12
	Unix Under the Hood 1001-265	2
	Introduction to Bioinformatics 1001-260	2
	Computer Science 1, 2 4003-231, 232	8
	Calculus I, II 1016-281, 282	8
	Liberal Arts*	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Cell Biology 1001-311	4
	Molecular Biology 1001-350	4
	Bioinformatics 1001-493	4
	Computer Science 3 4003-233	4
	General and Analytical Chemistry I, II 1011-215, 216	7
	Chemical Principles Lab I, II 1011-205, 206	2
	Discrete Math I, II 1016-265, 366	8
	Data Analysis 1016-319	4
	Liberal Arts*	8
	University-wide Elective	4
Third Year	Introduction to Microbiology 1001-404	4
	Introduction to Bioinformatics Computing 4002-462	4
	Genetic Engineering 1001-450	5
	Advanced Bioinformatics Computing 4002-563	4
	Introduction to Databases and Data Modeling 4002-360	4
	Organic Chemistry I 1013-231	3
	Organic Chemistry I Lab 1013-235	1
	Statistical Analysis for Bioinformatics 1016-415	4
	Computer Science 4 4003-334	4
	Liberal Arts*	8
	University-wide Electives	8
	Cooperative Education (required) 1001-499	Co-op
Fourth Year	Genetics 1001-421	4
	Genomics 1001-492	4
	Ethics in Bioinformatics 1001-725	3
	Molecular Modeling and Proteomics 1001-494	4
	Parallel Computing I 4005-735	4
	Biochemistry I, II, III 1009-702, 703, 704	9
	Liberal Arts*	4
	University-wide Electives	8

Fifth Year	Choose one of the following:	2
	Advanced Database Topics 1001-759	
	Bioinformatics Seminar 1001-722	
	Thesis 1001-890	10
	Graduate Electives**	22
	Total Quarter Credit Hours	*225*

**Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
*** Graduate electives may be comprised of any graduate-level course in biological sciences, chemistry, mathematics and statistics, computer science, information technology, or business. These courses provide flexibility so that students can pursue a course of study consistent with their personal interests and professional goals.*

Environmental Science

Karl Korfmacher, Program Director

www.rit.edu/cos/environmental/

Environmental scientists solve problems relating to power generation, waste reduction and recycling, pollution control, land use and land cover change, preserving biodiversity and ecological services, transportation, forestry, agriculture, economics, and a wide range of other areas. They study our relationship to nature and to each other, developing solutions that prevent or reverse environmental deterioration and work toward sustainability. Meeting these challenges requires problem-solving abilities based in science, mathematics, the social sciences, and other disciplines. The BS and BS/MS environmental science programs provide students with the education and experiences they need to be successful.

Environmental science concentration/track requirement

The practice of environmental science demands that students be well-rounded specialists. To accomplish this, each student is required to select an aspect of environmental science in which he or she will specialize. Students in the BS program are required to complete a minimum of 20 quarter credit hours in a specified concentration. Assistance in selecting an appropriate concentration can be obtained from the program director. The available concentrations are digital imaging, environmental biology, environmental economics, environmental public policy, mathematics and statistics, and remote sensing. Students also may develop a self-designed concentration in an area of personal interest, subject to approval from an environmental science review committee.

Cooperative education

Although cooperative education is optional for environmental science majors, it offers students a great way to get a head start on their career with paid professional work experience. Students can participate in cooperative education as soon as the summer quarter of the second year. Co-op placements are typically with local, state, or federal government agencies, nonprofit environmental organizations, and a host of environmental consulting firms.

Employment opportunities

There is a great need for individuals who have both a strong background in environmental science and the ability to participate in an interdisciplinary problem-solving team. Upon graduation, students will be valued for their broad understanding of environmental science, their depth of knowledge in a particular aspect of environmental science, and their ability to attack and solve tough environmental problems.

Requirements for the BS degree

Students must meet the minimum requirements of the university as described in this bulletin. In addition, the program requires successful completion of all of the courses listed in the typical course schedule below.

Environmental science, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Symposium 1001-200	1
	Introduction to Biology I, II, III 1001-251, 252, 253	12
	General and Analytic Chemistry I, II 1011-215, 216	7
	Chemistry Principles I, II Labs 1011-205, 206	2
	Choose one of the following math sequences:	
	Elementary Calculus I, II 1016-214, 215	6
	Project-Based Calculus I, II, III 1016-281, 282, 283	12
	Environment and Society 0508-460	4
	Concepts in Environmental Science 1006-202	4
	Environmental Science Field Studies 1006-203	4
	Liberal Arts*	4
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Applications of GIS 1006-350	4
	Fundamentals of Organic Chemistry 1011-202	3
	Introduction to Organic Chemistry Lab 1011-207	1
	Choose one of the following physics sequences:	
	College Physics 1017-211, 212, 213	12
	University Physics 1017-311, 312, 313	12
	Data Analysis I, II 1016-319, 320	10
	Environmental Geology and Lab 0630-370, 372	4
	Liberal Arts*	12
Third Year	General Ecology 1001-340	4
	Conservation Biology 1001-475	4
	Capstone in Environmental Science 1006-503	4
	Great Lakes I, II 0508-463, 464	8
	Introduction to Hydrology and Lab 0630-380, 382	4
	Environmental Science Concentration§	8
	Liberal Arts*	12
	General Education Elective**	0-4
Fourth Year	Environmental Applications of Remote Sensing 1051-420	4
	Environmental Science Concentration§	12
	University-wide Electives	20
	Liberal Arts*	8
	Total Quarter Credit Hours	*182-185*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
***Number of General Education Elective credits will depend on choice of calculus courses*
§ See environmental science concentrations. It is highly recommended that students, in consultation with their faculty adviser, take additional environmental science electives during the fourth year.

Accelerated dual degree option

Students in the environmental science program may choose the accelerated five-year BS/MS option, which provides them with a considerable advantage over other environmental science graduates in the job market. The curriculum was developed in conjunction with an advisory board of environmental leaders to ensure that students' education meets the current and future needs of the industry. In order to function as an environmental scientist, an individual must have an extensive background in mathematics, physical science, and life science. The BS/MS program is one of the strongest programs available with respect to mathematics and science.

Students must meet the minimum requirements of the university as described in this bulletin and the requirements contained in the program shown here or its equivalent, as determined and approved by the environmental science program director. Undergraduate students with an overall and professional field-of-study GPA of 3.0 or greater may apply to the program director for entry into the program.

Environmental science, BS/MS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Symposium 1001-200	1
	Introduction to Biology I, II, III 1001-251, 252, 253	12
	General and Analytic Chemistry I, II 1011-215, 216	7
	Chemistry Principles Labs I, II 1011-205, 206	2
	Choose one of the following math sequences:	
	Elementary Calculus I, II 1016-214, 215	6
	Project-Based Calculus I, II, III 1016-281, 282, 283	12
	Environment and Society 0508-460	4
	Concepts in Environmental Science 1006-202	4
	Environmental Science Field Studies 1006-203	4
	Liberal Arts*	4
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Applications of GIS 1006-350	4
	Fundamentals of Organic Chemistry 1011-202	3
	Introduction to Organic Chemistry Lab 1011-207	1
	Choose one of the following physics sequences:	
	College Physics 1017-211, 212, 213	12
	University Physics 1017-311, 312, 313	12
	Data Analysis I, II 1016-319, 320	10
	Environmental Geology and Lab 0630-370, 372	4
	Liberal Arts*	12
Third Year	General Ecology 1001-340	4
	Conservation Biology 1001-475	4
	Capstone in Environmental Science 1006-503	4
	Great Lakes I, II 0508-463, 464	8
	Introduction to Hydrology and Lab 0630-380, 382	4
	Environmental Science Concentration§	8
	Liberal Arts*	12
	General Education Elective**	0–4
Fourth Year	Environmental Science Graduate Study I, II, III 1006-711, 712, 713	5
	Environmental Science Graduate Research 1006-879	3
	Graduate Readings Seminar 1006-710	3
	Environmental Chemistry 1015-720	3
	Environmental Applications of Remote Sensing 1051-420	4
	Environmental Science Concentration§	4
	University-wide Electives (undergraduate)	12
	Liberal Arts*	8
Fifth Year	Thesis/Project 1006-890/891	5-9
	Environmental Science Core Graduate Elective	4
	Environmental Public Policy Core Graduate Elective	4
	Environment and Society Core Graduate Elective	4
	Professional Electives	12-20
	Environmental Science Concentration§	8
	University-wide Electives (undergraduate)	4
	Total Quarter Credit Hours	***233-236***

** Please see Liberal Arts General Education Requirements for more information*
† Please see Wellness Education Requirement for more information.
***Number of General Education Elective credits will depend on choice of calculus courses*
§ Please see environmental science concentrations.
Note: The articulation of the BS and the MS curriculum is accomplished by the inclusion of 11 quarter credit hours of graduate work in the fourth year of the curriculum.

Physician Assistant

Heidi Miller, Program Director

http://www.rit.edu/cos/medical/physician_assistant.html

The physician assistant program focuses on primary care and awards a bachelor of science degree upon completion. The pre-professional phase (years 1 and 2) involves core courses in basic sciences, mathematics, and the liberal arts. The professional phase (years 3 and 4) is fully accredited by the Accreditation Review Commission for the Physician Assistant, Inc. (ARC-PA) and encompasses 21 months. Students participate in the program during the summer between these years. The last two years of the program include nine months of clinical course work and 12 months of clinical rotations. Qualified transfer students are accepted into any one of the first three years of the program. All pre-professional course work must be completed to continue on, or to be considered for entry, into the professional phase of the PA program.

Physician assistants provide diagnostic and therapeutic patient care in conjunction with a supervising physician. They perform tasks that include: eliciting medical histories, conducting physical examinations, ordering laboratory and radiological testing, diagnosing common illnesses, determining treatment, giving medical advice, counseling and educating patients, promoting wellness and disease prevention, assisting in surgery, and casting and suturing.

Physician assistant duties vary depending on the state and specialty in which they practice. In most states, including New York, physician assistants may prescribe medication. Examples of specialties include (but are not limited to): internal medicine, family medicine, emergency medicine, geriatrics, pediatrics, obstetrics/gynecology, psychiatry, general surgery, orthopedics, neurosurgery, and neonatology. Clinical rotations during students' senior year provide the opportunity to explore these specialty areas.

In addition to RIT's general admission procedures, the physician assistant program requires completion of a supplemental data packet, application, and successful completion of an admission interview (by invitation). For more information regarding these supplemental requirements, please contact the Office of Undergraduate Admissions at (585) 475-6631. It also is important to note that the minimum grade point average for acceptance into the physician assistant program is 3.0 (on the basis of a 4.0 maximum) for both high school and transfer students. In order to graduate from the program, a GPA of 2.8 or better must be maintained.

Clinical internship

Clinical rotations include a five-week experience in various disciplines of medicine, providing students with the opportunity to apply the basic principles of medicine to hospital-based and ambulatory patient care settings. Students are assigned to a primary preceptor (physician/physician assistant) and are exposed to a wide variety of acute and chronic medical problems. The emphasis is on data gathering, physical examination, differential diagnosis, patient management, maintenance of medical records, performance of diagnostic and therapeutic procedures, and

the provision of patient education and counseling. Mandatory rotations are in fields of inpatient medicine, family medicine, geriatrics, orthopedics, emergency medicine, OB/GYN, pediatrics, general surgery, and psychiatry. Students also are able to select one elective rotation, which enables them to customize their experience according to their medical area of interest.

Accreditation

The professional phase (years 3 and 4) of the physician assistant program is fully accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA).

Physician assistant, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year (Pre-professional)	General Biology 1001-201, 202, 203	9
	General Biology Lab 1001-205, 206, 207	3
	Calculus for Management Science 1016-226	4
	General and Analytical Chemistry I, II, III 1011-215, 216, 217	10
	Chemical Principles I, II Lab 1011-205, 206	2
	General and Analytical Chemistry III Lab 1011-227	1
	Liberal Arts*	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year (Pre-professional)	Anatomy and Physiology 1026-350, 360	10
	Data Analysis I 1016-319	4
	Medical Microbiology 1032-406	4
	University-wide Electives	12
	Liberal Arts*	20
Third Year (Professional)	Pathophysiology I, II 1032- 424, 425	8
	Law and Medicine 1032-330	2
	Physician Assistant Seminar 1032-210	1
	Society and Patient Care 1032-435	3
	Behavioral Medicine 1032-200	2
	Patient History and Physical Exam I, II, III 1032-401, 402, 403	6
	Clinical Skills 1032-410	1
	Clinical Pharmacology I, II, III 1032-420, 421, 422	8
	Clinical Diagnostic Imaging 1032-430	1
	Clinical Medicine I, II, III 1032-440, 441, 442	12
	Clinical Rotation I 1032-490	12
Fourth Year (Professional)	Clinical Rotation II, III, IV 1032-491, 492, 493‡	36
	Total Quarter Credit Hours	*189*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Fourth-year clinical rotations are completed at various hospitals and ambulatory health care settings approved for training physician assistants.

Diagnostic Medical Sonography (Ultrasound)

Hamad Ghazle, Program Director

www.rit.edu/cos/medical/diagnostic_medical.html

One of the fastest-growing areas in diagnostic medicine, diagnostic medical sonography is a noninvasive, nontoxic diagnostic medical imaging modality in which high-frequency sound waves are used to produce images of many different areas of the human body. Ultrasound is readily used to image the heart, blood flow, and abdominal organs as well as the developing fetus and male/female reproductive organs. The profession has grown rapidly in the last 20 years and is expected to continue to grow over the next several decades. Evaluation of the job market and a survey of employers indicate a strong demand for well-trained sonographers.

RIT's medical sonography program is one of only a few such degree programs in the nation. It offers a BS degree in general ultrasound and a certificate option in general ultrasound (abdomen/small parts and obstetrics and gynecology, with an introduction to vascular). The program prepares students for application to schools of medicine, dentistry, veterinary medicine, podiatry, and chiropractic medicine. Students also can earn a certificate in health systems administration while completing their requirements. Additionally, graduates may choose to pursue a master's or doctoral degree in a variety of fields.

The intent of the program is to prepare students to be leaders in the field of ultrasound. Skills in administration and research are emphasized in addition to the development of scanning and diagnostic abilities. Students apply their theoretical knowledge and practice their skills in our dedicated ultrasound laboratory before their clinical internship. Upon successful completion of the program requirements, students are eligible to take a national certifying examination for abdominal, small parts, obstetrical, and gynecological ultrasound. Each candidate is also introduced to vascular ultrasound.

Graduates are prepared to pursue a variety of career options, nationally and internationally, in medical, industrial, and educational settings. Our graduates can be found in a wide range of positions, including supervisory and administrative, in hospitals, clinics, private physicians' offices, teaching, research, sales, and industry. Graduates also can choose to work as freelance sonographers or for mobile services.

Requirements for the BS degree in general ultrasound

Students must meet the minimum requirements of the university as described in this bulletin and, in addition, must complete the curriculum requirements listed here or the equivalent, as determined and approved by the department of medical sciences. The BS degree is typically a four-year program, including clinical internship, unless the student has transfer credit from another institution. Associate degree holders may be able to complete a BS degree in two years; additional course work may be required. Contact the program director for further information on BS degree requirements.

Requirements for the certificate option

The certificate option is a one-year course of study that includes lectures integrated with the clinical internship. Certain prerequisite courses must be completed before starting the clinical internship. Contact the program director for further information on prerequisite course work. The certificate option is available to all registered allied health practitioners as well as to those holding an associate or bachelor's degree in a relevant discipline.

Clinical internship

The clinical internship year (completed with a 20 percent tuition discount) 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 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. At the medical facility, students work side by side with sonographers, physicians, and other health care professionals to learn, develop, apply, and sharpen the necessary skills to perform general ultrasound examinations. The students' clinical progress and performance are monitored by the program's clinical coordinator and program director, who make periodic visits to the clinical internship sites. Additionally, students return to campus each month for three days of lectures, presentations, projects, and testing.

Accreditation

The program is accredited by the Joint Review Committee on Education in Diagnostic Medical Sonography of the Commission on Accreditation of Allied Health Education Programs.

Diagnostic medical sonography (general ultrasound), BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	General Biology 1001-201, 202, 203	9
	General Biology Lab 1001-205, 206, 207	3
	General and Analytical Chemistry 1011-215, 216, 217	10
	Chemistry I, II, III Labs 1011-205, 206, 207	3
	Computers in Medicine 4006-230	4
	Calculus for Management Science 1016-226	4
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	College Physics 1017-211, 212, 213	12
	Introduction to Diagnostic Medical Imaging 1026-205	2
	Medical Terminology 1026-301	3
	Anatomy and Physiology 1026-350, 360	10
	Data Analysis I 1016-319	4
	Liberal Arts*	12
Third Year	Cross-Sectional Anatomy 1030-412	4
	Ultrasound Instrumentation I, II 1030-409, 410	8
	Pathophysiology 1026-415	4
	Medical Genetics 1004-315	2
	Patient Care 1026-333	2
	Ultrasound Scanning 1030-559	4-6
	University-wide Electives	12
	Liberal Arts*	12
Fourth Year (Internship)	Introduction to Obstetrical Ultrasound 1030-552	3
	Gynecologic Ultrasound 1030-553	3
	Abdominal Ultrasound I 1030-556	3
	Clinical Ultrasound I 1030-570	7
	Advanced Obstetrical Ultrasound 1030-554	4
	Abdominal Ultrasound II 1030-557	3
	Ultrasound Seminar 1030-560	2
	Clinical Ultrasound II 1030-571	7
	Small Parts Ultrasound 1030-558	3
	General Vascular Evaluation 1030-414	4
	Research Seminar 1030-561	2
	Clinical Ultrasound III 1030-572	7
	Total Quarter Credit Hours	***184-186***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

Diagnostic medical sonography certificate program, typical course sequence

Must be completed before entering clinical internship*

		Qtr. Cr. Hrs.
	Introduction to Diagnostic Medical Imaging 1026-205	2
	Cross-Sectional Anatomy 1030-412	4
	Ultrasound Instrumentation I, II 1030-409, 410	8
	Pathophysiology 1026-415	4
	Ultrasound Scanning 1030-559	4-6
Internship	Introduction to Obstetrical Ultrasound 1030-552	3
	Gynecologic Ultrasound 1030-553	3
	Abdominal Ultrasound I 1030-556	3
	Clinical Ultrasound I 1030-570	7
	Advanced Obstetrical Ultrasound 1030-554	4
	Abdominal Ultrasound II 1030-557	3
	Ultrasound Seminar 1030-560	2
	Clinical Ultrasound II 1030-571	7
	Small Parts Ultrasound 1030-558	3
	General Vascular Evaluation 1030-414	4
	Research Seminar 1030-561	2
	Clinical Ultrasound III 1030-572	7
	Total Quarter Credit Hours	***70-72***

** Other prerequisite courses may apply.*

Exercise Science

William Brewer, Program Director

www.rit.edu/cos/medical/exercise_science.html

College-level knowledge and professional certification are increasingly required for those who wish to work in the fitness industry, whether full- or part-time, and whether in an athletic club, ski resort, or sports medicine facility. Knowledge of and professional certification in fitness instruction and programming also are of increasing value to allied health professionals who wish to augment their care or practice with the ability to prescribe exercise programs that address special medical needs. The certificate program in exercise science covers the basic principles of exercise physiology, fitness assessment, the preparation of fitness programs and prescriptions, and the development of exercise prescriptions for individuals with medical or other significant limitations. Students who successfully complete all three courses in the program will be prepared to sit for professional certification examinations from the American College of Sports Medicine, American Council on Exercise, and the American Academy of Health and Fitness Professionals as well as for certifications from the Cooper Institute for Aerobic Research, the National Academy of Sports Medicine, and a number of other recognized organizations.

Exercise science, certificate program, typical course sequence

	Qtr. Cr. Hrs.
1026-305 Sports Physiology and Life Fitness	4
1026-306 Fitness Prescription and Programming	4
Choose one of the following courses:	
1026-307 Exercise Prescription for Special Populations	4
0620-300 Sports Nutrition	4
Quarter Credit Hours Total	***12***

School of Mathematical Sciences

Douglas Meadows, Head

www.math.rit.edu

Over the past several years a growing demand has developed for mathematicians and statisticians with broad-based quantitative backgrounds and extensive computer skills. Mathematical and statistical theory is the basis for many fields of practical application, and employers need people whose education merges mathematics with another field of study—computer science, statistics, chemistry, physics, engineering, or business, to name a few.

The School of Mathematical Sciences has established three BS degree programs in response to the long-term needs of industry, academia, and government: applied mathematics, applied statistics, and computational mathematics. Each has been carefully designed to meet the needs of both students and their potential employers. Constant feedback from various sources, including alumni, has enabled the school to update its courses, programs, and equipment in order to make sure students are well-trained in current techniques, technology, and applications. Students utilize symbolic computation software in many of their courses. Our specially equipped classrooms for multimedia presentations and symbolic computation, as well as our statistics labs, lend support to all of our programs. Industrial needs and trends are carefully discussed with employers in order to update the curricula, and graduates find that their RIT backgrounds are tailor-made for their professional careers.

Many exciting career opportunities exist for mathematics majors. Students typically become involved in research or consulting or use computers for statistical analysis or analysis of complex mathematically modeled physical problems. Examples of co-op placements and permanent jobs typically obtained by mathematics and statistics majors include the following: actuary, analyst for mathematical modeling, statistician, mathematical statistician, demographics analyst, software designer, scientific programmer, systems analyst, cryptographic mathematician, manufacturing engineering consultant, biological systems analyst, computer modeling consultant, graphic modeling consultant, simulations programmer, reliability analyst, statistical forecaster, robotics software specialist, database programmer, data analyst, telecommunications analyst, software engineer, marketing analyst, and aerospace systems analyst.

Students in all three programs enjoy small classes and opportunities to get to know their professors outside the classroom. Job prospects for graduates are plentiful, and the school is proud of its outstanding record of placing students in both co-op and permanent jobs.

Accelerated dual degree options

Each of the three BS degree programs has a complementary master's degree program that can be completed in one additional year. Students in all three BS programs are eligible for the combined BS/MS in applied and computational mathematics.

Minors

Students at RIT may choose to pursue a minor in mathematics or statistics to complement their primary area of interest. Please refer to the Minors section of this bulletin for more information.

Actuarial studies

A plan of study has been designed for students seeking a career in the actuarial sciences. Actuarial science is a discipline that applies mathematical and statistical methods to assess risk in the insurance, finance, and other industries. Course work provides a foundation for students who will work as actuaries and also prepares students to take the first actuarial exams. These courses may count for credit in any of the three major programs in the School of Mathematical Sciences, or may be taken independently.

Requirements for the BS degree

Students must meet the minimum requirements of the university as described in this bulletin. In addition, they must complete the requirements contained in one of the particular programs listed here, or its equivalent, as determined and approved by the School of Mathematical Sciences. In conjunction with a faculty adviser, individual student programs may be established to meet particular needs, interests, and goals.

Applied Mathematics

The applied mathematics program focuses on the study and solution of problems that can be mathematically analyzed. Industry, academia, and government all have a great need for individuals with this type of education. Students choose a sequence of courses from one of more than 20 application areas that provide them with the knowledge and skills to collaborate on complex problems with scientists, engineers, computer specialists, or other analysts. Some application areas are applied statistics; biology; business; economics; chemistry; electrical, industrial, or mechanical engineering; operations research; and imaging science.

Graduates typically are employed in scientific, engineering, business, or government environments, applying their mathematics background to the analysis and solution of real-world problems.

Applied mathematics students who minor in business can earn the MBA degree from RIT with one year of additional study through careful choice of undergraduate courses.

Applied mathematics, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Mathematics and Statistics Seminar 1016-210, 211	2
	Project-Based Calculus I, II, III 1016-281, 282, 283	12
	Discrete Math I 1016-265	4
	Science Electives	12
	Liberal Arts*	16
	Technical Writing 0502-444	4
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Multivariable Calculus 1016-305	4
	Differential Equations I 1016-306	4
	Probability 1016-351	4
	Applied Statistics 1016-352	4
	Cooperative Education Seminar 1016-399	0
	Mathematics Elective	4
	Linear Algebra I 1016-331	4
	Liberal Arts*	8
	Choose one of the following computer science options:	
	Computer Science Option 1 4003-212 and 4003-241	8
	Computer Science Option 2 4003-241 and 4003-242	8
	Vector Calculus 1016-410	4
	University-wide Electives	10

Third Year	Choose one of the following courses:	
	Numerical Analysis 1016-511	4
	Numerical Linear Algebra 1016-512	4
	Linear Algebra II 1016-432	4
	Mathematical Modeling 1016-461	4
	Mathematics Electives	8
	Liberal Arts*	12
	General Education Electives	8-12
	Cooperative Education 1016-499 (optional)	Co-op
Fourth Year	Real Variables I, II 1016-411, 412	8
	Mathematics Electives	4
	Application Area	4
	General Education Electives	10
	Cooperative Education 1016-499 (optional)	Co-op
Fifth Year‡	Abstract Algebra I, II 1016-531, 532	8
	Application Area	8
	Cooperative Education 1016-499 (optional)	Co-op
	Total Quarter Credit Hours	***188***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ This program can be completed in four years if the co-op option is omitted.

Applied Statistics

The applied statistics program provides students with a solid foundation in mathematical and statistical principles, experience in the application of statistics, thorough knowledge of computers and statistical software, and the skills to communicate the results of a statistical analysis. The demand for graduates with this type of preparation is precipitated by the recognition of business, industry, and government that a large number of problems can be analyzed effectively and solved using statistical methodology.

Graduates of the program collaborate with specialists in both scientific and non-technical areas to design and conduct experiments and interpret the results. Application areas include product designs, quality control, marketing, customer satisfaction, and actuarial sciences.

Applied statistics, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Mathematics and Statistics Seminar 1016-210, 211	2
	Project-Based Calculus I, II, III 1016-281, 282, 283	12
	Discrete Math I 1016-265	4
	Statistical Computing with Excel and Minitab 1016-260	2
	Science Electives	12
	University-wide Electives	2
	Liberal Arts*	8
	Technical Writing 0502-444	4
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Probability 1016-351	4
	Applied Statistics 1016-352	4
	Co-op Seminar 1016-399	0
	Mathematics Elective‡	4
	Statistical Computing 0307-442	4
	Linear Algebra I 1016-331	4
	Computer Science Option 4003-212 or 4003-241	4
	Choose one of the following courses:	
	Statistical Quality Control 1016-358	4
	Research Sampling Techniques 1016-457	4
	Liberal Arts*	16
Third Year	Linear Algebra II 1016-432	4
	Regression Analysis 1016-354	4
	Design of Experiments 1016-355	4
	Mathematics Elective‡	4
	Liberal Arts*	8
	General Education Electives	8
	Cooperative Education 1016-499 (optional)	Co-op
Fourth Year	Nonparametric Statistics 1016-454	4
	Mathematics Electives‡	12
	University-wide Electives	6
	General Education Electives	6
	Liberal Arts*	4
	Cooperative Education 1016-499 (optional)	Co-op
Fifth Year§	Mathematical Statistics I, II 1016-451, 452	8
	Statistics Seminar 1016-555	4
	Mathematics Elective‡	4
	General Education Electives	8-12
	Cooperative Education 1016-499 (optional)	Co-op
	Total Quarter Credit Hours	***188***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Up to 16 quarter credits of mathematics electives may be chosen from the applied mathematics application areas.
§ This program can be completed in four years if the co-op option is omitted.

Accelerated dual degree option

Students may be interested in combining the BS in applied statistics with an MS in applied and computational mathematics for an accelerated option that allows them to earn both degrees following one year of graduate study. A BS in applied statistics and an MS in quality and applied statistics may also be earned through a dual degree option.

Computational Mathematics

Computational mathematics prepares students for a mathematical career that incorporates extensive computer science skills. In this program, much emphasis is given to the use of the computer as a tool to solve mathematically modeled physical problems. Graduates of the program often choose positions as mathematical analysts, scientific programmers, software engineers, or systems analysts. Job opportunities in private industry and government abound in this field.

Computational mathematics, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Mathematics and Statistics Seminar 1016-210, 211	2
	Project-Based Calculus I, II, III 1016-281, 282, 283	12
	Discrete Math I 1016-265	4
	Problem-Based Intro to CS 4003-241	4
	Data Structures for Problem Solving 4003-242	4
	Object-Oriented Programming 4003-243	4
	Science Electives	12
	Liberal Arts*	8
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	Multivariable Calculus 1016-305	4
	Differential Equations I 1016-306	4
	Probability 1016-351	4
	Applied Statistics 1016-352	4
	Co-op Seminar 1016-399	0
	Linear Algebra I 1016-331	4
	Computer Science 4 4003-334	4
	Software Engineering 3010-361	4
	Technical Writing 0502-444	4
	Computational Math Concentration	4
	University-wide Elective	4
	Liberal Arts*	12

Third Year	Linear Algebra II 1016-432	4
	Graph Theory 1016-467	4
	Mathematical Modeling 1016-461	4
	Computational Math Concentration	8
	University-wide Elective	4
	Liberal Arts*	4
	Cooperative Education 1016-499 (optional)	Co-op
Fourth Year	Real Variables I 1016-411	4
	Numerical Analysis 1016-511	4
	Numerical Linear Algebra 1016-512	4
	Computational Math Concentration	4
	University-wide Elective	2
	General Education Electives	8
	Liberal Arts*	12
	Cooperative Education 1016-499 (optional)	Co-op
Fifth Year‡	Abstract Algebra I, II 1016-531, 532	8
	Computational Math Concentration	4
	General Education Electives	6
	Cooperative Education 1016-499 (optional)	Co-op
	Total Quarter Credit Hours	*188*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ This program can be completed in four years if the co-op option is omitted.

Accelerated dual degree option

Students may be interested in combining the BS in computational mathematics with an MS in applied and computational mathematics for an accelerated option that allows them to earn both degrees following one year of graduate study. A BS in computational mathematics and an MS in computer science may also be earned through a dual degree option.

Department of Chemistry

L. Paul Rosenberg, Department Head

www.rit.edu/cos/chemistry/

The department of chemistry offers programs leading to the AS and BS degrees in chemistry, a BS degree in chemistry with an environmental chemistry option, a BS degree in biochemistry, and a BS degree in polymer chemistry. The department also offers graduate and accelerated dual degree programs in the following areas: MS degree and a five-year combined BS/MS in chemistry, BS in chemistry with an environmental chemistry option/MS chemistry, BS biochemistry/MS chemistry, BS polymer chemistry/MS chemistry, and a BS chemistry/MS materials science and engineering.

Requirements for the BS degree

Students must meet the minimum graduation requirements of the university, as described in this bulletin. In addition, they must complete particular program requirements or the equivalent, as determined and approved by the department of chemistry.

To meet the requirements leading to the BS degrees in chemistry, chemistry with an environmental chemistry option, biochemistry, and polymer chemistry—all of which are approved by the Committee on Professional Training of the American Chemical Society—students must take specifically designated courses in chemistry and related sciences.

All students also must meet the requirements for the university's writing policy, as specified by the department of chemistry.

Extended-day and part-time studies in chemistry

All BS degree options in chemistry, biochemistry, and polymer chemistry are designed to accommodate part-time students, beyond the associate degree, during day or evening hours. Also, the American Chemical Society-approved chemistry degrees are offered at extended-day hours. Academic advising is available throughout.

The chemistry department also offers a generous array of both general chemistry and biochemistry courses in a distance learning format. These courses include all lectures available on electronic media and contact with the instructor by computer. In some cases the course is augmented by a Web page. This mode of presentation allows for complete schedule flexibility. For available online courses, please consult the quarterly schedule or RIT's online learning website at http://online.rit.edu/.

Accelerated dual degree options

The BS chemistry programs may be combined with the MS chemistry program, allowing undergraduate majors to acquire both degrees in a total of five years. Undergraduate students with both an overall and professional field-of-study GPA of 3.0 or above may apply to the chemistry graduate committee for entry as early as the third year. Students in the combined programs will be advised to complete only three quarters of cooperative education and to take graduate-level chemistry elective courses and thesis guidance (1010-879) during the fourth and fifth years. Students will complete the undergraduate degree requirements and 45 quarter credit hours toward the MS chemistry degree.

Chemistry

The BS degree in chemistry may be completed in four or five years, depending on the amount of cooperative education experience the student elects. Co-op may begin as early as the summer of the first year. The five-year course schedule assumes that the student will participate in co-op assignments for a total of eight academic quarters. Students may elect to complete the BS degree requirements in a traditional four-year program with three summers of co-op work experience.

The program prepares graduates for positions in several fields of chemistry, including professional industrial work in processing and laboratory operations, research and experimental work, supervision of technical projects, and managerial positions. A substantial number of graduates continue their education and earn advanced degrees in chemistry or pursue careers in pharmacy, medicine, and dentistry.

The chemistry program allows for flexibility in the type and number of chemistry and university-wide elective courses taken by the student. The program also provides students with the option of planning an elective concentration in complementary fields such as imaging science, business, graphic arts, psychology, biology, criminal justice, computer science, engineering, environmental science, forensics, mathematics, packaging science, physics, and printing.

Chemistry (ACS certified), BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Introduction to Co-op and Chemical Careers 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry I Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	Liberal Arts*	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Separations Techniques 1008-312	3
	Separations Techniques Lab 1008-319	1
	Multivariable Calculus 1016-305	4
	Organic Chemistry I, II, III 1013-431, 432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	2
	Systematic ID of Organic Compounds III Lab 1013-437	2
	Liberal Arts*	8
	Cooperative Education 1010-499 (optional)	Co-op
Third Year	Differential Equations 1016-306	4
	University Physics I, II, III 1017-311, 312, 313	12
	Chemical Thermodynamics 1014-441	4
	Chemical Thermodynamics Lab 1014-445	1
	Liberal Arts*§	12
	Cooperative Education 1010-499 (optional)	Co-op
Fourth Year	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Chemical Literature 1010-401	2
	Inorganic Chemistry I, II 1012-562, 563#	8
	Biochemistry 1009-502#	3
	University-wide Electives‡	
	Cooperative Education 1010-499 (optional)	Co-op
Fifth Year	Preparative Inorganic Chemistry Lab 1012-565#	3
	Advanced Instrumental Analysis 1008-511#	3
	Advanced Instrumental Analysis Lab 1008-621#	2
	Chemistry Electives§	
	University-wide Electives‡	
	Cooperative Education 1010-499 (optional)	Co-op
	Total Quarter Credit Hours	***182***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Chemistry Research (1010-541, 542, 543) may be used as a university-wide elective and is highly recommended. Electives are necessary to bring the total quarter credit hours to 180 for graduation. Twelve quarter credit hours are necessary for full-time status.
§ ACS highly recommends a foreign language (preferably German).
 # Required only for ACS certification

Chemistry, combined BS/MS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Introduction to Co-op and Chemical Careers 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry I Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	Liberal Arts*	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Separations Techniques 1008-312	3
	Separations Techniques Lab 1008-319	1
	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Organic Chemistry I, II, III 1013-431, 432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	
	Systematic ID of Organic Compounds III Lab 1013-437	2
	Liberal Arts*	8
	Cooperative Education 1010-499 (optional, summer)	Co-op
Third Year	Chemical Literature 1010-401	2
	University Physics I, II, III 1017-311, 312, 313	12
	Chemical Thermodynamics 1014-441	4
	Chemical Thermodynamics Lab 1014-445	1
	Liberal Arts*‡	12
	Chemistry Electives§	
	Cooperative Education 1010-499 (optional, summer)	Co-op
Fourth Year	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Biochemistry 1009-702#	3
	Advanced Instrumental Analysis 1008-711#	3
	Advanced Instrumental Analysis Lab 1008-621#	2
	Inorganic Chemistry I, II 1012-562, 563#	8
	Preparative Inorganic Chemistry Lab 1012-765#	3
	Chemistry Electives§	
	Research and Thesis Guidance 1010-879**	3
Fifth Year§	Chemistry Seminar 1012-870	2
	Research and Thesis Guidance 1010-879**	6–13
	Total Quarter Credit Hours	***225***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ ACS highly recommends a foreign language (preferably German).
*** A student will normally have 9 to 16 credit hours of Research and Thesis Guidance.*
§ Course work in the fifth year will be determined by the graduate committee and will need to fulfill the requirement of 225 total credit hours. A minimum of 36 hours of 700-level or higher chemistry courses is required to graduate with both a BS and MS degree in chemistry.
 # Required only for ACS certification

Environmental chemistry option (ACS certified)

The environmental chemistry option in the BS chemistry program requires the following courses: General Biology and Lab (1001-201, 1001-205), Microbiology (1004-210), Environmental Chemistry (1015-520), Atmospheric Chemistry (1015-521), and Aquatic Toxicology and Chemistry (1015-522) in place of chemistry electives, university-wide electives, and Inorganic Chemistry II. The environmental studies concentration is recommended as part of the liberal arts upper-level electives.

In addition, environmentally related science courses may be selected according to the student's interests in areas such as field biology, ecology, oceanography, hydrology, environmental monitoring, geology, treatment of waste and sewage, packaging, polymer technology, and chemical research.

Chemistry, combined BS (environmental chemistry option)/MS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Introduction to Co-op and Chemical Careers 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry I Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	Liberal Arts*	12
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	General Biology 1001-201	3
	General Biology Lab 1001-205	1
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Separations Techniques 1008-312	3
	Separations Techniques Lab 1008-319	1
	Multivariable Calculus 1016-305	4
	Organic Chemistry I, II, III 1013-431, 432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	2
	Systematic Identification of Organic Compounds Lab 1013-437	2
	Microbiology in Health and Disease 1004-210	4
	Liberal Arts*	12
	Cooperative Education 1010-499 (optional, summer)	Co-op
Third Year	Liberal Arts*‡	12
	Differential Equations 1016-306	4
	Advanced Instrumental Analysis 1008-511	3
	Advanced Instrumental Analysis Lab 1008-621	2
	University Physics I, II, III 1017-311, 312, 313	12
	Aquatic Toxicology and Chemistry 1015-522	3
	Cooperative Education 1010-499 (optional, summer)	Co-op
Fourth Year	Biochemistry 1009-702	3
	Chemical Thermodynamics 1014-441	4
	Chemical Thermodynamics Lab 1014-445	1
	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Environmental Chemistry 1015-720	3
	Inorganic Chemistry I 1012-562	4
	Preparative Inorganic Chemistry Lab 1012-565	3
	Chemistry Electives§‡	
	Research and Thesis Guidance 1010-879#	3
	Chemical Literature 1010-401	2
Fifth Year##	Atmospheric Chemistry 1015-721	3
	Chemistry Seminar 1010-870	2
	Research and Thesis Guidance 1010-879#	6–13
	Total Quarter Credit Hours	*225*

** Please see Liberal Arts General Education Requirements for more information. Environmental studies concentration is recommended.*
† Please see Wellness Education Requirement for more information.
‡ ACS (American Chemical Society) highly recommends a foreign language (preferably German).
§ A minimum of 36 hours of 700–level or higher chemistry courses is required to graduate with both a BS and MS degree.
 # A student will be required to have 9 to 16 credit hours of Research and Thesis Guidance (1010-879).
##Course work in this year will be determined by the graduate committee and will need to fulfill the requirement of 225 credit hours.

Accelerated dual degree option

The combined BS chemistry/MS materials science and engineering option is designed for students who wish to enter industrial applications of chemistry in the areas of developing new materials (polymers, plastics, natural product substitutes), new processes for producing those materials, and research into new applications for existing materials.

Chemistry, BS/MS materials science and engineering degree option, typical course sequence (BS is ACS certified)

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Introduction to Co-op and Chemical Careers 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry I Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	Liberal Arts*	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Separations Techniques 1008-312	3
	Separations Techniques Lab 1008-319	1
	Organic Chemistry I 1013-431,432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	2
	Systematic Identification of Organic Compounds Lab 1013-437	2
	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	University Physics I, II, III 1017-311, 312, 313	12
	Liberal Arts*‡	4
	Cooperative Education 1010-499 (optional, summer)	Co-op
Third Year	Chemical Literature 1010-401	2
	Chemical Thermodynamics 1014-441	4
	Chemical Thermodynamics Lab 1014-445	1
	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Liberal Arts*‡	16
	University-wide elective	4
	Cooperative Education 1010-499 (optional, summer)	Co-op
Fourth Year	Advanced Instrumental Analysis 1008-511 (or 711)**	3
	Advanced Instrumental Analysis Lab 1008-621**	2
	Biochemistry: Conformation and Dynamics 1009-502**	3
	Inorganic Chemistry I, II 1012-562, 563**	8
	Preparative Inorganic Chemistry Lab 1012-565**	3
	Advanced Chemistry Electives§	
	Introduction to Materials Science 1028-701	4
	Introduction to Polymer Science 1028-702	4
	Introduction to Experimental Techniques 1028-705	4
	Research and Thesis Guidance 1028-879#	
	Materials Science Electives§	

Fifth Year	Atmospheric Chemistry 1015-721	3
	Solid State Science 1028-703	4
	Introduction to Theoretical Methods 1028-704	4
	Materials Properties and Selection 1028-710	4
	Sensors and Actuators 1028-780	4
	Sensors and Actuators Lab 1028-785	2
	Materials Science Electives§	
	Research and Thesis Guidance 1028-879#	
	Seminar 1028-890	1
	Total Quarter Credit Hours	*225*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ ACS highly recommends a foreign language (preferably German).
§ A minimum of 36 hours of 700–level or higher chemistry/materials science courses is required to graduate with both a BS and MS degree.
 # A student will be required to have 9 to 16 credit hours of Research and Thesis Guidance (1028-879).
*** Required only for ACS certification.*

Biochemistry

Biochemistry is an exciting variation of the BS chemistry program and may be completed in four or five years, depending on the amount of cooperative education. Co-op may begin as early as the summer of the first year. Students who enroll in the program often have an interest in combining the life and health sciences with a chemistry degree. Students take a year of general biology, in addition to a typical chemistry curriculum, during the first two or three years. During the upper-level years, students in the biochemistry program take a substantial core of courses in biochemistry, physical chemistry, chemical literature, and the liberal arts as well as elective courses in biology, biotechnology, and clinical science. Students must take a minimum of two upper-division biology electives (300-level or higher) that include laboratory work for the biochemistry major.

The biochemistry program 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 university-wide electives in such fields as biology, while the ACS program is for students interested in a graduate chemistry program such as that offered by RIT.

Employment opportunities for biochemistry graduates exist in the chemical, pharmaceutical, agricultural, forensic, and rapidly expanding biotechnological fields. Graduates also are well-prepared to enter advanced degree programs in biochemistry, medicine, dentistry, and veterinary medicine.

Biochemistry, BS degree, typical course sequence (follows ASBMB guidelines)

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Freshman Symposium 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry I Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	General Biology 1001-201, 202, 203	9
	General Biology Lab 1001-205, 206, 207	3
	Liberal Arts*	4
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Chemical Literature 1010-401	2
	Multivariable Calculus 1016-305	4
	Organic Chemistry I, II, III 1013-431, 432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	2
	Systematic ID of Organic Compounds III Lab 1013-437	2
	Cell Biology 1001-322	4
	Molecular Biology 1001-350	4
	Biochemistry: Conformation and Dynamics 1009-502	3
	Biology Elective	4
	Liberal Arts*	12
	University-wide Electives‡	
	Cooperative Education 1010-499 (optional)	Co-op
Third Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Biochemistry: Metabolism 1009-503	3
	Biochemistry: Nucleic Acids 1009-504	3
	Biochemistry: Experimental Techniques Lab 1009-505	2
	Choose one of the following physics sequences:	
	University Physics I, II, III 1017-311, 312, 313	12
	College Physics I, II, III 1017-211, 212, 213	12
	Biology Elective	4
	Liberal Arts*	12
	University-wide Electives‡	
	Cooperative Education 1010-499 (optional)	Co-op
Fourth Year	Chemical Thermodynamics 1014-441	4
	Chemical Thermodynamics Lab 1014-445	1
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Liberal Arts*	8
	University-wide Electives‡	
	Cooperative Education 1010-499 (optional)	Co-op
	Total Quarter Credit Hours	*183*

**Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ Biochemistry Research (1009-541, 542, 543) may be used as a science elective and is highly recommended. Two electives must be upper-division biology courses (300 or higher) that include laboratory, for a minimum of eight credit hours. Electives are necessary to bring the total quarter credit hours to 183 for graduation.

Biochemistry, BS degree, typical course sequence (ACS certified)

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Freshman Symposium 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry I Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	General Biology I, II, III 1001-201, 202, 203	9
	General Biology Lab 1001-205, 206, 207	3
	Liberal Arts*	4
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Chemical Literature 1010-401	2
	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Organic Chemistry I, II, III 1013-431, 432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	2
	Systematic Identification of Organic Compounds III Lab 1013-437	2
	Cell Biology 1001-322	4
	Molecular Biology 1001-350	4
	Biochemistry: Conformation and Dynamics 1009-502	3
	Biology Elective	4
	Liberal Arts*	8
	University-wide Electives‡	
	Cooperative Education 1010-499 (optional)	Co-op

Third Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Biochemistry: Metabolism 1009-503	3
	Biochemistry: Nucleic Acids 1009-504	3
	Biochemistry: Experimental Techniques Lab 1009-505	2
	Choose one of the following physics sequences:	
	University Physics I, II, III 1017-311, 312,313	12
	College Physics I, II, III 1017-211, 212, 213	12
	Biology Elective	4
	Liberal Arts*	12
	Cooperative Education 1010-499 (optional)	Co-op
Fourth Year	Chemical Thermodynamics 1014-441	4
	Chemical Thermodynamics Lab 1014-445	1
	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Inorganic Chemistry I 1012-562	4
	Preparative Inorganic Chemistry Lab 1011-565	3
	Liberal Arts*	12
	Cooperative Education 1010-499 (optional)	Co-op
	Total Quarter Credit Hours	*183*

** Please See Liberal Arts General Education Requirements for more information. ACS certification recommends a foreign language (preferably German).*
† Please see Wellness Education Requirement for more information.
‡ Biochemistry Research (1009-541, 542, 543) may be used as a science elective and is highly recommended. Two electives must be upper-division biology courses (300 or higher) that include laboratory, for a minimum of eight credit hours. Electives are necessary to bring the total quarter credit hours to 183 for graduation.

Biochemistry, combined BS/MS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Freshman Symposium 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	General Biology I, II, III 1001-201, 202, 203	9
	General Biology Lab 1001-205, 206, 207	3
	Liberal Arts*	4
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Organic Chemistry I, II, III 1013-431, 432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	2
	Systematic ID of Organic Compounds III Lab 1013-437	2
	University Physics I, II, III 1017-311, 312, 313	12
	Liberal Arts*	16
	Cooperative Education 1010-499 (optional, summer)	Co-op
Third Year	Chemical Thermodynamics 1014-441	4
	Chemical Thermodynamics Lab 1014-445	1
	Chemical Literature 1010-401	2
	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Liberal Arts*	16
	Cooperative Education 1010-499 (optional, summer)	Co-op
Fourth Year	Biochemistry 1009-702	3
	Inorganic Chemistry I 1012-562	4
	Advanced Instrumental Analysis 1008-711	3
	Preparative Inorganic Chemistry Lab 1011-765	3
	Biochemistry: Metabolism 1009-703	3
	Biochemistry: Nucleic Acids 1009-704	3
	Biochemistry: Experimental Techniques Lab 1009-705	3
	Biology Electives‡	
	Chemistry Electives§	
	Research and Thesis Guidance 1010-879#	
Fifth Year	Chemistry Seminar 1010-870	2
	Advanced Instrumental Analysis Lab 1008-621	2
	Advanced Organic Chemistry 1013-737	4
	Advanced Physical Chemistry 1014-741 or 1014-743	4
	Chemistry Electives§	
	Research and Thesis Guidance 1010-879#	
	Total Quarter Credit Hours	*225*

**Please see Liberal Arts General Education Requirements for more information. ACS certification recommends a foreign language (preferably German).*
† Please see Wellness Education Requirement for more information.
‡ Two upper-division biology electives with laboratory. Biology electives may be Cell Biology (1001-311), Molecular Biology (1001-350), Genetics (1001-421), or Genetic Engineering (1001-450).
§ A minimum of 36 hours of 700-level or higher chemistry courses is required to graduate with a BS and MS degree.
 # A student will be required to have 9 to 16 hours of Research and Thesis Guidance (1010-879).

Polymer Chemistry

Polymer science is one of the increasingly important areas of modern science. When it includes the Preparative Inorganic Chemistry Lab (1012-765), the polymer chemistry program meets the requirements for approval by the Committee on Professional Training of the American Chemical Society. The program is one of a handful in the nation and provides students with a solid background in the traditional areas of chemistry (general, analytical, organic, physical, and inorganic) supplemented with advanced courses and intensive laboratory experiences in polymer science. The polymer program may be completed in four or five years, depending on the number of cooperative education blocks, which may begin as early as the summer of the first year. It is highly recommended that students take the undergraduate chemistry research courses as university-wide electives in this program. Because two-thirds of all chemists work with polymers during their professional lives, this program provides the background important for success in many industrial research areas. It also enables graduates to pursue further education in chemistry, polymer chemistry, or materials science and engineering.

Polymer chemistry, BS degree, typical course sequence (ACS certified)

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Introduction to Co-op and Chemical Careers 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry I Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	Liberal Arts*	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Separations Techniques 1008-312	3
	Separations Techniques Lab 1008-319	1
	Multivariable Calculus 1016-305	4
	Organic Chemistry I, II, III 1013-431, 432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	2
	Systematic Identification of Organic Compounds III Lab 1013-437	2
	Liberal Arts*	8
	Cooperative Education 1010-499 (optional)	Co-op

Third Year	Introduction to Polymer Technology 1029-301	2
	Differential Equations 1016-306	4
	University Physics I, II, III 1017-311, 312, 313	12
	Chemical Thermodynamics 1014-441	4
	Chemical Literature 1010-401	2
	Chemical Thermodynamics Lab 1014-445	1
	Liberal Arts*‡	4
	Cooperative Education 1010-499 (optional)	Co-op
Fourth Year	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Organic Chemistry of Polymers 1029-501	4
	Synthesis of High Polymers Lab 1029-505	2
	Inorganic Chemistry I 1012-562	4
	Polymer Chemistry: Chains and Solutions 1029-502	4
	Liberal Arts*‡	8
	Cooperative Education 1010-499 (optional)§	Co-op
Fifth Year	Biochemistry 1009-502#	3
	Polymer Chemistry: Properties of Bulk Materials 1029-503	4
	Polymer Characterization Lab 1029-504	2
	Preparative Inorganic Chemistry Lab 1012-765#	3
	Chemistry Electives#	4
	University-wide Electives**	
	Cooperative Education 1010-499 (optional)§	Co-op
	Total Quarter Credit Hours	*182*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ ACS highly recommends a foreign language (preferably German).
§ Students must take A-block co-op.
 # Required only for ACS certification
*** Chemistry Research (1010-541, 542, 543) may be used as a university-wide elective and is highly recommended. Electives are necessary to bring the total quarter credit hours to 180 for graduation. Twelve credits are necessary for full-time status.*

Polymer chemistry, combined BS/MS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Chemical Safety 1010-200	1
	Introduction to Co-op and Chemical Careers 1010-230	1
	General Chemistry I, II 1010-251, 252	7
	General Chemistry I Lab 1010-255	1
	Quantitative Analysis I, II 1008-261, 262	7
	Quantitative Analysis Lab I, II 1008-265, 266	3
	Calculus I, II, III 1016-281, 282, 283	12
	Liberal Arts *	20
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
	Cooperative Education 1010-499 (optional, summer)	Co-op
Second Year	Instrumental Analysis 1008-311	3
	Instrumental Analysis Lab 1008-318	1
	Separations Techniques 1008-312	3
	Separations Techniques Lab 1008-319	1
	Multivariable Calculus 1016-305	4
	Differential Equations 1016-306	4
	Organic Chemistry I, II, III 1013-431, 432, 433	9
	Preparative Organic Chemistry Lab I, II 1013-435, 436	2
	Systematic Identification of Organic Compounds III Lab 1013-437	2
	Liberal Arts*	12
	Cooperative Education 1010-499 (optional, summer)	Co-op
Third Year	Introduction to Polymer Technology 1029-301	1
	Chemical Literature 1010-401	2
	University Physics I, II, III 1017-311, 312, 313	12
	Chemical Thermodynamics 1014-441	4
	Chemical Thermodynamics Lab 1014-445	1
	Liberal Arts*‡	4
	Chemistry Electives§	
	Cooperative Education 1010-499 (optional, summer)	Co-op
Fourth Year	Quantum Chemistry 1014-442	4
	Quantum Chemistry Lab 1014-446	1
	Organic Chemistry of Polymers 1029-701	4
	Polymer Chemistry: Chains and Solutions 1029-702	4
	Polymer Characterization Lab 1029-704	2
	Preparative Polymer Chemistry 1029-705	4
	Chemical Kinetics 1014-443	4
	Chemical Kinetics Lab 1014-447	1
	Advanced Instrumental Analysis 1008-711#	3
	Advanced Instrumental Analysis Lab 1008-621#	2
	Inorganic Chemistry I 1012-562	4
	Preparative Inorganic Chemistry Lab 1012-765#	3
	Chemistry Electives§	
	Research and Thesis Guidance 1010-879**	3
Fifth Year§	Biochemistry 1009-702#	3
	Polymer Chemistry: Properties of Bulk Materials 1029-703	4
	Chemistry Seminar 1010-870	2
	Research and Thesis Guidance 1010-879**	6–13
	Total Quarter Credit Hours	*225*

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
‡ ACS highly recommends a foreign language (preferably German).
§ Course work in the fifth year will be determined by the graduate committee and will need to fulfill the requirement of 225 total credit hours. A minimum of 36 hours of 700-level or higher chemistry courses is required to graduate with both a BS and MS degree in chemistry.
 # Required only for ACS certification
*** A student will normally have 9 to 16 credit hours of Research and Thesis Guidance (1010-879).*

Department of Physics

Michael Kotlarchyk, Department Head

www.rit.edu/cos/physics/

The department of physics offers programs leading to the AS and BS degrees in physics as well as minors in physics and astronomy. The BS degree can be completed in either four or five years, depending on the number of co-op experiences a student chooses to complete. Graduates find employment opportunities with industrial, academic, and governmental agencies or continue their education in master's or doctoral programs in physics or physics-related areas such as astrophysics, biophysics, geophysics, atmospheric science, imaging science, and engineering. Students also may prepare for entry into medical, law, or business school.

Requirements for the BS degree

The student must meet the minimum requirements of the university as described in this bulletin. In addition, he or she must complete the requirements contained in the program shown here or its equivalent, as determined and approved by the department of physics. In conjunction with a faculty adviser, individual student programs may be established to meet particular needs, interests, and goals. A planned elective concentration in another field such as biology, chemistry, mathematics, computer science, business, or imaging science is possible.

Students may elect to take a concentration in optical physics as part of their BS degree. The concentration includes, in part, three courses: Optical Physics II, Laser Physics, and Experimental Optics. These can be taken as physics, technical, or free

electives during the fourth and fifth years with no additional credit hours to obtain a BS degree. For additional information on AS and BS degree requirements or requirements for the minors in physics or astronomy, contact the head of the department of physics.

Physics, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Special Relativity 1017-200	2
	University Physics I, II 1017-311, 312	10
	Project-Based Calculus I, II, III 1016-281, 282, 283	12
	Choose one of the following course sequences:	9 or 8
	General and Analytical Chemistry I, II 1011-215, 216 and Chemical Principles Lab I, II 1011-205, 206	
	Introduction to Biology I, II 1001-251, 252	
	Introduction to Computational Physics and Programming 1017-317	4
	Liberal Arts*	16
	First-Year Enrichment 1105-051, 052	2
	Wellness Education†	0
Second Year	University Physics III 1017-313	4
	Modern Physics I, II 1017-314, 315	8
	Electronic Measurements 1017-431	4
	Experiments in Modern Physics I 1017-374	2
	Vibrations and Waves 1017-318	4
	Sophomore Physics Seminar 1017-350	1
	Multivariable Calculus 1016-305	4
	Differential Equations I 1016-306	4
	University-wide Elective	4
	Liberal Arts*	12
Third Year	Intermediate Mechanics I, II 1017-401, 402	8
	Electricity and Magnetism I, II 1017-411, 412	8
	Thermal Physics 1017-415	4
	Introduction to Laboratory Techniques 1017-321	4
	Mathematical Methods in Physics I 1017-480	4
	Experiments in Modern Physics II 1017-378	2
	Capstone Preparation 1017-400	1
	Liberal Arts*	8
	University-wide Elective	4
	General Education Elective#	4
Fourth Year	Physical Optics I 1017-455	4
	Capstone Project I, II 1017-502, 503	7
	Quantum Mechanics I, II 1017-522, 523	8
	Physics Electives	8
	University-wide Electives	4
	General Education Elective#	10
	Total Quarter Credit Hours	***189-190***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
 # General education elective is generally defined as any course from the College of Science (excluding physics) and the College of Liberal Arts; certain courses to be defined later. There are exceptions. Check with your academic adviser for approval.

Chester F. Carlson Center for Imaging Science

Stefi A. Baum, Director

www.cis.rit.edu

Imaging Science

Carl Salvaggio, Program Coordinator

Imaging science is a multidisciplinary field based on physics, mathematics, computer science, systems engineering, and chemistry. Students in imaging science study the theory behind the technologies used to create images, the integration of those technologies into imaging systems, and the application of those systems to solve scientific problems. The imaging science curriculum includes the study of:

- the physical observables associated with the subject of an image, such as reflected or emitted electromagnetic radiation;
- how those observables are captured by devices using optics and detectors such as satellites, digital cameras, and astronomical observatories;
- how the captured observables are processed using computers and specialized software;
- how processed signals are converted into images displayed on paper or electronic devices and perceived by humans; and
- how image quality is assessed and scientific information is extracted.

Concepts presented in the classroom are reinforced through laboratory experiments and a capstone research experience, which can examine a problem in any of several imaging applications such as remote sensing, astronomy, medical imaging, document restoration, image microstructure, optics, color science, image quality, or visual perception. Students may choose to pursue a minor to supplement their major field of study. Both theoretical studies and practical application of technologies are integral parts of the program.

Career opportunities are many and varied. Graduates are in demand by both industry and governmental agencies to work on the design, development, testing, or production of specialized imaging systems or technologies, or to use imaging systems to perform scientific research. The imaging science faculty members are deeply committed professionals who divide their time between teaching and the pursuit of scientific advances.

Faculty, staff, and students conduct research sponsored by both industry and the government. The research support ensures that students are exposed to the latest developments in a rapidly expanding field.

Graduate programs are offered in both imaging science and color science leading to MS and doctoral degrees. Students also may choose to minor in imaging science.

Requirements for the BS degree

Students must meet the minimum requirements of the university as described in this bulletin. In addition, they must complete the requirements contained in the program shown here or its equivalent, as determined and approved by the imaging science faculty. Cooperative education experience is not required but is recommended for the summers following the second and third years of the program. In consultation with a faculty adviser, a two-quarter co-op block is possible. Opportunities also exist to participate in research work with faculty during academic and summer quarters.

Imaging science, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Imaging Project (sequence)	6
	Science Electives**	8
	Project-Based Calculus I, II, III 1016-281, 282, 283	12
	University Physics I, II 1017-311, 312	10
	General Education Elective	4
	Liberal Arts*	8
	First-Year Enrichment	1
Second Year	Programming for Imaging Science 1051-211	4
	Introduction to Imaging Systems 1051-300	4
	Geometrical Optics 1051-303	4
	Linear Mathematics for Imaging 1051-320	4
	Mathematical Methods for Imaging 1051-553	4
	Vision and Psychophysics 1051-350	4
	Digital Image Processing 1051-361	4
	Radiometry 1051-370	4
	Multivariable Calculus 1016-305	4
	University Physics III 1017-313	4
	Modern Physics I 1017-314	4
	Liberal Arts*	4
	Wellness Education†	0
Third Year	Imaging Science Laboratory (sequence)	3
	Modulation Transfer Function 1051-452	3
	Noise and Random Processes 1051-453	3
	Color Science 1051-402	4
	Digital Image Processing II 1051-462	4
	Probability and Statistics for Imaging 1051-553	4
	Interactions Between Light and Matter 1051-313	4
	Physical Optics 1051-455	4
	Detectors 1051-465	4
	Statistical Tools and Research Practices	3
	Liberal Arts*	12
Fourth Year	Senior Project 1051-502	4
	Senior Project 1051-503	4
	University-wide Electives	12
	Professional Electives	8
	Liberal Arts*	12
	Total Quarter Credit Hours	***185***

** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.
*** Consult with adviser for suggested science electives*

National Technical Institute for the Deaf

James J. DeCaro, Interim President, NTID; Interim Vice President and Dean, RIT

www.ntid.rit.edu/

The National Technical Institute for the Deaf (NTID) provides deaf and hard-of-hearing students with educational programs that lead to meaningful employment in business, industry, government, and education. NTID represents the world's first effort to educate large numbers of deaf and hard-of-hearing students within a college campus planned principally for hearing students. NTID's location benefits deaf and hearing students' academic, personal, social, and communication development. More than 1,200 deaf and hard-of-hearing students from across the United States, as well as from several U.S. territories and other countries, study and reside at RIT.

NTID provides deaf and hard-of-hearing students with technical and pre-professional training in more than 20 programs. An NTID education prepares students for technical careers in areas such as accounting technology, administrative support technology, applied computer technology, applied liberal arts, applied mechanical technology, arts and imaging studies, business, business technology, computer-aided drafting technology, computer-integrated machining technology, hospitality and service management, and laboratory science technology. NTID also offers a degree program in American Sign Language-English interpretation. Over the past five years, 94 percent of NTID graduates who chose to enter the workforce have found employment.

Deaf and hard-of-hearing students who take courses or matriculate into one of RIT's seven other colleges may request educational access services, which typically include sign language interpreting services, assistive listening systems, notetaking, or real-time captioning services. Alternative services also will be provided as required. Students also may request educational support services such as tutoring, personal and career counseling, and academic advising.

In support of its national mission, NTID has research, teaching, and learning activities that focus on understanding and enhancing the educational, social, and communication opportunities for deaf and hard-of-hearing individuals. NTID provides services and programs that enhance teaching and learning within the NTID community and beyond via broad-based research activities and dissemination strategies, curriculum development, instructional design and evaluation, and instructional media services.

NTID's academic programs

NTID provides student-oriented academic programming to ensure a rich, coherent set of educational experiences for students. NTID offers transfer programs and career-focused associate degrees as well as general education course work in a variety of disciplines.

Transfer programs: NTID offers transfer associate degrees and pre-baccalaureate programs. Associate in science (AS) degrees in applied computer technology, applied liberal arts, business, and hospitality and service management provide optimal transferability to baccalaureate programs in the B. Thomas Golisano College of Computing and Information Sciences, the College of Liberal Arts, the E. Philip Saunders College of Business, and the College of Applied Science and Technology, respectively. In addition, several of our associate in applied science (AAS) degree programs, such as administrative support technology, applied mechanical technology, and laboratory science technology, provide students with the necessary skills to transfer to other RIT colleges. Pre-baccalaureate studies programs are designed to prepare qualified students for several specific bachelor's degree programs in other colleges of RIT.

Career-focused programs: Numerous career-focused options and concentrations, designed to lead directly to employment, are available within the following areas: accounting technology, administrative support technology, applied computer technology, arts and imaging studies, business technology, computer-aided drafting technology, computer-integrated machining technology, and laboratory science technology. Program laboratories are equipped with the latest technology and maintain a curriculum that represents current industry trends and requirements, based on routine feedback from business and industry advisory groups. These programs lead to the associate degree in applied science and the associate degree in occupational studies. All career-focused programs require at least one 10-week external cooperative education experience.

General education: NTID offers an array of general education courses to a broad-based population of NTID students, including those who are undecided about, or under-prepared for, matriculation into a program of study. In addition, NTID offers a degree program in American Sign Language-English interpretation and provides a comprehensive sign language education program for students, faculty, and staff members.

Support and access services: NTID provides comprehensive services in support of students enrolled in more than 200 baccalaureate or graduate programs in RIT's other colleges. The educational support services available include academic advising, faculty tutoring, audiological assistance, speech-language services, and personal and career counseling. In addition, NTID provides access services that are based upon each student's educational need and typically include sign language interpreting services, assistive listening systems, notetaking, or real-time captioning services. Alternative services also will be provided as required. Through support and access services, students who are deaf are able to participate in all aspects of the RIT community.

Educational opportunities through NTID

Transfer programs

Transfer programs offered through NTID prepare qualified students for transfer into baccalaureate degree programs in other colleges of RIT.

Associate in science degree (AS): Certification at this level requires the completion of 45–50 quarter credit hours of technical course work and 40–45 quarter credit hours in general education courses offered through the College of Liberal Arts, mathematics and science courses offered through the College of Science, and other courses as appropriate to the degree. This degree prepares students to enter and complete a bachelor's program in the B. Thomas Golisano College of Computing and Information Sciences, the College of Liberal Arts, the E. Philip Saunders College of Business, or the College of Applied Science and Technology. Admission to these programs is available in the fall quarter only.

Pre-baccalaureate studies: The pre-baccalaureate studies program is available as a bridge to baccalaureate degree programs for students who are accepted by NTID and are close to, but not fully ready for, direct entry into a baccalaureate-level program. Pre-baccalaureate programs are offered through arts and imaging studies, liberal studies, science and mathematics, and engineering studies departments. The pre-baccalaureate studies career exploration option is available to students who are undecided as to their program of study.

The pre-baccalaureate studies program is appropriate for students who need to further develop mathematics, English, or discipline-related skills. This academic option is flexible and individualized and enables students to focus on needed skills while they progress toward their chosen field of study. Students take courses taught by NTID instructional/support faculty along with entry-level courses taught in other RIT colleges.

Career-focused programs

Career-focused programs offered through NTID lead to the associate in applied science degree or the associate in occupational studies. These programs permit students to enter their careers directly.

Associate in applied science degree (AAS): Certification at this level requires 57–69 quarter credit hours of technical instruction. In addition to satisfactorily completing technical courses, students must complete 20 quarter credit hours in general education courses offered through the College of Liberal Arts as well as other required quarter credit hours as determined by the program of study. In some programs, this degree prepares students to apply for entry to bachelor's degree programs in other colleges of RIT.

Associate in occupational studies degree (AOS): Certification at this level requires 57–69 quarter credit hours of technical instruction. In addition to satisfactorily completing technical courses, students must complete a specific number of quarter credit hours in the NTID general education curriculum, as determined by the program of study.

Career exploration studies

The career exploration studies program offers opportunities for students to collect information about NTID majors and career paths before deciding on a program of study. It also assists students who need additional academic preparation and study in order to be ready for their chosen major.

This option allows students the opportunity to do an intensive career search while they develop a better understanding of themselves through career and personal counseling; decision-making classes; intensive sampling of various majors at RIT/NTID; use of a computer guidance program in the Career Resource and Testing Center; interest testing; and interpretation of aptitude, ability, and achievement tests. In addition, students take courses in mathematics, English, social and physical sciences, the humanities, and deaf cultural studies/American Sign Language (ASL) as well as technical sampling courses or experiences. Some students also may take introductory courses in specific programs of study and general education courses and be involved in extracurricular or other college-oriented activities.

A career development counselor is assigned to help students evaluate the information and make career decisions. Students can remain in the career exploration studies program for one to three academic quarters. Additional quarters in the program are possible with the approval of the program coordinator.

Educational opportunities in other RIT colleges

In addition to NTID's programs, qualified deaf and hard-of-hearing students may enroll as baccalaureate or master's degree students in one of the more than 200 professional programs offered through RIT's other seven colleges: College of Applied Science and Technology, E. Philip Saunders College of Business, B. Thomas Golisano College of Computing and Information Sciences, Kate Gleason College of Engineering, College of Imaging Arts and Sciences, College of Liberal Arts, and College of Science. NTID students also may take classes in the other RIT colleges individually, on a course-by-course basis.

Each of RIT's colleges has NTID instructional/support faculty that provide services for deaf and hard-of-hearing students. These services include tutoring, advising, and personal and career counseling. The department of access services provides sign language interpreting services, assistive listening systems, notetaking, and real-time captioning services for deaf and hard-of-hearing students taking courses in the other seven colleges of RIT and for campus activities outside the classroom. Alternative services also will be provided as required.

Deaf and hard-of-hearing students who wish to enroll in a program in another RIT college must meet that college's admission requirements. Furthermore, deaf and hard-of-hearing students supported by NTID also must meet NTID admission requirements, submit an audiological record completed by a certified audiologist (CCC-A), and complete standard RIT admission forms. Please see the Admission section of this bulletin for more information.

Qualified students may choose to enroll in courses taught through the other seven colleges of RIT for several reasons: as part of the elective requirements in their NTID programs; to complete their programs of study at NTID, then continue their education at another RIT college; to enter a program of another RIT college directly from high school; or to transfer directly into a program in one of RIT's colleges from another postsecondary program.

CAREER-FOCUSED AND TRANSFER PROGRAMS OF NTID	RELATED EDUCATIONAL PROGRAMS OF OTHER RIT COLLEGES		
Leading to associate degrees	Leading to associate, bachelor's, or master's degrees in the other RIT colleges; students may request educational access services such as sign language interpreting services, assistive listening systems, notetaking, or real-time captioning services. Alternative services also will be provided as required.		
NTID PROGRAMS	**OTHER RIT COLLEGES**	**OTHER RIT PROGRAMS**	
Applied Computer Technology Concentrations: • PC Technical Support • Networking and Cyber Security • Web Development and Database AS Transfer Program	College of Computing and Information Sciences	• Computer Science • Information Technology • Networking Security and Systems Administration • Information Security and Forensics • Software Development and Management • Game Design Development • Medical Informatics • Software Engineering	
Applied Mechanical Technology	College of Applied Science and Technology	• Mechanical Engineering Technology • Manufacturing Engineering Technology	
Applied Liberal Arts	College of Liberal Arts	• Advertising and Public Relations • Criminal Justice • Cultural Resource Studies • Economics • Journalism • Philosophy	• Political Science • Professional and Technical Communication • Psychology • Public Policy • Urban and Community Studies
Applied Optical Technology‡	College of Applied Science and Technology	• Manufacturing Engineering Technology	
Arts and Imaging Studies Concentrations: • Graphic Design • Graphic Technology	College of Imaging Arts and Sciences	**School for American Crafts** • Ceramics/Ceramic Sculpture • Glass and Glass Sculpture • Metalcrafts and Jewelry • Woodworking and Furniture Design **School of Art** • Fine Arts • Illustration • Medical Illustration **School of Design** • 3D Digital Graphics • Graphic Design • Industrial Design • Interior Design • New Media Design and Imaging	**School of Film and Animation** • Film and Animation • Digital Cinema **School of Photographic Arts and Sciences** • Advertising Photography • Biomedical Photographic Communication • Fine Arts Photography • Imaging and Photographic Technology • Photojournalism • Visual Media **School of Print Media** • New Media Publishing
Automation Technologies‡	College of Applied Science and Technology	• Mechanical Engineering Technology • Manufacturing Engineering Technology • Electrical/Mechanical Engineering Technology	
Business Studies Accounting Technology Business Business Technology	College of Business	• Accounting • Finance • International Business • Management	• Management Information Systems • Marketing • New Media Marketing
Administrative Support Technology	College of Applied Science and Technology	• Human Resource Development • Computer Graphics	
Computer-Aided Drafting Technology	College of Applied Science and Technology	• Civil Engineering Technology	
	College of Imaging Arts and Sciences	• Interior Design	
Computer-Integrated Machining Technology Electives: • Machining • Precision Optics Manufacturing	College of Applied Science and Technology	• Manufacturing Engineering Technology	
Hospitality and Service Management Concentrations: • Hotel and Resort Management • Food Management	College of Applied Science and Technology	**School of Hospitality and Service Management** • Hotel and Resort Management • Food Management	
Laboratory Science Technology	College of Applied Science and Technology	• Applied Arts and Sciences • Environmental Management and Technology	
	College of Science	• Biology • Biotechnology	• Chemistry • Environmental Science

Note: In addition to the transfer degree and career-focused programs noted above, NTID also offers pre-baccalaureate studies. This program is available as a bridge for qualified students accepted by NTID and interested in enrolling in another RIT college are not yet ready to enter a baccalaureate-level program.
‡ This program has been suspended. No new students will be admitted in 2010-2011.

First-Year Experiences Programming

NTID programs

Beginning with a summer orientation program, NTID provides a special array of curricular and co-curricular activities to help maximize each student's potential for success in the first year. These experiences are designed to enhance students' bonding with the community while providing time and support to select and enter into a major and/or progress within a career program.

First-year students qualified to enter NTID in the fall quarter are required to participate in a summer orientation program called the Summer Vestibule Program. This program includes:

- placement testing in English and mathematics
- orientation/transition to college life activities
- career sampling
- counseling
- application to a career-focused or transfer program, career exploration studies, pre-baccalaureate studies, or baccalaureate program

This summer program is followed by additional first-year experiences that allow students to work with a counselor to select courses and activities that meet individual goals and needs. Components of first-year experiences programming include:

- enrollment in the Freshman Seminar course during the first quarter
- completion of preparatory courses, as needed
- work with an academic adviser and counselor
- participation in career exploration and introductory courses, when and if appropriate
- completion of degree requirements, as appropriate
- participation in co-curricular and mentoring activities of choice
- if undecided, declaring a major and degree level by the end of the first year

Other colleges of RIT

Students who qualify to enter baccalaureate programs in other colleges of RIT participate in the first-year programming and activities designed by the affiliated instructional/support faculty and the colleges. Most first-year students enrolled in colleges other than NTID are required to:

- participate in the summer orientation options and in RIT's weeklong MyOrientation program as well as NTID's support service orientation workshops
- enroll in the First-Year Enrichment program
- participate in opportunities to explore and select a major, if needed
- work with an academic adviser and counselor

NTID's General Education Curriculum

At NTID and in the other colleges of RIT, education in a chosen program of study and preparation for a career are complemented by study in general education. The NTID general education curriculum fosters a spirit of lifelong learning and inquiry. Courses in science, mathematics, English, the social sciences, the humanities, and deaf cultural studies/ASL are designed to provide students with the opportunity to develop knowledge, intellectual and communication skills, and an understanding of the creative process that will enable them to actively shape their personal, professional, and community lives.

The general education curriculum satisfies the general education distribution requirements for the AOS programs offered at NTID, prepares students for completing the College of Liberal Arts courses required for AAS and AS programs and, along with other curricula offered by NTID, prepares qualified students to pursue course work and degrees in other RIT colleges.

Degree requirements

Students must complete a minimum number of general education credits for each degree. The general education distribution requirements chart shows the credit hour and distribution requirements for the AS, AAS, and AOS degrees. (See the course sequences for individual programs of study.)

Level of courses in the curriculum

Degree requirements must be completed at the appropriate level in the curriculum. There are four levels of courses in the NTID general education curriculum: introductory (A), fundamental (B), intermediate (C), and bridging (D). Students not yet prepared for courses required for their degree begin with courses at a lower level and enter required courses when they have completed the prerequisites.

Course placement

The goal of assessment for course placement is to ensure that each student begins his or her study in the appropriate course. Assessment for initial course placement will be made during summer orientation in the following areas: mathematics, American Sign Language, and writing and reading.

General education distribution requirements

Degree	Freshman Seminar	Math and Science	Deaf Cultural Studies/ ASL[1]	Language and Literature	Humanities	Social Sciences	Capstone
AS	2	6		Liberal Arts (CLA)-8[2]	Liberal Arts (CLA)-8	Liberal Arts (CLA)-8	
AAS	2	6	3	Liberal Arts (CLA)-4[3]	Liberal Arts (CLA)-8	Liberal Arts (CLA)-8	3[4]
AOS	2	6	(3)[1]	12	6[5]	6[5]	3[4]

1 The deaf cultural studies/ASL requirement can be satisfied by taking three credits in American Sign Language or an identified deaf cultural studies course. The 3-credit course taken to fulfill the deaf cultural studies/ASL requirement can fulfill three credits in either the humanities or social sciences, depending upon which discipline offers the course selected.
2 Students earning the AS degree are required to take Writing Seminar (0502-227) and one 4-credit Arts of Expression (0505-319) course.
3 Students earning the AAS degree are required to take Writing Seminar.
4 The capstone requirement can be satisfied by taking either Capstone: Society and Technology (0882-297) or Capstone: Explorations in Social Responsibility (0880-294). Students in AAS transfer degree programs, only, may take Science, Technology, and Values (0508-211) as a substitute, providing they take two additional courses to satisfy the College of Liberal Arts humanities requirement.
5 Students earning AOS degrees are required to complete one C-level course in communication studies (either Group Dynamics and Effective Teams, Interpersonal Relationships, or Organizational Communication and the Deaf Employee). These credits may be used to satisfy the humanities or social sciences requirements.

Course requirements

Freshman Seminar: Freshman Seminar is required for all students entering the first year of college. This course helps students identify personal, social, and academic skills that lead to a successful college experience.

Science and mathematics: All students take science and mathematics courses that foster the reasoning and problem-solving skills that are a part of the foundation of their technical studies. In addition, the curriculum provides an opportunity to develop the mathematical and scientific literacy demanded in today's society.

Students are required to complete three credits in mathematics and three credits in science at the fundamental (B) level or higher. Some students will have additional requirements established by their technical programs. (See the course sequences for individual technical programs.)

English language: The English program is designed to enable students to develop English literacy skills. The program includes course sequences at four levels (A-D), which offer instruction in reading and writing. Courses at levels A-C of this program provide the English literacy skills needed for career-focused associate degrees. However, there are two course sequences at level C: Career English and Intensive English. Career English is designed for students completing the AOS degree. Intensive English is designed for students who demonstrate strong potential for improving their skills sufficiently to access the College of Liberal Arts' writing curriculum required for the AAS and AS degrees. A grade of C is required at the completion of each Intensive English course in order to progress through the sequence, and each Intensive English course must be taken in conjunction with its corequisite course. At no time may an Intensive English course be repeated. Level D courses prepare students to access the College of Liberal Arts' writing curriculum required for transfer associate degrees and baccalaureate programs.

Students who plan to graduate with the AOS degree are required to complete 12 credits of English at level C or higher. Students who enter NTID with English skills below the level required for their degree of choice will need to successfully complete additional courses before taking the required English courses.

Social sciences and humanities: The social sciences courses provide students with a broad exposure to key concepts and issues in anthropology, sociology, psychology, economics, and political science.

The humanities curriculum includes courses in communication studies, history, fine arts, performing arts, and philosophy. Students also have the opportunity to study foreign languages in the College of Liberal Arts. The communication studies curriculum offers courses to enhance students' understanding of the communication process and develop effective individual, group, professional, and cross-cultural communication skills based on linguistic background, communication preferences, and needs of a variety of audiences.

The performing arts curriculum includes performance and technical components. The curriculum makes use of NTID's Panara Theatre and a smaller experimental theater where students stage plays and performances and create their own works in American Sign Language and English. This curriculum provides a bridge to the BFA program in film/video/animation in the College of Imaging Arts and Sciences.

Each of the social sciences and humanities curricula have courses at three levels (B-D). Students who plan to graduate with the AOS degree are required to complete six credits of social sciences courses and six credits of humanities courses at level C or higher. Students who, upon entry to NTID, place below level C in the social sciences/humanities will need to successfully complete courses at level B before taking courses at level C.

Deaf cultural studies/American Sign Language

Students have an opportunity to study American Sign Language and learn about their heritage as deaf people through the deaf cultural studies/ASL curriculum. All students are required to complete one 3-credit course in deaf cultural studies or ASL at the fundamental (B) level or higher. Students who are not skilled in sign language are strongly encouraged to take additional ASL courses, and students proficient in ASL are encouraged to take advanced courses. Deaf cultural studies courses also satisfy the social sciences and humanities requirements.

Capstone

All students at the AAS and AOS levels are required to complete a capstone course. This is an interdisciplinary course that applies the knowledge and skills acquired in the technical and general education courses to a selected topic, resulting in a team project and presentation. The capstone requirement can be satisfied by taking either Capstone: Society and Technology (0882-297) or Capstone: Explorations in Social Responsibility (0880-294). Students in AAS transfer degree programs, only, may take Science, Technology, and Values (0508-211) as a substitute providing they take two additional courses to satisfy the College of Liberal Arts humanities requirement.

College of Liberal Arts composition sequence

The College of Liberal Arts, through the NTID department of liberal studies, offers a two-course writing sequence, Written Communication I and II (0502-110, 111) that prepares students for the College of Liberal Arts course Writing Seminar (0502-227). These courses provide additional experience in writing, reading, and critical thinking techniques needed for success in Writing Seminar. Eligible students must meet with the liberal arts instructional/support faculty before registering for these courses.

Liberal arts requirements

Deaf and hard-of-hearing students enrolled in baccalaureate, AS, or AAS degree programs take required liberal arts courses through the College of Liberal Arts. At the lower division, students can choose between course sections taught by either NTID or College of Liberal Arts faculty members.

Where liberal arts courses are taught by NTID faculty members, instructors will communicate directly with you utilizing a variety of communication strategies that include sign language, spoken language, printed/visual aids, Web-based instructional materials, and individual tutoring. The faculty member is responsible for facilitating communication in the classroom.

Liberal arts courses taught by College of Liberal Arts faculty members include both deaf and hearing students. Educational

access services, such as sign language interpreting services, assistive listening systems, notetaking, or real-time captioning services may be requested by students. Alternative services also will be provided as required. Students also may request educational support services such as tutoring and academic advising.

Deaf and hard-of-hearing students are advised to earn a passing grade in the Writing Seminar course before taking any additional liberal arts courses. Students studying in colleges other than NTID should consult with their program departments about required liberal arts courses.

Placement in Writing Seminar (0502-227) is based on the Liberal Arts Placement Test or upon satisfactory completion of Written Communication II (0502-111).

Admission Information

Costs of attending RIT through NTID

The total cost of attending RIT through NTID sponsorship includes tuition, room, board, and fees. Charges to NTID-sponsored students are updated each year. The cost of books and supplies is the students' responsibility. These costs vary depending on each student's program of study. The estimated cost for books and supplies for the 2010-11 academic year is $1,900 or more.

New students attending the Summer Vestibule Program will be charged a fee. Students participating in cooperative education are not charged tuition or fees for that particular quarter. They will be charged room, board, and residence hall fees, however, if they live on campus while participating in a co-op.

All students are required to carry accident and sickness insurance. Students may choose insurance coverage through RIT, or they may waive this coverage if they provide evidence of other insurance coverage. Waiver cards will be sent to all accepted students during the summer and will be available at registration. The fee for health insurance for 2010-11 is approximately $860.

Deaf and hard-of-hearing applicants

Deaf and hard-of-hearing students may apply for admission to any of RIT's colleges. All applicants with a hearing loss should check the appropriate box on the application and submit an audiological record completed by a certified audiologist (CCC-A) in order to qualify for educational access and support services as well as NTID's federally supported tuition rate. Send application materials to the NTID Office of Admissions. For further details regarding application requirements, please refer to the information in the Admission to Undergraduate Study section of this bulletin.

Transfer credit

Deaf and hard-of-hearing students may transfer into an NTID program, or they may qualify for transfer directly into a program in another RIT college with NTID sponsorship. The transfer credit of deaf students accepted to the Summer Vestibule Program will be evaluated in the fall, when they are accepted into a specific program.

Campus visits

Deaf and hard-of-hearing students who wish to visit RIT may contact NTID's Office of Admissions at (585) 475-6700 (voice/TTY) or via e-mail at visitNTID@rit.edu. Students may take tours of campus and arrange personal interviews. Both of these are strongly encouraged but are not required for admission.

Facilities

A modern academic and residential building complex on the RIT campus is designed to meet the specific needs of deaf and hard-of-hearing students. The Lyndon Baines Johnson and the Hugh L. Carey buildings house laboratories, offices, communication studies and services centers, classrooms, and a theater. These classrooms and laboratories support the latest technologies for teaching and include high-resolution projection displays, digital document displays, DVDs, assistive listening systems, Internet access, smart display boards, and other computer-based services. In addition, classrooms are specifically designed to meet the unique needs of both students and teachers.

NATIONAL TECHNICAL INSTITUTE FOR THE DEAF FIXED CHARGES 2010-2011 (DOMESTIC STUDENTS)

	Summer Vestibule Program 8/21-9/5/10	NSSO* 9/1-9/5/10	Fall 9/6-11/20/10	Winter 11/29-2/26/11	Spring 3/7-5/21/11	Summer 6/6-8/20/11
Tuition	$609	0	$3,573	$3,573	$3,573	$3,573
Room	$216	0	$1,954	$1,954	$1,954	$1,954
Board (standard meal plan)	$140	0	$1,394	$1,394	$1,394	$1,394
Student fees†	0	0	$251	$251	$251	$251
Orientation fee‡			$200			
Student sickness insurance fee§			$860			
Total	$965	0	$8,232	$7,172	$7,172	$7,172

** NSSO (NTID Support Service Orientation) workshops for NTID-supported students accepted to other RIT colleges*

† Student fees are required of all full-time students and include: student health fee ($72); student activities fee ($73); athletics fee ($9); Student Alumni Union fee ($95); and NTID activities fee ($2) per quarter.

‡ Charge to defray cost of fall Orientation program for freshmen and new students only.

§ Student sickness insurance fee is estimated.

Notes: Required books and supplies will impact these figures.

The standard academic year includes the fall, winter, and spring quarters. New students accepted to the Summer Vestibule Program will be charged according to the prorated fee schedule indicated above.

Students on co-op are not charged tuition or fees for that particular quarter and will be charged room and board only if they live on campus while they work.

Incidental personal expenses for students average $50–60 a month. This accounts for such things as local transportation, laundry and dry cleaning, toiletries, entertainment, hearing aid batteries, etc.

The Communication Service for the Deaf (CSD) Student Development Center, interconnecting the Johnson Building and The Commons, which is an adjacent dining hall, is the focal point for students, faculty, and staff to engage in social events and community activities. In addition to a large multipurpose space for formal and informal lectures, small meeting rooms and offices provide workspace for student government groups, clubs, and organizations.

NTID's main academic building, the Johnson Building, boasts a state-of-the-art learning center. Using the latest technologies available, this center provides academic experiences, tutorial services, and course enrichment opportunities for all students. It provides students with access to networked computer workstations, videoconferencing capability, and a special technology-centered classroom.

One of the features of the Johnson Building is the Joseph F. and Helen C. Dyer Arts Center. This 7,000-square-foot facility features art exhibits as well as NTID's permanent art collection. The center also incorporates art-related educational activities, such as lectures and demonstrations, while serving as a multiuse facility. The Johnson Building also includes the Panara Theatre, a 500-seat facility where theatrical productions are produced simultaneously in American Sign Language and English. The theater also hosts a wide range of cultural activities from all over the world, enriching student life and broadening students' world view.

All residence hall rooms, campus apartments, classrooms, laboratories, and administrative areas can access the campus-wide computer network with wired or wireless connections.

All RIT and NTID residence halls are aggressively maintained and provide students with an appealing, highly functional living environment. Special rooms have been created to serve physically challenged students. Students are encouraged to bring their own computers to connect to the campus network and Internet from their rooms. A selection of apartment units also is available. Visual emergency strobe lights and visual doorbells are present throughout residence halls, apartments, and academic buildings.

Television, a basic part of the college's communication network, is used for both education and entertainment. Campus cable connections are provided in residence hall rooms, classrooms, and various other locations. The system supports 22 channels of basic service, which include ABC, CBS, NBC, Fox, WB, PBS, a local news channel, a local public access channel, and several channels used on campus for distribution of educational programming. This basic service is free, although students may elect to purchase full cable service from the Rochester cable system provider.

A well-equipped television facility provides studio services to produce class and self-instruction media for use within the university.

Telecommunications

Deaf, hard-of-hearing, and speech-impaired students can access telephone services through TTY, VRS, and computer-based relay services. CapTel service also is available in New York State.

Public videophones are available to students in several on-campus locations. Students who have their own videophones are encouraged to bring them to campus at move-in, and students who do not yet have videophones will be encouraged to work with the VRS provider of their choice to acquire one.

Communication skills

Communication competence is considered an important component of the student's educational experience at NTID. Students have opportunities to develop skills through a wide range of curricular and co-curricular activities that promote communication success in educational, social, and work situations. The communication studies and services department, the department of American Sign Language and interpreting education, and the department of cultural and creative studies provide intensive support and instruction for the development of communication skills. Faculty and staff conduct assessments and provide course work, workshops, and individualized instruction. They also work collaboratively with instructional/support faculty and professional staff.

Hearing aid shop

The NTID Hearing Aid Shop provides the RIT community with services related to hearing loss, hearing aids, and cochlear implants. Students may visit the shop to receive information about hearing loss and cochlear implants or to schedule clinical appointments, obtain new ear molds and batteries, have hearing aids repaired and other services. The shop is located in Johnson 3130 and can be contacted by calling (585) 475-6473 (voice/TTY).

NTID counseling and academic advising services

Every NTID-supported student is assigned a counselor in the NTID counseling and academic advising services department. Counselors provide individual, personal, social, career, and academic counseling services to their students. In addition, counselors work closely with students and faculty in the students' academic programs to help students achieve academic success. Counselors also consult and network extensively with families and internal and external resources with the goal of helping students achieve personal, career, and educational success. Students can contact their assigned counselors to arrange for appointments.

Career resource and testing center

The Career Resource and Testing Center is an innovative center providing NTID students with useful educational, career, and assessment services. Print, video, and online sources of information allow students to learn about personal interests, values, and skills as well as suitable college and career options. Computerized guidance and assessment programs allow students to compare their personal characteristics with occupations. The center also supports our college's Career Decision Making course, which helps undecided students develop a personal career plan. The center is coordinated by a professional counselor from NTID Counseling and Academic Advising Services and is open weekdays and evenings. For additional information or an appointment, call (585) 475-6589 (videophone), (585) 475-6597 (v), or e-mail: dddnbu@rit.edu.

Mental health/psychological counseling

Mental health counseling services for deaf and hard-of-hearing students are part of a range of services at the RIT Counseling Center. Individual and group therapy are offered for psychological and adjustment issues such as depression, anxiety, family conflicts, relationships, college success, and identity issues, to name a few. Mental health emergency services and crisis inter-

vention are provided by the RIT Counseling Center on a 24-hour basis in collaboration with other campus service providers. The Counseling Center also coordinates medication consultation and management, when appropriate, through the RIT psychiatrist.

Psychoeducational programs and workshops also are offered on a variety of topics, including body image, stress management, depression, and social skills.

Counseling Center staff provides consultation about mental health issues and deafness on campus, locally, nationally, and internationally.

Cooperative education

A feature of most RIT academic programs, including those offered through NTID, is cooperative education. Co-op provides students with the opportunity to gain hands-on experience in their chosen career field. NTID AAS and AOS programs require a co-op education experience. A majority of students complete the co-op experience during the summer. However, co-op can be completed any time during the year, consistent with a student's course schedule.

Employment

Employment of deaf and hard-of-hearing graduates is a high priority for NTID. To help ensure that graduates obtain program-related employment, NTID's Center on Employment assigns each new student an adviser experienced in employment assistance in the various academic concentrations. To help prepare them for obtaining cooperative education experiences and permanent employment, students in AAS and AOS programs take required courses, Job Search Process (0806-101) and Employment Seminar (0806-201).

The center's employment advisers are in constant contact with potential employers throughout the United States. In addition, the center hosts an annual job fair attended by national employers. Such services have contributed to a high employment rate of deaf and hard-of-hearing graduates. Over the past five years, 94 percent of NTID graduates who chose to enter the workforce have found employment.

Research

NTID is a nationally known center of research on deafness. Faculty and staff at NTID conduct research to understand how deaf and hard-of-hearing students learn, work, and live in society. The dual mission of the research program at NTID is to gather new information and to make this information available to students, parents, teachers, and other professionals. Students may become involved in this research by volunteering to participate in a research study, by becoming a research assistant, or by conducting their own research under the supervision of NTID faculty and staff members.

ASL – English Interpretation

Kim Brown Kurz, Chairperson

www.ntid.rit.edu/aslie/

BS Degree Program

On-the-job responsibilities

The BS degree program in ASL-English interpretation prepares sign language interpreters for work in settings where deaf, hard-of-hearing, and hearing people interact and communicate. This degree allows students to develop foundation skills for general interpreting, with opportunities to explore specialized fields (e.g., educational, medical, and/or community interpreting).

Places of employment

Graduates of this program will find work in a variety of settings, including elementary, secondary, and post-secondary educational institutions; community service organizations; hospitals or clinics; vocational rehabilitation agencies; business/industry; and government agencies.

Admission requirements

In addition to RIT's general admissions procedures, the ASL-English interpretation program requires applicants to complete admission materials from the NTID Admissions Office.

Academic preparation

Applicants are required to have at least a high school diploma or equivalent. High school preparation should include a college preparatory program with a minimum of four years of English (with a minimum of a B average), three years of science and mathematics, and two years of a foreign language.

The middle 50 percent of accepted NTID applicants possess SAT scores of 1530-1940. Equivalent ACT composite scores are 22-29. Both SAT and ACT tests may be submitted.

For those applicants who have had college experience, college transcripts should document a GPA of 3.0 or better, with evidence of very good performance in English courses. A writing sample will be judged on vocabulary, grammar, structure, style, and creativity.

To succeed in this program, students must be able to understand a speaker who is behind them; understand a speaker who is far away; focus on what a speaker is saying in a noisy room; and understand recorded voices through headphones. To see a list of the major skills and abilities needed to study sign language interpreting, please visit the section "Is Interpreting the Career for Me?" on our website, www.ntid.rit.edu/aslie.

For more information on application requirements and procedures, contact NTID Admissions at www.rit.edu/ntid or (585) 475-6700 (voice/TTY).

ASL-English interpretation, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	American Sign Language I, II, III 0875-201, 202, 203	12
	First-Year Enrichment I, II 1105-051, 052	2
	Mathematics/Science‡	12
	Liberal Arts*	20
	General Education Elective	4
	Wellness Education†	0
Second Year	American Sign Language IV, V, VI 0875-301, 302, 303	12
	Introduction to the Field of Interpreting 0875-213	4
	Mathematics/Science‡	8
	General Education Electives	8
	Intermediate Fingerspelling and Number Skills Development 0875-300	4
	Liberal Arts*	4
	Processing Skills Development 0875-311	4
	Deaf Culture and Community 0875-212	4
Third Year	English to ASL Interpreting I, II 0875-315, 325	8
	ASL to English Interpreting I, II 0875-316, 326	8
	Liberal Arts Concentration	12
	Practical and Ethical Applications 0875-320	4
	Interactive Interpreting 0875-400	4
	General Education Electives	10
Fourth Year	English to ASL Interpreting III 0875-501	4
	ASL to English Interpreting III 0875-502	4
	Free Electives	12
	Practicum and Seminar I, II 0875-350, 510	8
	Issues in Interpreting 0875-520	4
	Interpreting Electives	8
	Total Quarter Credit Hours	*184*

‡Please see the Mathematics and Science General Education Curriculum for more information.
** Please see Liberal Arts General Education Requirements for more information.*
† Please see Wellness Education Requirement for more information.

AAS Degree Program

Students may exit the baccalaureate program with an associate degree based on appropriate credits earned.

On-the-job responsibilities

The program in ASL-English interpretation prepares entry-level sign language interpreters for work in settings where deaf, hard-of-hearing, and hearing people interact and communicate. The degree allows students to develop foundation skills.

Places of employment

Graduates of this program will find entry work in a variety of settings, including elementary, secondary, and post-secondary educational institutions; community service organizations; vocational rehabilitation agencies; business/industry; and government agencies.

Admission requirements

In addition to RIT's general admissions procedures, the ASL-English interpretation program requires applicants to complete admission materials from the NTID Admissions Office.

Academic preparation

Direct entry to the associate degree option is available for students who demonstrate proficiency at the ASL III level (0875-203) and are ready to enter ASL IV (0875-301) (see course descriptions). It is strongly recommended that applicants possess a BS degree. (Note: By the year 2012, candidates for national interpreter certification must possess a baccalaureate degree.)

For those applicants who have had college experience, college transcripts should document a GPA of 3.0 or better, with evidence of very good performance in English courses. A writing sample will be judged on vocabulary, grammar, structure, style, and creativity.

To succeed in this program, students must be able to understand a speaker who is behind them; understand a speaker who is far away; focus on what a speaker is saying in a noisy room; and understand recorded voices through headphones. To see a list of the major skills and abilities needed to study sign language interpreting, please visit the section "Is Interpreting the Career for Me?" on our website, http://www.ntid.rit.edu/aslie.

For more information on application requirements and procedures, contact NTID Admissions at www.rit.edu/ntid, (585) 475-6700 (voice/TTY).

ASL-English interpretation, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	American Sign Language IV, V, VI 0875-301, 302, 303	12
	Introduction to the Field of Interpreting 0875-213	4
	Intermediate Fingerspelling and Number Skills Development 0875-300	4
	Processing Skills Development 0875-311	4
	Deaf Culture and Community 0875-212	4
	Liberal Arts*	20
	Mathematics/Science‡	8
	First-Year Enrichment I, II 1105-051, 052	2
	Wellness Education†	0
Second Year	ASL to English Interpreting I, II 0875-316, 326	8
	English to ASL Interpreting I, II 0875-315, 325	8
	Practical and Ethical Applications 0875-320	4
	Interactive Interpreting 0875-400	4
	Interpreting Elective	4
	Liberal Arts*	4
	Practicum Seminar I 0875-350	4
	Total Quarter Credit Hours	*94*

** Please see Liberal Arts General Education Requirements for more information.*
‡Please see the Mathematics and Science General Education Curriculum for more information.
† Please see Wellness Education Requirement for more information.

Applied Computer Technology

Elissa Olsen, Chairperson

www.ntid.rit.edu/current/departments/ics

Computers are important to all parts of the economy, and the number of careers that involve work with computers is constantly expanding. Students in the AAS and AOS degree programs in applied computer technology take courses to prepare them for computer careers that involve maintaining computer software and hardware, installing and maintaining computer networks, creating websites, and working with various applications related to databases and the World Wide Web. Students in the AS degree program take courses to prepare for transfer to baccalaureate degrees in computer-related fields.

Program concentrations

Students who choose the AAS or AOS degree options will select a program concentration in the second year. Concentrations include computer technical support, networking and cyber security, and web development and database.

PC technical support: This concentration develops skills specific to working with office professionals to solve computer-related problems. These skills prepare students to work at a help desk responding to a client's computer problems and performing setup, upgrades, and repairs to computers and computer peripherals.

Networking and cyber security: Students in this concentration develop skills specific to network and network security support. The skills include server set-up, support and administration, network setup, troubleshooting and repair, identifying and implementing security policies, and installing appropriate hardware and software to support a secure and robust network.

Web development and database: In this concentration, students learn how to design and support websites. This may involve developing interactive websites and web-related multimedia, as well as developing and supporting databases that link to websites.

On-the-job responsibilities

Students who earn AAS and AOS degrees work as computer technicians, personal computer support specialists, network technicians, network security technicians, network administrators, Web specialists, or database specialists.

Places of employment

Graduates can expect to work in a variety of environments, including banks, insurance companies, large stores, manufacturing companies, public utilities, government agencies, health-care agencies, hospitals, and many other kinds of departments and businesses that use computers and networks.

AS degree (transfer) program

www.ntid.rit.edu/current/departments/ics/2plus2.php

The associate of science in applied computer technology is a two-year degree program to prepare deaf and hard-of-hearing students to enter and successfully complete a baccalaureate degree through the information technology program in the B. Thomas Golisano College of Computing and Information Sciences. NTID's AS degree is a direct transfer program specifically designed to articulate with the information technology program in the Golisano College. Coordination between the two colleges maximizes the number of credits a student may transfer toward the baccalaureate degree. Admission to this program is available for the fall quarter only.

Prerequisites

The following prerequisites are necessary for admission into the applied computer technology program:

ACT composite test score of 18 or better

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course; students who qualify for Written Communications II (0502-111) will be considered for admission.

Mathematics: Entrance into NTID's Elements of Trigonometry (0884-220) course

To transfer to the Golisano College, students must possess a GPA of 2.8 or higher upon graduating with the AS degree in applied computer technology.

Students in the applied computer technology program receive a foundation in computer hardware, networking, and computer applications.

Applied computer technology, AS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Networking and Security 0805-224	3
	PC Hardware I, II 0805-216, 217	6
	Elements of Trigonometry 0884-220	4
	Freshman Seminar 0887-200	2
	Introduction to UNIX 0805-220	3
	Advanced Math 0884-275	4
	Liberal Arts*	4
	Writing Seminar 0502-227	4
	PC Operating Systems 0805-215	3
	Programming Fundamentals 0805-390	4
	Lab Science§	4
	Communications Elective**	3-4
	Wellness Education†	0
Second Year	IT Programming sequence#	12
	Introduction to Multimedia 4002-320	4
	Computer Networking Fundamentals 4002-351	4
	Liberal Arts*	16
	Lab Science§	4
	Math 1016-205	3
	General Education Elective	
	Total Quarter Credit Hours	***91-92***

**Please see General Education Distribution Requirements chart for more information.*
§Lab Science—Any NTID science courses numbered 200 or higher offered for 4 credits with an included lab component. These courses include: Human Genetics and Evolution (0885-281), Scientific Basis of Social Responsibility (0885-282), and Developmental Human Anatomy and Physiology (0885-283). Any two courses from the College of Science also can be used.
***Communications elective—options include a course in professional communication, technical writing, foreign language, public speaking, sign language, or another course relating to interpersonal communications (including Written Communication II). This course may be taken from the College of Liberal Arts or NTID.*
†Please see Wellness Education Requirement for more information.
#Students must complete a three-quarter course sequence in programming from the IT department. Students must take 4002-217, 218, 219, or 4002-217, 220, 221. Appropriate course sequence will be determined after successful completion of 4002-217.

AAS degree program

Upon completing the AAS degree program, students will qualify for a number of positions, including computer technicians, personal computer support specialists, PC and network support specialists, and Web developers.

Prerequisites

Successful completion of a sampling experience in applied computer technology, either through the Summer Vestibule Program or equivalent career exploration course, is a prerequisite for this program, as are the following:

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course. Students typically enter Writing Seminar with reading scores equivalent to 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading Test.

Mathematics: Placement into Foundations of Algebra (0884-180) or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Typically, students entering this program will have completed at least two years of high school science.

Applied computer technology, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Applications Software 0805-201	3
	PC Hardware I, II 0805-216, 217	6
	PC Operating Systems 0805-215	3
	Introduction to Networking and Security 0805-224	3
	Networking Essentials 0805-225	3
	Client/Server Networks 0805-226	3
	Web Development I, II 0805-251, 252	6
	Foundations of Algebra 0884-180	4
	Math Elective (Level B or above)	4
	Job Search Process 0806-101	2
	Freshman Seminar 0887-200	2
	Liberal Arts*	8
	Writing Seminar 0502-227	4
	Cooperative Education 0805-299	Co-op
	Wellness Education†	0
Second Year	Introduction to Programming 0805-230	3
	Introduction to UNIX 0805-220	3
	Microcomputer Database Software 0805-310	3
	Concentration Courses#	12
	Deaf Cultural Studies/ASL*	3
	Technical Electives**	6
	Science (B Level or above)	3
	Liberal Arts*	8
	Employment Seminar 0806-201	1
	Math Elective (Level B or above)	4
	Capstone*	3
	Total Quarter Credit Hours	*100*

**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.
#Concentration courses for PC technical support are: Orientation to Business (0804-101), Introduction to the Macintosh (0805-351), Server Management and Security (0805-337), and Computer Interfacing (0805-350). Concentration courses for networking and cyber security are: LAN/WAN Design (0805-335), Network Security (0805-336), Server Management and Security (0805-337), and Firewall and IDS (0805-338). Concentration courses for Web development and database are: Client Side Scripting (0805-320), Database Integration (0805-321), Web Server Technologies (0805-322), and Advanced Web Development (0805-323).
***Students may select from applied computer technology electives or approved electives from other majors.*

AOS degree program

Upon completing the AOS degree program, students will qualify for a number of positions, including computer technicians, personal computer support specialists, PC and network support specialists, and Web developers.

Prerequisites

Successful completion of a sampling experience in applied computer technology, either through the Summer Vestibule Program or equivalent career exploration course, is a prerequisite for this program, as are the following:

English: Placement into English level C or above. Students successfully completing the AOS degree typically enter with reading scores equivalent to 8.0 on the California Reading Test.

Mathematics: Placement into Foundations of Algebra (0884-180) or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Typically, students entering this program will have completed at least two years of high school science.

Applied computer technology, AOS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Applications Software 0805-201	3
	PC Hardware I, II 0805-216, 217	6
	PC Operating Systems 0805-215	3
	Introduction to Networking and Security 0805-224	3
	Networking Essentials 0805-225	3
	Client/Server Networks 0805-226	3
	Web Development I, II 0805-251, 252	6
	Foundations of Algebra 0884-180	4
	Math Elective (Level B or above)	4
	Job Search Process 0806-101	2
	Freshman Seminar 0887-200	2
	English Level C	8
	Communication Studies*	3
	Cooperative Education 0805-299	Co-op
	Wellness Education†	0
Second Year	Introduction to Programming 0805-230	3
	Introduction to UNIX 0805-220	3
	Microcomputer Database Software 0805-310	3
	Concentration Courses#	12
	Deaf Cultural Studies/ASL*	3
	Technical Electives**	6
	Science (B Level or above)	3
	English Level C	4
	Social Sciences*	3
	Humanities*	3
	Employment Seminar 0806-201	1
	Capstone*	3
	Total Quarter Credit Hours	*97*

**Please see the NTID General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.
#Concentration courses for PC technical support are: Orientation to Business (0804-101), Introduction to the Macintosh (0805-351), Server Management and Security (0805-337), and Computer Interfacing (0805-350). Concentration courses for networking and cyber security are: LAN/WAN Design (0805-335), Network Security (0805-336), Server Management and Security (0805-337), and Firewall and IDS (0805-338). Concentration courses for Web development and database are: Client-Side Scripting (0805-320), Database Integration (0805-321), Web Server Technologies (0805-322), and Advanced Web Development (0805-323).
***Students may select from applied computer technology electives or approved electives from other majors.*

Applied Liberal Arts AS degree (transfer) program

http://www.ntid.rit.edu/current/departments/liberalstudies/2plus2.php

The associate in science degree in applied liberal arts is a two-year degree program designed to prepare deaf and hard-of-hearing students to enter and successfully complete a baccalaureate program in the College of Liberal Arts, which offers bachelor's degrees in advertising and public relations, criminal justice, cultural resource studies, economics, journalism, philosophy, political science, professional and technical communication, psychology, public policy, and urban and community studies.

By the end of the first year in the applied liberal arts AS degree program, students choose which College of Liberal Arts baccalaureate program they wish to transfer into after completing the AS degree. During the second year, students will take five professional courses specified by their intended baccalaureate major in the College of Liberal Arts. In addition, as a part of their AS course work, students will take five mathematics and science courses to meet the graduation requirements of their program.

The AS degree maximizes the number of credits a student may transfer toward a baccalaureate degree within the College of Liberal Arts. Admission to this program is available throughout the academic year.

Prerequisites

ACT: Composite test score of 18 and above.

English: Placement into the College of Liberal Arts' Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227) course

Mathematics: Placement into level C mathematics course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into any level D science course numbered 0885-250 or higher. Typically, students entering this program will have completed at least two years of high school science.

Transfer requirements

To transfer to the College of Liberal Arts, the student must present a grade point average of 2.7 or higher upon graduation with the associate in science applied liberal arts degree.

Applied Liberal Arts, AS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Written Communication I, II 0502-110, 111	8
	Writing Seminar 0502-227	4
	Freshman Seminar 0887-200	2
	NTID Humanities 0880-2xx**	3
	NTID Social Science 0882-2xx**	3
	Foundations of Sociology 0515-210	4
	Introduction to Psychology 0514-210	4
	Modern American History 0507-301	4
	Mathematics and Science courses 08xx-xxx, 10xx-xxx***	12
	Wellness Education†	0
Second Year	Liberal Arts Concentration*	12
	Mathematics and Science courses 10xx-xxx***	8
	Fine Arts/Visual Arts 0505-213	4
	Arts of Expression	4
	Professional Electives **	20
	Total Quarter Credit Hours	*92*

**Please see College of Liberal Arts Concentration Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.
***Students will take five courses in a College of Liberal Arts professional area of study.*
****Students will take five specific mathematics and science courses as required by their chosen professional area.*

Applied Mechanical Technology

Dino Laury, Interim Chairperson

www.ntid.rit.edu/current/departments/ist/2plus2.php

AAS degree (transfer) program

The associate in applied science degree in applied mechanical technology is a two-year degree program to prepare students to enter and successfully complete a baccalaureate program in the College of Applied Science and Technology in manufacturing or mechanical engineering technology. Students have opportunities to strengthen their skills by taking NTID English and science courses or NTID math and science courses, as well as program courses. These courses systematically address the preparatory challenges that deaf and hard-of-hearing students face upon entry to the programs in the College of Applied Science and Technology.

Students in the applied mechanical technology program receive a comprehensive foundation in precision measurement, precision machining, computer-aided design applications, strength of materials, and machine design. As a direct transfer program specifically designed to articulate with the manufacturing or mechanical engineering technology programs in the College of Applied Science and Technology, NTID's transfer degree maximizes the number of credits students may transfer toward a baccalaureate degree in either one of these programs.

Prerequisites

ACT: Composite test score of 18 or higher

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course; students who qualify for Written Communication II (0502-111) will be considered for admission.

Mathematics: Entrance into NTID's Elements of Trigonometry (0884-220) course

Science: Entrance into the College of Science's College Physics I course after a single NTID science course

Transfer requirements

Students who graduate in good standing from NTID and have maintained a grade of C or better in the six NTID applied mechanical technology technical courses should be well-prepared for the College of Applied Science and Technology.

Applied mechanical technology, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Engineering Fundamentals 0813-220	4
	Computing Tools for Engineering Technology 0890-212	4
	Choose two of the following courses:	8
	Elements of Trigonometry 0884-220	
	Physics 0885-201	
	Written Communication II 0502-111	
	Freshman Seminar 0887-200	2
	Manufacturing Processes 0813-222	4
	CAD Applications in Engineering Tech 0890-214	4
	Advanced Math 0884-275	4
	Liberal Arts*	4
	Writing Seminar 0502-227	4
	Industrial Processes 0813-224	4
	Design, Dimensioning, and Tolerancing 0890-216	4
	College Physics I 1017-211	4
	Wellness Education†	0
Second Year	Introduction to Materials Technology 0610-211	3
	Materials Testing 0610-304	1
	College Physics II 1017-212	4
	Introduction to Statics 0610-302	4
	Strength of Materials 0610-303	4
	Calculus for Engineering Technology I, II 1016-231, 232	8
	College Physics III 1017-213	4
	Principles of Mechanical Design 1 0610-315	4
	Pneumatic and Hydraulic Systems 0610-305	4
	Liberal Arts*	12
	Total Quarter Credit Hours	*98*

**Please see General Education Distribution Requirements chart for more information. AMT students are not required to take Capstone or Deaf cultural studies/ASL courses.*
†Please see Wellness Education Requirement for more information.

Applied Optical Technology**

Dino Laury, Interim Chairperson

The applied optical technology program prepares students to work in the field of precision optics. Students may choose from AAS or AOS degree options. To ensure the highest quality optical components, students develop skills in blocking, edging, curve generating, process control, and testing methods. Additional skill sets will incorporate troubleshooting lens systems, utilizing automation equipment, tooling, testing, and overall quality assessment to ensure compliance with customer specifications. Students have the opportunity to train on equipment used by the industry, including instructional interferometers, autocollimators, spectrometers, and computer numerical control technology. Students work in a highly technical atmosphere producing optical elements designed for use in a wide range of industries such as aerospace, medical, cinematography, and the military.

AAS degree program

On-the-job responsibilities

Precision optical technicians set up and operate equipment and execute precision grinding, polishing, and edging processes to produce optical components/systems and perform end-product metrology.

Places of employment

The program prepares graduates for technical jobs in precision optics manufacturing industries. Positions for which graduates will qualify include entry-level hands-on laboratory/manufacturing positions in precision optics.

Prerequisites

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course. Students typically enter Writing Seminar with reading scores equivalent to 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading Test.

Mathematics: Placement into Foundations of Algebra (0884-180), Elements of Geometry (0884-170), or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into Optical Technology Physics (0885-200) or a higher-level course. Typically, students entering this program will have completed at least two years of high school science.

Applied optical technology, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Engineering Fundamentals 0813-220	4
	Computing Tools for ET 0890-212	4
	Foundations of Algebra 0884-180	4
	Freshman Seminar 0887-200	2
	Writing Seminar 0502-227	4
	Manufacturing Processes 0813-222	4
	CAD Applications in ET 0890-214	4
	Integrated Algebra 0884-212	4
	Fundamental Geometry 0884-185	1
	Applied Optical Physics 0885-200	4
	Precision Measurement 0813-255	2
	Introduction to CNC 0813-250	2
	Deaf Cultural Studies/ASL*	3
	Liberal Arts*	4
	Wellness Education†	0
Second Year	Fundamentals of Photonics 0827-210	3
	Orientation to Lens Surfacing 0827-270	3
	Fundamental of Optical Testing 0827-235	3
	CNC Graphics 0813-252	3
	Lens Design and Applications 0827-217	3
	Liberal Arts*	12
	Application of Lens Surfacing 0827-280	4
	Optical Testing 0827-237	3
	Job Search 0806-101	2
	Optical Processes I 0827-200	4
	Optics of Imaging and Design 0827-220	3
	Precision Optics Manufacturing I 0827-240	3
	Cooperative Education 0827-299	Co-op
Third Year	Precision Optics Manufacturing II 0827-245	3
	Optical Processes II 0827-201	4
	Technical Elective	3
	Capstone*	3
	Total Quarter Credit Hours	***105***

**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.

*** Please note: Admission to this program has been suspended for the 2010-2011 academic year.*

AOS degree program

On-the-job responsibilities

Precision optical technicians set up and operate equipment; execute precision grinding, polishing, and edging processes to produce optical components/systems; and perform end product metrology.

Places of employment

The program prepares graduates for technical jobs in precision optics manufacturing industries. Positions for which graduates will qualify include entry-level hands-on laboratory and/or manufacturing positions in precision optics.

Prerequisites

English: Placement into English level C or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading Test.

Mathematics: Placement into Foundations of Algebra (0884-180), Elements of Geometry (0884-170), or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into Optical Technology Physics (0885-200) or a higher-level course. Typically, students entering this program will have completed at least two years of high school science.

Applied optical technology, AOS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Engineering Fundamentals 0813-220	4
	Computing Tools for ET 0890-212	4
	English Level C	12
	Manufacturing Processes 0813-222	4
	Foundations of Algebra 0884-180	4
	Integrated Algebra 0884-212	4
	Fundamental Geometry 0884-185	1
	Freshman Seminar 0887-200	2
	CAD Applications in ET 0890-214	4
	Applied Optical Physics 0885-200	4
	Precision Measurement 0813-255	2
	Introduction to CNC 0813-250	2
	Wellness Education†	0
Second Year	Fundamentals of Photonics 0827-210	3
	Orientation to Lens Surfacing 0827-270	3
	CNC Graphics 0813-252	3
	Deaf Cultural Studies/ASL*	3
	Fundamentals of Optical Testing 0827-235	3
	Lens Design and Applications 0827-217	3
	Application of Lens Surfacing 0827-280	4
	Optical Testing 0827-237	3
	Communication Studies*	3
	Job Search 0806-101	2
	Optical Processes I 0827-200	4
	Optics of Imaging and Design 0827-220	3
	Precision Optics Manufacturing I 0827-240	3
	Social Science*	3
	Cooperative Education 0827-299	Co-op
Third Year	Precision Optics Manufacturing II 0827-245	3
	Optical Processes II 0827-201	4
	Technical Elective	3
	Humanities*	3
	Capstone*	3
	Total Quarter Credit Hours	***106***

**Please see NTID's General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.
*** Please note: Admission to these programs has been suspended for the 2010-2011 academic year.*

Arts and Imaging Studies

Kenneth F. Hoffmann, Chairperson

www.ntid.rit.edu/current/departments/ais/

People who work in the arts and imaging field are responsible for designing, organizing, and producing print and Web-based media for business, communication, publishing, manufacturing, entertainment, and advertising markets. This is a very large, exciting field that requires a variety of computer-based and traditional visual skills. The arts and imaging studies program provides opportunities for students to enter various careers ranging from creative to highly technical positions at various degree levels.

The arts and imaging studies program offers two associate degrees: the associate in applied science (AAS) and the associate in occupational studies (AOS). Both degrees are career-focused, designed to prepare students for direct employment following graduation. The major course requirements for the two degrees are identical, although differences occur in the university's general education requirements. The AAS degree requires course work through the College of Liberal Arts while the AOS degree includes NTID general education courses. Graduates of the arts and imaging studies AAS degree may apply for admission to a BFA or BS program in the College of Imaging Arts and Sciences (CIAS). While there currently is no formal articulation agreement with any baccalaureate program in CIAS, many of the program's courses may be accepted as transfer credit, depending on the specific BFA or BS degree program requirements.

Program description

The arts and imaging studies programs includes a core component of nine courses (27 credits) plus a required co-operative work experience. The core courses are required for all students majoring in the arts and imaging studies AAS and AOS programs and provide a solid foundation for continuing in advanced courses, a baccalaureate program, and employment. Several of the core courses are scheduled during the first year, and additional courses are completed during the second year.

In addition to the core courses taken in the first year, students will immediately begin course work in their concentration. Students may choose a concentration in graphic design or graphic technology. Both concentrations consist of 24 credit hours.

All students entering the program will be given an aptitude assessment experience. As a result of this assessment profile, students will be counseled and placed into an initial concentration: graphic design for those students with creative aptitude and interest; graphic technology for those students with technical/production aptitude and interest. The assessment is not final. Based on student success and demonstrated capabilities, students may request or be counseled to change their program concentration.

The AAS/AOS curriculum includes nine credits of technical electives and three credits of free electives. Students may select their technical elective courses from four different professional focus areas that will provide the graduate with additional depth of skill and knowledge specific to a career pathway:

- graphic design
- photography
- print publishing
- Web design

Technical electives may also be chosen from the other arts and imaging studies concentration, the AIS department's list of technical electives and, as appropriate, courses from other related programs. Free electives can be selected from any program within RIT, depending on availability and prerequisites.

All arts and imaging studies students gain real work experience through one quarter of required cooperative education employment. Upon satisfactory conclusion of the co-op, students complete a required portfolio presentation course in which they refine and finalize their portfolio as needed for an application to a baccalaureate program or the search for employment.

On-the-job responsibilities

Depending on the specific program concentration and elective course selection, graduates use computer-based methods to produce drawings, layouts, illustrations, and digital photographic images; prepare documents for print, Web, and digital distribution; produce interactive digital media; perform digital retouching and restoration of photographic images; produce composite digital images; design and produce websites; produce computer animations; plan and produce short edited videos; and operate electrophotographic digital printing and inkjet systems, simple bindery, and finishing equipment.

Places of employment

Graduates usually find employment in a variety of commercial, corporate, government, and educational settings. Examples include computer graphics firms, advertising agencies, art studios, printing or manufacturing plants, prepress companies, in-house printing or marketing departments, book and magazine publishing houses, newspaper facilities, government agencies, industrial training or media departments, educational media centers, and educational institutions.

Graduates may qualify for positions such as production graphic artist, graphic designer, digital photo artist, digital photography technician, digital prepress technician, video technician, website designer, website technician, and digital printing systems operator.

Prerequisites

Successful completion of a sampling experience offered during the Summer Vestibule Program and also during the academic year is required. The sampling activities provide opportunities for students to learn about the arts and imaging field, identify career opportunities, and evaluate their interest and aptitude for a degree program.

ACT-AAS minimum score = 18

ACT-AOS minimum score = 15

English-AAS: Placement into the Written Communication II (0502-111) course

English-AOS: Placement into English level C or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading Test.

Mathematics-AAS/AOS: Placement into the Concepts of Measurement (0884-150) course. Typically, students entering this program will have completed at least two years of high school mathematics.

Science-AAS/AOS: Typically, students entering this program will have completed at least two years of high school science.

Arts and imaging studies concentrations

	Qtr. Cr. Hrs.
Graphic design	
0855-311 Basic Drawing	3
0855-314 Color in Design	3
0855-315 History of Graphic Design	3
0855-318 Topography II	3
0855-319 Graphic Design	3
0855-361 Grid Systems	3
0855-362 Publication Design	3
0855-363 Identity System Design	3
Total Quarter Credit Hours	*24*
Graphic technology	
0855-254 Applied Color Theory	3
0855-310 Image Aquisition	3
0855-322 Bitmap Graphics II	3
0855-324 Wide-Format Graphics	3
0855-332 PDF Production nd Workflow	3
0855-333 Publication Production I	3
0855-344 Videography	3
0855-352 Color Management	3
Total Quarter Credit Hours	*24*

Arts and imaging studies, AAS degree, graphic design concentration, typical course sequence

		Qtr. Cr. Hrs.
First Year	Basic Drawing 0855-311	3
	Vector Graphics 0855-252	3
	Principles of Design 0855-255	3
	Bitmap Graphics 0855-251	3
	Typography I, II 0855-253, 318	6
	Color in Design 0855-314	3
	Desktop Publishing I 0855-331	3
	Graphic Design 0855-319	3
	Writing Seminar 0502-227	4
	Freshman Seminar 0887-200	2
	Mathematics (Level B)‡	3
	Liberal Arts*	8
	Wellness Education†	0
Second Year	Web Design I 0855-342	3
	Grid Systems 0855-361	3
	History of Graphic Design 0855-315	3
	Publication Design 0855-362	3
	Digital Photography I 0855-323	3
	Identity Systems Design 0855-363	3
	Technical Electives	9
	Job Search Process 0806-101	2
	Liberal Arts*	8
	Science (Level B or above)	3
	Deaf Cultural Studies/ASL*	3
	Cooperative Education 0855-299	Co-op
Third Year	Portfolio Presentation 0855-353	3
	Production Workshop 0855-351	3
	Free Elective	3
	Employment Seminar 0806-201	1
	Capstone*	3
	Total Quarter Credit Hours	*100*

‡Satisfied by Concepts of Measurement (0884-150) or higher-level course.
**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.

Arts and imaging studies, AAS degree, graphic technology concentration, typical course sequence

		Qtr. Cr. Hrs.
First Year	Bitmap Graphics 0855-251	3
	Vector Graphics 0855-252	3
	Digital Photography I 0855-323	3
	Applied Color Theory 0855-254	3
	Typography I 0855-253	3
	Principles of Design 0855-255	3
	Desktop Publishing I 0855-331	3
	Image Acquisition 0855-321	3
	Web Design I 0855-342	3
	Writing Seminar 0502-227	4
	Freshman Seminar 0887-200	2
	Mathematics (Level B)‡	3
	Liberal Arts*	8
	Wellness Education†	0
Second Year	Bitmap Graphics II 0855-322	3
	Videography I 0855-344	3
	Wide-Format Graphics 0855-324	3
	Publication Production I 0855-333	3
	PDF Production & Workflow 0855-332	3
	Color Management 0855-352	3
	Technical Electives	9
	Job Search Process 0806-101	2
	Liberal Arts*	8
	Science (Level B or above)	3
	Deaf Cultural Studies/ASL*	3
	Cooperative Education 0855-299	Co-op

Third Year	Portfolio Presentation 0855-353	3
	Production Workshop 0855-351	3
	Free Elective	3
	Employment Seminar 0806-201	1
	Capstone*	3
	Total Quarter Credit Hours	*100*

‡Satisfied by Concepts of Measurement (0884-150) or higher-level course.
†Please see Wellness Education Requirement for more information.
**Please see General Education Distribution Requirements chart for more information.*

Arts and imaging studies, AOS degree, Graphic Design Concentration, typical course sequence

		Qtr. Cr. Hrs.
First Year	Basic Drawing 0855-311	3
	Vector Graphics 0855-252	3
	Principles of Design 0855-255	3
	Bitmap Graphics 0855-251	3
	Typography I, II 0855-253, 318	6
	Color in Design 0855-314	3
	Desktop Publishing I 0855-331	3
	Graphic Design 0855-319	3
	English Level C	12
	Freshman Seminar 0887-200	2
	Mathematics (Level B)‡	3
	Wellness Education†	0
Second Year	Web Design I 0855-342	3
	Grid Systems 0855-361	3
	History of Graphic Design 0855-315	3
	Publication Design 0855-362	3
	Digital Photography I 0855-323	3
	Identity Systems Design 0855-363	3
	Technical Electives	9
	Job Search Process 0806-101	2
	Social Science*	3
	Humanities*	3
	Communication Studies*	3
	Deaf Cultural Studies/ASL*	3
	Science (Level B or above)	3
	Cooperative Education 0855-299	Co-op
Third Year	Portfolio Presentation 0855-353	3
	Production Workshop 0855-351	3
	Free Elective	3
	Employment Seminar 0806-201	1
	Capstone*	3
	Total Quarter Credit Hours	*101*

‡Satisfied by Concepts of Measurement (0884-150) or higher-level course.
†Please see Wellness Education Requirement for more information.
**Please see General Education Distribution Requirements chart for more information.*

Arts and imaging studies, AOS degree, graphic technology concentration, typical course sequence

		Qtr. Cr. Hrs.
First Year	Bitmap Graphics 0855-251	3
	Vector Graphics 0855-252	3
	Digital Photography I 0855-323	3
	Applied Color Theory 0855-254	3
	Typography I 0855-253	3
	Principles of Design 0855-255	3
	Desktop Publishing I 0855-331	3
	Image Acquisition 0855-321	3
	Web Design I 0855-342	3
	English Level C	12
	Freshman Seminar 0887-200	2
	Mathematics (Level B)‡	3
	Wellness Education†	0
Second Year	Bitmap Graphics II 0855-322	3
	Videography I 0855-344	3
	Wide-Format Graphics 0855-324	3
	Publication Production I 0855-333	3
	PDF Production & Workflow 0855-332	3
	Color Management 0855-352	3
	Technical Electives	9
	Job Search Process 0806-101	2
	Social Science*	3
	Humanities*	3
	Communication Studies*	3
	Deaf Cultural Studies/ASL*	3
	Science (Level B or above)	3
	Cooperative Education 0855-299	Co-op
Third Year	Portfolio Presentation 0855-353	3
	Production Workshop 0855-351	3
	Free Elective	3
	Employment Seminar 0806-201	1
	Capstone*	3
	Total Quarter Credit Hours	*101*

‡Satisfied by Concepts of Measurement (0884-150) or higher-level course.
**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.

Arts and imaging studies professional electives

Students select nine credits from one of the following professional areas.

	Qtr. Cr. Hrs.
Graphic design	
0855-310 Visual Idea Development	3
0855-312 Intermediate Drawing	3
0855-313 Advanced Drawing	3
0855-316 Art History I	3
0855-317 Art History II	3
0855-364 Digital Illustration	3
Photography	
0855-371 Dynamic Image Preparation	3
0855-372 Composite Imaging	3
0855-373 Digital Photography II	3
0855-374 Image Retouch & Restore	3
Print publishing	
0855-334 Database Publishing	3
0855-381 Desktop Publishing II	3
0855-382 Interactive PDF Publishing	3
0855-383 Publication Production II	3
0855-384 Digital Printing Systems	3
Web design	
0855-341 Graphics for the Web	3
0855-343 Computer Animation	3
0855-391 Web Design II	3
0855-392 Web Design III	3
0855-394 Interactive Digital Media	*3*

Automation Technologies**

Dino Laury, Interim Chairperson

www.ntid.rit.edu/current/departments/ist/AT.php

The automation technologies program prepares graduates to function in complex automated system environments. The program promotes skill development in electrical/electronic, mechanical, and computer technologies. Graduates will be particularly well-suited to take advantage of growing employment opportunities in these expanding industries. Students may choose from either the AAS or AOS degree programs.

On-the-job responsibilities

An automation technology technician's responsibilities include installing, troubleshooting, repairing, upgrading, and maintaining automated systems and their components.

Places of employment

The program prepares graduates for technical jobs in industries with automation systems, including robotics.

AAS degree program

Positions for which graduates qualify include robotics technician, automation systems technician, electromechanical technician, instrumentation technician, engineering technician, fluid power controls/system technician, quality control technician, and process control technician.

Prerequisites

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course. Students typically enter Writing Seminar with reading scores equivalent to 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading Test.

Mathematics: Placement into Integrated Algebra (0884-212), Elements of Trigonometry (0884-220), or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into Physics I (0885-201) or a higher-level course. Typically students entering this program will have completed at least three years of high school science. High school physics is beneficial.

Automation technologies, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Engineering Fundamentals 0813-220	4
	Computing Tools for ET 0890-212	4
	Integrated Algebra 0884-212	4
	Freshman Seminar 0887-200	2
	Manufacturing Processes 0813-222	4
	CAD Applications in Engineering Technology 0890-214	4
	Elements of Trigonometry 0884-220	4
	Writing Seminar 0502-227	4
	Programming Concepts 0891-216	4
	Physics I 0885-201	4
	Industrial Electronics 0891-212	4
	Liberal Arts*	4
	Wellness Education†	0
Second Year	Electromechanical Devices 0891-214	4
	PLC Programming 0891-314	4
	Pneumatic and Hydraulic Systems 0891-210	3
	Liberal Arts*	8
	Automated Systems Troubleshooting I 0891-230	4
	Automated Systems I, II 0891-220, 320	8
	Mechanical Devices and Systems 0891-316	3
	Deaf Cultural Studies/ASL*	3
	Applied Robotics 0891-318	4
	Technical Elective	3
	Job Search 0886-101	2
	Cooperative Education 0891-299	Co-op
Third Year	Automated Systems Troubleshooting II 0891-330	4
	Liberal Arts*	4
	Technical Elective	3
	Capstone*	3
	Total Quarter Credit Hours	*106*

**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.

AOS degree program

Positions for which graduates qualify include robotics technician, automation systems technician, electromechanical technician, instrumentation technician, engineering technician, fluid power controls/system technician, quality control technician, and process control technician.

Prerequisites

English: Placement into level C English or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading Test.

Mathematics: Placement into Integrated Algebra (0884-212), Elements of Trigonometry (0884-220), or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into Physics I (0885-201) or a higher-level course. Typically, students entering this program will have completed at least three years of high school science. High school physics is beneficial.

Automation technologies, AOS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Engineering Fundamentals 0813-220	4
	Computing Tools for ET 0890-212	4
	Integrated Algebra 0884-212	4
	Freshman Seminar 0887-200	2
	Manufacturing Processes 0813-222	4
	CAD Applications in ET 0890-214	4
	Elements of Trigonometry 0884-220	4
	English Level C	8
	Programming Concepts 0891-216	4
	Industrial Electronics 0891-212	4
	Physics I 0885-201	4
	Wellness Education†	0
Second Year	Electromechanical Devices 0891-214	4
	PLC Programming 0891-314	4
	Pneumatic and Hydraulic Systems 0891-210	3
	English Level C	4
	Mechanical Devices and Systems 0891-316	3
	Deaf Cultural Studies/ASL*	3
	Communication Studies*	3
	Job Search 0886-101	2
	Automated Systems Troubleshooting I 0891-230	4
	Automated Systems I, II 0891-220, 320	8
	Applied Robotics 0891-318	4
	Social Science*	3
	Cooperative Education 0891-299	Co-op
Third Year	Automated Systems Troubleshooting II 0891-330	4
	Humanities*	3
	Technical Elective	3
	Capstone*	3
	Total Quarter Credit Hours	*104*

†Please see Wellness Education Requirement for more information.
**Please see General Education Distribution Requirements chart for more information.*

*** Please note: Admission to this program has been suspended for the 2010-2011 academic year.*

Business Studies

Mary Lou Basile, Chairperson

www.ntid.rit.edu/current/departments/business/

Employment opportunities in business and industry increase daily. Business career programs respond to industry's need for people skilled in operating office equipment, maintaining financial records, performing administrative duties, and using computers.

Students may choose the AS degree program in business (transfer program), AAS degree programs in accounting technology and administrative support technology, or the AOS degree program in business technology.

Microsoft certification

The department operates an authorized testing center for Microsoft® Office Specialist. Preparatory courses are offered for several exams each quarter.

Business AS degree (transfer) program

www.ntid.rit.edu/current/departments/business/2plus2.php

The associate in science degree in business is a two-year degree program designed to prepare deaf and hard-of-hearing students to enter and successfully complete a baccalaureate program in the E. Philip Saunders College of Business, which offers a portfolio of comprehensive programs of study designed to prepare students for leadership in the business environment. The Saunders College of Business is accredited by the Association to Advance Collegiate Schools of Business International, the premier accrediting organization for business schools.

The AS degree maximizes the number of credits a student may transfer toward a baccalaureate degree within the Saunders College of Business, which offers programs of study in accounting, consumer finance, finance, graphic media marketing, international business, management, management information systems, and marketing. Admission to this program is available during the fall quarter only.

Prerequisites

ACT: Composite test score of 18 and above

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course. Students who qualify for Written Communication II (0502-111) will be considered for admission if they are at level D or higher in mathematics.

Mathematics: Placement into level C mathematics course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into any level D science course numbered 0885-250 or higher. Typically, students entering this program will have completed at least two years of high school science.

Transfer requirements

To transfer to the Saunders College of Business, the student must present a grade point average of 2.5 or higher upon graduation with the associate in science business degree.

Business, AS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Applications of Algebra 0884-210‡	4
	Science (Level D or above) 0884-250	4
	Orientation to Business 0804-101	3
	Freshman Seminar 0887-200	2
	Liberal Arts*	4
	Writing Seminar 0502-227	4
	Explorations in College Algebra 0884-260	4
	Financial Accounting I, II 0801-211, 212	8
	Fundamentals of Management 0804-284	3
	Algebra for Management Science 1016-225	4
	Business Software Applications 0112-270	2
	Wellness Education†	0
Second Year	Liberal Arts*	16
	Calculus for Management Science 1016-226	4
	Managerial Accounting I, II 0801-221, 222	8
	Laboratory Science (College of Science)	4
	Professional Communication for Business 0535-352	4
	Principles of Microeconomics 0511-211#	4
	Principles of Macroeconomics 0511-402**	4
	Business Information Systems 0112-315	4
	Fundamentals of Marketing 0804-286	3
	Total Quarter Credit Hours	***93***

‡Entering students who have the math proficiency to waive this course may take Explorations in College Algebra (0884-260).
**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.
#Principles of Microeconomics (0511-211) is a social science course in the College of Liberal Arts. However, for students in the E. Philip Saunders College of Business, it is a required professional course. Therefore, graduates of this AS program who transfer to the Saunders College will be required to take an additional College of Liberal Arts lower-division social science course to fulfill College of Liberal Arts General Education requirements. Principles of Microeconomics will be allocated to the business core in the Saunders College of Business.
***Principles of Macroeconomics (0511-402) is a course in the Saunders College of Business and is not allocated to the College of Liberal Arts distribution requirements.*

Accounting Technology AAS degree program

www.ntid.rit.edu/current/departments/business/accountingtech.php

The accounting technology program offers an AAS degree and prepares students for entry-level employment in accounting-related occupations. Students learn the functions of the complete accounting cycle for service, merchandising, and manufacturing businesses.

On-the-job responsibilities

Graduates will use computers to maintain and reconcile various financial records, verify business records, and perform other clerical and administrative duties.

Places of employment

Graduates of this program will find employment in a variety of settings, including business, industry, and government, as well as self-employment. Positions for which graduates qualify include junior accounting technician, cost accounting clerk, accounts receivable/payable clerk, payroll clerk, general accounting clerk, and microcomputer accounting clerk.

Prerequisites

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course. Students typically enter Writing Seminar with reading scores equivalent to 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading Test.

Mathematics: Mathematics Applications for Business Technology (0884-155) is required. Typically, students entering this program will have completed at least two years of high school mathematics.

Science: Typically, students entering this program will have completed at least two years of high school science.

Accounting technology, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Accounting I, II 0801-201, 202	8
	Orientation to Business 0804-101	3
	Business English 0804-110	3
	Keyboarding 0804-111	2
	OAS Formatting 0804-112	3
	OAS Document Production I 0804-113	4
	Records Management/Business Calculations 0804-211	3
	Payroll/Spreadsheet Applications 0804-212	3
	Fundamentals of Marketing 0804-286	3
	Mathematics Requirement‡	7
	Freshman Seminar 0887-200	2
	Deaf Cultural Studies/ASL*	3
	Writing Seminar 0502-227	4
	Liberal Arts*	8
	Science (Level B)	3
	Wellness Education†	0
Second Year	Accounting III, IV 0801-203, 204	8
	Cost Accounting I, II 0801-252, 253	8
	OAS Document Production II 0804-221	4
	Fundamentals of Management 0804-284	3
	Liberal Arts*	4
	Job Search Process 0806-101	2
	Law and Society 0882-242	3
	Cooperative Education 0801-299	Co-op
Third Year	Principles of Microeconomics 0511-211	4
	Applied Accounting Techniques 0801-260	2
	Employment Seminar 0806-201	1
	Liberal Arts*	4
	Capstone*	3
	Total Quarter Credit Hours	*105*

‡Mathematics Applications for Business Technology (0884-155) and another mathematics elective at level B or higher are required.
**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.

Administrative Support Technology AAS degree program

www.ntid.rit.edu/current/departments/business/adminsupporttech.php
www.ntid.rit.edu/current/departments/business/2plus2ast.php

The administrative support technology program offers an AAS degree that provides students with opportunities to develop skills needed in processing information using a variety of integrated office software applications as well as appropriate professional interpersonal and human relations skills. Graduates will input, manipulate, and retrieve data; use interactive office software, e-mail, and information processing skills for applications such as word processing, spreadsheet, presentation, and database; and perform other office duties.

Students may choose the administrative support technology plus two transfer program, provided they maintain a 2.5 grade point average in the program. Upon successful completion of seven quarters in the AAS program, students transfer directly to the Center for Multidisciplinary Studies in RIT's College of Applied Science and Technology, where they can pursue a bachelor's degree in applied arts and science, with a concentration in human resource development or computer graphics.

Places of employment

Graduates of this program will find employment in a variety of settings, including business, industry, government, and education. Positions for which graduates qualify include administrative assistant, office assistant, word processor, and secretary.

Prerequisites

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course. Students typically enter Writing Seminar with reading scores equivalent to 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading Test.

Mathematics: Mathematics Applications for Business Technology (0884-155) is required. Typically, students entering this program will have completed at least two years of high school mathematics.

Science: Typically, students entering this program will have completed at least two years of high school science.

Administrative support technology, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Orientation to Business 0804-101	3
	Business English 0804-110	3
	Keyboarding 0804-111	2
	OAS Formatting 0804-112	3
	OAS Document Production I 0804-113	4
	OAS Document Production II 0804-221	4
	Records Management/Business Calculations 0804-211	3
	Payroll/Spreadsheet Applications 0804-212	3
	Fundamentals of Marketing 0804-286	3
	Mathematics Elective‡	3
	Freshman Seminar 0887-200	2
	Writing Seminar 0502-227	4
	Liberal Arts*	8
	Deaf Cultural Studies/ASL*	3
	Wellness Education†	0
Second Year	Accounting I, II 0801-201, 202	8
	Web Development for Business 0805-211	3
	Administrative Support Technology Seminar 0804-230	3
	Fundamentals of Management 0804-284	3
	Advanced Applications for Word Processing 0804-302	4
	Business Graphics 0804-303	4
	Database Applications for Business 0804-304	4
	Liberal Arts*	4
	Job Search Process 0806-101	2
	Law and Society 0882-242	3
	Science (Level B)	3
	Cooperative Education 0804-299	Co-op
Third Year	Applied Business Techniques 0804-291	2
	Desktop Publishing Concepts and Applications 0804-310	3
	Liberal Arts*	4
	Employment Seminar 0806-201	1
	Capstone*	3
	Total Quarter Credit Hours	*102*

‡Satisfied by Foundations of Algebra (0884-180) or Mathematics Applications for Business Technology (0884-155).
**Please see NTID's General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.

Business Technology AOS degree program

www.ntid.rit.edu/current/departments/business/businesstech.php

The business technology AOS degree program includes technical course work in accounting, computers, payroll, general office skills, and word processing/information processing skills. Students elect to complete a sequence of courses that provides either an accounting technology or administrative support technology concentration.

This is a nontransfer occupational program, with primary emphasis on preparation for immediate employment.

Places of employment

Graduates of this program will find employment in a variety of settings, including business, industry, government, and education.

On-the-job responsibilities

Graduates will input, manipulate, and retrieve data; use interactive software, e-mail, and information processing skills; and use computers to maintain and reconcile various financial records. Positions for which graduates qualify include general office clerk, accounts receivable/payable clerk, payroll records clerk, word processing technician, cost accounting clerk, and microcomputer accounting clerk.

Prerequisites

English: Placement into English level C or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading Test.

Mathematics: Mathematics Applications for Business Technology (0884-155) is required. Typically, students entering this program will have completed at least two years of high school mathematics.

Science: Typically, students entering this program will have completed at least two years of high school science.

Business technology, AOS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Accounting I, II 0801-201, 202	8
	Orientation to Business 0804-101	3
	Business English 0804-110	3
	Keyboarding 0804-111	2
	OAS Formatting 0804-112	3
	OAS Document Production I 0804-113	4
	Records Management/Business Calculations 0804-211	3
	Payroll/Spreadsheet Applications 0804-212	3
	Mathematics requirement‡	3
	Freshman Seminar 0887-200	2
	English Level C	12
	Wellness Education†	0
Second Year	Accounting III 0801-203	4
	Choose one of the following:	7-8
	Cost Accounting I, II 0801-252, 253#	
	Database Applications for Business 0804-304**	
	Administrative Support Technology Seminar 0804-230**	3
	OAS Document Production II 0804-221	4
	Fundamentals of Management 0804-284	3
	Fundamentals of Marketing 0804-286	3
	Advanced Applications for Word Processing 0804-302	4
	Business Graphics 0804-303	4
	Humanities*	3
	Science (Level B)	3
	Communication Studies*	3
	Job Search Process 0806-101	2
	Deaf Cultural Studies/ASL*	3
	Web Development for Business 0805-211**	3
	Cooperative Education 0804-299	Co-op
Third Year	*Choose one of the following:*	2-3
	Applied Accounting Techniques 0801-260#	
	Desktop Publishing for Business 0804-310**	
	Applied Business Techniques 0804-291	2
	Employment Seminar 0806-201	1
	Law and Society 0882-242	3
	Social Science*	3
	Capstone*	3
	Total Quarter Credit Hours	***104/107***

‡Mathematics Applications for Business Technology (0884-155) is required.
†Please see Wellness Education Requirement for more information.
#Courses required for accounting technology option
***Courses required for administrative support technology option*
**Please see General Education Distribution Requirements chart for more information.*

Computer-Aided Drafting Technology

Dino Laury, Interim Chairperson

www.ntid.rit.edu/current/departments/ist/CADT.php

People who work in computer-aided drafting technology use their skills to create two- and three-dimensional drawings on the computer. These drawings are used to visually represent buildings, bridges, canals, and houses. Computer-aided drafting operators (technicians) take the sketches of an engineer, architect, or designer and produce a set of technical drawings.

Students who wish to work in the architectural, engineering, or construction fields enter either the AAS or AOS degree program. In addition to a strong emphasis on computer-aided drafting, the program gives students a background in mathematics, building systems, construction regulations, site utilities, and materials and methods used in the architecture, engineering, and construction industries.

AAS degree program

On-the-job responsibilities

Graduates will enter businesses and industries that need technical employees with skills in computer drafting technology and a broad knowledge of applications and procedures. Graduates will work for architectural, engineering, or construction firms creating engineering drawings.

Places of employment

Graduates of this program will find work in a variety of settings, including government agencies and architectural, construction, and engineering firms. Positions for which graduates qualify include drafters/technicians for architectural, highway design, and civil environments.

Prerequisites

English: Placement in the College of Liberal Arts' Writing Seminar (0502-227) course. Students typically enter Writing Seminar with reading scores equivalent to 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading Test.

Mathematics: Placement in Integrated Algebra (0884-212). Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into Physics I (0885-201) or a higher-level course. Typically, students entering this program will have completed at least three years of high school science. High school physics would be beneficial.

Computer-aided drafting technology, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Engineering Fundamentals 0813-220	4
	Computing Tools for Engineering Technology 0890-212	4
	Integrated Algebra 0884-212	4
	Freshman Seminar 0887-200	2
	Manufacturing Processes 0813-222	4
	CAD Applications in Engineering Technology 0890-214	4
	Elements of Trigonometry 0884-220	4
	Writing Seminar 0502-227	4
	Construction CAD I 0890-210	4
	A/E/C Measuring Systems 0890-208	2
	Physics I 0885-201	4
	Liberal Arts*	4
	Wellness Education†	0
Second Year	Construction CAD II, III 0890-220, 230	8
	Construction Materials and Methods I, II 0890-255, 265	6
	Advanced Math 0884-275	4
	Liberal Arts*	12
	Principles of Structural Systems 0890-275	3
	Job Search Process 0806-101	2
	Advanced Construction CAD 0890-310	4
	Technical Elective	3
	Construction Regulations 0890-375	3
	Cooperative Education 0890-299	Co-op
Third Year	Presentation Graphics 0890-320	4
	Deaf Cultural Studies/ASL*	3
	GIS Fundamentals 0890-280	3
	Site Utilities Mechanical/Electrical Systems 0890-355	3
	Capstone*	3
	Total Quarter Credit Hours	*105*

**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.

AOS degree program

On-the-job responsibilities

Graduates will enter businesses and industries that need technical employees with skills in computer-aided drafting technology and a broad knowledge of applications and procedures. Graduates will work in architectural, engineering, or construction firms creating engineering drawings.

Places of employment

Graduates of this program will find work in a variety of settings, including engineering firms, government agencies, and architectural and construction firms. Positions for which graduates qualify include drafters/technicians for architectural, highway design, and civil environments.

Prerequisites

Successful completion of a sampling experience either through the Summer Vestibule Program or an equivalent career exploration course is a prerequisite, as are the following:

English: Placement into English level C or above. Students successfully completing an AOS degree typically enter with reading scores equivalent to 8.0 on the California Reading Test.

Mathematics: Placement into Foundations of Algebra (0884-180) or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into Physics of Matter (0885-154) or a higher-level course. Typically, students entering this program will have completed at least three years of high school science. High school physics would be beneficial.

Computer aided drafting technology, AOS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Engineering Fundamentals 0813-220	4
	Computing Tools for Engineering Technology 0890-212	4
	Foundations of Algebra 0884-180	4
	Freshman Seminar 0887-200	2
	English Level C	12
	Manufacturing Processes 0813-222	4
	CAD Applications in Engineering Technology 0890-214	4
	Integrated Algebra 0884-212	4
	Construction CAD I 0890-210	4
	A/E/C Measuring Systems 0890-208	2
	Physics of Matter 0885-154	3
	Wellness Education†	0
Second Year	Construction CAD II, III 0890-220, 230	8
	Construction Materials and Methods I, II 0890-255, 265	6
	Humanities*	3
	Elements of Trigonometry 0884-220	4
	Principles of Structural Systems 0890-275	3
	Communication Studies*	3
	Job Search Process 0806-101	2
	Advanced Construction CAD 0890-310	4
	Social Science*	3
	Technical Elective	3
	Construction Regulations 0890-375	3
	Deaf Cultural Studies/ASL*	3
	Cooperative Education 0890-299	Co-op
Third Year	Presentation Graphics 0890-320	4
	GIS Fundamentals 0890-280	3
	Site Utilities Mechanical/Electrical Systems 0890-355	3
	Capstone*	3
	Total Quarter Credit Hours	*105*

†Please see Wellness Education Requirement for more information.
**Please see General Education Distribution Requirements chart for more information.*

Computer-Integrated Machining Technology

Dino Laury, Interim Chairperson

www.ntid.rit.edu/current/departments/ist/CIMT.php

AOS degree program

Computer-integrated machining technology students prepare for employment in precision machining and/or precision optics manufacturing occupations. These include tool and die making, mold making, instrument making, manufacturing of optical elements, and computer numerical control (CNC) machining. Graduates are successfully employed in both large manufacturing corporations and small contract manufacturing shops. In addition, graduates can continue their education in manufacturing and engineering technology programs.

On-the-job responsibilities

Graduates will set up and operate lathes, milling machine tools, grinders, polishers, and computer numerical controlled machine tools; shape material into precision parts by conventional and nonconventional processes; follow blueprints; and use advanced measuring techniques to inspect work.

Places of employment

Graduates of this program will find work in a variety of settings, including manufacturing, metal and/or precision optics manufacturing industries, engineering firms, and engineering research firms. Positions for which graduates qualify include entry-level and apprenticeship programs for positions such as a tool and die maker, instrument maker, mold maker, pattern maker, model maker, machinist, computer numerical control operator, or computer numerical control programmer trainee. Graduates who choose precision optics electives are also qualified for an entry-level position as a precision optics manufacturing technician. Graduates also work for companies that produce optical elements for a variety of applications.

Electives

Students primarily interested in traditional machining positions typically choose the following electives: technical elective, Design, Dimensioning, and Tolerancing (0890-216) from the applied mechanical technology program; advanced technical elective, CNC Toolpaths (0813-257); and machining technical elective, Automated Machining (0813-258).

Students primarily interested in precision optics manufacturing positions typically choose these electives: technical elective, Lens Design and Application (0813-240); advanced technical elective, Optical Testing (0813-242); and machining technical elective, Precision Optics Manufacturing II (0813-245).

Prerequisites

Successful completion of a sampling experience either through the Summer Vestibule Program or an equivalent career exploration course is a prerequisite, as are the following:

English: Placement into English level C or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading Test.

Mathematics: Placement into Foundations of Algebra (0884-180) or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Typically, students entering this program will have completed at least two years of high school science.

Computer-integrated machining technology, AOS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Engineering Fundamentals 0813-220	4
	Computing Tools for Engineering Technology 0890-212	4
	Foundations of Algebra 0884-180	4
	English Level C	12
	Freshman Seminar 0887-200	2
	Manufacturing Processes 0813-222	4
	CAD Applications in Engineering Technology 0890-214	4
	Physics of Matter 0885-154	3
	Computer-Integrated Machining Technology 1 0813-231	3
	Introduction to CNC 0813-250	2
	Precision Measurement 0813-255	2
	Trigonometry for Coordinate Analysis I 0884-205	3
	Blueprint Reading 0813-239	2
	Wellness Education†	0
Second Year	Computer-Integrated Machining Technology 2, 3, 4 0813-232, 233, 234	12
	CNC Graphics 0813-252	3
	Industrial Materials 0813-251	3
	Trigonometry for Coordinate Analysis II 0884-206	3
	CNC Solids 0813-254	3
	Precision Optics Manufacturing I 0813-244	2
	Choose one of the following technical electives:	3
	Lens Design and Applications 0813-240	
	Physics I 0885-201	
	Design, Dimensioning, and Tolerancing 0890-216	
	Choose one of the following advanced technical electives:	3
	CNC Toolpaths 0813-257	
	Optical Testing 0813-242	
	Job Search Process 0806-101	2
	Communication Studies*	3
	Social Science*	3
	Deaf Cultural Studies/ASL*	3
	Cooperative Education 0813-299	Co-op
Third Year	*Choose one of the following manufacturing technical electives:*	6
	Automated Machining 0813-258	
	Precision Optics Manufacturing II 0813-245	
	Humanities*	3
	Employment Seminar 0806-201	1
	Capstone*	3
	Total Quarter Hour Credits	*105*

†Please see Wellness Education Requirement for more information.
** Please see General Education Distribution Requirements chart for more information.*

Hospitality and Service Management

Mary Lou Basile, Chairperson

www.ntid.rit.edu/current/departments/business/2plus2_hospitality.php

AS degree (transfer) program

The associate of science degree in hospitality and service management is a two-year degree program designed to prepare deaf and hard-of-hearing students to enter and successfully complete

a baccalaureate program in the College of Applied Science and Technology's School of Hospitality and Service Management. Students may choose a concentration in either hotel and resort management or food management.

The program maximizes the number of credits a student may transfer while capitalizing on courses offered through the associate of science degree program in business and complemented by the courses offered in the College of Applied Science and Technology's bachelor of science degree program in hospitality and service management. Admission to this program is available for the fall quarter only.

Prerequisites

ACT composite test score of 18 and above

English: Placement into the College of Liberal Arts' Writing Seminar (0502-227) course. Students who qualify for Written Communication II (0502-111) will be considered for admission if they are at level D or higher in mathematics.

Mathematics: Placement into level C mathematics course. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Placement into any level D science course numbered 0885-250 or higher. Typically, students entering this program will have completed at least two years of high school science.

Transfer requirements

To transfer to the College of Applied Science and Technology's School of Hospitality and Service Management, the student must present a grade point average of 2.5 or higher upon graduation with the associate in science degree.

Hospitality and service management, AS degree, hotel and resort management concentration, typical course sequence

		Qtr. Cr. Hrs.
First Year	Writing Seminar 0502-227	4
	Freshman Seminar 0887-200	2
	Applications of Algebra 0884-210	4
	Hotel Operations 0622-200	4
	Survey of Service Management 0619-220	2
	Hotel Marketing and Sales Management 0622-210	4
	Financial Accounting I, II 0801-211, 212	8
	NTID Science (Level D)	4
	Basic Computer Applications 0619-221	2
	Explorations in College Algebra 0884-260	4
	Liberal Arts*	4
	Resort Development and Management 0622-310	4
	Algebra for Management Science 1016-225	4
	Wellness Education†	0
Second Year	Liberal Arts*	16
	Managerial Accounting I, II 0801-221, 222	8
	Principles of Microeconomics 0511-211	4
	Facility and Property Management 0622-315	4
	Science with Lab§	4
	Financial Management for Hotels 0622-355	4
	Data Analysis I 1016-319	4
	Fundamentals of Marketing 0804-286	3
	Cooperative Education 0621-499	Co-op
	Total Quarter Credit Hours	*97*

**Please see General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.
§Health Awareness (1026-221) or Medical Laboratory Procedures (1026-220) is recommended.

Hospitality and service management, AS degree, food management concentration, typical course sequence

		Qtr. Cr. Hrs.
First Year	Writing Seminar 0502-227	4
	Freshman Seminar 0887-200	2
	Applications of Algebra 0884-210	4
	Principles of Food Production 0621-225	4
	Survey of Service Management 0619-220	2
	Explorations in College Algebra 0884-260	4
	Financial Accounting I, II 0801-211, 212	8
	NTID Science (Level D)	4
	Basic Computer Applications 0619-221	2
	Liberal Arts*	4
	Science with Lab§	4
	Sanitation and Safety 0621-314	2
	Algebra for Management Science 1016-225	4
	Wellness Education†	0
Second Year	Liberal Arts*	16
	Restaurant Operations 0621-331	6
	Managerial Accounting I, II 0801-221, 222	8
	Principles of Microeconomics 0511-211	4
	Food and Beverage Management 0621-318	4
	Data Analysis I 1016-319	4
	Fundamentals of Marketing 0804-286	3
	HSM Program Elective	4
	Cooperative Education 0621-499	Co-op
	Total Quarter Credit Hours	*97*

**Please see NTID General Education Distribution Requirements chart for more information.*
§Health Awareness (1026-221) or Medical Laboratory Procedures (1026-220) is recommended.
†Please see Wellness Education Requirement for more information.

Laboratory Science Technology

Vincent A. Daniele, Chairperson

www.ntid.rit.edu/current/departments/lst/
www.ntid.rit.edu/current/departments/lst/LSTplus2.php

The laboratory science technology program was developed primarily from an industry perspective. The program prepares students for employment as laboratory technicians and includes a foundation of course sequences in chemistry, biology, instrumental analysis, laboratory mathematics, and a unique six-part laboratory applications series. The program has several significant factors that set it apart, including the application of real-world analyses and a state-of-the-art instrumentation laboratory. Graduates are prepared to work in a broad range of fields, including chemical, biological, biotechnical, environmental, industrial, forensic, and food analysis. Students may choose from AAS and AOS degree programs.

Students earning an AAS degree have the option of finding employment or continuing to work toward a baccalaureate degree. Under the program's agreement with the College of Applied Science and Technology, individuals who maintain a grade point average of 3.0 or better while in the AAS program are guaranteed acceptance as third-year students in the college's Center for Multidisciplinary Studies. Through this program students can complete a BS degree in applied arts and science, earning dual professional concentrations in laboratory science and biotechnology.

AAS and AOS degree programs

On-the-job responsibilities

Technicians are involved with the collection and preparation of samples. They also perform instrumental, volumetric, gravimetric, and biological analyses. Additional job responsibilities may include the interpretation and reporting of experimental results.

Places of employment

The program prepares graduates for technical jobs in municipal, public, private, and industrial laboratories.

Prerequisites

English—AAS: Placement in the College of Liberal Arts' Writing Seminar (0502-227) course. Students typically enter Writing Seminar with reading scores equivalent to 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores of 9.0 on the California Reading Test.

English—AOS: Placement in English level C or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading Test.

Mathematics: Placement in level C mathematics or higher. Typically, students entering this program will have completed at least three years of high school mathematics.

Science: Typically, students entering this program will have completed at least two years of high school science. Completion of high school chemistry recommended.

Laboratory science technology, AAS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Laboratory Science Technology 0879-200	2
	Fundamentals of Cellular Biology 0885-215	4
	Fundamentals of Chemistry I, II 0885-205, 206	8
	Writing Seminar 0502-227	4
	Freshman Seminar 0887-200	2
	Laboratory Science Technology Lab Applications I, II 0879-201, 202	4
	Principles of Analytical Chemistry 0885-291	4
	Integrated Algebra 0884-212	4
	Laboratory Math I 0884-231	3
	Liberal Arts*	8
	Deaf Cultural Studies/ASL*	3
Second Year	Laboratory Science Technology Lab Applications III, IV, V 0879-203, 204, 205	6
	Instrumental Analysis I, II, III 0879-301, 302, 303	10
	Principles of Organic Chemistry 0885-292	4
	Laboratory Math II 0884-232	3
	ST: Molecular Biology 0879-398	4
	Introduction to Laboratory Science Technology Microbiology 0879-218	3
	Chemical Technology 0879-313	4
	Biotechnology 0879-314	4
	Job Search Process 0806-101	2
	Liberal Arts*	4
	Wellness Education†	0
	Cooperative Education 0879-299	Co-op
Third Year	Laboratory Science Technology Lab Applications VI 0879-206	2
	Senior Seminar 0879-250	2
	Technical Elective#	3-4
	Liberal Arts*	4
	Capstone*	3
	Total Quarter Credit Hours	***104-105***

†Please see Wellness Education Requirement for more information.
**Please see NTID's General Education Distribution Requirements chart for more information.*
#Students must choose one technical elective from the list of laboratory science technology courses or seek department approval for a course from another college.

Laboratory science technology, AOS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Introduction to Laboratory Science Technology 0879-200	2
	Fundamentals of Cellular Biology 0885-215	4
	Fundamentals of Chemistry I, II 0885-205, 206	8
	English Level C	12
	Freshman Seminar 0887-200	2
	Laboratory Science Technology Lab Applications I, II 0879-201, 202	4
	Principles of Analytical Chemistry 0885-291	4
	Integrated Algebra 0884-212	4
	Laboratory Math I 0884-231	3
	Wellness Education†	0
Second Year	Laboratory Science Technology Lab Applications III, IV, V 0879-203, 204, 205	6
	Instrumental Analysis I, II, III 0879-301, 302, 303	10
	Laboratory Math II 0884-232	3
	Principles of Organic Chemistry 0885-292	4
	ST: Molecular Biology 0879-398	4
	Introduction to Laboratory Science Technology Microbiology 0879-218	3
	Chemical Technology 0879-313	4
	Biotechnology 0879-314	4
	Job Search Process 0806-101	2
	Deaf Cultural Studies/ASL*	3
	Humanities*	3
	Social Sciences*	3
	Cooperative Education 0879-299	Co-op
Third Year	Laboratory Science Technology Lab Applications VI 0879-206	2
	Senior Seminar 0879-250	2
	Technical Elective#	3-4
	Communication Studies*	3
	Capstone*	3
	Total Quarter Credit Hours	***105-106***

**Please see NTID's General Education Distribution Requirements chart for more information.*
†Please see Wellness Education Requirement for more information.
#Students must choose one technical elective from the list of laboratory science technology courses or seek department approval for a course from another college.

Special Certificates

Deaf Studies Certificate

The deaf studies certificate has been discontinued, effective June 2011. The program is no longer admitting new students.

Those interested in a basic introductory experience in American Sign Language (ASL) and Deaf Culture should refer to the Part-time Undergraduate Studies bulletin for information on courses.

Deaf Cultural Studies/American Sign Language (ASL) Certificate

www.ntid.rit.edu/current/departments/dccs/deafstudies/

The deaf cultural studies/American Sign Language certificate program offers deaf and hard-of-hearing students the opportunity to understand the deaf community as an entity unto itself and within the context of society as a whole. The program consists of two tracks: the advocacy and community track and the American Sign Language studies track.

Both tracks address the historical, anthropological, linguistic, literary, artistic, and multicultural aspects of deaf people's lives. Knowledge, skills, and abilities learned through this program of study include: understanding the structure of ASL and the application of linguistic principles to other languages (specifically English); enhancement of bilingual skills to improve communication; increased knowledge of deaf culture and deaf history; a heightened sense of self-concept, self-esteem, and self-confidence; improved presentation skills; and enhanced literacy and critical thinking skills.

The advocacy and community track improves students' ability to advocate for their rights in the workplace and contribute to leadership in the greater community. The ASL studies track enhances students' marketability as teachers of ASL and deaf culture in the workplace, at schools, or within the greater community.

Candidates will be granted the certificate upon successful completion of the course requirements in either of the tracks. Courses leading to the certificate are offered as part of the NTID social sciences and humanities curricula. Applicants for the deaf cultural studies/American Sign Language certificate must be either matriculated students in good standing in an undergraduate degree program at RIT/NTID or graduates holding a degree from an RIT/NTID program. Introduction to Deaf Cultural Studies and ASL (0880-190) is a prerequisite for admission to the program.

Advocacy and community track: required courses

	Qtr. Cr. Hrs.
0882-222 Deaf Culture and Community	3
0882-285 Civil Rights and Deaf People	3
0886-249 Structure of ASL	3
0880-207 Organizational Communication and the Deaf Employee	3
Total Quarter Credit Hours	*12*

American Sign Language studies track: required courses

	Qtr. Cr. Hrs.
0882-222 Deaf Culture and Community	3
0886-249 Structure of ASL	3
0886-250 Introduction to ASL Teaching	3
Choose one of the following electives:	3
0880-207 Organizational Communication and the Deaf Employee	
0882-221 Deaf Heritage	
0882-223 Deaf Women's Studies	
0882-285 Civil Rights and Deaf People	
Total Quarter Credit Hours	*12*

Performing Arts Certificate

www.rit.edu/ntid/theatre/

The performing arts certificate is designed to provide students with an additional set of marketable skills. Students develop knowledge of standard theatrical operating procedures as well as principles and practices of theater accessibility for deaf people, allowing them to work in professional, regional, and community theater. The program also provides a solid foundation for both deaf and hearing students who wish to pursue further education in film, video, theater, and related forms of performing arts.

The certificate includes knowledge of theater terminology, practices, and protocols; issues in script analysis; ASL translation and accessibility; and experience in performance and technical theater. Students may take four 3-credit courses in the performance/script track (for students interested in acting, dramaturgy, translation, and dance/movement) or the technical theater track (for students interested in scenic, lighting, and costume design/technology, and stage management). A 3-credit production practicum is required for both tracks. Students will be granted the performing arts certificate in either performance/script or technical theater upon successful completion of 15 credit hours.

This program is not intended as a stand-alone certification. Applicants for the performing arts certificates must be matriculated and in good standing in an undergraduate program at RIT/NTID or graduates holding an undergraduate degree from one of those programs. Introduction to Performing Arts (0881-250) is a prerequisite.

Performing Arts Certificate–Performance/Script Emphasis	**Qtr. Cr. Hrs.**
Required Course:	
0881-298 Performing Arts Practicum	3
Elective Courses–Choose four of the following:	12
0881-256 Script Analysis	
0881-210 Acting I	
0881-260 Acting II	
0881-258 Introduction to Play Creating	
0881-168 Jazz	
0881-266 Ballet	
0881-267 Fundamentals of Choreography	
0881-202 History of Theater	
0881-204 Deaf Theater History	
0881-217 Stage Combat	
0881-218 Dance History	
0881-166 Sign Mime and Creative Movement	
0881-253 Arts Management	
0881-259 Creative Translation	
0881-261 Audition Technique	
0881-167 Dance Performance	
0881-257 Introduction to Dramatic Literature	
Total Quarter Credit Hours	*15*

Performing Arts Certificate–Technical Theater Emphasis	**Qtr. Cr. Hrs.**
Required course:	
0881-298 Performing Arts Practicum	3
Elective Courses–Choose four of the following:	12
0881-256 Script Analysis	
0881-222 Scenic Technology I	
0881-223 Scenic Technology II	
0881-224 Scene Painting	
0881-231 Costume Technology I	
0881-232 Costume Technology II	
0881-233 Stage Make-up	
0881-241 Lighting Technology I	
0881-242 Lighting Technology II	
0881-253 Arts Management	
0881-272 Stage Management	
Total Quarter Credit Hours for certification	*15*

Pre-baccalaureate Studies

Arts and Imaging Studies

Kenneth F. Hoffmann, Chairperson, Arts and Imaging Studies

Liberal Studies

Kathryn L. Schmitz, Interim Chairperson, Liberal Studies

Science and Mathematics

Vincent A. Daniele, Chairperson, Science and Mathematics

Engineering Studies

Dino Laury, Interim Chairperson, Engineering Studies

General information

The pre-baccalaureate studies program is available to students who are accepted by NTID and are close to, but not fully ready for, direct entry into a baccalaureate-level program through one of the other colleges of RIT. It is a bridge program for qualified students, based on academic transcripts, scores on admissions tests, and other evidence that supports a reasonable expectation of success in baccalaureate course work. Qualified students who are undecided as to a program of study may choose the pre-baccalaureate studies career exploration option.

Pre-baccalaureate studies is appropriate for students who need to further develop mathematics, English, or discipline-related skills. The academic program is flexible and individualized and allows students to focus on needed skills while concurrently progressing toward their chosen field of study. Students take courses taught by support department and other NTID faculty, along with entry-level courses taught in other RIT colleges. While in the program, students receive academic advising as well as career counseling.

Students do not receive a degree in pre-baccalaureate studies. They apply for admission into a baccalaureate program as soon as they are academically ready and the college offering their chosen baccalaureate program reviews their application for admission. After completing an entire academic year in the program, a student must transfer to a degree-granting program in NTID or one of the other colleges of RIT.

Arts and Imaging Studies

Students entering pre-baccalaureate studies in arts and imaging studies will typically be required to have:

ACT: Minimum score of 18

English: Placement in the Writing Seminar (0502-227) course

Mathematics: Placement in level B mathematics course, Concepts of Measurement (0884-150) or higher, for BFA degrees or level D, 0884-250 or higher, for BS degrees

Science: Placement in level B science, 0885-150 or higher, for BFA degrees or level D, 0885-250 or higher, for BS degrees

Pre-baccalaureate studies in the imaging arts and sciences in the schools of Art, Design, and American Crafts, typical course sequence.

		Qtr. Cr. Hrs.
First Year	Visual Idea Development 0855-310	3
	Basic, Intermediate, Advanced Drawing 0855-311, 312, 313	9
	Bitmap Graphics 0855-251	3
	Design Concept Development 0855-255	3
	Vector Graphics 0855-252	3
	Typography I, II 0855-253	6
	Color in Design 0855-314	3
	Elective	3
	Liberal Arts*	12
	Freshman Seminar 0887-200	2
	Total Quarter Credit Hours	*47*

**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*

Note: Portfolio of original artwork is required to determine admission. See the College of Imaging Arts and Sciences support coordinator for further information.

Pre-baccalaureate studies in imaging arts and sciences in the School of Photographic Arts and Sciences, BFA degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Digital Photography I, II 0855-323, 373	6
	Basic and Intermediate Drawing 0855-311, 312	6
	Visual Idea Development 0855-310	3
	Design Concept Development 0855-255	3
	Applied Color Theory 0855-254	3
	Bitmap Graphics 0855-251	3
	Image Acquisition 0855-321	3
	Image Manipulation 0855-322	3
	Liberal Arts*	12
	Freshman Seminar 0887-200	2
	Total Quarter Credit Hours	*44*

**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*

Pre-baccalaureate studies in imaging arts and sciences in the School of Photographic Arts and Sciences, BS degree, typical course sequence

		Qtr. Cr. Hrs.
First Year	Bitmap Graphics 0855-251	3
	Visual Idea Development 0855-310	3
	Applied Color Theory 0855-254	3
	Design Concept Development 0855-255	3
	Image Acquisition 0855-321	3
	Image Manipulation 0855-322	3
	Digital Photography I 0855-323	3
	Level D Math 0884-250 or higher	4
	Level D Science 0885-250 or higher	4
	Liberal Arts*	12
	Freshman Seminar 0887-200	2
	Total Quarter Credit Hours	*43*

**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*

Pre-baccalaureate studies in imaging arts and sciences, film and animation option, typical course sequence

		Qtr. Cr. Hrs.
	Digital Video for Multimedia 2065-217#	4
	Introduction to Animation 2065-331	4
	Scriptwriting I 2065-342	3
	Film Language 2065-222	2
	Theater Electives/NTID Performing Arts**	2–8
	Liberal Arts*	12
	Total Quarter Credit Hours	*27-33*

#With departmental permission.
***See College of Imaging Arts and Sciences support coordinator adviser for current information regarding theater electives.*
**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*

Pre-baccalaureate studies in imaging arts and sciences in the School of Print Media, typical course sequence

		Qtr. Cr. Hrs.
First Year	Bitmap Graphics 0855-251	3
	Vector Graphics 0855-252	3
	Typography I 0855-253	3
	Applied Color Theory 0855-254	3
	Image Acquisition 0855-321	3
	Image Manipulation 0855-322	3
	Foundations of Algebra 0884-180	4
	Applications of Algebra 0884-210	4
	Choose one of the following:	4
	Explorations in College Algebra 0884-260	
	Algebra for Management Science 1016-225	
	Level D Science 0885-250 or higher	4
	Liberal Arts*	12
	Freshman Seminar 0887-200	2
	Total Quarter Credit Hours	*48*

**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*

Liberal Studies

Students entering pre-baccalaureate studies in liberal studies will typically be required to have:

ACT: Minimum composite score of 19 with a reading score of 20 and all other skill area scores of 18 or higher

English: Placement in Written Communication II (0502-111)

Mathematics: Placement in the NTID Advanced Mathematics (0885-275) course or higher

Pre-baccalaureate studies in liberal arts, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 0853-200	2
	First-year major courses depending on program of study	12
	Liberal Arts*	12
	Mathematics or Science	4
	NTID Humanities or Social Science course	3
	Pre-baccalaureate courses#	6-8
	Total Quarter Credit Hours	*39-41*

**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*
#Pre-baccalaureate courses are an option to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.

Science and Mathematics

Students entering pre-baccalaureate studies in science or mathematics will typically be required to have:

ACT: Minimum composite score of 19 with reading and mathematics scores of 20 and English and science scores of 18

English: Placement in Written Communication II (0502-111)

Mathematics: Placement in the NTID Advanced Mathematics (0885-275) course or higher

Pre-baccalaureate studies in biology, biotechnology, medical sciences, environmental science, and environmental management, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 0853-200	2
	Pre-baccalaureate courses#	(2-5)
	General Biology I, II, III 1001-201, 202, 203	9
	General Biology Lab 1001-205, 206, 207	3
	Liberal Arts*	12
	College Algebra and Trigonometry 1016-204	4
	Elementary Calculus I, II 1016-214, 215‡	6
	Total Quarter Credit Hours	*38-41*

#Pre-baccalaureate courses are an available option to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*
‡Alternative mathematics courses may be required as prerequisites, depending on placement.

Pre-baccalaureate studies in science, chemistry option, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 0853-200	2
	Pre-baccalaureate courses#	2-5
	General and Analytical Chemistry I, II, III 1011-215, 216, 217	10
	Chemistry Labs 1011-205, 206, 227	3
	Choose one group of courses:	8-12
	Group A:	
	Calculus with Foundations I, II 1016-261,262	
	Group B:	
	Calculus A, B, C 1016-271, 272, 273	
	Liberal Arts*	12
	Total Quarter Credit Hours	*37-44*

#Pre-baccalaureate courses are available to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*

Pre-baccalaureate studies in science, math, or physics options, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 0853-200	2
	Pre-baccalaureate courses#	2-5
	Choose one of the following science sequences:	12
	Chemical Principles I, II, III with Labs 1011-205, 206, 207	
	University Physics I, II, III 1017-311, 312, 313‡§	
	Choose one group of courses:	12
	Group A:	
	Calculus A, B, C 1016-271, 272, 273	
	Group B:	
	Project-Based Calculus I, II, III 1016-281, 282, 283	
	Liberal Arts*	12
	Total Quarter Credit Hours	*40-43*

#Pre-baccalaureate courses are an option to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
‡Alternate mathematics courses may be required as prerequisites, depending on placement.
**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*
§Students must choose one of the two physics sequences for the physics option.

Engineering Studies

Pre-baccalaureate studies in engineering option, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 0853-200	2
	Pre-baccalaureate courses#	(2)
	Major-related courses depending on area of interest	16
	College Chemistry 1011-208	4
	University Physics I, II 1017-311, 312	8
	Liberal Arts*	12
	Calculus I, II, III 1016-281, 282, 283‡	12
	Total Quarter Credit Hours	*54–56*

#Pre-baccalaureate courses are an option to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*
‡Alternative mathematics courses may be required as prerequisites, depending on placement.

Pre-baccalaureate studies in engineering technology option, typical course sequence

		Qtr. Cr. Hrs.
First Year	Freshman Seminar 0853-200	2
	Pre-baccalaureate courses#	(2)
	Engineering Technology Seminar 0606-101	2
	Major-related courses depending on area of interest	16
	Liberal Arts*	12
	Technical Math I, II 0692-221, 222‡	8
	Pre-calculus for Engineering Technology‡	(4)
	Calculus for Engineering Technology I, II 1016-231, 232‡	8
	Total Quarter Credit Hours	*48-54*

#Pre-baccalaureate courses are an option to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
**Please see Liberal Arts General Education Requirements for more information. Depending on placement, the writing sequence may begin with Written Communication I (0502-110), Written Communication II (0502-111), or Writing Seminar (0502-227).*
‡Alternative mathematics courses may be required as prerequisites, depending on placement.

Course Descriptions

www.rit.edu/ugrad_courses

Descriptions of all undergraduate courses off ered at Rochester Institute of Technology are available on the RIT website at www.rit.edu/ugrad_courses. Students also may request a Course Descriptions book from their college's academic advising office or the Undergraduate Admissions Office.

Graduation Requirements

To earn any academic credential from RIT, students must satisfy a number of graduation requirements, which may vary significantly from program to program. All students should seek out and use the academic advising resources within their colleges to assist them in planning their academic program of study. In general, students should expect to satisfy the following requirements before they can graduate from RIT:

A. Completion of academic curricula

I. Students must satisfactorily complete all of the courses in their academic program. General education requirements and specific course requirements for each program are identified in the following pages. This bulletin and careful consultation with an academic adviser provide the best resources for planning and completing your academic program requirements.

II. Program curricula may include several types of courses, cooperative education, field experience, practicum, thesis and research, and wellness. Most students will need to satisfy a wellness requirement, and many academic programs require one or more quarters of experiential learning, including cooperative education or internships.

III. The curriculum in effect at the time of admission into a program will normally be the curriculum one must complete in order to graduate. Occasionally, with departmental approval, course substitutions and other minor curricular modifications may occur. Although there is no time limit within which students must complete their course requirements, the curriculum under which a student is certified to graduate must be no more than seven years old.

B. Grade point average standard

I. Successful candidates for an undergraduate degree, diploma, or certificate must have a program cumulative grade point average of at least 2.0. (The physician assistant program requires a minimum program cumulative grade point average of 2.8.)

II. Graduation honors are conferred on associate and bachelor's degree recipients who achieve a minimum cumulative GPA of 3.40.

C. Residency and minimum earned hours

At least 45 of the credit hours used toward a degree program must be earned by successfully completing RIT courses. In addition, at least 30 of the final 45 hours of any program must be earned through RIT courses. Credit earned through transfer, credit by exam/experience, College-Level Examination Program (CLEP), Advanced Placement (AP), International Baccalaureate (IB), or audit is excluded from these residency calculations. Academic programs vary as to the total number of credit hours required; however, under no circumstances will a student be allowed to graduate with a bachelor's degree with fewer than 180 cumulative earned hours (90 hours for associate degrees). Cumulative earned hours include RIT courses, transfer credit, credit by exam/experience, CLEP, AP, and IB credits.

D. Demonstration of writing skills

Students must demonstrate, to the satisfaction of the dean of their college, the writing skills necessary for successful entry into their chosen careers. Each academic department determines the criteria and standards for evaluating abilities.

E. Fulfillment of all financial obligations to RIT

The Liberal Arts General Education Curriculum

Students in all baccalaureate degree programs are required to complete at least 90 credit hours of general education. This includes a minimum of 36 quarter credit hours in the humanities and social sciences taken in the College of Liberal Arts. If a student elects to complete a minor in the College of Liberal Arts, the total number of required humanities or social science credits will be 44. Students enrolled in bachelor of science programs also must complete at least 20 quarter credit hours of general education in the College of Science.

The College of Liberal Arts general education curriculum is divided into an introductory core, an Arts of Expression course, and advanced courses in a liberal arts concentration or liberal arts minor. The requirements for baccalaureate degree programs are summarized below.

I. The introductory core totals 20 credit hours and is composed of the following 200- to 300-level courses:

A. Writing (0502-227) (4 credit hours)

B. Two humanities courses (8 credit hours)

Choose from two different disciplines: fine arts; history; literature; philosophy; science, technology, and values; or Introduction to Environmental Studies.

C. Two social science courses (8 credit hours)

Choose from two different disciplines: anthropology, economics, political science, psychology, or sociology.

II. Arts of Expression course (4 credit hours)

III. Advanced course work in a liberal arts concentration or minor (minimum 12 credit hours required in 400- to 500-level courses)

Students enrolled in associate degree programs will generally complete only a portion of the liberal arts requirements listed above. Additional information is provided in the academic program descriptions in this bulletin and through academic advisers.

Liberal arts advising

Liberal arts requirements vary within the individual degree programs. Therefore, it is important that students carefully plan their liberal arts program to meet the specific requirements of their degree program. Advising staff are available in the College of Liberal Arts' Office of Student Services to provide assistance in planning and selecting appropriate liberal arts courses. Through this office, the college provides academic worksheets for each degree program to help students maintain records of progress toward their degree.

The College of Liberal Arts faculty recommends that students who wish to pursue their liberal arts studies beyond the minimum general education requirement consider any of the following options:

- the additional courses needed to complete a liberal arts minor,
- the additional courses needed to complete a second liberal arts minor,
- the additional courses needed to complete a liberal arts double major,
- a 500-level seminar course,
- at least one multicultural or international/global studies course,
- additional courses that feature writing,
- courses that complement or add depth to professional studies,
- courses that respond to personal interests—even if immediate ties to professional studies are not apparent, or
- the study of a foreign language to facilitate study abroad or professional development.

The Mathematics and Science General Education Curriculum*

**The mathematics and science general education curriculum requirement applies to all students pursuing the bachelor of science degree. Students in bachelor of fine arts programs need not complete this requirement.*

The general education curriculum in mathematics and science is a component of all bachelor of science degree programs and is completed through one of three options. These options offer a balance between mathematics and science. A minimum of 20 credits is required. Students should consult with their program chairperson or academic adviser for specific course requirements and approved sequences.

Plan A: Balanced
Mathematics—One three-course sequence
Science—One three-course sequence and associated laboratories

Plan B: Emphasis on Science
Mathematics—One two-course sequence
Science—One two-course sequence and associated laboratories, plus two additional science electives

Plan C: Emphasis on Mathematics
Mathematics—One two-course sequence, plus two additional mathematics electives
Science—One two-course sequence and associated laboratories

Wellness Education Requirement

RIT recognizes the need for wellness education in today's society and offers specifically designed courses to help students develop and maintain a well-balanced, healthy lifestyle that encourages the use of free time in an enjoyable and constructive manner. The wellness education requirement is designed to assist students in making healthy decisions to support their academic and social interactions in college and beyond. The wellness curriculum provides learning experiences that are an integral part of the educational experience at RIT.

Students seeking a bachelor's degree: Students seeking a bachelor's degree must successfully complete two different wellness activity courses. *(Important note: Different courses would include different levels of and/or forms of a course that may have the same course number. For example, Karate/Beginners and Karate/Advanced would count as two different activity courses).*

Students seeking an associate degree: Students seeking an associate degree must successfully complete one wellness activity course.

Transfer students: Transfer students may apply course work successfully completed at a previous institution. The student's home department will determine and make decisions regarding transfer of health, wellness, or activity courses. The Center for Intercollegiate Athletics and Recreation will be available for consultation.

Exemption Scenarios

Age: Students who are 25 or older **at the date of matriculation** are exempt from the wellness education requirement but may enroll in any course on a space-available basis.

Club sports participation: Students participating in an RIT-recognized club sport may be granted one activity course credit for the year of participation. Participation on the same club team for multiple seasons (e.g., four seasons) can be counted only one time for activity course credit toward the graduation requirement. Students must see the club sports adviser before the end of the spring quarter add/drop period to facilitate the credit process.

Credit by experience: Retroactive credit **may** be granted for certain independent activities if completed within one year before matriculation at RIT. A formal written request must be submitted that clearly outlines the activity that is being considered for wellness education credit along with all documentation of the experience (e.g., signatures of instructors, copy of certificates, receipt from a course or seminar completion). A minimum of 16 hours of a previous activity is required. Formal requests should be submitted to Dugan Davies (Wellness Instructional Program), dnddhd@rit.edu, (585) 475-6232.

Intercollegiate athletics: Students participating in the university's intercollegiate athletic program will be granted wellness activity course credit for the season(s) of participation, but must still enroll in First-Year Enrichment (during their freshman year). The Center for Intercollegiate Athletics and Recreation encourages student athletes to enroll in wellness activity courses that are different from their intercollegiate experience to ensure full engagement in a variety of leisure time pursuits.

Intramural participation: No credit is granted for intramural sports participation.

Medical excuse: A medical excuse **may** exempt students from participation in the activity segment of the graduation requirement, but they must still enroll in First-Year Enrichment (during their freshman year). The exemption will be granted only by a college dean with input from the associate director of wellness for the Center for Intercollegiate Athletics and Recreation. One copy of the medical excuse (signed physician's memo) should be filed with the Center for Intercollegiate Athletics and Recreation and the other copy taken to students' academic department.

Military duty: Students who have completed six months or more of active military duty are not required to complete the wellness education program but are encouraged to enroll in any wellness course on a space-available basis.

Nonmatriculated status: Nonmatriculated students are exempt from the wellness education requirement but are encouraged to enroll in any wellness course on a space-available basis.

Prior bachelor's degree: Students who have acquired a bachelor's degree are exempt from the wellness education requirement.

Liberal Arts Concentrations

http://www.rit.edu/cla/ssa_minors_concentrations.php.

Students may complete their upper-level liberal arts requirement by completing a minor in a discipline of their choosing (refer to the Minors section of this bulletin for a complete list of available minors) or by completing a liberal arts concentration. The core liberal arts requirements remain the same regardless of whether a student elects to complete a minor or concentration.

A liberal arts concentration is a cohesive set of **three** upper-level courses (12 quarter credit hours) approved by the faculty for use in meeting RIT's liberal arts general education requirements. Concentrations may be disciplinary or interdisciplinary, and some may require prerequisite course work. A complete list of concentrations, including course requirements, follows.

American Artistic Experience

Concentration Adviser: Tina Lent

This concentration provides students with the opportunity to study the American artistic experience in a variety of arts, including painting, architecture, film, photography, music, theater, and mass media. Each course will present American art within the context of the broader current of American life, including its history, philosophy, social, and cultural traditions.

Electives—Choose three from the following:

0505-442	Music in the United States
0505-443	Images of American Life
0505-444	American Painting
0505-445	Issues in American Art
0505-446	American Film of the Studio Era
0505-447	American Musical Theater
0505-448	20th Century American Music
0505-452*	Special Topics in American Art
0505-453	Theater in the United States
0505-454	Orchestra Repertoire and History
0505-455	Survey of Jazz
0505-457	Contemporary Drama, Theater, and Media
0505-463	Survey of African-American Music
0505-464	Blues as Personal and Social Commentary
0505-467	American Film Since the 1960s
0505-470	American Popular Song 1830-1950
0505-471	American Popular and Rock Music
0505-488*	Special Topics in American Theater
0505-500	African-American Art
0505-504	Memory, Memorials and Monuments
0505-505	Art in the Age of the New Deal
0505-506	Museums of Art and Design
0505-507	Landscapes Transformed

**Topics will vary*

American Politics

Concentration Advisers: Joseph Fornieri, Sean Sutton

The value in studying the American political system can scarcely be overemphasized. As Thomas Jefferson maintained, only an educated and enlightened democracy can endure. A democratic society remains valid only to the extent that its citizens are educated and well-informed about their government and issues of public policy. The purpose of this concentration is to give students a sound understanding of the U.S. political system. Courses detail various aspects of the American political system, giving students the tools to participate effectively in the political process.

Electives—Choose three of the following:

0508-484	Environmental Policy
0513-425	Politics and the Life Sciences
0513-426	Cyberpolitics
0513-427	Evolutionary International Relations
0513-428	Evolution and the Law
0513-429	Primate Politics
0513-449	Special Topics in Political Science
0513-450	State and Local Politics
0513-451	The Congress
0513-452	The American Presidency
0513-453	American Foreign Policy
0513-454	Political Parties and Voting
0513-455	Politics and Public Policy
0513-456	The Judicial Process
0513-457	Constitutional Law
0513-458	American Political Thought
0513-460	Constitutional Rights and Liberties
0513-462	Abraham Lincoln and American Democracy
0513-463	First Amendment, Liberty, and Deliberative Democracy
0513-465	Modern Constitutionalism, Liberty, and Equality
0513-466	Political Leadership
0513-481	Women in Politics
0513-485	Politics through Fiction
0513-514	Political Theory

Archaeology

Concentration Adviser: William Middleton

Archaeology is the study of the human past by means of the physical residues of past human behavior: for example, pottery, stone and metal tools, and the remains of ancient dwelling sites. The archaeologist explains how human society has changed and developed over time using such physical evidence. Archaeology

employs techniques from the physical sciences to build a more detailed picture of human past. Students explore the worlds of the past through hands-on applications of physical science techniques in a diverse range of fields, including chemistry, metallurgy, biology, and material science, applying these disciplines in a novel and challenging context.

Electives—Choose three of the following:

0531-444	Survey of Metallurgy
0531-445	Field Methods in Archaeology
0531-449	Special Topics
0531-502	Archaeology and the Human Past
0531-506	Great Discoveries in Archaeology
0531-507	Archaeological Science
0531-508	Archaeology of Cities
0531-509	Garbage Archaeology
0531-510	Exploring Ancient Technology

Art History

Concentration Adviser: Tina Lent

Art history is the study of art across a broad period of historical time and geographical space. A variety of specialized courses allows students to gain insight into the artistic contributions of Europe, Asia, and the developing world. The concentration includes several liberal arts courses and some upper-division specialty art history courses. This concentration is offered as an alternative to the American artistic experience concentration, specifically designed for those students who wish to acquire a broader understanding of art and culture outside of the United States.

Electives—Choose three of the following:

0505-421	Introduction to Museums and Collecting
0505-422	Art Materials: Panel Printing
0505-423	Art Materials: Photography
0505-424	Legal and Ethical Issues for Collecting Institutions
0505-425	Display and Exhibition Design
0505-436	Women's Stories and Films
0505-437	The Forensic Investigation of Art
0505-438	Conservation of Cultural Material
0505-443	Images of American Life
0505-444	American Painting
0505-445	Issues in American Art
0505-446	American Film of the Studio Era
0505-452	Special Topics*
0505-467	American Film Since the 1960s
0505-468	Art of India and Southeast Asia
0505-469	Art of China, Korea, and Japan
0505-480	Women and the Visual Arts
0505-487	Special Topics: Art of Islam**
0505-500	African American Art
0505-504	Memory, Memorials, and Monuments
0505-505	Art in the Age of the New Deal
0505-506	Museums of Art and Design
0505-507	Landscape Transformed

**Special Topics (0505-452) may include the following topics: American Architecture, Queer Looks I, Queer Looks II, Harlem Renaissance, Visual Culture, Reading Images, Traumatic Images, and Art of Dying.*

*** Special Topics: Art of Islam (0505-487) may include the following topics: Persian/Turkish/Mughal Traditions and Arabic Tradition.*

Communication

Concentration Adviser: Grant Cos

This concentration provides opportunities for the advanced study of selected areas of communication. Topics include an overview of the fields of persuasion, mass communications, public speaking, and small group communication. Students will understand and apply several modes of communication in academic, professional, and personal situations. Students are encouraged to complete Human Communication (0535-480) before enrolling in other concentration courses. *This concentration is closed to students enrolled in the following degree programs: professional and technical communication, advertising and public relations, and journalism.*

Electives—Choose three of the following:

0535-414	Interpersonal Communication
0535-480	Human Communication
0535-481	Persuasion
0535-482	Mass Communications
0535-483	Small Group Communication
0535-501	Public Speaking
0535-520	Intercultural Communication

Criminal Justice

Concentration Adviser: Laverne McQuiller-Williams

A concentration in criminal justice provides students with the appropriate foundation to analyze crime, crime control policy, and the role of the criminal justice system in the maintenance of order in society. Courses focus on the social definition and measurement of crime; the broad understanding of the causes of crime; and the societal response to crime through the police, courts, and corrections. The concentration further introduces students to the body of theory and research necessary to examine the effects and effectiveness of the criminal justice process. *This concentration is closed to students enrolled in the criminal justice degree program.*

Required Course:

0501-400	Criminology

Electives—Choose two of the following:

0501-405	Major Issues in the Criminal Justice System
0501-406	Technology in Criminal Justice
0501-415	Domestic Violence
0501-440	Juvenile Justice
0501-441	Corrections
0501-443	Law and Society
0501-444	Concepts in Criminal Law
0501-445	Minority Groups and the Criminal Justice System
0501-446	Women and Crime
0501-456	Courts
0501-507	Computer Crime
0501-511	Alternatives to Incarceration
0501-517	Comparative Criminal Justice Systems
0501-518	Crime and Justice in the Community
0501-522	Victimless Crime
0501-523	Crime and Violence

Deaf Studies

Concentration Adviser: J. Matt Searls

This concentration provides students who are fluent in American Sign Language (ASL) with the opportunity to study deaf culture from various perspectives.

Prerequisite: Proficiency in ASL is required for American Sign Language Literature (0525-595, 0504/0525-400) and Structure of American Sign Language (0525-496). Therefore, only students with ASL proficiency (not beginning or intermediate level skills) will be able to declare this concentration. Evening students may not declare this concentration.

Electives—Select three courses from the following groups:

Choose one of the following linguistics courses:

0525-391 American Sign Language II
0504/0525-595 American Sign Language Literature
0525-596 Special Topics: DST

Choose two of the following culture courses:

0504-545 Deaf American Literature
0507-463 American Deaf History
0507-473 European Deaf History
0515-452 Special Topics: Diversity in the Deaf Community
0515-529 Deaf Culture in America

Economics

Concentration Advisers: Michael Vernarelli, Jeffrey Wagner

Economics is the study of human behavior in the allocation of scarce resources to production and the distribution of production among the members of society. The study of economics has taken on increasing importance as we realize that so many of the world's problems, including energy, overpopulation, and global pollution, have an economic basis. The purpose of the economics concentration is to apply tools of economic analysis to a variety of study areas. *Note: The economics concentration is closed to students enrolled in the economics degree program.*

Prerequisite:

0511-211 Principles of Microeconomics

Electives—Choose three of the following:

0511-402 Principles of Macro Economics**
0511-440 Urban Economics
0511-441 Economics of Human Resources
0511-442 Contemporary International Economic Problems
0511-443 Current American Macroeconomics Problems
0511-444 Public Finance
0511-445 Survey of Economic Thought
0511-448 Economics of Less Developed Countries
0511-449 Comparative Economic Systems
0511-450 Benefit-Cost Analysis
0511-452 Monetary Analysis and Policy
0511-453 Intermediate Microeconomic Theory
0511-454 International Trade and Finance
0511-455 Intermediate Macroeconomic Theory
0511-456 Industrial Organization
0511-457* Applied Econometrics
0511-458* Economic Forecasting
0511-459 Managerial Economics
0511-460* Mathematical Methods: Economics
0511-461 Seminar in Applied Economics
0511-464 Game Theory with Economic Applications
0511-466 Health Care Economics
0511-480 Economic Role of Women
0511-481 Environmental Economics
0511-484 Natural Resource Economics
0511-571 Honors Seminar in Economics

** Introductory calculus and statistics are additional prerequisites for these courses.*
*** It is recommended that students take Principles of Macroeconomics (0511-402) as their first course before beginning the concentration.*

Environmental Studies

Concentration Adviser: Richard Shearman

The environmental studies concentration is an examination of the basic environmental problems we face, how environmental resource depletion and energy issues are related, and what kind of environmental ethics and/or values we have today and have had in the past. The concentration will also explore the economic, legislative, and regulatory framework within which most environmental decisions are made. Since most technological areas are associated with significant environmental implications associated with them, it is essential that students have an understanding of, and a well-thought-out value orientation about, such environmental consequences.

Electives—Choose three of the following:

0507-464 Environmental Disasters in American History
0508-443 Face of the Land
0508-460 Environment and Society
0508-463 Great Lakes I
0508-464 Great Lakes II
0508-482 Energy and the Environment
0508-483 Environmental Values
0508-484 Environmental Policy
0508-487† Special Topics: Environmental Studies
0508-488 History of Ecology and Environmentalism
0508-489 History of the Environmental Sciences
0508-490 Biodiversity and Society
0508-491 Sustainable Communities
0508-500 Science, Technology, and Society Classics
0508-520* Historical Perspectives on Science and Technology Seminar
0508-530§§ Seminar in Science, Technology, and the Environment

0508-540** Science and Technology Policy Seminar
0508-570§ Environmental Studies Seminar
0511-481*** Environmental Economics
0521-451 Energy Policy

†Topics will vary.
**Prerequisite: any two of the history of science or technology courses approved by the department*
***Prerequisite courses: Science and Technology Policy (0508-441), Environmental Policy (0508-484), or Foundations of Public Policy (0521-400)*
****Prerequisite course: Principles of Microeconomics (0511-211)*
§Prerequisite: Two environmental studies electives
§§Prerequisite: Any two science, technology and society courses

Foreign Language/Culture

This concentration will introduce students to the language, customs, and cultural aspects (history, art, literature) of one particular country or area. Students will choose two consecutive language courses beyond the introductory prerequisite language course, as well as one related liberal arts culture course. The goal of this concentration is to raise students' awareness of the relationship between language and culture and the differences between their own language and culture and those of the country they choose to study.

It is important to note that two out of the three required courses must be taken at RIT. Only one course may be transferred in, if necessary.

Students may not skip or go back to the lower level in the language course sequence. Students with some proficiency in the intended concentration should contact the concentration adviser to take a placement test prior to registration for the first course of the sequence at RIT. These concentrations are closed to native speakers. Evening students may not declare these concentrations.

American Sign Language (ASL)*

Concentration Adviser: J. Matt Searls

Prerequisite:
0525-390 Beginning American Sign Language I

Required Courses:
0525-391 American Sign Language II
0525-392 American Sign Language III

Electives—Choose one of the following:
0504-545 Deaf American Literature
0507-463 American Deaf History
0507-473 European Deaf History
0515-529 Deaf Culture in America
0504/0525-595 American Sign Language Literature

**ASL courses taken through NTID cannot be applied toward this concentration.*

Arabic Language/Culture

Concentration Adviser: Diane Forbes

Prerequisite: Beginning Arabic I (0525-400) or equivalent.

Required Courses—Choose two of the following:
0525-401 Beginning Arabic II
0525-402 Beginning Arabic III
0525-403 Intermediate Arabic I
0525-404 Intermediate Arabic II
0525-405 Intermediate Arabic III
0525-406 Advanced Arabic I
0525-407 Advanced Arabic II
0525-408 Advanced Arabic III

Electives—Choose one of the following:
0505-487 Special Topics: Art of Islam: Persian/Turkish/Mughal Traditions
0505-487 Special Topics: Art of Islam: Arabic Tradition
0510-484 Islamic Culture/Middle East

Chinese Language/Culture

Concentration Adviser: Hiroko Yamashita

Prerequisite: Beginning Chinese I (0525-420) or equivalent

Required courses—Choose two of the following:
0525-421 Beginning Chinese II
0525-422 Beginning Chinese III
0525-423 Intermediate Chinese I
0525-424 Intermediate Chinese II
0525-425 Intermediate Chinese III
0525-426 Advanced Chinese I
0525-427 Advanced Chinese II
0525-428 Advanced Chinese III

Electives—Choose one of the following:
0504-447 Special Topics: Chinese
0505-469 Art of China, Korea, and Japan
0507-485 Foundations of Asian Civilizations
0507-486 20th Century China and Japan
0507-487 Communist China
0513-441 Politics in China
0513-496 Government and Politics in East Asia

French Language/Culture

Concentration Adviser: Philippe Chavasse

Prerequisite: Beginning French I (0525-440) or equivalent

Required Courses—Choose two of the following:
0525-441 Beginning French II
0525-442 Beginning French III
0525-443 Intermediate French I
0525-444 Intermediate French II
0525-445 Intermediate French III

0525-446 Advanced French I
0525-447 Advanced French II
0525-448 Advanced French III
0525-459 Special Topics: Modern French Society

Electives—Choose one from the following:
0525-458 French Films and Hollywood
0504-487 Literature of French Black Africa and the Caribbean
0504-499 The View from Paris
0510-457 Divided Europe
0535-520 Intercultural Communication

German Language/Culture

Concentration Adviser: Wilma Wierenga

Prerequisite: Beginning German I (0525-460) or equivalent

Required Courses—Choose two of the following:
0525-461 Beginning German II
0525-462 Beginning German III
0525-463 Intermediate German I
0525-464 Intermediate German II
0525-465 Intermediate German III
0525-466 Advanced German I
0525-467 Advanced German II
0525-468 Advanced German III

Electives—Choose one from the following:
0525-477* Contemporary German Culture
0505-459 Era of Haydn and Mozart
0505-465 Special Topics: Mozart's Operas
0505-482 Beethoven
0505-483 Bach and the Baroque
0505-484 Romanticism in Music
0505-486 German Theater and Drama
0507-488 Modern Germany

**Course is offered alternating summers in Germany*

Italian Language/Culture

Concentration Adviser: Elisabetta D'Amanda

Prerequisite: Beginning Italian I (0525-500) or equivalent

Required Courses—Choose two of the following:
0525-501 Beginning Italian II
0525-502 Beginning Italian III
0525-503 Intermediate Italian I
0525-504 Intermediate Italian II
0525-505 Intermediate Italian III
0525-506 Advanced Italian I
0525-507 Advanced Italian II
0525-508 Advanced Italian III

Electives—Choose one from the following:
0525-519* Contemporary Italian Culture
0504-435** Special Topics: Italian Literature
0504-435** Special Topics: Survey of Italian Literature

**Course is offered each summer in Italy*
***Offered every other year*

Japanese Language/Culture

Concentration Adviser: Yukiko Maru Leary

Prerequisite: Beginning Japanese I (0525-480) or equivalent

Required Courses—Choose two of the following:
0525-481 Beginning Japanese II
0525-482 Beginning Japanese III
0525-483 Intermediate Japanese I
0525-484 Intermediate Japanese II
0525-485 Intermediate Japanese III
0525-486 Advanced Japanese I
0525-487 Advanced Japanese II
0525-488 Advanced Japanese III

Electives—Choose one of the following:
0525-496 Structure of Japanese Language
0525-497 Languages in Japanese Society
0505-469 Art of China, Korea, and Japan
0507-468 The U.S. and Japan
0507-485 Foundations of Asian Civilizations
0507-486 20th Century China and Japan
0507-489 Japan in the Modern World
0513-496 Government and Politics in East Asia

Russian Language/Culture

Concentration Adviser: Diane Forbes

Prerequisite: Beginning Russian I (0525-540) or equivalent.

Required Courses—Choose two of the following:
0525-541 Beginning Russian II
0525-542 Beginning Russian III
0525-543 Intermediate Russian I
0525-544 Intermediate Russian II
0525-545 Intermediate Russian III
0525-546 Advanced Russian I
0525-547 Advanced Russian II
0525-548 Advanced Russian III

Electives—Choose one of the following:
0504-445 Great Authors: Tolstoy
0504-445 Great Authors: Dostoyevsky
0504-485 Global Literature: Russian Literature
0505-435 Russian Art, 10th through 20th Century
0505-452 Special Topics: Russian Art I
0505-452 Special Topics: Russian Art II

0507-448 History of Russia to 1917
0507-449 History of Russia Since 1917
0507-450 Stalin, Mussolini, and Hitler
0513-443 Politics of Russia
0513-444 The Cold War and Beyond

Spanish Language/Culture

Concentration Adviser: Diane Forbes

Prerequisite: Beginning Spanish I (0525-560) or equivalent.

Required Courses—Choose two of the following:
0525-561 Beginning Spanish II
0525-562 Beginning Spanish III
0525-563 Intermediate Spanish I
0525-564 Intermediate Spanish II
0525-565 Intermediate Spanish III
0525-566 Advanced Spanish I
0525-567 Advanced Spanish II
0525-568 Advanced Spanish III

Electives—Choose one of the following:**
0525-578 Women in the Hispanic World: Politics of Identity Formation
0525-579* Special Topics
0504-435 Global Literature: Latin American Literature
0504-447 Special Topics: Magical Realism
0504-479 The Latino Experience in Literature
0510-442 Cultures and Politics in Latin America
0510-444 Global Economy and the Grassroots

**Special Topics (0525-579) may include the following topics: The Caribbean and Globalization, Trauma and Survival in First-Person Narrative, and Cuban Film: Cultural and National Identity.*
***With department approval: CIAS Art History: Latin American Art History I & II plus one additional credit per course*

Global Justice and Peace Studies

Concentration Adviser: Lawrence Torcello

The global justice and peace studies concentration examines attempts to effect lasting accord and social justice on the international scale. Courses in philosophy, social sciences, and literature help students to understand concepts of human rights, world poverty, and global solidarity. The goal of the concentration is to elucidate the link between concepts of peace and justice while assessing non-violent means of conflict resolution. *Note: Evening students may not declare this concentration.*

Electives—Choose three of the following:
0504-319 Arts of Expression: To Make Peace
0509-445 Social and Political Philosophy
0509-446 Philosophy of Law
0509-447 Contemporary Moral Issues
0509-448 The Philosophy of Peace
0509-476 Ethical Theory
0510-459 Cultural Images, War, and Terror
0513-453 American Foreign Policy
0513-488 War and the State
0513-491 Politics of the Middle East

**With approval from the global justice and peace studies adviser, certain Special Topics or Great Thinkers courses may also satisfy the requirements for this concentration.*

Global Studies

Concentration Adviser: Edward Kannyo

The interdisciplinary concentration in global studies offers courses in the areas of economics, history, and political science. While some courses focus on the comparative economic and political systems of the world, others emphasize the development of modern states through studying their social, intellectual, and institutional systems. Finally, other courses examine relations among the states of the world. The purpose of this concentration is to provide students with an opportunity to develop a global perspective to examine the economic, political, historical, and diplomatic aspects of the contemporary world. The concentration further introduces students to the tools to analyze the component parts of the global system, namely the individual countries of which it is comprised. *Note: Evening students may not declare this concentration.*

Electives—Choose three of the following:
0507-441 Modern U.S. Foreign Relations
0507-446 Europe since 1945 and the European Union
0507-496 African History
0511-448* Economics of Lesser-Developed Countries
0513-453** American Foreign Policy
0513-461 Comparative Politics

**Prerequisite: 0511-211 Principles of Microeconomics*
***Prerequisite: 0513-211 or 0513-214*

History

Concentration Adviser: Rebecca Edwards

This concentration offers courses in three major geographic areas: Europe, America, and the Third World. While some courses focus on the internal development of a people through studying their social, intellectual, and institutional growth, others examine international affairs as reflected in the diplomatic relations between countries. Depending on which three courses are selected, the student may aim to achieve a breadth of understanding of various geographic regions and historical approaches or to acquire depth in a more restricted field of study.
Electives—Choose three of the following:
0507-401 American Women: Colonies to 1848
0507-402 American Women: 1848 to NOW
0507-410 Terrorism, Intelligence, and War
0507-411 Origins of U.S. Foreign Relations
0507-412 Modern Japan in History, Fiction, and Film
0507-440 U.S. Social and Intellectual History
0507-441 Modern U.S. Foreign Relations

0507-442 Contemporary Middle East
0507-443 European Social and Intellectual History Since 1600
0507-444 Strategy and Diplomacy of Europe
0507-445 Modern Latin American History
0507-446 Europe Since 1945 and the European Union
0507-447 U.S. History Since 1945
0507-448 History of Russia to 1917
0507-449 History of Russia Since 1917
0507-450 Stalin, Mussolini, Hitler
0507-451 History of Rochester
0507-462 The Civil War and Reconstruction
0507-463 American Deaf History
0507-464 Environmental Disasters in American History
0507-465 Survey of African-American History
0507-466 American Slavery, American Freedom
0507-467 American Disability History
0507-468 The United States and Japan
0507-469 Special Topics: History
0507-473 European Deaf History
0507-474 America's National Parks
0507-475 Hands on History
0507-485 Foundations of Asian Civilizations
0507-486 20th Century China and Japan
0507-487 Communist China
0507-488 Modern Germany
0507-489 Japan in the Modern World
0507-490 History of Mexico
0507-496 African History
0507-497 Biography As History

International Relations

Concentration Advisers: Edward Kannyo and Dongryul Kim

The international relations concentration introduces students to the complexities and shifting trends of international affairs, with an opportunity to study the significance of at least one aspect of the international system. We live in an increasingly interdependent world. Many career tracks will carry RIT graduates into the multicultural arena of international transactions, which know no borders. Many emerging problems require international approaches if they are to be managed in the future. This concentration offers the prospect of serving their future needs.

Electives—Choose three of the following:
0507-442 Contemporary Middle East
0507-444 Strategy and Diplomacy of Europe
0507-488 Modern Germany
0513-425 Politics and the Life Sciences
0513-426 Cyberpolitics
0513-427 Evolutionary International Relations
0513-428 Evolution and the Law
0513-429 Primate Politics
0513-441 Politics in China
0513-443 Politics of Russia
0513-446 Politics in Developing Countries
0513-447 Human Rights/Global Perspectives
0513-449 Special Topics in Political Science
0513-453 American Foreign Policy
0513-461 Comparative Politics
0513-467 Modern Korea
0513-484 Government and Politics of Africa
0513-486 Comparative Politics in Latin America
0513-487 International Law and Organization
0513-488 War and the State
0513-489 Terrorism and Political Violence
0513-490 International Political Economy
0513-491 Politics of the Middle East
0513-492 Religion and International Politics
0513-493 Global Politics and the Environment
0513-494 Comparative Public Policy
0513-496 Government and Politics in East Asia

Latino/Latina/Latin American Studies

Concentration Adviser: Diane Forbes

The Latino/Latina/Latin American studies concentration enables students to explore the rich social, historical, and cultural heritage in the western hemisphere that emanates from the Caribbean and Central and South America and manifests itself in the history, sociology, anthropology, politics, languages, and literatures of the Latin American countries and the Latino/Latina populations in the United States. While knowledge of Spanish will significantly deepen the student's cultural understanding, language courses are an option rather than a required component of the concentration. Students may opt to complete the concentration with two elective courses and one language course or three elective courses. *Note: Evening students may not declare this concentration.*

Electives—Choose up to three of the following:
0504-435 Global Literature: Latin American Literature
0504-447 Special Topics: Magical Realism
0504-479 Latino Experience in Literature
0510-442 Cultures and Politics in Latin America
0510-444 Global Economy and the Grassroots
0525-573 Women in the Hispanic World: Politics of Identity Formation
0525-579* Special Topics

**Special Topics (0525-579) may include the following: The Caribbean and Globalization, Trauma and Survival in First Person Narrative, and Cuban Film: Cultural and National Identity.*
***With department approval: CIAS Art History: Latin American Art History I & II plus one additional credit per course*

One of the following Spanish or Portuguese language courses may be used for this concentration. The student should consult with the concentration adviser for placement at the proper level.
0525-521 Beginning Portuguese II
0525-522 Beginning Portuguese III
0525-523 Intermediate Portuguese I
0525-524 Intermediate Portuguese II
0525-525 Intermediate Portuguese III
0525-526 Advanced Portuguese I
0525-527 Advanced Portuguese II
0525-528 Advanced Portuguese III

0525-561 Beginning Spanish II
0525-562 Beginning Spanish III
0525-563 Intermediate Spanish I
0525-564 Intermediate Spanish II
0525-565 Intermediate Spanish III
0525-566 Advanced Spanish I
0525-567 Advanced Spanish II
0525-568 Advanced Spanish III

Literary and Cultural Studies

Concentration Adviser: Elena Sommers

A concentration in literary and cultural studies offers a variety of approaches to the study of literary and non-literary texts, including but not limited to imaginative fiction, non-fiction, poetry, visual culture, and new media. Those who choose this concentration will have the opportunity to engage such texts through both traditional and contemporary approaches. Students will develop their critical and analytical abilities as they become versed in the formal, contextual, and historical aspects of specific texts. All of the courses offered by the department of English are writing intensive and offer opportunities for sustained writing and communication practice.

Prerequisite:
0502-227 Writing (or equivalent)

Electives—Choose three of the following:
0502-463 Language and Brain
0504/0525-400 American Sign Language Literature
0504-425 Great Authors
0504-435 Global Literature
0504-436 The Graphic Novel
0504-440 Drama and Theater
0504-441 The Art of Poetry
0504-442 The Short Story
0504-443 The Novel
0504-444 Film as Literature
0504-447 Special Topics
0504-448 Biographical Literature
0504-454 Shakespeare: Tragedy/Romance
0504-455 Shakespeare: Comedies & Histories
0504-460 Modern Poetry
0504-462 Literature and Technology
0504-464 Mythology and Folklore
0504-465 Viking Myth and Saga
0504-467 African American Literature
0504-469 American Literature
0504-474 Studies in British Literature
0504-476 Immigrant Voices in American Literature
0504-479 Latino Experience in Literature
0504-480 Women's Studies in Language and Literature
0504-545 Deaf American Literature

Material Cultural Studies

Concentration Adviser: William Middleton

A concentration in material cultural studies allows students to study the resources and technologies that convert natural and man-made materials into cultural objects. Archaeological and art conservation science integrate chemistry, engineering, art, and anthropology in order to investigate methods and materials from the past. This concentration includes courses from a broad range of topics with laboratory components such as archeological science, forensic investigation of art, ancient metallurgy, art conservation, and the technology of organic and inorganic materials.

Electives—Choose three from the following:
0533-437 The Forensic Investigation of Art
0533-438 Introduction to Art Conservation
0531-441 GIS Applications
0531-444 Survey of Metallurgy
0531-445 Field Methods in Archaeology
0531-446 Native North Americans
0531-507 Archaeological Science
0531-508 Archaeology of Cities

Minority Relations in the United States

Concentration Adviser: Kijana Crawford

A concentration in minority relations in the United States offers the student a variety of academic perspectives on how groups of persons sharing similar characteristics (whether cultural, inherited, or learned) interact with groups sharing different characteristics. The focus of this concentration will be upon racial and ethnic minorities in the U.S. Courses will examine the issues of differential power between groups and analyze the social structures that are used to maintain or alter these power differences. Studies in this concentration will also look at the interpersonal level of response of both majority and minority group members. Finally the concentration courses will investigate the experience of minority groups in the U.S. *Note: Evening students may not declare this concentration.*

Required Course:
0515-448 Minority Group Relations

Electives—Choose two of the following:
0504-447 Special Topics: Multicultural Literature
0507-496 African History
0515-482 African-American Culture
0515-483 Hispanic-American Culture
0535-484 Rhetoric of Race Relations

**Prerequisite: Writing (0502-227)*

Music

Concentration Adviser: Carl Atkins

A concentration in music offers the student a broad range of courses in the history, theory, and practice of music. Students with a background in music and/or a genuine desire to know more about the subject will have the opportunity to expand their knowledge of various theoretical and historical aspects as well as participate in performing groups at RIT. *Note: Evening students may not declare this concentration.*

Electives—Choose three of the following:

0505-401*	RIT Singers
0505-402*	RIT Orchestra
0505-403*	RIT Concert Band
0504-404*	RIT World Music Ensemble
0504-405*	RIT Jazz Ensemble
0505-420*	Applied Music
0505-442	Music in the United States
0505-447	The American Musical Theater
0505-448	20th Century American Music
0505-449**	Music Theory I
0505-450	Music and the Stage
0505-454	Orchestra Repertoire and History
0505-455	Survey of Jazz
0505-456	Topics in Music History
0505-459	Era of Haydn and Mozart
0505-461	World Music I
0505-462	World Music II
0505-463	Survey of African-American Music
0505-464	Blues as Personal and Social Commentary
0505-465	Special Topics in Music
0505-470	American Popular Song 1830-1950
0505-471	American Popular and Rock Music
0505-482	Beethoven
0505-483	Bach and the Baroque
0505-484	Romanticism in Music
0505-485***	Music Theory II

**Each of these ensemble and applied music courses is one quarter credit hour. Four quarters of participation are required to complete one concentration course.*
***Prerequisite: Elementary Music Skills*
****Prerequisite: Music Theory I (0505-449)*

Native American Science and Technology

Concentration Adviser: William Middleton

The Native American science and technology concentration features course work that enhances students' understanding of the unique heritages of Native North Americans and their relationships with other peoples in the United States and Canada. Courses emphasize traditional ways of learning, modern and ancient technologies used by contemporary tribes, histories of relations, and Native American and First Nations science.

Electives—Choose three of the following:

0510-442	Cultures in Latin America
0531-441	GIS Applications
0531-442	Economy of Native America
0531-443	Native American Repatriation
0531-445	Field Methods in Archaeology
0531-446	Native North Americans
0531-448	Native Americans in Film
0531-449	Archaeological Science
0531-450	Cultural Resource Management and Historic Preservation
0531-502	Introduction to Archaeology
0531-599	Independent Study: Field Experience with a Native American Tribe

Philosophy

Concentration Adviser: Jack Sanders

The philosophy concentration provides students with an opportunity to study the nature, methods, problems, and achievements of philosophical inquiry. The concentration emphasizes the following goals: the ability to think rationally and critically, an awareness of ethical values, an appreciation of aesthetic values, an awareness of how the past affects the present and future, and an understanding of the relationship between the individual and the social settings with which he or she interacts. *This concentration is closed to students enrolled in the philosophy degree program*

Electives—Choose three of the following:

0509-440	Philosophy of Religion
0509-441	Logic
0509-442*	Philosophy of Art/Aesthetics
0509-443**	Philosophy of Science
0509-444***	The Great Thinkers
0509-445§	Social and Political Philosophy
0509-446	Philosophy of Law
0509-447	Contemporary Moral Problems
0509-448	Philosophy of Peace
0509-449***	Special Topics
0509-450†***	Seminar in Philosophy
0509-451	Professional Ethics
0509-452	Philosophy of Technology
0509-453	Environmental Philosophy
0509-454*	Feminist Theory
0509-455	Theories of Knowledge
0509-456	Ancient Philosophy
0509-457	Modern Philosophy
0509-458	Philosophy of Mind
0509-459‡	Philosophy of the Social Sciences
0509-460	East Asian Philosophy
0509-461	American Philosophy
0509-462	Contemporary Philosophy
0509-464	Philosophy of Action
0509-465*	Critical Theory
0509-466	Existentialism
0509-467	Medieval Philosophy
0509-468*	Metaphysics
0509-469*	19th Century Philosophy
0509-470*	Philosophy and Literary Theory
0509-471*	Philosophy of Film
0509-472	Minds and Machines

0509-473 Technology and Embodiment
0509-474* Philosophy of Language
0509-475* Philosophy of Vision/Imaging
0509-476 Ethical Theory
0509-571 Honors Philosophy

**Prerequisite: One previous philosophy course or permission of the instructor is strongly encouraged.*
***Prerequisite: One philosophy course*
***Prerequisite: At least one prior course in either philosophy or one of the natural sciences (physics, chemistry, or biology)*
****Topics will vary.*
§Prerequisite: At least one prior course in philosophy, political science, or sociology
†Prerequisite: Two prior courses in philosophy or permission of the instructor
‡Prerequisite: At least one prior course in either philosophy or one of the social sciences (psychology, economics, political science, sociology, or anthropology)

Psychology

Concentration Advisers: Andrew Herbert, Kirsten Condry

This concentration provides the opportunity for advanced study in various areas of psychology. The courses will enable students to learn more about their own and others' functioning. Students will become well-informed consumers of psychological information and will also learn to apply psychological principles in their own lives. *Note: This concentration is closed to students enrolled in the psychology program.*

Prerequisite:
0514-210 Introduction to Psychology or equivalent

Electives—Choose three of the following:
0502-463 Language and Brain
0514-440 Childhood and Adolescence
0514-441 Humanistic Psychology
0514-442 Adulthood and Aging
0514-443 Cognitive Psychology
0514-444 Social Psychology
0514-445 Psychology of Perception
0514-446 Psychology of Personality
0514-447 Abnormal Psychology
0514-448 Industrial and Organizational Psychology
0514-449 Behavior Modification
0514-451 Psychology of Motivation
0514-453 Death and Dying
0514-483 Social Psychology of Religion
0514-544 History and Systems

Public Policy

Concentration Adviser: Richard Shearman

The purpose of this concentration is to provide students with a clear understanding of public policy, the policy process, and policy analysis. Students will have the opportunity to develop perspectives on a variety of contemporary public policy issues, especially those that emerge from scientific and technological advancements. At the heart of the concentration is the Foundations of Public Policy (0521-400) course, where students are introduced to the concept of public policy and the policy-making process. The roles of stakeholders and interest groups are discussed in the context of contemporary cases in various policy arenas. Students are also introduced to some of the methodologies associated with policy analysis. Additional courses are offered from the areas of sociology; political science; and science, technology, and society. Policy Analysis I and II (0521-402, 403) are offered especially for students who are considering the MS in public policy or who have an interest in analytical tools.

Required course:
0521-400 Foundations of Public Policy

Electives—Choose two of the following:
0508-441 Science and Technology Policy
0508-484 Environmental Policy
0508-530* Seminar in Science, Technology, and the Environment
0508-540* Science and Technology Policy Seminar
0513-455* Politics and Public Policy
0515-413 Urban Planning and Policy
0515-451* Transfer Technology and Globalization
0521-401* Values and Public Policy
0521-402* Policy Analysis I
0521-403* Policy Analysis II
0521-404* Policy Analysis III
0521-406* Introduction to Qualitative Analysis
0521-408* Technological Innovation and Public Policy
0521-410* Information and Communications Policy
0521-449** Special Topics in Public Policy
0521-451 Energy Policy

** These courses have prerequisites or co-requisites.*
*** Topics will vary.*

Religious Studies

Concentration Adviser: Brian Schroeder

Religion plays a major role in human affairs. To understand the nature of society and the individual, it is essential to have some understanding of religion. The religious studies concentration gives students the opportunity to engage in the study of religion from the perspective of major Western and non-Western traditions through courses in such disciplines as anthropology, history, literature, philosophy, political science, the fine arts, and sociology. (With approval from the religious studies adviser, certain Special Topics or Great Thinkers courses may also satisfy the requirements for the concentration.)

Electives—Choose three of the following:
0504-464 Mythology and Folklore
0504-467 African American Literature
0504-484* Literature and Religion
0505-468 Art of India and Southeast Asia
0505-469 Art of China, Korea, and Japan
0505-487 Art of Islam
0507-483 History of Christianity
0509-440 Philosophy of Religion
0509-460 East Asian Philosophy

0509-466** Existentialism
0509-467 Medieval Philosophy
0509-468** Metaphysics
0509-469** 19th Century Philosophy
0510-446 Native North Americans
0510-483 Anthropology of Religion
0510-484 Islamic Culture and the Middle East
0513-492 Religion and International Politics
0514-483 Social Psychology of Religion

**Prerequisite: Writing (0502-227)*
***Student must obtain the approval of the religious studies concentration adviser*

Science and Technology Studies

Concentration Adviser: Richard Shearman

The science and technology studies concentration will examine some major impacts of science and technology in the contemporary world. Special reference will be given to American concerns. Students will gain an overall appreciation of the social nature of science and technology as they have developed in the past, as they exist today, and as they may affect society in the future under various scenarios. The rationale for the concentration is based on the accelerating importance these historically dissimilar, but closely intertwined, fields have on everyday life. In addition, science and technology have become social systems in their own right and have made possible increasing freedom, a fantastic variety of choice, and, paradoxically, the growing interdependence of all segments of world society. A new level of public awareness and concern is crucial to understanding and dealing successfully with these consequences.

Electives—Choose three of the following:
0504-462* Literature and Technology
0508-440 History of Science
0508-441 Science and Technology Policy
0508-442 History of American Technology
0508-443 Face of the Land
0508-444 Social Consequences of Technology
0508-445 Biomedical Issues: Science and Technology Studies
0508-446 Makers of Modern Science
0508-447** Special Topics: Science and Technology
0508-449 History of Women in Science and Engineering
0508-450 History of Chemistry
0508-451 Cyborg Theory: (Re)Thinking the Human Experience
0508-452 Gender, Science, and Technology
0508-500 Science, Technology, and Society Classics
0508-520*** Historical Perspectives on Science and Technology Seminar
0508-530*** Seminar in Science, Technology, and the Environment
0508-540 Science and Technology Policy Seminar
0509-443† Philosophy of Science
0515-451§ Transfer Technology and Globalization
0521-451 Energy Policy

**Prerequisite: Writing (0502-227) or an equivalent course*
***Topics will vary.*
****Prerequisites: Any two of the history of science or technology courses approved by the department*
†Prerequisite: At least one prior course in either philosophy or one of the natural sciences
§Prerequisite: Foundations of Sociology (0515-210) or equivalent

Sociology and Anthropology

Concentration Adviser: Paul Grebinger

This interdisciplinary concentration in sociology and anthropology emphasizes the interrelation between society and culture in different parts of the world: the United States, Europe, Asia, and Latin America. Students are free to explore how people create and experience their social world by selecting courses from a wide range of topics focused on issues such as cultural differences and ethnocentrism, families and kinship, ethnicity and racism, class and inequality, immigration, women, gender and sexuality, health and bodies, urban life and cities, film and mass media, religion, technology and work, globalization, and social and cultural change.

Prerequisite–Choose one of the following:
0515-210 Foundations of Sociology (or equivalent)
0510-210 Cultural Anthropology (or equivalent)

Electives—Choose three of the following:
0510-440 Cultures in Globalization
0510-442 Cultures and Politics in Latin America
0510-443 Immigration to the U.S.
0510-444 Global Economy and the Grassroots
0510-445 Global Cities
0510-446 Native North Americans
0510-447 Anthropology of Mass Media
0510-448 Native Americans in Film
0510-449 Sustainable Development
0510-450 Cultural Resource Management and Historic Preservation
0510-451 Global Sexualities
0510-452 Bodies and Culture
0510-454 Visual Anthropology
0510-457 Divided Europe
0510-459 Cultural Images of War and Terror
0510-460 Genocide and Post-Conflict Justice
0510-483 Anthropology of Religion
0510-484 Islamic Culture and the Middle East
0510-486 African Cultural Histories
0510-487 African Popular Cultures
0510-502 Archaeology and the Human Past
0510-506 Great Discoveries in Archaeology
0510-507 Archaeological Science
0510-508 The Archaeology of Cities
0515-406 Qualitative Methods
0515-413 Urban Planning and Policy
0515-441 The Changing Family

0515-442 Urban Experience
0515-443 Sociology of Work
0515-444 Social Change
0515-446 Sociology of Health
0515-447 Women, Work, and Culture
0515-448 Minority Group Relations
0515-449 Population and Society
0515-451 Transfer of Technology and Globalization
0515-453 Global Exiles of War and Terror
0515-482 African-American Culture
0515-483 Hispanic-American Culture
0515-485 Diversity in the City
0515-506 Social Inequality
0515-507 Complex Organizations
0515-509 Social Policy
0515-515 Social Policy and Aging
0515-524 Applied Sociology
0515-529 Deaf Culture in America
0515-569 Human Sexuality

Theater Arts

Concentration Adviser: Peter Ferran

The theater arts concentration offers students a focused study of the theatrical and dramatic arts, with courses in dramatic and theatrical literature, history, criticism, and theory. This concentration serves to offer students a more profound understanding of the theater arts and in a broader sense an introduction to cultural development and the communication of ideas.

Electives—Choose three of the following:
0505-450 Music and the Stage
0505-453 Theater in the United States
0505-457 Contemporary Drama, Theater, and Media
0505-458 Modern European Theater and Drama
0505-486 German Theater and Drama
0505-488 Special Topics: Theater Arts
0505-489 Theater Production Seminar and Workshop
0505-502 Shakespeare the Dramatist

Women's and Gender Studies

Concentration Adviser: Tina Lent

This concentration offers students academic perspectives on the role of women in modern western civilization. Courses examine the roles, values, and self-perceptions of women in a traditionally male-oriented society; develop a sophisticated, humanistic angle of vision from which to appreciate the many and varied accomplishments of women; and develop a mature sensitivity to the difficulties and frustrations encountered by women. Although the focus is on the experiences of women, the concentration is not a study in separatism. Rather, it offers the possibility for integrating a new, academically disciplined appreciation of women's issues into the student's comprehension of wider problems and issues of humanity. All courses emphasize critical reading, thinking, and analysis. All require at least one substantial written assignment. Students will be encouraged to relate the intellectual knowledge gained in each course to insights about their own experience and behavior.

Electives—Choose three of the following:
0522-400* Foundations of Gender Studies
0522-401* American Woman: Colonies to 1848
0522-402* American Woman: 1848 to Now
0522-405 Women and Science
0522-406* Feminist Theory
0522-407 Seminar on Sexual Violence
0522-410 Introduction to Gay, Lesbian, Bisexual, and Transgender Studies
0522-415 Domestic Violence
0522-436* Women's Stories, Women's Films
0522-439 Queer Looks I
0522-446* Women and Crime
0522-447* Women, Work, and Culture
0522-449 History of Women in Science and Engineering
0522-450* Gender, Science, and Technology
0522-451 Global Sexualities
0522-452 Bodies and Culture
0522-453 Economic Role of Women
0522-454 Hispanic Women in the World
0522-459* Toni Morrison
0522-460** Special Topics
0522-480* Women and the Visual Arts
0522-481* Women's Studies in Language and Literature
0522-482* Women in Politics
0522-483* Psychology of Women
0522-484 Auto/Biography
0525-543 Women in the Hispanic World: Politics of Identity Formation

**These courses may require prerequisites.*
*** Special Topics may include: Traumatic Images, Queer Looks II, Art of Dying, Contemporary Women's History, Prostitution and Vice, and Queering Gender.*

Writing Studies

Concentration Adviser: Richard Santana

With opportunities for advanced study in writing and linguistics, courses allow students to study language and develop strategies for effective writing across a variety of contexts. Writing processes and language awareness from academic to public forums receive close attention.

Prerequisite:
0502-227 Writing (or equivalent)

Electives—Choose three of the following:
0502-443 Written Argument
0502-444 Technical Writing
0502-445 The Evolving English Language
0502-449 Worlds of Writing 0502-455 Writing the Self and Others
0502-456 Rhetoric of Science
0502-457 Language, Variation, and Identity
0502-459 Creative Nonfiction
0502-460 Science Writing
0502-463 Language and Brain
0502-560 Special Topics in Writing

Minors

www.rit.edu/programs/ugrad /minors

Minors give students an opportunity to explore a secondary field of study. They can complement a student's major, allowing another area of professional expertise, or they can be used to enhance a personal interest. Minors require the completion of **five** upper-level courses (20 quarter credit hours). Following the list below are descriptions of each minor and requirements for completion.

Accounting
Advertising and Public Relations
American History
American Politics
Applied Communication
Applied Imaging Systems
Applied Informatics
Archaeological Science
Art History
Astronomy
Business Administration
Chemical Engineering Systems Analysis
Communication and Culture
Computer Engineering
Computer Science
Construction Management
Creative Writing
Criminal Justice
Database Design and Development
Deaf Cultural Studies
Digital Business
Economics
Electrical Engineering
Engineering Management
Entrepreneurship
Environmental Modeling
Environmental Science
Environmental Studies
European History
Exercise Science
Finance
Foreign Language: Arabic, Chinese, French, German, Italian, Japanese, Russian, Spanish
Foreign Language/Culture: Arabic, Chinese, German, Italian, Japanese, Russian, Spanish
Game Design
Game Design and Development
Historical Perspectives on Science and Technology
Human Resource Management
Imaging Science
Industrial Engineering
Industrial Environmental Management
International Business
International Relations
Journalism
Legal Studies
Literary and Cultural Studies
Management
Management Information Systems
Marketing
Mass Media Communication
Mathematics
Mechanical Engineering
Medical Informatics
Microelectronics and Nanofabrication
Military Studies and Leadership
Modern World History
Music Performance
Music and Technology
Networking and System Administration
Optical Sciences
Packaging Science
Philosophy
Physics
Political Science
Print Media
Psychology
Public Policy
Science, Technology, and Policy
Science, Technology, and Society
Science Writing
Service Management
Sociology and Anthropology
Software Engineering
Statistics
Structural Design
Sustainable Product Design
Telecommunications
Theater Arts
Urban and Community Studies
Water Resources
Web Design and Development
Web Development
Women's and Gender Studies
Writing Studies

Accounting

Minor Adviser: Jerry Curnutt

Students completing an accounting minor will broaden their learning experiences and professional opportunities by having more depth in operational accounting topics.

Required Courses:

0101-301 Financial Accounting
0101-302 Management Accounting

Electives—Choose three of the following courses: (at least two must be accounting electives)

0101-345 Accounting Information Systems
0101-408 Financial Reporting and Analysis I
0101-409 Financial Reporting and Analysis II
0101-522 Personal and Small Business Taxation
0101-523 Advanced Taxation
0101-554 Seminar in Accounting
0104-220 Personal Financial Management
0104-350 Corporate Finance
0110-319 Legal Environment of Business

Advertising and Public Relations

Minor Adviser: Grant Cos

The advertising and public relations minor provides a solid background in understanding the creation of persuasive messages in a variety of media. This minor is closed to students enrolled in the following BS programs: professional and technical communication, advertising and public relations, and journalism.

Required Courses—Choose two of the following:

0502-444 Technical Writing
0535-416 Newswriting
0535-446 Writing the Technical Manual
0535-480 Human Communication
0535-481 Persuasion
0535-482 Mass Communications
0535-483 Small Group Communication

Electives—Choose three of the following:

0535-421 Public Relations
0535-460 Copywriting and Visualization
0535-461 Principles of Advertising
0535-463 Campaign Management and Planning
0535-464 Public Relations Writing

American History

Minor Adviser: Rebecca Edwards

The American history minor emphasizes the social, cultural, and political history of the United States.

Required Courses—Choose five of the following:

0507-401 History of American Women: Colonies to 1848
0507-402 History of American Women: 1848 to Now
0507-410 Terrorism, Intelligence, and War
0507-411 Origins of U.S. Foreign Relations
0507-440 U.S. Social and Intellectual History
0507-441 Modern U.S. Foreign Relations
0507-447 U.S. Since 1945
0507-451 History of Rochester
0507-462 The Civil War and Reconstruction
0507-463 American Deaf History
0507-465 Survey of African-American History
0507-466 American Slavery, American Freedom
0507-467 American Disability History
0507-474 America's National Parks
0507-475 Hands-on History
0507-492 Selected Problems in Black History
0507-495 The Civil Rights Movement in 20th Century U.S. History
0507-497 Biography in/as History

American Politics

Minor Advisers: Joseph Fornieri, Sean Sutton

A minor in American politics informs students about the structure and function of public institutions and prepares them for effective participation in the American political arena.

Electives—Choose five of the following:

0508-484 Environmental Policy
0513-425 Politics and the Life Sciences
0513-426 Cyberpolitics
0513-427 Evolutionary International Relations
0513-428 Evolution and the Law
0513-429 Primate Politics
0513-449 Special Topics in Political Science
0513-450 State and Local Politics
0513-451 The Congress
0513-452 The American Presidency
0513-453 American Foreign Policy
0513-454 Political Parties and Voting
0513-455 Politics and Public Policy
0513-456 Judicial Process
0513-457 Constitutional Law
0513-458 American Political Thought
0513-460 Constitutional Rights and Liberties
0513-461 Comparative Politics
0513-462 Abraham Lincoln and American Democracy
0513-463 First Amendment, Liberty and Deliberative Democracy
0513-466 Political Leadership
0513-481 Women in Politics
0513-482 African-American Politics
0513-485 Politics through Fiction
0513-514 Political Theory

Applied Communication

Minor Adviser: Grant Cos

The applied communication minor offers a foundation in the communication skills and theories associated with professional and organizational contexts. This minor is closed to students enrolled in the following BS programs: professional and technical communication, advertising and public relations, and journalism.

Required Courses—Choose two of the following:

0502-444	Technical Writing
0535-416	Newswriting
0535-446	Writing the Technical Manual
0535-480	Human Communication
0535-481	Persuasion
0535-482	Mass Communications
0535-483	Small Group Communication

Electives—Choose three of the following:

0502-444	Technical Writing
0535-411	Health Communication
0535-415	Organizational Communication
0535-416	Newswriting
0535-421	Public Relations
0535-422	Ethics in Technical Communication
0535-426	Archival Research
0535-483	Small Group Communication
0535-501	Public Speaking
0535-502	Speech Writing
0535-532	Professional Writing

Applied Imaging Systems

Adviser: Nitin Sampat

The minor in applied imaging systems further develops experiences in the business and technology of photographic imaging, primarily as it relates to image output and lab operations. The courses in this minor include investigations of various components found in imaging, the technologies that are used and the practices found in imaging systems that range from the capture of images up through and not limited in output. The topics include but are not limited to digital capture systems and professional practices, output technologies, color management, and imaging workflows.

Required Courses:

2076-411	Imaging Systems
2076-412	Color Management for Photographers
2076-413	Imaging Workflows

Electives—Choose at least two of the following:

2061-361	Web Design Using Photography
2076-491	Digital Imaging Processing
2082-317	Website Design for Graphic Media
2082-337	Digital Asset Management
2082-401	Digital Print Processes
2083-368	Image Retouching and Restoration

**Equivalent courses may be substituted in lieu of these courses with the permission of the minor adviser.*

Applied Informatics

Minor Adviser: Stephen Zilora

The minor in applied informatics provides students with the skills needed to extract data from its source; shape, transform, and analyze the data; and present the results in an effective way. Many professional fields are becoming information intensive. As a result, informatics skills are an essential tool. The minor provides basic skills in programming, data access and modeling, HCI, and problem solving.

Prerequisites: None

Required Courses:

4002-250	Introduction to Informatics
4002-217	Programming for Information Technology I
4002-218	Programming for Information Technology II
4002-360	Introduction to Database and Data Modeling

Electives–Choose one of the following:

4002-425	HCI 1: Human Factors
4002-455	Needs Assessment

Archaeological Science

Minor Adviser: William Middleton

Archaeological science is the application of techniques from the physical sciences to research problems in archaeology and related disciplines. Over the past six decades archaeological science has provided powerful tools for understanding the past, ranging from absolute dating to bone chemistry. It has become an established sub-field within the discipline of archaeology, which itself has grown during the same period from a discipline largely focused on cultural history (the use of artifacts to reconstruct regional cultural sequences) and the validation of documentary history to the explanation of the processes of cultural change in the past.

Required Course:

0531-507	Archaeological Science

Electives— Choose two courses from each group:

Disciplinary Courses:

0531-449	Field Methods in Archaeology
0531-502	Archaeology and the Human Past
0531-506	Great Discoveries in Archaeology
0531-508	Archaeology of Cities

Applied/Laboratory Courses:

0505-422	Art Materials: Panel Printing
0505-423	Art Materials: Photography
0531-422	Technology of Organic Materials
0531-423	Technology of Inorganic Materials
0531-437	Forensic Investigation of Art and Research Methods
0531-441	GIS Applications
0531-443	Native American Repatriation
0531-444	Survey of Metallurgy
0531-450	Cultural Resource Management and Historic Preservation
0531-509	Garbage Archaeology
0531-510	Exploring Ancient Technology

Art History

Minor Adviser: Tina Lent

The art history minor combines courses from the College of Liberal Arts and the College of Imaging Arts and Sciences. It provides studio art majors with the opportunity to enhance their knowledge of art history as they refine their own work and prepares them for possible careers in academia, galleries, and museums.

Requirements:
The art history minor is an option available only to students enrolled in BFA programs in the College of Imaging Arts and Sciences. Three courses from each college are required.

Prerequisites:

2039-225	Art and Civilization I
2039-226	Art and Civilization II
2039-227	Art and Civilization III

College of Liberal Arts
Electives—Choose three of the following:

0505-421	Introduction to Museums and Collecting
0505-422	Art Materials: Panel Printing
0505-423	Art Materials: Photography
0505-424	Legal and Ethical Issues for Collecting Institutions
0505-425	Display and Exhibit Design
0505-436	Women's Stories and Films
0505-437	Forensic Investigation of Art
0505-438	Conservation of Cultural Materials
0505-443	Images of American Life
0505-444	American Painting
0505-445	Issues in American Art
0505-446	American Film of the Studio Era
0505-452	Special Topics*
0505-467	American Film Since the 1960s
0505-468	Art of India and Southeast Asia
0505-469	Art of China, Korea, and Japan
0505-480	Women and the Visual Arts
0505-487	Special Topics: Art of Islam
0505-500	African-American Art
0505-504	Memory/Memorial/Monuments
0505-505	Art in the Age of the New Deal
0505-506	Museums of Art and Design
0505-507	Landscape Transformed

**Special Topics (0505-452) may include any of the following: American Architecture, Queer Looks I, Queer Looks II, Harlem Renaissance, Visual Culture, Reading Images, Traumatic Images, or Art of Dying.*
**Special Topics (0505-487) may include the following: Persian/Turkish/Mughal Traditions or Art of Islam: Arabic Tradition.*

College of Imaging Arts and Science
Electives—Choose three of the following:

2039-300	History of Design
2039-306	Architecture, Interiors, and Furniture History I
2039-307	Architecture, Interiors, and Furniture History II
2039-308	Architecture, Interiors, and Furniture History III
2039-310	History of Crafts
2039-315	Pre-Columbian Art
2039-330	Philosophy of Art
2039-335	15th Century Art and Architecture in Florence and Rome
2039-340	Symbols and Symbol Making
2039-345	16th Century Art and Architecture in Florence and Rome
2039-355	Latin American Art
2039-360	18th and 19th Century Art
2039-365	20th Century Art (1900-1950)
2039-368	Scandinavian Modernism
2039-375	20th Century Art Since 1950
2039-376	Renaissance Painting/Flanders
2039-385	Installation Art
2039-390	Native American Art and Culture
2039-395	Theory and Criticism of 20th Century Art
2039-410	The Art of Art History
2039-415	Thinking About Making Art
2039-425	Public Art/Public Space
2039-430	Dada and Surrealism
2039-433	What Is Postmodernism?
2039-435	Art of the Last Decade
2039-438	Body in Art
2039-440	Conceptual Art
2039-450	Pop Art and Pop Culture
2039-452	Art and Activism
2039-459	Art of Central Italy 1250-1400
2039-469	Baroque Rome
2039-553	Special Topics

**Special Topics (2039-553) may include any of the following: Gothic Art in Europe, Russian Art, Arts and Crafts Movement, Castles and Cathedrals, Global Visual Culture, Streamlining America, The Gothic Revival, Displaying Gender, The Russian Avant Garde 1850-1960, or Passion for Porcelain.*

Astronomy

Minor Adviser: Andrew Robinson

Astronomy is an interdisciplinary minor offered jointly by the department of physics in the College of Science and the Chester F. Carlson Center for Imaging Science. Students will have the opportunity for additional study in astronomy in order to build a secondary area of expertise in support of their program or other areas of interest.

Prerequisites:

1017-311	University Physics I
1017-312	University Physics II
1017-313	University Physics III
1017-314	Modern Physics I

Required Course:

1017-301	University Astronomy*

Electives—Choose four of the following courses (at least one must come from Group A and at least one from Group B)

Group A

1017-440	Stellar Astrophysics

1017-442 Galactic Astrophysics
1017-443 Extragalactic Astrophysics

Group B
1017-445 Observational Astronomy
1051-446 Multi-wavelength Astronomical Imaging
1051-528 Design and Fabrication of an Experimental Solid State Camera

Remaining Electives:
1017-539 Astrophysics Research**
General Elective***

**Only 1017-311 is required as a prerequisite for this course.*
***A maximum of 4 credits of Astrophysics Research (1017-539) will count toward the minor.*
**** Courses offered that currently qualify as a general elective include Digital Image Processing I (1051-361), Digital Image Processing II (1051-462), and Detectors (1051-465). Other courses may be offered from time to time that qualify as electives for the astronomy minor. Please contact the minor adviser for further information.*

Business Administration

Minor Adviser: Jerry Curnutt

This minor is appropriate for undergraduate students interested in broad exposure to the world of business. Undergraduate students interested in pursuing an MBA degree from RIT may use this minor to waive certain MBA foundation courses.

Required Courses—Choose three of the following courses:
0101-301 Financial Accounting
0102-320 Organizational Behavior
0104-220 Personal Financial Management
or
0104-350 Corporate Finance
0105-363 Principles of Marketing
0106-401 Operations and Supply Chain Management
0110-319 Legal Environment of Business
0113-310 Global Business: An Introduction

Electives—Choose two electives from different Saunders College of Business discipline areas. The additional courses may come from the above list of required courses.

Chemical Engineering Systems Analysis

Minor Adviser: Steven Weinstein

A minor in chemical engineering systems analysis provides students with a sophisticated understanding of the application of scientific knowledge to the solution of a vast array of practical problems in which chemistry plays a critical role. Students are taught the systems methodology that chemical engineers employ to analyze and solve real world problems involving distinct chemical components, chemical reaction, multiple phases, and mass transfer.

Prerequisites: There are chemistry and mathematics prerequisites for the minor.
Chemistry—Choose one of the following courses*:
1011-216/206 General and Analytical Chemistry II with Lab
1011-273/277 Introduction to Chemical Materials with Lab
1011-212/206 Chemistry Principles II with Lab
1011-272/276 Chemistry of Water and Wastewater with Lab

Mathematics—Choose one of the following course sequences:
Sequence 1:
1016-283 Project-Based Calculus III or equivalent
1016-306 Differential Equations
Sequence 2:
Calculus for Engineering Technology II
1016-304 Differential Equations for Technology

Required Courses:
0309-230 Chemical Process Analysis**
0309-340 Reaction Engineering I
0309-330 Mass Transfer Operations
0309-381 Chemical Engineering Systems Analysis Paper

Elective Courses†: Choose at least two of the following:
0304-460 Contemporary Issues in Energy and the Environment
0304-461 Contemporary Issues in Bioengineering
0304-645 Introduction to Biomaterials
0304-710 Fuel Cell Technology
0304-756 Aerosols in the Respiratory Tract
0305-350 IC Technology
0305-643 Thin Film Processes
0305-666 Microlithography Materials and Processes
0303-520 Engineering Economy
0303-792 Design for the Environment
0301-370 Nano-science Engineering and Technology
0608-438 Principles of Treatment and Wastewater
0630-350 Solid and Hazard Waste Management
0630-352 Industrial Wastewater Management
0630-354 Air Emissions Management
1006-202 Concepts in Environmental Science
1006-203 Environmental Science Field Studies
1001-340 General Ecology
1001-471 Freshwater Ecology
1001-567 Environmental Microbiology
1015-520 Environmental Chemistry
1015-521 Atmospheric Chemistry
1015-522 Aquatic Toxicology and Chemistry
1029-301 Introduction to Polymer Technology

**Each of the listed courses has a chemistry course prerequisite, so actually represent a two-course sequence that is required for entry into the minor.*
***The first core course in the minor, Chemical Process Analysis (0309-230), may be taken concurrently with the final course in the calculus sequence (e.g., 1016-232 or 1016-283). The remaining two core courses require Differential Equations (e.g., 1016-304, 1016-306).*
†Other elective courses may be appropriate with minor adviser approval.

Communication and Culture

Minor Adviser: Grant Cos

The communication and culture minor promotes critical reflection on the requirements of a more democratic culture by giving attention to subjects such as, but not limited to, class, race, ethnicity, identity, gender, public sphere, law, and health care. This minor is closed to students enrolled in the following BS programs: professional and technical communication, advertising and public relations, and journalism.

Required Courses—Choose two of the following:

0502-444	Technical Writing
0535-416	Newswriting
0535-446	Writing the Technical Manual
0535-480	Human Communication
0535-481	Persuasion
0535-482	Mass Communications
0535-483	Small Group Communication

Electives—Choose three of the following:

0535-410	Computer-Mediated Communication
0535-411	Health Communication
0535-414	Interpersonal Communication
0535-420	Argument and Discourse
0535-450	Visual Communication
0535-465	The Rhetoric of Political Campaigns
0535-484	Rhetoric of Race Relations
0535-520	Intercultural Communication

Computer Engineering

Minor Advisers: Andreas Savakis, Roy Melton

Computer engineering is an interdisciplinary field that involves the study and application of software, hardware, and systems. A minor in computer engineering exposes students to the fundamentals of computer engineering and provides a foundation for the exploration of specialized subjects in computer engineering upper-level courses and professional electives.

Prerequisites:

4003-232	Computer Science II or equivalent

Plus one of the following courses:

1016-281	Project-Based Calculus I
1016-272	Calculus B
1016-265	Discrete Math I

Required Courses:

0306-341	Introduction to Digital Systems
0306-250	Assembly Language
0306-550	Computer Organization

Electives—Choose two of the following courses:

0306-351	Hardware Description Languages
0306-381	Applied Programming
0306-451	Digital Signal Processing
0306-551	Computer Architecture
0306-553	Digital Control Systems
0306-560	Interface and Digital Electronics
0306-561	Digital Systems Design
0306-710	Network Modeling Design and Simulation
0306-615	Wireless Networks
0306-620	Design Automation of Digital Systems
0306-722	Advanced Computer Architecture
0306-624	High-Performance Architectures
0306-630	Introduction to VLSI Design
0306-631	Advanced VLSI Design
0306-632	Low Power Design
0306-658	Fault Tolerant Systems
0306-663	Embedded and Real-Time Systems
0306-664	Modeling of Embedded and Real-Time Systems
0306-672	Special Topics in Computer Engineering
0306-675	Robotics
0306-676	Robust Control
0306-684	Digital Image Processing Algorithms
0306-685	Computer Vision
0306-694	Data and Computer Communications

Computer Science

Minor Adviser: Henry A. Etlinger

The computer science minor establishes a foundation in basic programming fundamentals with an emphasis on modern programming practices. The minor provides students with an opportunity to expand their programming foundation by delving more deeply into programming or by sampling selected theoretical or applied areas within computer science. The minor adviser will evaluate a student's prior computing background and advise the student regarding initial placement and course prerequisites. A student must complete at least 20 quarter credit hours of approved computer science courses from the department of computer science. At least 12 quarter credit hours must be courses not required by a student's home department.

Prerequisites: None (However, the 4003-241, 242, 243 sequence is a prerequisite to 4003-334, a course that is either a direct or indirect prerequisite for many computer science courses.)

Electives—Choose five of the following:

4003-231	Computer Science 1
4003-232	Computer Science 2
4003-233	Computer Science 3
4003-241	Problem-Based Introduction to Computer Science
4003-242	Data Structures for Problem Solving
4003-243	Object-Oriented Programming
4003-334	Computer Science 4
4003-345	Computer Organization
4003-380	Introduction to Computer Science Theory
4003-389	Honors Introduction to Computer Science Theory
4003-406	Systems Programming I
4003-420	Data Communications and Networks I
4003-440	Operating Systems I
4003-450	Programming Language Concepts
4003-451	XML: Architecture, Tools, and Techniques
4003-455	Artificial Intelligence

4003-457 Introduction to Computer Vision
4003-471 Privacy and Security
4003-481 Complexity and Computability
4003-482 Cryptography
4003-485 Database Concepts
4003-486 Database System Implementation
4003-506 Systems Programming 2
4003-515 Analysis of Algorithms
4003-520 Computer Architecture
4003-531 Parallel Computing 1
4003-532 Parallel Computing 2
4003-541 Data Communications and Networks 2
4003-542 Data Communications and Networks 3
4003-543 Ad Hoc Networks
4003-544 Operating Systems 2
4003-552 Artificial Intelligence for Interactive Environments
4003-553 Biologically Inspired Intelligence Systems
4003-558 Advanced Computer Vision
4003-561 Programming Skills
4003-570 Computer Graphics 1
4003-571 Computer Graphics 2
4003-572 Computer Animation Algorithms and Techniques
4003-573 Procedural Shading
4003-580 Language Processors
4003-590 Seminar in Computer Science

Construction Management

Minor Adviser: John Morelli

The construction management minor offers courses covering building construction, cost estimating, construction project management, and construction safety. Students may choose electives to individualize the curriculum to match their interests.

Required Courses:
0608-422 Elements of Building Construction
0608-509 Construction of Cost Estimating
0608-560 Construction Project Management
0608-544 Contracts and Specs

Electives—Choose three of the following:
0608-500 Labor Relations
0608-460 Construction Equipment
0608-444 Mechanical and Electrical Equipment for Buildings
0633-504 Construction Safety

Creative Writing

Minor Adviser: Linda Reinfeld

This minor provides theoretical and historical background and models to assist students as they develop their own creative writing abilities.

Prerequisite:
0502-227 Writing (or equivalent)

Electives
Choose three of the following:
0502-451 Creative Writing: Poetry Workshop
0502-452 Creative Writing: Fiction Workshop
0502-453* Advanced Creative Writing Workshop
0502-459 Creative Nonfiction
0502-461 Editing the Literary Magazine
0502-463 Language and Brain

Choose two of the following:
0504-441 Art of Poetry
0504-442 The Short Story
0504-443 The Novel
0504-460 Modern Poetry

**Students in the creative writing minor have the option to take one of the creative writing courses and then take Advanced Creative Writing twice in order to complete an extended writing project.*

Criminal Justice

Minor Adviser: Laverne McQuiller-Williams

The minor in criminal justice provides a foundation in the formal process of social control through the criminal justice system, including how behavior is defined as criminal, how crime is measured, and how society responds to crime through law enforcement, courts, and corrections. This minor is closed to students enrolled in the criminal justice degree program.

Required Course:
0501-400 Criminology

Electives—Choose four of the following:
0501-405* Major Issues in the Criminal Justice System
0501-406 Technology in Criminal Justice
0501-415 Domestic Violence
0501-440 Juvenile Justice
0501-441 Corrections
0501-443 Law and Society
0501-444 Concepts in Criminal Law
0501-445 Minority Groups and the Criminal Justice System
0501-446 Women and Crime
0501-456 Courts
0501-507 Computer Crime
0501-511 Alternatives to Incarceration
0501-517 Comparative Criminal Justice Systems
0501-518 Crime and Justice in the Community
0501-522 Victimless Crime
0501-523 Crime and Violence
**Topics may vary*

Database Design and Development

Minor Adviser: Edward Holden

Database design and development provides students with the advanced knowledge and skills necessary to design, develop, and manage database systems within a broad range of domains. Data is an important component of any organization and the manage-

ment and storage of that data is critical. Computing professionals with specialized knowledge of database systems are needed to ensure that data is being stored in an efficient, accessible, yet secure manner that meets the needs of the organization.

Prerequisites: Students should have course work in discrete mathematics and have completed a three-course sequence in programming before beginning courses for this minor.

Required Course—Choose one of the following:

4002-360	Introduction to Database and Data Modeling
4003-385	Concepts of Data Management

Electives—Complete all four of the following:

4002-461	Fundamentals of Data Modeling
4002-484	Fundamentals of Database Client/Server Connectivity
4002-485	Fundamentals of DBMS Architecture and Implementation
4002-489	Data Warehousing

Deaf Cultural Studies

Minor Adviser: J. Matt Searls

The Deaf cultural studies minor offers students the opportunity to engage in a focused program of study in the emerging field of Deaf cultural studies. Students may pursue the minor regardless of their level of proficiency in American Sign Language (ASL), and any ASL or Deaf culture course, except for ASL I, can be applied toward the minor. ASL I, or equivalent skills, is a prerequisite for individuals who are not qualified to enroll in ASL II to begin the sequence. Students must have completed ASL III, be fluent in ASL, and/or have approval of the instructor to enroll in American Sign Language Literature or Linguistics of American Sign Language, both of which are taught in ASL.

Prerequisite

0525-390	Beginning American Sign Language I

Required Course—Choose one of the following:

0525-391	American Sign Language II
0525-595	American Sign Language Literature
0525-596	Linguistics of American Sign Language

Electives—Choose four of the following:

0525-392	American Sign Language III
0504-545	Deaf American Literature
0505-479	Special Topics: Deaf Art and Cinema
0507-463	American Deaf History
0507-473	European Deaf History
0515-452	Special Topic: Diversity in the Deaf Community
0515-529	Deaf Culture in America

Digital Business

Minor Adviser: Jerry Curnutt

Digital business represents the impact of new technologies on business practice, products, and services. Today, technologies such as social computing and mobile devices are dramatically changing the behaviors and characteristics that lead individuals and organizations to success. Students completing a digital business minor will enhance their program of study with a focus on these new technologies and applications in business.

Required Courses

0112-312	Building a Web Business

Electives—Choose four of the following:

0102-415	Digital Entrepreneurship
0104-359	Financing New Ventures
0102-530	Managing Innovation and Technology
0105-363	Principles of Marketing
0105-440	Internet Marketing
0112-340	Database Management Systems
01xx-xxx	Suggested Seminars in Digital Business Related Topics

Economics

Minor Advisers: Michael Vernarelli, Jeffrey Wagner

An economics minor provides a systematic analysis of economic issues through the study of the allocation of scarce resources into production and the distribution of production among the members of society. This minor is closed to students enrolled in the economics program.

Prerequisite—Choose one of the following:

0511-211	Principles of Microeconomics
0511-325	Honors Economics

Required Course:

0511-402	Principles of Macroeconomics

Electives

Choose three of the following theory and policy courses:

0511-440	Urban Economics
0511-441	Economics of Human Resources
0511-442	Contemporary International Economic Problems
0511-443	Current American Macroeconomic Problems
0511-444	Public Finance
0511-445*	Survey of Economic Thought
0511-448*	Economics of Less Developed Countries
0511-449*	Comparative Economic Systems
0511-450	Benefit-Cost Analysis
0511-452*	Monetary Analysis and Policy
0511-453	Intermediate Microeconomic Theory
0511-454*	International Trade and Finance
0511-455*	Intermediate Macroeconomic Theory
0511-456	Industrial Organization
0511-459	Managerial Economics

0511-461 Seminar in Applied Economics
0511-466 Health Care Economics
0511-467 Economics of Native America
0511-480 Economic Role of Women
0511-481 Environmental Economics
0511-484 Natural Resource Economics
0511-571 Honors Seminar in Economics

Choose one of the following quantitative courses:
0511-457** Applied Econometrics
0511-458*** Economic Forecasting
0511-460§ Mathematical Methods: Economics
0511-464 Game Theory with Economic Applications

**Prerequisite: 0511-402*
***Prerequisites: 1016-226 and 1016-319*
**** Prerequisites: 0511-402, 1016-226 and 1016-319*
§Prerequisite: 1016-226

Electrical Engineering

Minor Adviser: Sohail Dianat

A minor in electrical engineering exposes students to the fundamentals of electrical engineering and provides a foundation to explore specialized material in electrical engineering professional electives or graduate courses.

Prerequisites:
1016-283 Calculus III
1017-313 University Physics III

Additional prerequisites, depending on choice of electrical engineering elective courses, may include:
0301-344 Matlab and C for Electrical Engineers
1016-328 Engineering Mathematics
1016-345 Probability and Statistics for Engineers
1016-420 Complex Variables
1016-351 Probability and Statistics

Required Courses:
0301-381 Circuits I
0301-382 Circuits II

Electives—Choose three of the following:
0301-240 Digital Systems
0301-365 Microcomputer Systems
0301-347 Computer Architecture
0301-453 Linear Systems I
0301-473 EM Fields I
0301-474 EM Fields II
0301-481 Electronics I
0301-482 Electronics II
0301-514 Control Systems
0301-531 Mechatronics
0301-534 Communications
0301-545 Digital Electronics
0301-554 Linear Systems II

Note: All 600-level electrical engineering courses must meet prerequisites.

Engineering Management

Minor Adviser: Robin Borkholder

The minor in engineering management integrates technological and managerial expertise while focusing on the management of the engineering and technological enterprise. Engineering management is concerned with understanding the technology involved in an engineering project and the management process through which the technology is applied. This minor supports the dual role of the engineering manager as both a technologist and a manager. The student gains a background in areas commonly needed in this role, such as engineering management, engineering economics, and accounting, in addition to industrial engineering expertise.

Prerequisites:
1016-314 Engineering Statistics (or equivalent)
1016-318 Boundary Value Problems and Matrices
or
1016-328 Engineering Math
or
1016-331 Matrix Algebra (or equivalent)

Required Courses:
0303-520/620 Engineering Economy
0303-481 Engineering Management
0101-494 Cost Accounting for Technical Organizations

Electives*—Choose two of the following:
0303-401 Operations Research
0303-402 Production Control
0303-422 Systems and Facilities Planning
0303-503 Systems Simulation
0303-510 Applied Statistical Quality Control
0303-626 Contemporary Production Systems
0303-703 Supply Chain Management
0303-704 Logistics Management
0303-734 Systems Safety Engineering
0303-758 Design of Experiments
0303-765 Databases for Information Systems
0303-766 Manufacturing Systems
0303-770 Design of Experiments
0303-784 Systems Project Management

**Other elective courses may be appropriate with minor adviser approval.*

Entrepreneurship

Minor Adviser: Jerry Curnutt

The entrepreneurship minor allows students to learn business skills that can be applied to any professional field. Students will gain insight into the customer requirements and financial implications involved in taking a product or service from idea to implementation.

Required Course:
0102-490 Entrepreneurship

Choose one of the following entrepreneurial experiences:

0102-545 Applied Entrepreneurship and Commercialization
0102-547 Field Experience in Business Consulting

Other approved field experience:

Kate Gleason College of Engineering Senior Design Capstone
RIT Student Incubator
Faculty-approved field experiences

Electives—Choose three of the following:

0101-301 Financial Accounting
0101-302 Management Accounting
0101-494 Cost Accounting in Technical Organizations
0102-250 World of Business
0102-415 Digital Entrepreneurship
0102-530 Managing Innovation and Technology
0104-359 Financing New Ventures
0105-363 Principles of Marketing
0105-440 Internet Marketing
0609-410 Patents and Trade Secrets
0610-517 Product Ideation and Concept Solution
0610-518 Development and Design of New Products
0610-519 Product Realization
2035-410 Consumer Product Design II
2035-506 Design Collaboration
2035-512 Advanced Product Design
2035-527 Package Design
4002-455 Technology Transfer
4002-460 Needs Assessment

Environmental Modeling

Minor Adviser: Karl Korfmacher

The environmental modeling minor introduces students to the process of spatial modeling as part of a toolset for investigating environmental issues and to provide opportunities to apply these skills through advanced course work. The required core courses are designed to give students a solid foundation of environmental issues and concepts. Central to this minor are the development of geographic information system (GIS) and remote sensing techniques, problem-solving skills, and an understanding of the multiple stakeholder perspectives often involved with environmental issues. Students interested in pursuing employment or an advanced degree with an environmental focus will find this minor beneficial.

Required Courses:

0508-460 Environment and Society
1006-202 Concepts of Environmental Science
1006-203 Environmental Science Field Skills

Elective Courses—Choose two of the following:

1006-350 Application of Geographic Information Systems
1006-450 Raster Application of GIS
1006-750 Ecological and Environmental Applications of GIS
1051-420 Environmental Applications of Remote Sensing

Environmental Science

Minor Adviser: Karl Korfmacher

The environmental science minor introduces students to the interdisciplinary nature of environmental issues and concepts and provides them with opportunities to further investigate many of these issues through advanced course work. Central to this minor are the development of field, analytical, and problem-solving skills and an understanding of the multiple stakeholder perspectives often involved with environmental issues. Students interested in becoming "citizen scientists" or pursuing employment or an advanced degree with an environmental focus will find this minor beneficial.

Prerequisites:

1001-251 Introduction to Biology I*
1001-252 Introduction to Biology II*
1001-253 Introduction to Biology III*
1011-215 General and Analytical Chemistry I**
1011-205 Chemistry Principles I Lab**
1011-216 General and Analytical Chemistry II**
1011-206 Chemistry Principles II Lab**
1011-202 Fundamentals of Organic Chemistry**
1011-207 Introduction to Organic Chemistry Lab**

Required Courses:

0508-460 Environment and Society
1006-202 Concepts of Environmental Science
1006-203 Environmental Science Field Skills

Elective Courses—Choose two of the following:

1001-340 General Ecology
1001-375 Galapagos: Evolution and Biogeography
1001-420 Plant Ecology
1001-471 Freshwater Ecology
1001-475 Conservation Biology
1015-520 Environmental Chemistry

** Required for advanced biology courses*
*** Required for advanced chemistry courses*

Environmental Studies

Minor Adviser: Richard Shearman

This minor provides students with opportunities for the in-depth analysis of global and regional environmental issues, their causes, and their potential solutions. The minor features an emphasis on sustainability and holistic thinking. In particular, a required 500-level seminar will serve as a capstone experience, helping students to integrate knowledge from several disciplinary perspectives, including socio-cultural, historical, political, economic, ethical, scientific, and/or technological factors. Having completed the minor, students will possess a high level of environmental literacy, an important component of many professional fields within the sciences, engineering, law, journalism, and public affairs.

Required Course‡—Choose one of the following:

0508-570	Environmental Studies Seminar
0508-530	Seminar in Science, Technology, and the Environment

Electives—Choose four of the following:

0508-443	Face of the Land
0508-460	Environment and Society
0508-463	Great Lakes I
0508-464*	Great Lakes II
0508-482	Energy and the Environment
0508-483	Environmental Values
0508-484	Environmental Policy
0508-487	Special Topics: Environmental Studies
0508-488	History of Ecology and Environmentalism
0508-489	History of the Environmental Sciences
0508-490	Biodiversity and Society
0508-491	Sustainable Communities
0508-500	Science, Technology and Society Classics
0509-453	Environmental Philosophy
0510-449	Sustainable Development
0511-481**	Environmental Economics
0511-484**	Natural Resource Economics
0515-449†	Population and Society

‡These courses can be taken only if the student has already taken at least two courses from the electives list. Typically these courses would be the last courses taken in the minor sequence.

** Great Lakes I (0508-463) is a prerequisite for this course.*

*** Principles of Microeconomics (0511-211) is a prerequisite for these courses.*

† Cultural Anthropology (0510-210), Foundations of Sociology (0515-210), or an equivalent are prerequisites for this course.

European History

Minor Adviser: Rebecca Edwards

The European history minor emphasizes salient characteristics of Western civilization from the French Revolution to the contemporary era.

Required Courses—Choose five of the following:

0507-443	European Social and Intellectual History Since 1600
0507-444	Strategy and Diplomacy: Europe
0507-446	Europe Since 1945 and the European Union
0507-448	History of Russia to 1917
0507-449	History of Russia Since 1917
0507-450	Stalin, Mussolini, and Hitler
0507-473	European Deaf History
0507-488	Modern Germany

Exercise Science

Minor Adviser: William Brewer

The exercise science minor includes foundation sequences in anatomy and physiology upon which the basic principles of exercise physiology, fitness assessment, and the preparation of fitness programs are built. The minor prepares students to sit for professional certification examinations for work in the fitness industry, provides understanding of sports physiology for those interested in sports equipment design and technology, and complements and enhances personal fitness.

Prerequisites:

1001-201	General Biology I
1001-202	General Biology II
1001-203	General Biology III
or	
1001-251	Introduction to Biology I
1001-252	Introduction to Biology II
1001-253	Introduction to Biology III

Required Courses:

1026-350	Anatomy and Physiology I
1026-360	Anatomy and Physiology II
1026-305	Sports Physiology and Life Fitness
1026-306	Fitness Prescription and Programming

Elective Courses—Choose one of the following:

1026-307	Exercise Prescription for Special Populations
0620-300	Sports Nutrition

Finance

Minor Adviser: Jerry Curnutt

The finance minor helps students create value in any type of business organization. Courses will broaden a student's learning experiences and professional opportunities by focusing on corporate finance and investment topics in more depth.

Required Courses:

0101-301	Financial Accounting
0104-350	Corporate Finance

Electives—Choose three of the following:

0104-220	Personal Financial Management
0104-359	Financing New Ventures
0104-361	Financial Institutions and Markets
0104-452	Managing Corporate Assets and Liabilities
0104-453	Intermediate Investments
0104-460	Financial Analysis and Modeling
0104-504	Finance in a Global Environment
0104-505	Advanced Corporate Financial Planning
0104-520	Introduction to Options and Futures
0104-554	Seminar in Finance

Foreign Language

This minor provides two full years of foreign language instruction. Students may choose a foreign language minor in Arabic, Chinese, French, German, Italian, Japanese, Russian, or Spanish. Students must take five consecutive language courses beyond the introductory prerequisite language course.

Arabic Language

Minor Adviser: Diane Forbes

Students with some proficiency in the language must take the placement test in order to determine the appropriate level course. This concentration is not open to native speakers of Arabic.

Prerequisite:

0525-400 Beginning Arabic I

Required Courses—Choose five of the following:

0525-401 Beginning Arabic II
0525-402 Beginning Arabic III
0525-403 Intermediate Arabic I
0525-404 Intermediate Arabic II
0525-405 Intermediate Arabic III
0525-406 Advanced Arabic I
0525-407 Advanced Arabic II
0525-408 Advanced Arabic III

Chinese Language

Minor Adviser: Hiroko Yamashita

Prerequisite:

0525-420 Beginning Chinese I

Required Courses—Choose five of the following:

0525-421 Beginning Chinese II
0525-422 Beginning Chinese III
0525-423 Intermediate Chinese I
0525-424 Intermediate Chinese II
0525-425 Intermediate Chinese III
0525-426 Advanced Chinese I
0525-427 Advanced Chinese II
0525-428 Advanced Chinese III

French Language

Minor Adviser: Philippe Chavasse

Prerequisite:

0525-440 Beginning French I

Required Courses—Choose five of the following:

0525-441 Beginning French II
0525-442 Beginning French III
0525-443 Intermediate French I
0525-444 Intermediate French II
0525-445 Intermediate French III
0525-446 Advanced French I
0525-447 Advanced French II
0525-448 Advanced French III

German Language

Minor Adviser: Wilma Wierenga

Prerequisite:

0525-460 Beginning German I

Required Courses—Choose five of the following:

0525-461 Beginning German II
0525-462 Beginning German III
0525-463 Intermediate German I
0525-464 Intermediate German II
0525-465 Intermediate German III
0525-466 Advanced German I
0525-467 Advanced German II
0525-468 Advanced German III

Italian Language

Minor Adviser: Elisabetta D'Amanda

Prerequisite:

0525-500 Beginning Italian I

Required Courses—Choose five of the following:

0525-501 Beginning Italian II
0525-502 Beginning Italian III
0525-503 Intermediate Italian I
0525-504 Intermediate Italian II
0525-505 Intermediate Italian III
0525-506 Advanced Italian I
0525-507 Advanced Italian II
0525-508 Advanced Italian III

Japanese Language

Minor Adviser: Yukiko Maru Leary

Prerequisite:

0525-480 Beginning Japanese I

Required Courses—Choose five of the following:

0525-481 Beginning Japanese II
0525-482 Beginning Japanese III
0525-483 Intermediate Japanese I
0525-484 Intermediate Japanese II
0525-485 Intermediate Japanese III
0525-486 Advanced Japanese I
0525-487 Advanced Japanese II
0525-488 Advanced Japanese III

Russian Language

Minor Adviser: Diane Forbes

All students beginning the study of Russian must see the minor adviser for placement screening. This concentration is not open to native speakers of Russian.

Prerequisite:
0525-540 Beginning Russian I

Required Courses—Choose five of the following:
0525-541 Beginning Russian II
0525-542 Beginning Russian III
0525-543 Intermediate Russian I
0525-544 Intermediate Russian II
0525-545 Intermediate Russian III
0525-546 Advanced Russian I
0525-547 Advanced Russian II
0525-548 Advanced Russian III

Spanish Language

Minor Adviser: Diane Forbes

Students with some proficiency must see the minor adviser for placement screening. This concentration is not open to fluent native speakers of Spanish.

Prerequisite:
0525-560 Beginning Spanish I

Required Courses—Choose five of the following:
0525-561 Beginning Spanish II
0525-562 Beginning Spanish III
0525-563 Intermediate Spanish I
0525-564 Intermediate Spanish II
0525-565 Intermediate Spanish III
0525-566 Advanced Spanish I
0525-567 Advanced Spanish II
0525-568 Advanced Spanish III

Foreign Language/Culture

The foreign language/culture minor consists of five courses: three language courses beyond Beginning Level I and two culture courses. The minor provides beginning and some intermediate level study of a foreign language and appropriate courses in the culture of the nations where that language is most often used. The goal of this minor is to introduce students to the language, customs, and cultural aspects (ex: history, art, literature, politics, anthropology, and music) of one particular country or area. Students will become aware of the relationship between language and culture and of the differences between their own language and culture and those of the country/countries studied.

Arabic Language/Culture

Minor Adviser: Diane Forbes

Students with some proficiency must see the minor adviser and take the placement test to determine the appropriate level course. This concentration is not open to fluent native speakers of Arabic.

Prerequisite:
0525-400 Beginning Arabic I

Required Courses—A sequence of three language courses from the following:
0525-401 Beginning Arabic II
0525-402 Beginning Arabic III
0525-403 Intermediate Arabic I
0525-404 Intermediate Arabic II
0525-405 Intermediate Arabic III
0525-406 Advanced Arabic I
0525-407 Advanced Arabic II
0525-408 Advanced Arabic III

Electives—Choose two of the following culture courses:
0505-487 Art of Islam: The Arabic Tradition
0505-487 Art of Islam: Persian/Turkish/Mughal Traditions
0510-484 Islamic Culture/Middle East

Chinese Language/Culture

Minor Adviser: Hiroko Yamashita

Prerequisite:
0525-420 Beginning Chinese I

Required Courses—A sequence of three language courses from the following:
0525-421 Beginning Chinese II
0525-422 Beginning Chinese III
0525-423 Intermediate Chinese I
0525-424 Intermediate Chinese II
0525-425 Intermediate Chinese III
0525-426 Advanced Chinese I
0525-427 Advanced Chinese II
0525-428 Advanced Chinese III

Electives—Choose two of the following culture courses:
0525-439 Special Topics: Chinese
0505-469 Art of China, Korea, and Japan
0507-485 Foundations of Asian Civilization
0507-486 20th Century China and Japan
0507-487 Communist China
0513-441 Politics in China
0513-496 Government and Politics in East Asia

German Language/Culture

Minor Adviser: Wilma Wierenga

Prerequisite:

0525-460 Beginning German I

Required Courses—A sequence of three from the following:

0525-461 Beginning German II
0525-462 Beginning German III
0525-463 Intermediate German I
0525-464 Intermediate German II
0525-465 Intermediate German III
0525-466 Advanced German I
0525-467 Advanced German II
0525-468 Advanced German III

Electives—Choose two of the following culture course:

0525-477* Contemporary German Culture
0525-479 Special Topics in German
0505-459 Era of Haydn and Mozart
0505-465 Special Topics: Mozart's Operas
0505-482 Beethoven
0505-483 Bach and the Baroque
0505-484 Romanticism in Music
0505-486 German Theater and Drama
0507-488 Modern Germany

** Contemporary German Culture (0525-477) is offered alternating summers in Marburg, Germany.*

Italian Language/Culture

Minor Adviser: Elisabetta D'Amanda

Prerequisite:

0525-500 Beginning Italian I

Required Courses—A sequence of three from the following:

0525-501 Beginning Italian II
0525-502 Beginning Italian III
0525-503 Intermediate Italian I
0525-504 Intermediate Italian II
0525-505 Intermediate Italian III
0525-506 Advanced Italian I
0525-507 Advanced Italian II
0525-508 Advanced Italian III

Electives—Choose two of the following culture courses:

0525-519* Contemporary Italian Culture
0504-435** Special Topics: Italian Literature
0504-435** Special Topics: Survey of Italian Literature

** Contemporary Italian Culture (0525-519) is offered each summer in Italy.*
***Offered every other year*

Japanese Language/Culture

Minor Adviser: Yukiko Maru Leary

Prerequisite:

0525-480 Beginning Japanese I

Required Courses—A sequence of three from the following:

0525-481 Beginning Japanese II
0525-482 Beginning Japanese III
0525-483 Intermediate Japanese I
0525-484 Intermediate Japanese II
0525-485 Intermediate Japanese III
0525-486 Advanced Japanese I
0525-487 Advanced Japanese II
0525-488 Advanced Japanese III

Electives—Choose two of the following culture courses:

0525-495 Professional Japanese
0525-496 Structures of Japanese Language
0525-497 Languages in Japanese Society
0505-469 Art of China, Korea, and Japan
0507-468 The U.S. and Japan
0507-485 Foundations of Asian Civilization
0507-486 20th Century China and Japan
0507-489 Japan in the Modern World
0513-496 Government and Politics in East Asia

Russian Language/Culture

Minor Adviser: Diane Forbes

Students with some proficiency must see the minor adviser and take the placement test to determine the appropriate level course. This concentration is closed to fluent native speakers of Russian.

Prerequisite:

0525-540 Beginning Russian I

Required Courses—A sequence of three from the following:

0525-541 Beginning Russian II
0525-542 Beginning Russian III
0525-543 Intermediate Russian I
0525-544 Intermediate Russian II
0525-545 Intermediate Russian III
0525-546 Advanced Russian I
0525-547 Advanced Russian II
0525-548 Advanced Russian III

Electives—Choose two of the following culture courses:

0504-445 Great Authors: Tolstoy
0504-445 Great Authors: Dostoyevsky
0504-485 Global Literature: Russian Literature
0505-435 Russian Art—10th through 20th Centuries
0505-452 Special Topics: Russian Art I
0505-452 Special Topics: Russian Art II
0507-448 History of Russia to 1917
0507-449 History of Russia Since 1917
0507-450 Stalin, Mussolini and Hitler
0513-443 Politics of Russia
0513-444 International Studies: Cold War and Beyond

Spanish Language/Culture

Minor Adviser: Diane Forbes

Students with some proficiency must see the minor adviser and take the placement test to determine the appropriate level course. This concentration is not open to fluent native speakers of Spanish.

Prerequisite:

0525-560 Beginning Spanish I

Required—A sequence of three from the following:

0525-561 Beginning Spanish II
0525-562 Beginning Spanish III
0525-563 Intermediate Spanish I
0525-564 Intermediate Spanish II
0525-565 Intermediate Spanish III
0525-566 Advanced Spanish I
0525-567 Advanced Spanish II
0525-568 Advanced Spanish III

Electives—Choose two of the following culture courses:**

0525-578 Women in the Hispanic World: Politics of Identity Formation
0525-579 Special Topics*
0504-435 Global Literature: Latin American Literature
0504-447 Special Topics: Magical Realism
0504-479 The Latino Experience in Literature
0510-442 Cultures and Politics in Latin America
0510-444 Global Economy and the Grassroots

***With department approval: CIAS Art History: Latin American Art History I & II plus one additional credit per course*

** Special Topics (0525-579) may include the following topics: The Caribbean and Globalization, Trauma and Survival in First Person Narrative, or Cuban Film: Cultural and National Identity.*

Game Design

Minor Adviser: Andrew Phelps

Game design allows students to explore the construction and design decisions faced by professionals in the games industry, and invites them to take a critical view of current games and their underlying principles. Students will create their own works at a level that is sophisticated enough to explore design decisions as they relate to the commercial industry.

Prerequisites: None

Required Courses—Students must complete the following:

4080-346 2D Animation for Interactive Media
4080-230 Introduction to Programming for New Media
4080-231 Programming for New Media II
4080-380 Fundamentals of Game Design and Development I

Elective Course—Choose one of the following courses:

4080-381 Fundamentals of Game Design and Development II
4080-434 Programming for Digital Media
4080-347 3D Modeling and Animation for Interactive Media

Game Design and Development

Minor Adviser: Andrew Phelps

Game design and development is an interdisciplinary minor that involves the study and application of several disparate areas toward the goal of creating an entertaining experience for the player. A minor in game design and development exposes students to the fundamentals of both the design and construction of interactive games as well as the programmatic implementation of game systems. The minor also provides a foundation for the exploration of specialized subjects through professional electives or graduate courses.

Prerequisites: Students must complete the following prerequisites: (1) a three-course programming sequence, (2) an introductory course in Web and multimedia, (3) a two-course discrete mathematics sequence, and (4) a two-course physics sequence.

Required Courses—Students must complete the following:

4080-330 Interactive Digital Media
4080-380 Fundamentals of Game Design and Development I
4080-381 Fundamentals of Game Design and Development II
4080-387 Data Structures and Algorithms for Game Programmers I
4080-487 Data Structures and Algorithms for Game Programmers II

Historical Perspectives on Science and Technology

Minor Adviser: Christine Keiner

This minor exposes students to a rigorous analysis of the history of science and technology and emphasizes history as a distinctive way of thinking. Students augment their degree program with a series of courses analyzing the historical development, impact, and significance of science and technology. Having completed the minor, students entering such professional fields as science, engineering, law, journalism, and public affairs will be well-prepared to deal with cross-disciplinary, historical questions involving the social, cultural, and environmental contexts of modern science and technology.

Required course*—Choose one of the following:

0508-520 Historical Perspectives on Science and Technology Seminar
0508-530 Seminar in Science, Technology and the Environment

Electives—Choose four of the following:

0508-440	History of Science
0508-442	History of American Technology
0508-446	Makers of Modern Science
0508-449	History of Women in Science and Engineering
0508-450	History of Chemistry
0508-488	History of Ecology and Environmentalism
0508-489	History of Environmental Sciences

**Please check course prerequisites.*

Human Resource Management

Minor Advisers: Jon Horne and Carol Whitlock

The human resource management minor provides students with the ability to market themselves as knowledgeable human resource managers in preparation for future leadership or management roles. The curriculum offers courses covering human resource management, international human resource management, understanding corporate culture, development of a learning organization, compensation and benefits, training design and delivery, employment law, and interview techniques.

Required Courses

Choose one of the following:

0619-480	Human Resource Management
0113-400	Managing in the Global Environment
0626-427	Employment/Labor Law

Choose one of the following:

0697-442	The Learning Organization
0102-320	Organizational Behavior

Electives–Choose two of the following:

0626-554	International Human Resource Management
0626-234	Interview Techniques
0626-390	Compensation and Benefits
0626-428	Training Design and Delivery
0681-410	Introduction to Project Management
0697-431	Understanding Corporate Culture

Imaging Science

Minor Adviser: Carl Salvaggio

Students will have the opportunity for additional study in imaging science in order to build a secondary area of expertise in support of their program or other areas of interest.

Prerequisites:

1017-311	University Physics I
1017-312	University Physics II
1017-313	University Physics III
1017-314	Modern Physics (if taking 1051-313)
1016-281	Project-Based Calculus I
1016-282	Project-Based Calculus II
1016-283	Project-Based Calculus III
4002-208	Introduction to Programming (or equivalent)

Required Courses:

Non-imaging-science component (up to 8 credits)

1016-314	Engineering Statistics
1016-331	Linear Algebra I
1016-351	Probability
1016-352	Applied Statistics
1016-432	Linear Algebra II

Imaging science component (at least 12 credits)

1051-300	Introduction to Imaging Systems
1051-303	Geometrical Optics
1017-455	Physical Optics
1051-313	Interactions Between Light and Matter
1051-320	Linear Mathematics for Imaging
1051-350	Vision and Psychophysics
1051-370	Radiometry
1051-402	Color Science
1051-361	Digital Image Processing I
1051-462	Digital Image Processing II
1051-463	Digital Image Processing III
1051-465	Detectors
1051-528	Design and Fabrication of a CCD Camera
1051-730	Magnetic Resonance Imaging

Industrial Engineering

Minor Adviser: Robin Borkholder

A minor in industrial engineering focuses on the design, improvement, and installation of integrated systems of people, material, equipment, and energy–utilizing skills in statistics, ergonomics, operations research, and manufacturing. This minor provides students with a background in areas commonly needed in this field.

Prerequisites:

1016-314	Engineering Statistics (or equivalent)
1016-318	Boundary Value Problems and Matrices
or	
1016-328	Engineering Math
or	
1016-331	Matrix Algebra (or equivalent)

Core Courses—Select at least three of the following:

0303-401	Operations Research
0303-402	Production Control
0303-415	Ergonomics
0303-422	Systems and Facilities Planning
0303-503	Simulation
0303-510	Applied Statistical Quality Control
0303-520, 620	Engineering Economy

Electives*—Choose two of the following:

0303-481	Engineering Management
0303-516	Human Factors
0303-526	Design and Analysis of Production Systems
0303-630	Advanced Systems Integration
0303-703	Supply Chain Management
0303-704	Logistics Management

0303-711 Advanced Simulation Techniques
0303-727 Advanced Manufacturing Engineering
0303-731 Advanced Topics in Ergonomics/Human Factors
0303-732 Biomechanics
0303-734 Systems Safety Engineering
0303-765 Databases for Information Systems
0303-766 Manufacturing Systems
0303-770 Design of Experiments

**Other elective courses may be appropriate with minor adviser approval.*

Industrial Environmental Management

Minor Adviser: John Morelli

The industrial environmental management minor will broaden the learning experiences and professional opportunities of students in technical and business disciplines who have an interest in the management of wastewater, hazardous materials, and solids. Air emission management also is covered.

Prerequisites:
1011-211 Chemical Principles I
1011-205 Chemical Principles I Lab

Required Courses:
0630-201 Principles of Environmental Management
0630-352 Industrial Wastewater Management
0630-350 Solid and Hazardous Waste Management
0630-354 Air Emissions Management

Electives–Choose one of the following:
0630-480 Environmental Regulatory Law
0630-505 Resource Reduction
0630-515 Corporate Environmental Management

International Business

Minor Adviser: Jerry Curnutt

Students minoring in international business will benefit from learning the global view of worldwide markets and the role of business in these markets.

Required Course:
0113-310 Global Business: An Introduction

Electives—Choose four of the following:
0104-504 Finance in a Global Environment
0105-363 Principles of Marketing
0113-400 Managing in the Global Environment
0113-430 Global Business: Special Issues
0113-450 Marketing in a Global Environment
0113-500 Strategy in the Global Environment

International Relations

Minor Advisers: Edward Kannyo, Dongryul Kim

The international relations minor exposes students to the fundamental concepts and approaches of international relations. Issues of conflict, cooperation, continuity, and change are explained through a variety of subjects and cases.

Prerequisite*:
0513-214 Introduction to International Relations

**The prerequisite may be waived if student elects to take Comparative Politics (0513-461) as one of the five courses of the minor.*

Electives—Choose five of the following:
0507-442 Contemporary Middle East
0507-444 Strategy and Diplomacy: Europe
0507-488 Modern Germany
0513-425 Politics and the Life Sciences
0513-426 Cyberpolitics
0513-427 Evolutionary International Relations
0513-428 Evolution and the Law
0513-429 Primate Politics
0513-441 Politics in China
0513-443 Politics of Russia
0513-446 Politics in Developing Countries
0513-447 Human Rights and Global Perspectives
0513-449 Special Topics in Political Science
0513-453 American Foreign Policy
0513-461 Comparative Politics
0513-484 Government and Politics of Africa
0513-486 Comparative Politics in Latin America
0513-487 International Law and Organization
0513-488 War and the State
0513-489 Terrorism and Political Violence
0513-490 International Political Economy
0513-491 Politics of the Middle East
0513-492 Religion and International Politics
0513-493 Global Politics and the Environment
0513-494 Comparative Public Policy
0513-496 Government and Politics in East Asia

Journalism

Minor Adviser: Grant Cos

The journalism minor provides students with a foundation in the professional study and practice of journalism. It provides a broad perspective that includes an introduction to U.S. forms of mediated communication; historical, legal, and ethical issues of specific concern to journalism; and learning and practice in writing in a journalistic style. This minor is closed to students enrolled in the journalism program.

Required course:
0535-482 Mass Communications

Electives–Choose four of the following:
0535-405 Information Gathering
0535-416 Newswriting
0535-417 Newswriting II

0535-470 Law and Ethics of the Press
0535-472 News Editing
0535-473 eJournalism
0535-532 Professional Writing

Legal Studies

Minor Advisers: Joseph Fornieri, Laverne McQuiller-Williams, Sean Sutton

The minor in legal studies is for students interested in the study of law and legal institutions and in the relationship of law to other aspects of society and culture. The law extends throughout contemporary political, social, and economic systems, playing an important role in shaping the conduct of life for both individuals and institutions. It is important for students to understand the forces that shape law, the ways laws have been used and understood by a variety of people in differing historical circumstances, and the consequences of law for contemporary life. Political, sociological, historical, and philosophical approaches to legal phenomena are included in the course of study. Recognizing the critical role that law plays in societies, the minor in legal studies is designed to guide students to courses that will deepen and expand their understanding of law as practiced, especially its influence on social and economic institutions.

Required Course:
0501/0513-464 Law and Society

Electives Courses—Choose two courses from each group

Group A: Theoretical and Historical Approaches to Law
0501-444 Concepts in Criminal Law
0507-446 American Slavery, American Freedom
0507-467 Disabilities in American History
0507-495 The Civil Rights Movement in 20th Century U.S. History
0509-446 Philosophy of Law
0513-457 Constitutional Law
0513-463 First Amendment, Liberty, and Deliberative Democracy
0513-514 Political Theory
0515- 509 Social Policy
0535-448 Rhetoric of Free Speech

Group B: Operations and Impacts of Law
0501-402 Crime, Justice, and Social Diversity
0501-405 Major Issues in the Criminal Justice System*
0501-409 Legal Rights of the Offender
0501-456 Courts
0501-506 Evidence
0508-484 Environmental Policy
0513-447 Human Rights and Global Perspectives
0513-456 Judicial Process
0513-460 Constitutional Rights and Liberties
0513-465 Modern Constitutionalism, Equality, and Liberty
0513-487 International Law and Organizations

** Major Issues (0501-405) may include any of the following topics: Comparative Criminal Law, Victimless Crime, Seminar in Law, Fundamentals of Legal Research I, Cyberlaw, Issues in Criminal Prosecution, or Federal Crime and Justice.*

Literary and Cultural Studies

Minor Adviser: Elena Sommers

The English department offers both traditional and contemporary approaches to the study of literary and nonliterary texts including, but not limited to, imaginative fiction, nonfiction, poetry, visual culture, and new media. This minor allows students to pursue a course of study specifically tailored to individual interests and needs. Those who select this minor will work closely with a faculty adviser to design a five- to six-course grouping based on interests in particular authors, themes, histories, genres, geographies, media, and/or interpretive and analytical methodologies. All of the courses, offered by the department of English, are writing intensive and offer opportunities for sustained writing and communication practice.

Prerequisites:
0504-227 Writing (or equivalent)

Electives—Choose one of the following:
0504-440 Drama/Theater
0504-441 The Art of Poetry
0504-442 The Short Story
0504-443 The Novel

Electives—Choose four of the following:
0502-463 Language and Brain
0504-425 Great Authors
0504-435 Global Literature
0504-436 The Graphic Novel
0504-444 Film as Literature
0504-447 Special Topics
0504-448 Biographical Literature
0504-454 Shakespeare: Tragedy/Romance
0504-455 Shakespeare: Comedies and Histories
0504-460 Modern Poetry
0504-462 Literature and Technology
0504-464 Mythology and Folklore
0504-465 Viking Myth and Saga
0504-467 African American Literature
0504-469 American Literature
0504-474 Studies in British Literature
0504-476 Immigrant Voices in American Literature
0504-479 The Latino Experience in Literature
0504-480 Women's Studies in Language and Literature
0504-545 Deaf American Literature

Management

Faculty Adviser: Jerry Curnutt

The management minor provides a solid introduction to the world of general business management.

Required Course:
0102-320 Organizational Behavior

Electives—Choose four of the following:

0102-250*	World of Business
0102-415	Digital Entrepreneurship
0102-438	Business Ethics
0102-455	Human Resources Management
0102-460	Leadership in Organizations
0102-490	Entrepreneurship
0102-530	Managing Innovation and Technology
0102-547	Field Experience in Business Consulting
0102-554	Seminar in Management
0113-400	Managing in the Global Environment

**If selected, this course must be taken as one of the first two courses of the minor.*

Management Information Systems

Minor Adviser: Jerry Curnutt

The management information systems minor is designed for students who wish to learn about computer-based information systems and how they are used in today's businesses. The minor will enhance the career options of students in any major and increase their capacity to analyze, design, and manage business processes related to their major.

Required Course:

0112-370	Systems Analysis and Design

Electives—Choose four MIS courses (0112-300 or above)

Marketing

Minor Adviser: Jerry Curnutt

Marketing, sales, and customer-oriented aspects of the marketing minor will broaden the student's learning experiences and professional opportunities by creating a second focus in marketing.

Required Course:

0105-363	Principles of Marketing

Electives—Choose four of the following:

0105-440	Internet Marketing
0105-505	Buyer Behavior
0105-550	Marketing Management
0105-551	Marketing Metrics and Research
0105-559	Professional Selling
0105-560	Advertising and Promotion Management
0113-450	Marketing in the Global Environment

Mass Media Communication

Minor Adviser: Grant Cos

The mass media communication minor provides an overview of the history, development, economics, and regulation of the mass media in the U.S. This minor is closed to students enrolled in the following BS programs: professional and technical communication, advertising and public relations, and journalism.

Required Courses—Choose two of the following:

0502-444	Technical Writing
0535-416	Newswriting
0535-446	Writing the Technical Manual
0535-480	Human Communication
0535-481	Persuasion
0535-482	Mass Communications
0535-483	Small Group Communication

Electives—Choose three of the following:

0535-416	Newswriting
0535-421	Public Relations
0535-450	Visual Communication
0535-452	Uses and Effects of Mass Media
0535-470	Law and Ethics of the Press
0535-471	History of Journalism
0535-482	Mass Communications

Mathematics

Minor Adviser: James Halavin

The mathematics minor provides an opportunity for students to deepen their technical background and gain further appreciation for modern mathematical sciences.

Prerequisites:

1016-281	Project-Based Calculus I
1016-282	Project-Based Calculus II
1016-283	Project-Based Calculus III (or equivalent)

Plus at least one of the following:

1016-305	Multivariable Calculus
1016-265	Discrete Mathematics I

Required Courses:

To receive a minor in mathematics, students complete five courses from the list below with a minimum GPA of 2.0. At least three of these courses must be different from courses that are required by the student's home program, and at least one of the five courses must be from Group II. All required courses must be taken in the School of Mathematical Sciences.

Choose five of the following courses, with at least one from Group II:

Group I

1016-306	Differential Equations
1016-318	Matrices and Boundary Value Problems
1016-328	Engineering Mathematics
1016-331	Linear Algebra I
1016-351	Probability
1016-365	Combinatorial Mathematics
1016-366	Discrete Mathematics II
1016-407	Dynamical Systems
1016-410	Vector Calculus
1016-420	Complex Variables
1016-451	Mathematical Statistics I

1016-452 Mathematical Statistics II
1016-461 Mathematical Modeling
1016-465 Linear Optimization
1016-466 Advanced Optimization
1016-565 Game Theory
1016-5xx Choices through advising

Group II
1016-411 Real Variables I
1016-412 Real Variables II
1016-432 Linear Algebra II
1016-467 Graph Theory
1016-485 Number Theory
1016-511 Numerical Analysis
1016-512 Numerical Linear Algebra
1016-531 Abstract Algebra I
1016-532 Abstract Algebra II

Mechanical Engineering

Minor Adviser: Alan Nye

Mechanical engineering is perhaps the most comprehensive of the engineering disciplines. The mechanical engineer's interests encompass the design of automotive systems, aerospace systems, bioengineering devices, and energy-related technologies. A minor in mechanical engineering exposes students to the core foundations of the discipline and is intended to help nonmajors explore high-technology careers and communicate effectively with engineers on project teams.

Prerequisites:
1016-282 Project-Based Calculus II
or
1016-273 Calculus C
1017-312 University Physics II

Required Courses:
0304-336 Statics
0304-347 Mechanics of Materials
0304-413 Thermodynamics
0304-415 Fluid Mechanics

Electives—Choose one of the following, or any 600-level mechanical engineering technical elective (must meet prerequisites):
0304-344 Materials Science
0304-359 Dynamics
0304-437 Design of Machine Elements
0304-514 Heat Transfer

Medical Informatics

Minor Adviser: Nicolas Thireos

The field of health IT or medical informatics is beginning a period of rapid growth fueled by the federal government's vision for universal adoption of electronic health records. As a result, a large number of jobs will be created in this field over the next decade. The availability of health data in electronic form will serve as the foundation for new and innovative IT applications. This minor will provide students with the opportunity to enhance and combine their knowledge of computing with knowledge of the medical field.

Required Courses:
4006-345 Medical Informatics Seminar
1026-301 Medical Terminology
4006-240 Introduction to Medical Informatics
4006-310 Developing Medical Applications*
4002-360 Introduction to Database and Data Modeling*
4006-410 The Electronic Health Record**

**A two-course programming sequence is a required prerequisite to these courses.*
*** Introduction to Medical Informatics (4006-240) is a prerequisite for The Electronic Health Record (4006-410).*

Microelectronics and Nanofabrication

Minor Adviser: Michael Jackson

This minor is designed to provide basic knowledge of microelectronics and nanofabrication to non-microelectronic engineering students from math and statistics, science, and other engineering disciplines. It is intended for students interested in career opportunities in microelectronics and nanotechnology that may involve working in the semiconductor industry. This program also prepares students to pursue graduate studies in microelectronics, microsystems engineering, novel semiconductor applications, and nanotechnology. The minor builds on the strength of RIT's microelectronics and micro/nanofabrication facilities, faculty, and existing academic programs.

Prerequisites:
1016-281, 282 Calculus I, II
1017-311 University Physics I
1011-208 College Chemistry

Required Courses:
0305-221 Introduction to Micro/Nanolithography
0305-350 IC Technology
0305-643 Thin Film Processes

Electives—Choose two of the following:†
0305-564, 574* Microlithography Systems, Lab
0305-632 Silicon Process Integration
0305-650 CMOS Processing
0305-666, 676 Microlithography, Materials and Processes, Lab
0305-704 Semiconductor Process and Device Modeling
0305-707* Nanoscale CMOS and Beyond
0305-731 Microelectronics Manufacturing I
0305-732 Microelectronics Manufacturing II
0305-830 Metrology for Yield and Failure Analysis
0305-870 Microelectromechanical Systems

† See minor adviser for additional elective options.
**These electives are suitable for students with appropriate prerequisites from their major program.*

Military Studies and Leadership

Minor Advisers: Lt. Col. Mark A. Avery, Lt. Col. Lynn Lubiak

Military studies and leadership provides students with the opportunity to learn about military officer training and its mission to develop leaders for tomorrow's armed forces. Courses promote leadership and management that can be employed in any career field, along with courses analyzing the military's role in national security affairs and foreign policy.

Required Courses: 20 quarter credit hours required

Group 1—Choose any combination from Group 1 to earn a minimum of 3 quarter credit hours.

0650-210 The Air Force Today I
0650-211 The Air Force Today II
0650-212 The Air Force Today III
0640-201 Introduction to Military Science (2)
0640-202 Introduction to Military Leadership (2)
0640-203 Introduction to Tactical Leadership (2)

Group 2—Choose any combination from Group 2 to earn a minimum of 3 quarter credit hours.

0519-201 History of Airpower I
0519-202 History of Airpower II
0519-203 History of Airpower III
0640-301 Military Geography (2)
0640-302 Psychology and Leadership (2)
0640-303 The Military and American Society (2)

Group 3—Choose any combination from Group 3 to earn a minimum of 8 quarter credit hours.

0102-310 Air Force Management and Leadership I
0102-311 Air Force Management and Leadership II
0640-401 Military Tactics (3)
0640-402 Military Communications (3)
0640-403 Military Operations (3)

Group 4—Choose any combination from Group 4 to earn a minimum of 3 quarter credit hours.

0513-401 National Security Forces I
0640-501 Army Training System (3)
0640-502 Military Administration and Logistics Management (3)
0640-503 Military Ethics (3)

Group 5—Elective: Choose any of the above courses to earn a minimum of 3 quarter credit hours.

Modern World History

Minor Adviser: Rebecca Edwards

The modern world history minor provides a comparative perspective in modern world history.

Required Courses—Choose five of the following courses, with at least one from each of the three groups below:

Modern Europe

0507-443 European Social and Intellectual History Since 1600
0507-444 Strategy and Diplomacy: Europe
0507-446 Europe Since 1945 and the European Union
0507-448 History of Russia to 1917
0507-449 History of Russia Since 1917
0507-450 Stalin, Mussolini, and Hitler
0507-473 European Deaf History
0507-488 Modern Germany

Modern Africa, Asia, and Latin America

0507-412 Modern Japan in History, Fiction, and Film
0507-442 Contemporary Middle East
0507-445 Modern Latin America
0507-468 The United States and Japan
0507-485 Foundations of Asian Civilization
0507-486 20th Century China and Japan
0507-487 Communist China
0507-489 Japan in the Modern World
0507-490 History of Mexico
0507-496 Survey of African History

Modern America

0507-402 History of American Women: 1848 to Now
0507-410 Terrorism, Intelligence, and War
0507-411 Origins of U.S. Foreign Relations
0507-440 U.S. Social and Intellectual History
0507-447 U.S. History Since 1945
0507-451 History of Rochester 0507-462 The Civil War and Reconstruction
0507-463 American Deaf History
0507-464 Environmental Disasters in American History
0507-465 Survey of African-American History
0507-466 American Slavery, American Freedom
0507-467 American Disability History
0507-474 America's National Parks
0507-475 Hands-on History
0507-495 The Civil Rights Movement in 20th Century U.S. History

Music Performance

Minor Adviser: Carl Atkins

The music minor combines courses in music theory, history, and world music with practical application through ensemble participation and applied music study. This combination of the academic and practical strives to offer students a more profound understanding of the art of music and, in a broader sense, an introduction to cultural development and the communication of ideas. A total of 20 quarter credit hours, selected from the following areas of study, is required for the minor.

Required Course:
0505-499 Music Theory I

Required Ensembles and Applied Music*—Four credits (four quarters) must come from participation in one of these ensembles. Up to an additional four ensemble or applied music credits may be counted toward the minor:
0505-401 RIT Singers
0505-402 RIT Orchestra
0505-403 RIT Concert Band
0505-404 RIT World Music Ensemble
0505-405 RIT Jazz Ensemble
0505-420 Applied Music

Music History Elective—Choose at least one of the music history courses listed below. Up to an additional 8 credits of these courses may be counted toward the minor:
0505-442 Music in the United States
0505-447 The American Musical Theater
0505-448 20th Century American Music
0505-450 Music and the Stage
0505-454 Orchestra Repertoire and History
0505-455 Survey of Jazz
0505-456 Topics in Music History
0505-459 Era of Haydn and Mozart
0505-463 Survey of African-American Music
0505-464 Blues as Personal and Social Commentary
0505-465 Special Topics
0505-470 American Popular Song
0505-471 American Popular and Rock Music
0505-482 Beethoven
0505-483 Bach and the Baroque
0505-484 Romanticism in Music

Music Theory and World Music Electives: Up to 8 credits may be counted toward the minor:
0505-461 World Music I
0505-462 World Music II
0505-485 Music Theory II

**Each of the required ensemble classes is one credit hour only. Four quarters of participation are required to complete one upper-level course equivalent.*

Music and Technology

Minor Adviser: Carl Atkins

The music and technology minor includes courses in music performance, music theory, music history, contemporary and historical instrument technology, acoustics, and audio engineering. The minor provides students who do not possess sufficient instrumental or vocal performance skills with an avenue to integrate their technological interests with music.

Required Courses:
0505-449 Music Theory I
0614-250 Fundamentals of Audio Engineering

Electives—Choose one of the following:
0614-325 Introduction to Digital Audio Production
0614-345 Intermediate Digital Audio Production
0618-206 Computers and Their Applications
4002-206 Web Foundations
4002-527 Digital Audio and Computer

Electives—Choose two of the following:
0505-442 Music in the United States
0505-447 The American Musical Theater
0505-448 20th Century American Music
0505-450 Music and the Stage
0505-454 Orchestra Repertoire and History
0505-455 Survey of Jazz
0505-459 Era of Haydn and Mozart
0505-461 World Music I
0505-462 World Music II
0505-463 Survey of African-American Music
0505-464 Blues as Personal and Social Commentary
0505-465 Special Topics
0505-466 Sounds of Protest
0505-471 American Popular and Rock Music
0505-482 Beethoven
0505-483 Bach and the Baroque
0505-484 Romanticism in Music
0505-485 Music Theory II

Electives—Music Performance (1 credit each):
0505-401 RIT Singers
0505-402 RIT Orchestra
0505-403 RIT Concert Band
0505-404 RIT Jazz Ensembles
0505-405 RIT World Music Ensemble
0505-420 Applied Music

**A maximum of 4 credits of ensemble and/or applied study is applicable toward the minor.*

Networking and System Administration

Minor Adviser: Sylvia Perez-Hardy

The minor in networking and system administration is structured for students in other computing or technology disciplines and features a sequence of courses that provides them with a firm foundation in networking and/or systems administration. Computer networks and the systems attached to these networks have become ubiquitous. Therefore, knowledge of how computer networks operate, their administration, and the administration of the systems attached to them can be of value to every computing professional since their work will be impacted in some way by computer networks and computer systems.

Prerequisites–Choose one of the following:
4050-302 Scripting in Perl
4050-402 OS Scripting

Required Courses:
4050-351 Network Fundamentals
4050-421 System Administration I
4050-515 Introduction to Routing and Switching

Elective–Choose one of the following:

4050-413	Applications of Wireless Networks
4050-516	Network Services

Optical Sciences

Minor Advisers: Zoran Ninkov, Michael Kotlarchyk

This minor provides students with the opportunity for additional study in optical sciences in order to build a secondary area of expertise in support of their major program. For example, the minor can be an important complement to studies in electrical and microelectronic engineering, the biological sciences, physics, chemistry, mathematics, technical photography, and various programs in the applied science and technology area. The department of physics and the Chester F. Carlson Center for Imaging Science jointly offer the minor.

Optical science techniques are used in a variety of consumer products (e.g., digital cameras, CD players), communication technologies (optical fibers), medical imaging (infrared imaging), and the sciences (surveillance, remote sensing, and astronomical systems). There are many opportunities in industry and government laboratories for people with recognized expertise in optical science. To obtain a minor in optical sciences students must complete three core courses and two elective courses.

Core Courses—Students must complete one course in each of three fundamental areas of optical science:

Optical Principles—Choose one of the following:

1051-303	Geometrical Optics
1017-455	Physical Optics
0305-525	Optics for Microelectronic Engineering
1017-320	Principles of Optics

Sources of Electromagnetic Radiation—Choose one of the following:

1017-556	Laser Physics
0609-511	Laser Technology
1051-370	Radiometry

Detectors—Choose one of the following:

1051-465	Detectors
1051-528	Design and Fabrication of a Solid State Camera

Electives*—Choose two of the following to provide specialization in any of the fundamental areas listed in the core:

1017-455	Physical Optics
1017-314	Modern Physics I (or 1051-313 Interactions Between Light and Matter, or 1014-442 Quantum Chemistry)
1051-528**	Design and Fabrication of a Solid State Camera
1017-412	Electricity and Magnetism II (or 0301-474 Electromagnetic Fields II)
1017-555	Optical Physics II
1017-511	Experimental Optics (or 1008-311 Analytical Chemistry: Instrumental Analysis)
0305-564	Microlithography Systems (and 0305-574 Microlithography Systems Lab)
0301-625	Modern Photonic Devices and Systems (or 0609-554 Electronic Optical Devices)
0301-674	Fiber Optics: Theory and Coupling (or 0614-520 Fiber Optic Telecommunications Technology)
2076-454	Holography I

**Substitution of courses for both the required and elective selections is possible with the approval of the optical science minor adviser. Students considering this minor are strongly advised to discuss their plan of study with the minor adviser.*

***Design and Fabrication of a Solid State Camera (1051-528) may be used as an elective if it has not been previously used as a core course.*

Packaging Science

Minor Adviser: Daniel Goodwin

Students from outside the packaging science program, particularly those in engineering technology programs, multidisciplinary studies, management, marketing, international business, engineering programs, and School of Print Media programs could all benefit from the packaging science minor. It offers courses covering every aspect of packaging, including development/design, testing, marketing, and production. Related legal, economic, and environmental concerns are also addressed.

Required Courses:*

0607-502	Packaging Materials
0607-503	Packaging Container Systems
0607-504	Concept to Consumer

Electives—Choose two of the following:**

0607-431	Packaging Production Systems
0607-462	Packaging Regulations
0607-485	Principles of Shock and Vibration
0607-520	Packaging Management
0607-524	Packaging Economics
0607-530	Packaging and the Environment
0607-531	Packaging Process Control
0607-536	Medical Products Packaging
0607-555	Export Packaging
0607-568	Food Preservation and Packaging
0607-570	Point-of-Purchase Display

**These are courses developed for non-packaging majors and also used as bridge courses for the packaging graduate program. A student who completes these courses may take the upper-level packaging electives within the packaging science program.*

***These are upper-level elective courses in the packaging science program.*

Philosophy

Minor Adviser: Jack Sanders

The philosophy minor provides basic competency in a variety of areas of philosophical inquiry and in developing the critical skills central to philosophical analysis. Students should achieve an articulate understanding of many of the great philosophers, major philosophical issues, and methods of philosophical inquiry that shape our most fundamental forms of critical reflection upon human life and conduct. As a result, students will develop un-

derstanding and skills that directly enhance their future personal and professional lives. *This minor is closed to students enrolled in the philosophy program.*

Electives*—Choose five of the following:

0509-440	Philosophy of Religion
0509-441	Logic
0509-442**	Philosophy of Art/Aesthetics
0509-443***	Philosophy of Science
0509-444†	The Great Thinkers
0509-445§	Social and Political Philosophy
0509-446	Philosophy of Law
0509-447	Contemporary Moral Problems
0509-448	Philosophy of Peace
0509-449†	Special Topics
0509-450*†	Seminar in Philosophy
0509-451	Professional Ethics
0509-452	Philosophy of Technology
0509-453	Environmental Philosophy
0509-454**	Feminist Theory
0509-455	Theories of Knowledge
0509-456	Ancient Philosophy
0509-457	Modern Philosophy
0509-458	Philosophy of Mind
0509-459‡	Philosophy of the Social Sciences
0509-460	East Asian Philosophy
0509-461	American Philosophy
0509-462	Contemporary Philosophy
0509-464	Philosophy of Action
0509-465**	Critical Theory
0509-466	Existentialism
0509-467	Medieval Philosophy
0509-468**	Metaphysics
0509-469**	19th Century Philosophy
0509-470**	Philosophy and Literary Theory
0509-471**	Philosophy of Film
0509-472	Minds and Machines
0509-473	Technology and Embodiment
0509-474**	Philosophy of Language
0509-475**	Philosophy of Vision/Imaging
0509-476	Ethical Theory

** Prerequisite: Two prior courses in philosophy or permission of the instructor. Students who have taken at least two courses are encouraged to take a Seminar in Philosophy (0509-450), usually offered more than once each year.*

***Prerequisite: One previous philosophy course or permission of the instructor is strongly encouraged.*

****Prerequisite: At least one prior course in either philosophy or one of the natural sciences (physics, chemistry, or biology)*

†Topics will vary.

§Prerequisite: At least one prior course in philosophy, political science, or sociology

‡Prerequisite: At least one prior course in either philosophy or one of the social sciences (psychology, economics, political science, sociology, or anthropology)

Physics

Minor Adviser: James R. Kern

Students have the opportunity for additional study in physics in order to build a secondary area of expertise in support of their program or other areas of interest.

Prerequisites:

1017-311	University Physics I
1017-312	University Physics II
1017-313	University Physics III

Required Courses:

1017-314	Modern Physics I
1017-318	Vibrations and Waves

Electives—Choose three of the following courses (at least one must come from Group A and at least one from Group B):

Group A

1017-321	Introduction to Laboratory Techniques
1017-374, 378	Experiments in Modern Physics I, II*
1017-431	Electronic Measurements

Group B

1017-315	Modern Physics II
1017-401	Intermediate Mechanics I
1017-411	Electricity and Magnetism I
1017-415	Thermal Physics
1017-455	Physical Optics
1017-440	Stellar Astrophysics
1017-480	Mathematical Methods in Physics I
1017-522	Quantum Mechanics I

Note: Other courses may be considered on an individual basis. See the minor adviser.

** Experiments in Modern Physics I, II (1017-374, 378) are each 2 quarter credit hours and count as one course combined.*

Political Science

Minor Advisers: Paul Ferber, John Murley

The political science minor emphasizes the interdependence of domestic politics and international relations in the present age of globalization. The minor brings together components of American politics, international relations, and comparative politics to provide students with both national and global perspectives on politics. Perhaps most important, the political science minor seeks to help students make sense of the increasingly complicated political environment that confronts them in their role as citizens.

Students select five courses from the following groups. Three courses may come from one group and two from another.

International Relations

0507-442	Contemporary Middle East
0507-444	Strategy and Diplomacy: Europe
0507-488	Modern Germany

0513-425 Politics and the Life Sciences
0513-426 Cyberpolitics
0513-427 Evolutionary International Relations
0513-428 Evolution and the Law
0513-429 Primate Politics
0513-441 Politics in China
0513-443 Politics of Russia
0513-446 Politics in Developing Countries
0513-447 Human Rights/Global Perspective
0513-449 Special Topics in Political Science
0513-453 American Foreign Policy
0513-461 Comparative Politics
0513-484 Government and Politics of Africa
0513-486 Comparative Politics in Latin America
0513-487 International Law and Organizations
0513-488 War and the State
0513-489 Terrorism and Political Violence
0513-490 International Political Economy
0513-491 Politics of the Middle East
0513-492 Religion and International Politics
0513-493 Global Politics and the Environment
0513-494 Comparative Public Policy
0513-496 Government and Politics in East Asia

American Politics
0508-484 Environmental Policy
0513-425 Politics in the Life Sciences
0513-426 Cyberpolitics
0513-449 Special Topics in Political Science
0513-450 State and Local Politics
0513-451 The Congress
0513-452 The American Presidency
0513-453 American Foreign Policy
0513-454 Political Parties and Voting
0513-455 Politics and Public Policy
0513-456 Judicial Process
0513-457 Constitutional Law
0513-458 American Political Thought
0513-460 Constitutional Rights and Liberties
0513-462 Abraham Lincoln and American Democracy
0513-463 First Amendment, Liberty, and Deliberative Democracy
0513-465 Modern Constitutionalism, Liberty, and Equality
0513-466 Political Leadership
0513-481 Women in Politics
0513-485 Politics through Fiction
0513-514 Political Theory

Print Media

Minor Adviser: Barbara Birkett

The print media minor introduces publishing to undergraduate students outside of the School of Print Media. Students may specialize in advertising and media strategy, contemporary publishing, digital imaging and pre-media, or print production. They also may elect to take courses across these areas. Students from the creative disciplines can learn about designing and distributing content in the world of integrated communications, which includes electronic as well as print formats. Business students may opt for learning about the role of advertising in the publishing media, or students from the sciences may choose to gain insight into the processes and materials of print production. Please note: Undergraduate students already enrolled in the School of Print Media are not eligible to take this minor.

Required Course:
2082-371 Principles of Printing

Electives—Students may choose courses from the following groupings. They may select one area of specialization, or they may choose from all areas to customize the minor. A minimum of 20 credits must be completed, including Principles of Printing. Students should check prerequisites for each course listed in the online Course Description catalog.

Advertising and Media Strategy
2080-592 Marketing and Sales
2082-367 Media Industry Analysis
2083-201 New Media Perspectives
2083-323 Multimedia Strategies
2082-313 Media Distribution and Transmission
2083-402 Media Law
2083-416 Media Business Basics

Contemporary Publishing
2083-216 Digital Foundations
2083-217 Typography and Page Design
2083-316 Web Page Production
2082-337 Digital Asset Management
2083-412 Digital News Systems Management
2082-313 Media Distribution and Transmission
2083-402 Media Law
2082-228 Multimedia Publishing
2083-317 News Production Management

Content Management
2083-216 Digital Foundations
2082-337 Digital Asset Management
2082-417 Database Publishing
2083-402 Media Law

Digital Imaging and Pre-media
2081-454 Print Finish Management
2083-216 Digital Foundations
2083-217 Typography and Page Design
2083-206 Imaging for New Media
2082-407 Color Management Systems
2081-409 Image Processing Workflow
2082-337 Digital Asset Management
2082-228 Multimedia Publishing
2083-402 Media Law

Print Production
2082-401 Digital Print Process
2081-367 Lithographic Process
2081-364 Flexographic Process

2081-386 Gravure Process
2081-454 Print Finish Management
2081-458 Ink Chemistry and Formulation
2082-387 Substrates for Printing
2082-407 Color Management Systems
2082-413 Operations Management for Graphic Media

Psychology

Minor Adviser: Andrew Herbert

This minor provides a solid knowledge base of psychological terms, concepts, methods, theories, and issues.

Prerequisite:
0514-210 Introduction to Psychology

Required Course:
0514-402 Research Methods

Electives—Choose four of the following:
0502-463 Language and Brain
0514-440 Childhood and Adolescence
0514-441 Humanistic Psychology
0514-442 Adulthood and Aging
0514-443 Cognitive Psychology
0514-444 Social Psychology
0514-445 Psychology of Perception
0514-446 Psychology of Personality
0514-447 Abnormal Psychology
0514-448 Industrial/Organizational Psychology
0514-449 Behavior Modification
0514-451 Psychology of Motivation
0514-453 Death and Dying
0514-483 Social Psychology of Religion
0514-544 History and Systems

Public Policy

Minor Adviser: James Winebrake

The purpose of this minor is to provide students with a foundation in the field of public policy and allow them to make connections between public policy and other fields of study. Students are allowed to follow one of two tracks within the public policy minor. The first track, policy issues, develops a broad perspective on public policy and its relationship to other fields. The second track, policy analysis, highlights the analytical tools used by the policy analyst to evaluate and understand policy formulation and impacts. Both tracks explore contemporary public policy issues, especially those connected to the science and technology fields. This minor underscores the role of public policy on science and technology-based problems. Through the minor, students obtain a deeper understanding of what public policy is and how it is integrated within a number of specific contexts.

Prerequisites: Check individual course descriptions for specific prerequisites.

Policy Issues Track
Required Course:
0521-400 Foundations of Public Policy
Plus one of the following:
0521-460* Capstone: Public Policy Minor
0508-530* Seminar in Science, Technology and the Environment

Electives—Choose three of the following:
0508-441 Science and Technology Policy
0508-484 Environmental Policy
0508-540*** Science and Technology Policy Seminar
0513-455* Politics and Public Policy
0515-413 Urban Planning and Policy
0515-451* Technology Transfer and Globalization
0521-401* Values and Public Policy
0521-406* Introduction to Qualitative Analysis
0521-408* Technological Innovation and Public Policy
0521-410* Information and Communication Policy
0521-449** Special Topics in Public Policy
0521-451 Energy Policy

Policy Analysis Track
Required Courses:
0521-400 Foundations of Public Policy
0521-402* Policy Analysis I
0521-403* Policy Analysis II
0521-404* Policy Analysis III

Electives—Choose one of the following courses:
0508-441 Science and Technology Policy
0508-484 Environmental Policy
0508-540*** Science and Technology Policy Seminar
0515-413 Urban Planning and Policy
0521-401 Values and Public Policy
0521-406* Introduction to Qualitative Analysis
0521-408* Technological Innovation and Public Policy
0521-410* Information and Communication Policy
0521-449** Special Topics in Public Policy
0521-451 Energy Policy

**Students should check the prerequisites or co-requisites for these courses.*
****Prerequisite: 0508-441 Science and Technology Policy, 0508-484 Environmental Policy, or 0521-400 Foundations of Public Policy*
***Topics may vary.*

Science, Technology, and Policy

Minor Adviser: Franz Foltz

This minor provides students with both breadth and depth in the field of science and technology policy by allowing students to make connections between public policy and other scientific and technical fields. Students will explore contemporary science and technology policy issues and build a foundation for understanding the policy process. Through the minor, students obtain a deeper understanding of what science and technology policy is and how it is integrated within a number of specific contexts.

This minor is closed to students enrolled in the public policy degree program or already taking a minor in science, technology, and environmental studies or public policy.

Required Course—Choose one of the following:

0508-540	Science and Technology Policy Seminar
0508-530**	Seminar in Science, Technology, and the Environment

Plus, at least one of the following 400-level courses:

0508-441	Science and Technology Policy
0521-400	Foundations of Public Policy

Electives*—Choose three of the following:

0508-444	Social Consequences of Technology
0508-445	Biomedical Issues: Science and Technology
0508-447	Special Topics in Science and Technology Studies
0508-482	Energy and the Environment
0508-484	Environmental Policy
0508-487	Special Topics in Environmental Studies
0521-408**	Technological Innovation and Public Policy
0521-410**	Information and Communication Policy
0521-449	Special Topics in Public Policy
0521-451	Energy Policy

***Students should check the prerequisites for these courses.*

**If only one of the required 400-level courses is taken, select three electives from the following list; if two of the required 400-level courses are taken, select two electives from the electives list.*

Science, Technology, and Society

Minor Adviser: Deborah Blizzard

This minor integrates the studies of human society and science and technology in their social content and context. The minor bridges the humanities and social sciences to provide better understanding of the ways in which science, technology, and society are mutually interacting forces in our world. Students will learn how to analyze the social institutions, the built environment, and their role in creating them. This minor will enhance a student's ability to contribute to the development of science and technology in ways that are historically, culturally, and ethically informed.

Required Course:

0508-530*	Seminar in Science, Technology, and the Environment

Electives—Choose four of the following:

0504-462*	Literature and Technology
0508-440	History of Science
0508-441	Science and Technology Policy
0508-442	History of American Technology
0508-443	Face of the Land
0508-444	Social Consequences of Technology
0508-445	Biomedical Issues: Science and Technology
0508-447	Special Topics: Science and Technology Studies
0508-451	Cyborg Theory: (Re)Thinking the Human Experience
0508-452	Gender, Science, and Technology
0508-460	Environment and Society
0508-483	Environmental Values
0508-490	Biodiversity and Society
0508-500	Science, Technology, and Society Classics
0515-451*	Transfer Technology and Globalization

**Students should check the prerequisites for these courses.*

Science Writing

Minor Adviser: Lisa Hermsen

The science writing minor gives students a basic grounding in the practice and theory of writing about science for a popular audience. In the three required courses, students gain practice in writing about science for lay readers as well as for scientists interested in the wider social ramifications of science. They also examine the rhetorical elements of a wide range of science writings. Students can then choose from a group of courses that deal with the history, ethics, cultural debates, and literary representation of science and technology. The minor serves as a professionally marketable complement to a number of degree programs in the College of Science, the Kate Gleason College of Engineering, the College of Applied Science and Technology, and a number of programs across the university.

Prerequisite:

0502-227	Writing Seminar (or equivalent)

Required Courses:

0502-456	Rhetoric of Science
0502-460	Science Writing
0502-462	Advanced Science Writing

Electives—Choose two of the following:

0502-449	Worlds of Writing
0502-459	Creative Nonfiction
0502-560	Special Topics: Language and Brain
0502-560	Special Topics: Introduction to Writing Science and Technology
0504-448	Biographical Literature: Lives of Scientists
0504-462	Literature and Technology
0504-482	Science Fiction

Service Management

Minor Advisers: Carol Whitlock, Jayne Downes

Delivering exceptional customer service experience is an important strategic component of all business enterprises in the U.S. and global economies. Managing customer services includes knowing your customers and their preferences (customer relations management databases); identifying quality service standards; using technologies to deliver timely, customized service experiences; monitoring service quality; identifying gaps in service; and leading employees to meet and exceed customer expectations.

Required Courses:

0619-322	Service Management in a Global Economy
0619-320	Global Standards in the Service Industry

0619-410 Assessing Service Quality
0619-426 Technology in Service Systems
0619-470 Leadership in Service Cultures

Sociology and Anthropology

Minor Adviser: Paul Grebinger

Sociology and anthropology examines the changing interrelations among work, technology, and culture in different nations across the globe. With the globalization of the workforce, our trade, production, and social interactions have become increasingly marked by differences in gender, class, racial, and ethnic identities. Courses analyze the global and local worlds of work, how social relations are shaped by technology and culture, and how global trends are transforming our lives.

Prerequisite—Choose one of the following:
0510-210 Cultural Anthropology
0515-210 Foundations of Sociology

Electives—Choose five of the following:
0510-440 Cultures in Globalization
0510-442 Culture and Politics in Latin America
0510-443 Immigration to the U.S.
0510-444 Global Economy and the Grassroots
0510-445 Global Cities
0510-446 Native North Americans
0510-447 Anthropology of Mass Media
0510-448 Native Americans in Film
0510-449 Sustainable Development
0510-450 Cultural Resource Management and Historic Preservation
0510-451 Global Sexualities
0510-452 Bodies and Culture
0510-454 Visual Anthropology
0510-457 Divided Europe
0510-459 Cultural Images of War and Terror
0510-460 Genocide and Post-Conflict Justice
0510-486 African Cultural Histories
0510-487 African Popular Cultures
0510-502 Archaeology and the Human Past
0510-507 Archaeological Science
0510-508 The Archaeology of Cities
0510-512 Garbage Archaeology
0515-441 The Changing Family
0515-442 The Urban Experience
0515-443 Sociology of Work
0515-444 Social Change
0515-446 Sociology of Health
0515-447 Women, Work, and Culture
0515-449 Population and Society
0515-451 Transfer of Technology and Globalization
0515-453 Global Exiles of War and Terror
0515-485 Diversity in the City
0515-506 Social Inequality
0531-443 Native American Repatriation

Software Engineering

Minor Adviser: James Vallino

The software engineering minor provides students with an opportunity to gain a deeper understanding of software engineering in the context of their respective fields of study. Depending on their choice of courses, students who opt for this minor enhance their academic experience by gaining a deeper understanding of processes with which professionals build software today as well as current techniques for designing and building professional-quality software.

Prerequisites–Chose one of the following:
4003-233 Computer Science 3
4003-243 Object-Oriented Programming
4003-263 Computer Science for Transfers.

Required Courses:
4010-361 Software Engineering
4010-362 Engineering of Software Subsystems
4010-456 Software Engineering Process

Elective Courses—Subject to having the proper prerequisites, students must take two additional 4-credit elective courses from the list of undergraduate software engineering offerings. At least 12 of the credits taken toward this minor must not be required by the student's home program.

Statistics

Minor Adviser: James Halavin

The statistics minor allows students to deepen their technical background and gain further appreciation for modern mathematical sciences and the use of statistics as an analytical tool.

Prerequisites:
1016-281 Project-Based Calculus I
1016-282 Project-Based Calculus II
1016-283 Project-Based Calculus III
or equivalent

Required Courses: Students must complete five courses from the list below and maintain a minimum GPA of 2.0. At least three of these courses must not be required by the student's home program. All required courses must be taken in the School of Mathematical Sciences. Students may elect to take either 1016-352 or 1016-314 as part of the minor, but not both. Students may elect to take either 1016-345 or 1016-351 as part of the minor, but not both.

1016-314 Engineering Statistics I
1016-345 Probability and Statistics for Engineers
1016-351 Probability
1016-352 Applied Statistics
1016-354 Introduction to Regression Analysis
1016-355 Design of Experiments
1016-358 Statistical Quality Control
1016-415 Statistical Analysis for Bioinformatics

1016-451 Mathematical Statistics I
1016-452 Mathematical Statistics II
1016-454 Non-parametric Statistics
1016-457 Research Sampling Techniques
1016-5xx Choices through advising

Structural Design

Minor Adviser: John Morelli

The minor focuses on structural design and the analysis of steel, concrete, and wood. The minor also explores building codes as they relate to design. Students from outside the civil engineering technology program with majors in mechanical engineering technology or mechanical engineering would benefit from the minor. The minor is not limited to students in these fields of study, but there are some technical prerequisite courses.

Prerequisites:
0610-302 Introduction to Statics
0610-303 Strength of Materials

Required Courses:
0608-404 Applied Mechanics of Materials
0608-490 Structural Analysis
0608-304 Structural Loads and Systems

Electives—Choose three of the following courses:
0608-470 Timber Design
0608-497 Structural Steel Design
0608-305 Structural Computer Applications
0608-496 Reinforced Concrete Design

Sustainable Product Development

Minor Advisers: Andres Carrano, Brian Thorn

This multidisciplinary minor is aimed at students interested in exploring issues associated with developing and delivering sustainable product systems. Courses enhance the understanding of the three dimensions of sustainability (economic, ethical, environmental), develop awareness of the need for more sustainable approaches to product development, and explore strategies for developing and delivering sustainable product systems.

Prerequisites:
Math at the level of 1016-226 or higher

Required Courses:
0303-520/620 Engineering Economy
0617-436 Engineering Economics (or equivalent)
0303-691/790 Fundamentals of Sustainable Product Design
0303-791 Introduction to Life Cycle Assessment and Costing

Electives—Choose two of the following (one must be a social context course):

Social Context Electives
0508-211 Science, Technology, and Values
0508-212 Introduction to Environmental Studies
0508-441 Science and Technology Policy
0508-443 Face of the Land
0508-444 Social Consequences of Technology
0508-460 Environment and Society
0508-463 Great Lakes I
0508-464 Great Lakes II
0508-482 Energy and the Environment
0508-483 Environmental Values
0508-484 Environmental Policy
0508-490 Biodiversity and Society
0521-408 Technology Innovation and Public Policy
0521-451 Energy Policy

Technical and Engineering Electives
0303-792 Design for the Environment
0304-460 Contemporary Issues in Energy and the Environment
0304-710 Fuel Cell Technology

Civil Engineering Technology and Environmental Management Electives
0630-465 Product Stewardship
0630-521 Environment, Health, and Safety for Engineering Technology
0630-350 Survey of Solid and Hazardous Waste Management
0630-352 Survey of Industrial Wastewater Management
0630-354 Survey of Air Emissions Management

Telecommunications

Minor Adviser: Warren Koontz

A telecommunications minor is available for undergraduate students who have the appropriate math experience.

Required Courses:
0614-271 Telecommunications Fundamentals
0614-465, 466 Voice Communications Technology Lab
or
0614-464 Voice Communications Systems
0614-477 Networking Technologies

Electives—Choose two of the following:
0614-475 Switching Technologies
0614-479 Network Management
0614-480 Telecommunications Policy
0614-483 Telecommunications Transmission Systems
0614-561 Network Engineering
0614-562 Network Engineering Lab
0614-574 Network Planning and Design
0614-520 Fiber Optic Telecommunications Technology

Note: Students who have prior knowledge/experience but who may not have completed the required prerequisites may take a specific course with the approval of the instructor.

Theater Arts

Minor Adviser: Peter Ferran

The theater arts minor offers students a focused study of the theatrical and dramatic arts, combining courses in dramatic and theatrical history, criticism, and theory with concrete practice through direct production involvement. Students will consult with the fine arts faculty to select courses for the theater arts minor. NOTE: No course taken to satisfy the requirements of this minor may be counted toward any other minor, nor may any course taken to satisfy the requirements of another minor be counted toward the theater arts minor.

Required Course:

0505-489 Theater Production Seminar and Workshop

Theater and the Times

Electives—Choose no fewer than two, no more than four of the following theater arts courses:

0504-455 Shakespeare: Comedies and Histories
0505-450 Music and the Stage
0505-453 Theater in the United States
0505-457 Contemporary Drama, Theater, and Media
0505-458 Modern European Theater and Drama
0505-486 German Theater and Drama
0505-502 Shakespeare the Dramatist

Choose no more than two of the following drama- and theater-related electives:

0504-440 Drama and Theater
0505-446 American Film of the Studio Era
0505-447 American Musical Theater
0505-467 American Film Since the Sixties
0505-488 Special Topics: Drama and Theater-Related

Urban and Community Studies

Minor Adviser: Paul Grebinger

This minor focuses on the interplay between urban issues and urban policy. Every metropolitan area must address such perennial issues as housing, transportation, education, crime, safety, recreation, and economic development. Each community must do so with an understanding of its unique social mix and neighborhood relations, and with recognition of its place in wider regional, national, and global networks. Students identify and analyze central issues and social problems of urbanization and explore and assess various ways decision-makers respond to these issues.

Prerequisite—Choose one of the following:

0515-210 Foundations of Sociology
0510-210 Cultural Anthropology

Required Course:

0515-442 The Urban Experience

Electives—Choose four of the following (at least one course must be from urban policy and one from urban issues.)

Urban Policy

0508-491 Sustainable Communities I
0511-440 Urban Economics
0515-413 Urban Planning and Policy
0526-441 GIS Applications in UC Studies
0526-443 Rochester: People, Politics, and Planning

Urban Issues

0510-443 Immigration to the U.S.
0510-445 Global Cities
0515-485 Diversity in the City
0501-405* Major Issues: Crime/Justice in the Community

**Major Issues: Crime/Justice in the Community (0501-405) offers a number of sections. Students in this minor may enroll only in section 02 (Crime/Justice in the Community).*

Water Resources

Minor Adviser: Scott Wolcott

This minor broadens the learning experiences and professional opportunities of students in technical disciplines who have an interest in engineering technology. Students will choose from a variety of courses to expand their knowledge of water treatment, wastewater treatment, hydrology, and the environment.

Prerequisites:

0610-302 Introduction to Statics
College-level chemistry

Required Course:

0608-420/421 Hydraulics and Lab

Electives—choose four additional courses, including one from each of the two course groups**.**

0508-484 Environmental Policy

Hydrology and Hydraulics Group

0608-480 Groundwater Hydraulics
0608-482 Stormwater Management
0608-485 Hydraulic Structures

Water and Wastewater Group

0608-432 Water and Wastewater Transportation
0608-438 Principles of Water and Wastewater Treatment
0608-510 Design of Water Treatment Facilities
0608-520 Design of Wastewater Treatment Facilities

Web Design and Development

Minor Adviser: Ronald P. Vullo

This minor is designed for students outside the computing field who wish to learn more than just the basics of Web usage. Students will learn how to design and build Web pages and create and manipulate digital images and video for Web use.

Required Courses:

4002-206	Web Foundations
4002-306	Digital Image Creation
4080-310	Digital Video for the Web
4002-406	Rapid Online Presence
4002-535	Network-Based Multimedia

Web Development

Minor Adviser: Daniel Bogaard

The Web has become a global, essential, and ubiquitous information delivery medium. The minor explores Web development, starting with simple sites and moving through dynamic client-side and server-side creation. Students will create their own Web 2.0, AJAX-driven compound document application.

Prerequisites:
Students should complete course work in multimedia, discrete mathematics, and a two-course programming sequence prior to beginning course work for this minor.

Required Courses:

4002-360	Introduction to Database and Data Modeling
4002-409	Website Design and Implementation
4002-536	Web Client-Side Programming
4002-539	Web Server-Side Programming
4002-546	Web Client-Server Programming

Women's and Gender Studies

Minor Adviser: Tina Lent

This minor explores the significance of gender (along with race, sexuality, and class) in the construction of knowledge within academic disciplines and in the shaping of women's and men's lives. Courses engage a critical pedagogy focused on the recovery of women's contributions in a variety of fields, on women's and men's roles in society across cultures, and especially on critical questions about gender neutrality in the shaping of culture.

Required Course:

0522-400	Foundations of Women's and Gender Studies

Electives—Chose four of the following:

0504-467	African American Literature
0522-401	American Women: Colonial Era to 1848
0522-402	American Women: 1848 to Now
0522-405	Women and Science
0522-406	Feminist Theory
0522-407	Seminar on Sexual Violence
0522-410	Introduction to Gay, Lesbian, Bisexual, and Transgender Studies
0522-415	Domestic Violence
0522-436	Women's Stories, Women's Films
0522-439	Queer Looks I
0522-446	Women and Crime
0522-447	Women, Work, and Culture
0522-449	History of Women in Science and Engineering
0522-450	Gender, Science, and Technology
0522-451	Global Sexualities
0522-452	Bodies and Culture
0522-453	Economic Role of Women
0522-454	Hispanic Women in the World
0522-459	Toni Morrison
0522-460	Special Topics*
0522-480	Women and the Visual Arts
0522-481	Women's Studies in Language and Literature
0522-482	Women in Politics
0522-483	Psychology of Women
0522-484	Auto/Biography
0522-492	Native American Women's Experience
0525-543	Women in the Hispanic World: Politics of Identity Formation

** Special Topics may include: Traumatic Images, Queer Looks II, Art of Dying, Contemporary Women's History, Prostitution and Vice, and Queering Gender.*

Writing Studies

Minor Advisers: Richard Santana

The writing studies minor offers students the opportunity to develop and practice writing skills in a variety of contexts; the competencies needed to be effective, confident, and versatile when facing writing challenges in the workplace; and an understanding of the theoretical and historical foundations underlying written communication and linguistics.

Prerequisite:

0502-227	Writing (or equivalent)

Electives
Choose one course from the following:

0502-443	Written Argument
0502-456	Rhetoric of Science

Choose one course from the following:

0502-445	The Evolving English Language
0502-457	Language, Dialects, and Identity
0502-463	Language and Brain

Choose three courses from the following:

0502-443	Written Argument
0502-444	Technical Writing
0502-445	The Evolving English Language
0502-449	Worlds of Writing
0502-455	Writing the Self and Others
0502-456	Rhetoric of Science
0502-457	Language, Dialects, and Identity
0502-459	Creative Nonfiction
0502-460	Science Writing
0504-455	Shakespeare: Comedies and Histories
0502-560	Special Topics: Writing

Academic Enrichment

Experiential learning

www.rit.edu/co-op/careers
(585) 475-2301 (voice), (585) 475-6905 (TTY)

At RIT, students earn an outstanding education. But to prepare them for the challenges they will face on the job, RIT offers experiential education that helps make course work and projects more relevant to industry.

Experiential education may include:

- joining a team solving business problems through industry-sponsored, class-based projects.
- working with a faculty member on an externally funded research project.
- study or work abroad.
- gaining valuable work experience through internships and cooperative education—paid work assignments with corporations and organizations around the U.S. and abroad.

Cooperative education

Cooperative education (co-op) is the best way for students to immerse themselves in the real world and apply what they've learned and experienced while at RIT. The benefits of participating in co-op and other experiential education opportunities are many. Students can:

- better clarify and focus their career interests.
- gain valuable workplace and work-related experience.
- make important industry contacts and build a professional network.
- generate significant earnings to help offset college expenses.

Study abroad

http://studyabroad.rit.edu
(585) 475-4466

To prepare students for success in our global society, RIT offers a range of study abroad opportunities. Living and studying in a foreign country goes beyond the traditional classroom setting and can provide an invaluable experience when it comes to immersing oneself in a foreign culture, experiencing a different educational environment, and gaining interpersonal and foreign language skills that could be of interest to future employers.

Study abroad programs led by RIT faculty are in most cases offered in the summer, although a few are offered during the quarter. Many programs—including programs in Marburg, Germany; Genoa, Italy; and a program at RIT's campus in Dubrovnik, Croatia—offer courses with credits that can be applied toward a student's liberal arts requirements. Other RIT-sponsored programs are offered in biomedical science and health care in Dubrovnik, Croatia; design in Dessau, Germany; photography in Dubrovnik, Croatia; and film in Paris, France, to name a few.

Through affiliation agreements with other institutions, such as Arcadia University, Syracuse University, and the Siena School for Liberal Arts in Italy (including programs for deaf/hard of hearing students and interpreting majors), RIT also provides students with the opportunity to enroll in study abroad programs in many locations around the world while receiving RIT credit and financial aid. A wide selection of program choices and geographical locations allows students from every academic discipline to meet their study abroad needs and goals, ranging from intensive foreign language/cultural immersion programs to taking classes in their major.

Program locations include, but are not limited to, the United Kingdom, Ireland, Italy, France, Denmark, Germany, Spain, Hungary, Greece, Costa Rica, the Turks and Caicos Islands, Ghana, Czech Republic, Hong Kong, Singapore, Australia, China, and New Zealand. In addition, our program selections and geographical regions continue to grow. Recently added programs can be found in Turkey, Portugal, Bhutan, Botswana, Belgium, Sweden, Senegal, Taiwan, Thailand, Russia, Japan, and India.

Undergraduate research

www.rit.edu/research/

Research is about solving problems, and RIT recognizes that many careers require strong research skills. RIT provides a wide variety of undergraduate research opportunities—from working on research projects sponsored by business, industry, a government agency, or RIT; to an original research project in collaboration with a faculty member; to facilitating applied scientific, engineering, or market research in a corporate or industrial setting, or as part of the RIT co-op or internship programs; plus a host of other options.

A number of RIT programs offer exciting opportunities for students to engage in undergraduate research. Examples of these opportunities include:

- *Center for Innovation and Entrepreneurship*: Promoting entrepreneurial endeavors, the center offers students applied experiences, such as for-credit opportunities to consult on pre-seed and start-up ventures; a business plan competition; conferences; a minor in entrepreneurship; and courses in innovation, strategic growth, and business creativity.
- *Center for Student Innovation:* An RIT center in which multidisciplinary student teams collaborate with faculty and staff in the conception, development, and implementation of innovative solutions to problems.
- *Biological Sciences Research Scholars Program*: A substantial hands-on experience where students execute their own

high-quality research projects under the guidance of faculty mentors. Students gain valuable research experience, write papers discussing their work, present their findings, and participate in discussion and lecture series.
- *Chemistry Research Scholars Program*: Intended for students to engage in serious undergraduate research in chemistry, the program features a significant experience for students to design and execute their own research under the direction of a faculty mentor. Participants take part in discussions and lectures, earn opportunities to travel to conferences, and present their findings.
- *Undergraduate Research and Mentoring for Deaf Students in Biology*: Designed to increase the number of deaf and hard-of-hearing students performing undergraduate research in biology, the research and mentoring program features a two-year research project, seminars, and prep work that strengthens students' candidacy for graduate programs in biology.
- *Open Publishing Lab*: Based in the School of Print Media, the lab offers a place for students and faculty to collaborate on creating the next generation of publishing platforms.

The RIT Undergraduate Research Symposium honors RIT student research achievement when it hosts more than 90 presentations from across the campus each year by undergraduate students who have conducted research with faculty members.

Honors program

http://honors.rit.edu
(585) 475-4466

The RIT Honors Program provides a supportive and encouraging environment for students with intellectual curiosity and academic distinction. Students benefit by working closely with faculty, and by sharing academic experiences with other honors students, both in and out of the classroom.

The Honors Program centers on three basic ideals of leadership, scholarship, and citizenship, and is designed for students who:

- seek to challenge themselves in exemplary learning experiences such as undergraduate research projects, honors seminars, and study abroad;
- wish to extend and share their knowledge through participation in professional associations and conferences; and
- aspire to join other outstanding students and faculty in a wide range of special activities throughout the year, including field trips, social events, and community service projects.

Honors activities and courses are designed to enhance the professional dimension of the student's collegiate experience. Major components of the Honors Program include professional opportunities within the student's home college, enhanced general education courses, and complementary learning experiences. Special features include:

- An Honors curriculum: Special courses, seminars, projects, and advising are offered in the student's home college and in general education honors courses within the College of Liberal Arts and the College of Science.
- Research and experiential learning: The Honors Program provides opportunities to work with faculty on applied and interdisciplinary research projects.
- Honors advising: Each college has designated an experienced faculty or staff member to serve as its Honors advocate. The advocate will work with students one-on-one, advising them as they develop plans for professional and experiential learning opportunities such as research placements, co-ops, internships, and study abroad.
- Study abroad: Honors students are encouraged to pursue study abroad to add an international perspective to their education. Honors students work with the director of the Study Abroad program for guidance on how to include such experiences in their academic career.
- Honors residence: Students may choose to live in honors housing in the residence halls. This option increases interaction with other honors students outside the classroom.

Requirements: Students in the Honors Program are required to enroll in honors courses and to fulfill approximately half of their liberal arts requirements with honors courses. Students are expected to participate in co-curricular activities within their college. Honors students are also required to complete complementary learning experiences each year. All students who wish to continue in the program are reviewed annually by the Honors Committee. Program continuation is subject to maintaining grade point average and other requirements.

Admission: Applicants who submit RIT's Application for Undergraduate Admission (or the Common Application) by February 1 may be invited to the Honors Program if their high school grades, rank, and test scores place them among the top 5 percent of the applicants to the university. This typically requires outstanding grades and SAT or ACT scores, and a class rank of 95 percent or higher. Late entry into the Honors Program is also possible after a student's second or fifth quarter at RIT.

Scholarship availability: All students enrolled in the RIT Honors Program receive significant academic (merit) scholarships from RIT.

Accelerated dual degree options

RIT offers the following dual degree programs in which a student can earn a BS degree and an MS or ME degree in less time that it takes to do each program separately.

College of Applied Science and Technology
BS in Computer Engineering Technology/MS in Computer Science
BS/MS in Electrical Mechanical Systems Integration
BS in Environmental Technology/MS in Environmental Health and Safety Management
BS/MS in Manufacturing Systems Integration
BS/MS in Mechanical Systems Integration
BS in Safety Technology/MS in Environmental Health and Safety Management
BS/MS in Telecommunications Engineering Technology

B. Thomas Golisano College of Computing and Information Sciences
BS in Medical Informatics/MS in Computer Science

Kate Gleason College of Engineering
BS/MS in Applied and Mathematical Statistics
BS/MS in Applied Statistics
BS/MS in Computer Engineering
BS/MS in Electrical Engineering
BS in Electrical Engineering/MS in Computer Science
BS in Electrical Engineering/MS in Materials Science and Engineering
BS/ME in Industrial Engineering
BS/MS in Industrial Engineering
BS in Industrial Engineering/MS in Applied and Mathematical Statistics
BS in Industrial Engineering/ME in Engineering Management
BS in Industrial Engineering/ME in Systems Engineering
BS/ME in Mechanical Engineering
BS/MS in Mechanical Engineering
BS in Mechanical Engineering/MS in Public Policy
BS in Microelectronic Engineering/MS in Material Science

College of Imaging Arts and Sciences
BS in Print Media/MBA

College of Liberal Arts
BS in Public Policy/MS in Science, Technology, and Public Policy

College of Science
BS/MS in Applied Mathematics
BS in Applied Statistics/MS in Applied Mathematics
BS in Biochemistry/MS in Chemistry
BS/MS in Bioinformatics
BS/MS in Chemistry
BS in Chemistry/MS in Materials Science and Engineering
BS in Computational Mathematics/MS in Applied Mathematics
BS in Computational Mathematics/MS in Computer Science
BS/MS in Environmental Science
BS/MS in Physician Assistant*
BS in Physics/MS in Materials Science and Engineering
BS in Polymer Chemistry/MS in Chemistry

**Pending NYS approval*

Double majors

RIT encourages students to enhance their degree programs by enrolling in a double major. A double major is any combination of majors from RIT's more than 200 academic programs. Students can combine any number of programs to create a double major that best meets their academic and professional goals. Some guidelines apply to the creation of a double major:

- Double majors are available only to matriculated baccalaureate students.
- Both degree programs must be of the same type (i.e., both BS degrees or both BFA degrees).
- Both majors in a double major degree must be in existing approved degree programs.
- Students must meet the entrance criteria for both programs.
- A double major degree requires the approval of the heads of both degree programs, who will take into consideration issues such as potential scheduling conflicts.
- A double major degree must satisfy the graduation and accreditation requirements for both degree programs.
- The double major will be the same type as the two component majors. It is possible to use a single requirement to meet the needs of both majors; double counting is allowed as long as the department heads of both degree programs approve it.
- In cases where the two majors do not have 28 unique and non-overlapping credit hours, students must take enough additional course credits in either or both majors to meet the 28-credit minimum.
- Curriculum requirements for the double major will be developed by the appropriate personnel of the two degree programs and approved by the department heads of both degree programs.
- Department heads approving the double major are responsible for forwarding the *Undergraduate Double Major Authorization Form* to the vice president for Academic Affairs, who will validate that all criteria for the double majors have been met.

Independent study

An independent study project is a program of study, research work, or creative work executed under a specific set of rules without classroom-type assistance from an instructor, but under the guidance and direction of an instructor, which would earn for the student a predetermined number of credits. Students have a limited opportunity to obtain credit for independent study and to use that credit to meet degree requirements. Generally, independent study projects represent work that is different from, or an extension of, existing course offerings. The rules governing independent study projects can be found in section D3.O of the RIT Policies and Procedures Manual.

Online learning

http://online.rit.edu
(585) 475-5896 (V/TTY)

RIT offers nearly 50 degree and certificate programs in an online format, most of which can be earned without ever coming to campus. Including graduate and undergraduate courses, RIT offers more than 500 courses online annually. Each year, nearly 5,000 students enroll in an online learning course. Students are encouraged to select and apply to their chosen academic program, but in some cases may enroll in courses prior to matriculation into a program.

Online learning offers students the flexibility to learn on their own time, when and where it best meets their needs. All online courses are taught using Internet and Web-based technologies. Students must have Internet access, a computer, DVD player and monitor, and a telephone to participate in courses. Not all courses use the same technologies. Some take advantage of toll-free phone conferences while others use text-based chat or CD-ROMs. Some have Web-based simulations and some require

additional software to complete course requirements. All courses use asynchronous Internet/Web-based tools for the fundamental class structure.

Online students have full access to customer and technical support through a toll-free phone number and e-mail. Online learners also have full access to the library and library services. Other online services include registration, orientation, access to student records and course material ordering. Registration also can be accomplished through touchtone phone and fax. Annual offerings can be found at http://online.rit.edu. Officially registered students receive an e-mail about three weeks before the quarter begins welcoming them to online learning at RIT and directing them to RIT's course management system, myCourses. From there, they can access the Online Learning Student Community to read and complete the Quarterly Startup. As part of the Quarterly Startup self-guided tutorial, students may review course information, order course materials online for mail delivery, and review any proctored examination requirements.

All courses offered online meet the same rigorous objectives set for traditional classroom experiences. Faculty members who teach online courses often teach the same class in a traditional format.

However, just as each professor establishes the learning outcomes for a traditional course, their individual choices will be present in the online classroom. Most classes establish either a weekly schedule for learning activities or a project-based learning approach, where deliverables are due after certain learning outcomes are accomplished. These may include team-based projects, required asynchronous discussion, or computer programs. Most classes also include various readings either from textbooks or electronic reserves. Students interact online with other students to exchange ideas and collaborate much as they would face-to-face.

Online learning serves students throughout the United States and in nearly 40 countries. Students living near the RIT campus in Rochester, N.Y., may choose to take both online and traditional courses as a way of increasing flexibility and remaining on target to complete a degree.

Online Undergraduate Programs:

Bachelor's Degrees

- Applied Arts and Science
- Electrical/Mechanical Engineering Technology
- Telecommunications Engineering Technology

Associate Degrees

- Applied Arts and Science AAS

Diplomas

- Applied Arts and Science

Online Certificates

- E-Business
- Fundamentals of Manufacturing Management
- Health Systems Administration
- International Logistics and Transportation Management
- Public Relations Communications: Professional Writing
- Quality Management
- Small Business Management
- Technical Communication – Basic
- Technical Communication – Advanced
- Telecommunications – Data Communications
- Telecommunications – Network Management
- Telecommunications – Voice Communications

Rochester Area College course work agreement

RIT is a member of the Rochester Area College (RAC) consortium. These colleges have instituted a cooperative program that provides undergraduate students the opportunity to register at a member college without additional tuition charges.

The following Rochester area institutions of higher education are consortium members:

- Alfred University
- Colgate Rochester Crozer Divinity School
- Empire State College
- Finger Lakes Community College
- Genesee Community College
- Hobart & William Smith Colleges
- Keuka College
- Monroe Community College
- Nazareth College of Rochester
- Roberts Wesleyan College
- Rochester Institute of Technology
- St. Bernard's Institute
- St. John Fisher College
- State University College at Alfred
- State University College at Brockport
- State University College at Geneseo
- University of Rochester

Students must meet the following criteria in order to enroll as an intercollegiate student:

1. The requested course is not available at the home school.
2. The student is a full-time (12 credit hours or more) matriculated undergraduate student at his or her home school throughout the duration of the requested course.
3. The course is applicable to the student's undergraduate degree program.
4. Registration for the course is on a space-available basis.
5. If the requested course causes the student to assume a course overload, the additional charges will be based on the current rates of the home school during the semester or quarter in which the registration takes place.
6. Students enrolled at area colleges may register for two courses at RIT.
7. The program is not available in the summer.
8. Additional criteria are outlined on the intercollegiate registration form available at the Registrar's Office.

Academic Policies and Procedures

RIT's educational mission is to prepare men and women for living and working in a democratic and technological society by offering curricula that meet those needs within an educational community that supports and encourages individual achievement in an atmosphere of pluralism and diversity. Moreover, RIT sets high standards that challenge students to develop values that will enhance their lives professionally and enable them to contribute constructively to society.

Academic advising

Academic advising is an integral part of a student's education at RIT. Advising is provided through the student's home department. Please consult the individual college sections of this bulletin for specific information.

Confidentiality of student records

In accordance with the Family Education Rights and Privacy Act of 1974 (commonly known as the Buckley Amendment), RIT students have the right to inspect, review, and challenge the accuracy of their official educational records. Students are also accorded the right to receive a formal hearing if dissatisfied with responses to questions regarding the content of the record.

RIT policy ensures that only proper use is made of such records. Therefore, with the exception of copies made for internal use (those provided to faculty and staff who have a legitimate need to know their contents), in most cases no copy of a student's academic record (transcript) or other nonpublic information from student records will be released to anyone without the student's written authorization. The determination of those who have a "legitimate need to know" (e.g., academic advisers, government officials with lawful subpoenas, etc.) will be made by the person responsible for the maintenance of the record. This determination will be made carefully, in order to respect the student whose record is involved. If an employer, for example, requests a transcript, he or she will have to obtain a written request from the student or former student.

The **Buckley Amendment** allows RIT to declare certain pieces of information as "directory" and therefore releasable without the specific permission of a student. Such "directory information" could include a student's name, date and place of birth, major field of study, participation records in official RIT activities and sports, weight and height of a member of an athletic team, dates of attendance at RIT, and degrees and awards received. Students may make written request of the Office of the Registrar that such directory information not be released. Because requests for nondisclosure will be honored by RIT for only one year, requests to withhold such information must be submitted to the Office of the Registrar annually.

Copies of the full act and RIT's written policies relating to compliance with the law are on file in the Office of the Registrar. Also available is information regarding a student's right to file a complaint with the United States Department of Education concerning the alleged failure of RIT to comply with the requirements for this act.

Transcripts

A student's official academic record is maintained by the RIT Office of the Registrar and is normally reflected through a transcript. All requests for transcripts must be in writing and should include the student's full name (or name used while at RIT), student identification number, dates of attendance, and signature to assure proper identification of the record requested. Transcripts are usually prepared and available within one week after the request is received.

Under no circumstances will a partial transcript be issued, nor will a transcript be issued to a student who is indebted to RIT. Transcripts issued directly to a student will be stamped with the following: "This official transcript issued directly to the student." Transcripts from high schools and universities that have been received in support of admission applications and/or transfer credit evaluation will not be reissued by RIT.

The grading system

RIT uses a single-letter grading system. All grades are determined and issued by the faculty in accordance with the RIT Institute Policies and Procedures Manual and the particular standards of the attempted courses. Individual instructors have an obligation to carefully describe the standards and grading practices of each course. The accepted RIT letter grades are as follows:

A Excellent	I Incomplete*
B Good	R Registered†
C Satisfactory	S Satisfactory†
D Minimum Passing	W Withdrawn
E Conditional Failure*	X Credit by Exam
F Failure	Z Audit

** E and I grades are considered "temporary" and will revert to a grade F unless changed by the faculty within a prescribed period of time.*

† R and S grades are restricted to specific types of courses.

For more specific descriptions and procedures concerning the above, see Section D5.0, Institute Policies and Procedures Manual, available in the Office of Student Affairs or on reserve at Wallace Library. The manual is available online at www.rit.edu/academicaffairs/Manual/.

Course registration

To be officially registered at RIT, a student must be academically eligible, have been properly enrolled in a course, and have made the appropriate financial commitment. The registration process is uncomplicated and can be accomplished in a variety of ways. Typically, students start selecting courses six to eight weeks before the academic term begins and can register online, in person at their home department or the Registrar's office, or via telephone, fax machine, or mail. The registration period ends with the first six weekdays of the term, also called the add/drop period. Specific dates and procedures can be found in the quarterly Schedule of Courses booklet. RIT reserves the right to alter any of its courses at any time.

Students at RIT are free to choose their own courses and course loads. Colleges offering the courses are equally free to restrict enrollment to particular groups of students (for example, students in specific year groups or students who have already satisfied course prerequisites). Most courses also are restricted in class size. Students are strongly encouraged to seek out academic advice and plan their academic careers carefully.

Failure to make appropriate financial commitment, satisfy New York State health immunization requirements, or fulfill course prerequisites can result in the loss of courses for which a student has registered and/or prohibition of future registrations.

Auditing courses

Courses that are taken on an audit basis will not count toward a student's residency requirement. They may not be used to repeat a course taken previously and do not satisfy degree requirements. Permission to audit a course is granted only by the college offering that course. Any changes in registration between credit and audit must be completed prior to the end of the add/drop period.

Withdrawal from courses

A student may withdraw from a course up to the end of the sixth week of the quarter. A grade of W will be assigned and the course retained on the student's permanent academic record. Under exceptional situations, a dean may approve a course withdrawal following the sixth week. For policies pertaining to withdrawal from the university and tuition refund please refer to the Expenses and Financial Aid section of this bulletin.

Dean's List eligibility

Matriculated students who earn at least 12 credit hours in an academic term, have a quarterly grade point average of 3.40 or better, have not been placed on probation due to a low cumulative grade point average, and do not have any grades of I, D, E, or F in that term are eligible for selection to the Dean's List of their college. Students who are pursuing their degree on a part-time basis are assessed for Dean's List consideration based upon course work over a three-quarter period. Criteria for part-time students are essentially the same as those for full-time students. However, at least 18 credit hours must be earned during the three-quarter period, and each student must have accumulated at least 24 credit hours in his or her RIT career.

Academic probation and suspension

All matriculated students at RIT are expected to meet or exceed certain minimal academic standards. Failure to do so will result in being placed on academic probation or suspension. All such actions are taken by college deans at the end of each quarter; once the action is made, it may be changed or revoked only by a dean. The RIT educational policy governing probation and suspension is specific (see the RIT Institute Policies and Procedures, Section D5.0, page 6). Three grade point averages (GPAs) are calculated and used in probation/suspension decisions:

Program Quarterly GPA = grade average of all courses taken in a term that are applicable to a student's degree requirements.

Principal Field of Study GPA = grade average of all courses a student has taken within his or her specialized field (usually from the student's home college).

University Cumulative GPA = grade average of all course work taken as either an undergraduate or graduate student at RIT.

Academic probation

A student will be placed on probation if his or her program quarterly grade point average falls below 2.0* (a C average) or if his or her grade point average in the principal field of study (based upon at least 20 credit hours attempted in the principal field at RIT) falls below 2.0.* To be removed from probation, the student must raise both averages to at least a 2.0.

Academic suspension

1. Any student who is on probation, as given above, and who is not removed from probation in the two succeeding periods of study in which credit is earned will be suspended.
2. Any student who has been placed on probation after having been removed from probation and whose program cumulative grade point average is below 2.0* will be suspended. Any student who has been placed on probation after having been removed from probation and whose program cumulative grade point average is 2.0* or above will be granted one quarter to be removed from probation before suspension.
3. Any student whose program quarterly grade point average falls below 1.00 will be suspended.
4. Students who have been readmitted to the original program after having been suspended and then go on probation will be suspended.

Suspended students generally must wait at least one year before reapplying for admission into an RIT degree program. While suspended, a student may not enroll in any RIT course work, unless the suspension is waived by an academic dean. Then he or she may be limited to taking courses on a nonmatriculated basis.

**The physician assistant program requires a 2.8 grade point average.*

Class attendance

Students are expected to fulfill the attendance requirements of their individual classes. Absences, for whatever reason, do not relieve students from responsibility for the normal requirements of the course. In particular, it is the student's responsibility to make individual arrangements prior to missing class. Attendance at class meetings on Saturdays or at times other than those regularly scheduled may be required.

Student retention

Based on an average of the three most recent cohort survival statistics, RIT's student graduation rate is 63 percent for students entering at the first-year level and graduating from a four- or five-year program.

Excluding part-time and non-degree students, 89 percent of first-year, full-time day students register for their second year. The statistics reported herein have been computed in a manner consistent with data reported to the New York State Department of Education through the university's Office of Institutional Research and Policy Studies.

Transfer credit

Transfer credit at the undergraduate level will usually be granted for those courses completed with a grade of C or better in other regionally accredited colleges or universities and specific armed services course work that parallels courses in the program (including options, if any) for which the student is applying or is currently registered. However, if the program (or option) that the student finally chooses to pursue does not include any or all of the courses evaluated, they will not be credited toward requirements for a degree. RIT students who wish to take courses at other accredited institutions and receive transfer credit toward their RIT degree need to secure the prior written approval of the dean(s) of the RIT college(s) concerned in order to assure appropriateness of the course content and course level for those courses.

Deaf and hard-of-hearing students may transfer into an NTID program, or they may qualify for transfer directly into a program in another RIT college with NTID sponsorship. The transfer credit of deaf students accepted to NTID's Summer Vestibule Program will be evaluated in the fall when they are accepted into a specific program.

Credit by exam: RIT grants credit for satisfactory scores on examinations covering objectives and contents parallel to the RIT courses for which students seek credit. Usually these are Advanced Placement (AP), International Baccalaureate (IB), College-Level Examination Program (CLEP), New York State proficiency examinations, or RIT-prepared examinations.

Advanced placement: Many students earn advanced standing through Advanced Placement (AP) examinations. **The minimum required score and the manner in which credits are applied depend upon a student's exam score and choice of academic program.** No credit is awarded for scores of 1 or 2 on AP Exams. Advanced Placement credits may be applied in fulfillment of general education, program requirements, and/or minor requirements. Students may need to complete additional course work in order to fulfill all specific program requirements. Students should consult with their adviser for additional details. The policy covering the awarding of credit for Advanced Placement examinations is reviewed annually and may be subject to change.

International baccalaureate: Many students earn advanced standing through International Baccalaureate (IB) examinations. **The minimum required score and the manner in which credits are applied depend upon a student's exam score and choice of academic program**. International Baccalaureate credits may be applied in fulfillment of general education, program requirements, and/or minor requirements. Students may need to complete additional course work in order to fulfill all specific program requirements. Students should consult with their adviser for additional details. The policy covering the awarding of credit for International Baccalaureate examinations is reviewed annually and may be subject to change.

College Level Examination Program: The College Level Examination Program (CLEP) is a nationwide system of credit by examination offered by the College Board. Any person entering college, presently attending college, or out of college may take CLEP examinations and seek credit by submitting the test results to RIT for evaluation. Credit recommendations for CLEP vary depending on the subject and examination results. CLEP examinations are offered through the RIT Counseling Center.

Student Services

Academic Support Center

www.rit.edu/asc
(585) 475-6682 (tty)

The Academic Support Center provides academic assistance to students, faculty, and staff. The center offers drop-in services for mathematics/physics and writing support for all levels of students, from freshmen to graduates. In addition to skill development, the center offers workshops that teach students how to improve their study techniques and make the most of their individual learning abilities. Individualized appointments are available as well as assessment of learning challenges. Academic Support Center services are free to RIT students (structured monitoring services are fee-based).

Academic Assessment Program: The goal of the Academic Assessment Program is to help students determine why their academic performance is not what they, or others, would like it to be. The variety of factors that may interfere with academic performance includes learning style, content background, study habits and approaches, unclear choice of major, and/or disabilities. The AAP uses interviews, surveys, screening instruments, and diagnostic testing to explore potential sources of difficulty.

The AAP is designed to help students identify the source of academic problems and assist them in overcoming these obstacles by referring them to resources both on and off campus.

Institute Testing Services: Institute Testing Services is dedicated to providing design, implementation, and administration of group testing programs for ASC students, RIT students, and community groups. The department is responsible for RIT's role as a National Testing Center and supervises the administration of the Graduate Record Examination (GRE) Subject Exams, Scholastic Achievement Test (SAT), Law School Admission Test (LSAT), National Certified Counselors (NCC) certification examination, and DANTES examination. Institute Testing Services also serves as a paper and pencil proctoring site for distance learners.

Structured Monitoring Program: This program is committed to helping individuals recognize and access their natural learning abilities and offers academic coaching designed for students who anticipate difficulties navigating the complexities of the academic environment. Structured Monitoring recognizes that each student is unique and responds to this by offering three levels of check-ins: weekly, biweekly, or daily. Students may select their level of participation on a quarterly basis. This is a fee-based service.

Mathematics services: The center's math program supports students' progress in learning mathematics. Tutors are located in the Bates Study Center in the Gosnell Building. This is a drop-in tutoring center staffed with peer tutors and ASC faculty. Tutors can help students with math and physics homework, lecture notes, textbook reading, practice quizzes, and practice tests. Math review packets cover topics in algebra, trigonometry, and calculus. Students encountering difficulties in their math courses may schedule an appointment with an ASC math instructor for a math assessment. Individualized math is a non-credit, self-paced math review course offered to students who have completed a math assessment. Students follow a unique program of study based on their math background and future math needs.

Reading services: ASC reading services provides reading strategies for students who are having difficulty deciphering their textbooks. Services provided include standardized reading testing and evaluation, informal reading assessment, textbook strategies, ways to improve vocabulary, and information about speedreading. For more information, contact the Academic Support Center.

Study skills: The ASC Study Skills area offers students the opportunity to meet with faculty who will assist in the development of study strategies to promote academic success. Individual instruction, coaching, and evaluation are available. Students will find a series of one-hour workshops offered each quarter that includes topics such as time management, listening and notetaking, text reading and marking, test taking, and test preparation. Student groups may request workshops and presentations from study skills faculty. Additionally, students will find materials on the ASC website.

Tutor training: A comprehensive and up-to-date website lists all available tutorial services on the RIT campus. In addition, tutor training workshops are offered for peer tutors who have been hired in any of RIT's learning centers or academic departments. The tutor training program does not offer content training. For more information visit www.rit.edu/tutoring.

Writing Center: The Writing Center provides individualized instruction designed to improve students' ability to complete college writing assignments. Writing instructors work with students at every stage of the writing process. Instruction can be provided to develop students' editing and proofreading skills. This is a drop-in center with no appointments necessary.

Cooperative Education and Career Services

www.rit.edu/co-op/careers
(585) 475-2301 (voice), (585) 475-6905 (TTY)

The Office of Cooperative Education and Career Services supports the university's career focus by providing effective, high-quality services to all RIT students and alumni. Such services empower them to succeed in obtaining employment or continuing their studies as appropriate to their career objectives and personal goals.

Among the many experiential education opportunities offered by RIT, the university is perhaps best known for its cooperative education program. Initiated in 1912, RIT's program is one of the oldest and largest in the world. More than 1,900 employing organizations across the country and around the world participate annually in the program, hiring more than 3,600 RIT students. Co-op significantly enriches students' education, providing them with the opportunity to integrate the practical experience gained through co-op with classroom and lab study.

Key student services include the following:

Individual Advisement: Program coordinators in the office support specific academic units and are available to meet on a one-to-one basis with students and alumni on career development and employment matters. These sessions are critical in developing individual job search plans and addressing the many questions and issues that arise during the job search process. Staff members are available by appointment or on a walk-in basis.

RIT deaf and hard-of-hearing bachelor's-level students may work with the staff of the NTID Center on Employment in addition to program coordinators in Co-op and Career Services.

Workshops/Information Sessions: The staff prepares co-op and graduating students for their job search through courses, workshops, and orientations. Topics include resume writing, cover letter writing, effective job search strategies, interviewing techniques, professional dress and etiquette, on-the-job success, and much more.

Career and Employment Resources: Career and employment information is available through the office's state-of-the-art website. Informational handouts and materials are provided online in addition to hard copy, and useful employment and career development services and sites are highlighted for students. RIT makes available, for example, student access to subscription online databases such as CareerSearch and Universum/Wet Feet.

Job Postings/Interview Opportunities: The office works hard to maintain and expand working relationships with employers in order to develop employment opportunities for all students and alumni. Through career fairs, on-campus employer interviewing programs, and specific job postings, students have access to job openings through the office website, where they can store their resumes, search the database of employment opportunities, and apply to a position with a simple click of the mouse.

Ongoing Communication: The office communicates regularly with student users through e-newsletters, list-serves, e-mails, and a customized student website portal.

Work Abroad Program: The office is constantly establishing partnerships to assist students in obtaining meaningful work experiences overseas—many of those experiences for co-op credit. Students last year worked abroad in more than 35 countries.

Grad School Advising: Information and personalized advising concerning selecting and applying to graduate schools are also available through the office with dedicated services and staff to assist in the process.

Mentor Program: RIT's Career Mentoring Program is a joint initiative of the Offices of Cooperative Education and Career Services and Alumni Relations. Through the program, RIT alumni and friends volunteer to mentor current students in the areas of career exploration and information.

Counseling Center

www.rit.edu/counseling
(585) 475-2261

University life can be one of excitement and self-discovery. At the same time, it can generate academic, emotional, personal, social, and even financial concerns. At times these concerns can make it difficult to succeed or function while at school.

Counseling is an excellent way to address such issues, to learn more about yourself and others, and to develop new life skills.

The Counseling Center's staff of professional counselors and psychologists are committed to supporting your academic and personal success. Counselors work with students whose concerns range from the everyday challenges of university life to more disruptive psychological issues. All services provided by the Counseling Center are free to eligible RIT students. Counselors fluent in American Sign Language are available for deaf and hard-of-hearing students.

Common concerns shared by students include:

- Academic performance
- Choice of major or careers
- Anxiety or stress
- Depression
- Feeling overwhelmed
- Self-esteem
- Family, friend, and partner relationships
- Eating and body image concerns
- Loss of an important relationship
- Illness or death of a loved one
- Out-of-control feelings
- Sexual orientation
- Sexual assault and violence
- Race, ethnicity, nationality, or other cultural identity
- Gender identity
- Suicidal feelings

Mental health emergencies: If the emergency is life threatening, call 911 or go to the nearest emergency room. For emergencies during business hours (8:30 a.m. – 4:30 p.m.), call (585) 475-2261 or come to the Counseling Center and identify the situation as an emergency. If you or someone else is in physical danger, call Public Safety: (585) 475-3333. Do not use e-mail in an emergency situation. For after-hours emergencies, contact Public Safety or Life Line (585) 275-5151, a confidential Rochester hotline.

Career exploration counseling: Counselors can assist students in making thorough appraisals of their interests, abilities, and personality traits so they can use this information in developing educational and vocational plans. Aptitude, interest, and personality tests may be used in this assessment process.

Career exploration resources: Located in the reception area of the RIT Counseling Center, career exploration resources include occupational information on a variety of careers as well as vocational and educational reference books. The center and its resources are available on a walk-in basis.

Confidentiality: All counseling services are confidential. The Counseling Center will not release information about students without a student's written permission except where required by

law, as required to protect the student or others from physical danger, or upon court order (an extremely rare occurrence).

Making an initial appointment: Scheduling an intake appointment is quite easy. Simply call (585) 475-2261 or stop by the Counseling Center. During the initial visit, which lasts 45 – 60 minutes, students will be asked to complete a confidential questionnaire and to briefly speak with an intake counselor about their immediate concerns.

Upon reviewing the student's intake information, a counselor will briefly explain options that may be appropriate. These might include: scheduling a follow-up appointment with a counselor; getting the student into a support or therapy group; or referring the student to another RIT office for services.

If the intake counselor recommends counseling at the Counseling Center, students will be assigned a counselor and scheduled for a subsequent appointment. On occasion, students are referred to community resources for specialized or continued counseling. In such instances, the center will assist them in locating a suitable resource.

Location: The Counseling Center is located in the August Center, immediately above the Student Health Service.

RIT Counseling Center hours:

Monday – Friday: 8:30 a.m. - 4:30 p.m.

Wednesday and Thursday: 4:30 p.m. - 7:00 p.m.*

** By appointment only during fall, winter, and spring quarters*

Disability Services

www.rit.edu/dso
(585) 475-7804 (voice/TTY)
(585) 475-6988

RIT is committed to providing students with disabilities with equal access to programs, services, and physical facilities and to fostering an environment where students and faculty/staff with disabilities are welcomed, valued, and respected. Students with disabilities who would like to request accommodations are asked to submit a Request for Accommodations form and appropriate documentation of the disability to the Disability Services Office. The request form can be found online or requested from the Admission or Disability Services offices. A director will review the student's request and documentation; recommend appropriate and reasonable accommodations, as needed; and refer students to the appropriate service providers, as needed.

English Language Center

www.rit.edu/studentaffairs/elc/
(585) 475-6684 (voice/TTY)

The English Language Center offers both full- and part-time study of English to non-native speakers. Class offerings include conversation, grammar, writing, vocabulary, reading, pronunciation, presentation skills, business communication, and TOEFL preparation.

Full-time program: The intensive English language program consists of 20 hours of class instruction each week at beginning, intermediate, and advanced levels. There is also a learning lab where students may work on specific language skills and obtain extra assistance with their writing. There is a fee for English language services. This intensive study program meets the immigration requirements for the Certificate of Eligibility I-20 for F-1 student status.

Before a course of study can be selected, students are tested to determine their levels of English proficiency and diagnose their specific language needs.

Part-time program and individualized instruction: In addition to the full-time program, students may register for one or more English language courses. The English Language Center also offers private English classes tailored to individual needs. Pronunciation and conversation, as well as grammar, writing, reading, and vocabulary, may be studied in this manner. There is a fee for instruction.

Foreign language instruction: The English Language Center offers a fee-based program in which international students give lessons in their native languages. A trained language instructor supervises all student instructors. In addition to language, the international student can give lessons on the culture and customs of his or her country. Some of the languages offered have included Chinese, Japanese, Spanish, Portuguese, Hindi, Tagalog, Korean, French, and German. For more information about learning a new language or teaching your native language, call the English Language Center.

Translation service: The English Language Center's translation service provides quick and efficient translation of documents, reports, letters, and manuals for RIT students, faculty, and staff as well as businesses in the Rochester area. For a fee, documents of all types, general to technical, can be translated.

Educational Technology Center

http://www.rit.edu/academicaffairs/etc/
(585) 475-7703

ETC Production Services within The Wallace Center provides non-classroom production and event support across campus. ETC Video Production Services provides a full range of digital standard or high-definition video services. These include recording anything from guest speakers in auditoriums to creating public relations marketing videos and RIT's SportsZone and SportsZone Live shows. ETC Production Services offers videotaping in television studios and editing in state-of-the-art digital post-production facilities as well as 2D and 3D animation. Finished projects can be captioned and delivered in virtually any format – DVD, CD, Blu-ray, podcast, Web or, videotape. ETC Web/IT Services offers a full line of multimedia and Web production services, including website design and development, website updates, online registration systems, multimedia presentations, database development and video streaming. ETC Event Support Services produces and manages large-and small-venue video and multimedia productions on and off campus. The support services cover a broad range of products from media projection, location shooting, multi-camera support, live video streaming and real-time captioning. ETC Photography Services provides a range of analog and digital photographic services in the studio or on location, creating visual resources that can be used for slide presentations, class documentation, portfolios, websites and publications. ETC Production Services hires approximately125 students to assist in all areas of production.

Support Services assists with many aspects of classroom technology. Support covers the delivery and setup of AV equipment, access to and training on installed classroom equipment, and the operation of equipment in academic auditoriums. The Learning Spaces component supports the installation and maintenance of projection equipment and podiums in classrooms and lecture halls. Support Services also handles circulation of materials from The RIT Libraries. The reserve media collection provides media support to faculty, staff, and students. Staff work with faculty to identify media within the collection and locate new media to support curriculum needs. The collection consists of a variety of media formats. That are available for use in the classroom or the center's viewing area. Requests for captioning RIT-owned media are coordinated by the center's staff. Support Services employs approximately 70 students who assist with all of the services listed above. Individuals are invited to drop in and explore all the resources The Wallace Center has to offer.

Financial Aid and Scholarships

www.rit.edu/emcs/financialaid/

RIT's Office of Financial Aid and Scholarships assists students and their families in identifying sources of financial aid to help meet the cost of a quality education. Currently, more than 12,000 RIT undergraduate and graduate students receive over $200 million dollars in financial assistance from federal, state, and institutional resources in the form of scholarships, grants, loans, and part-time employment. For more information on financial aid, scholarships, grants, and loans, please see the Financial Aid and Scholarships section of this bulletin.

First-Year Enrichment

www.rit.edu/studentaffairs/fye/
(585) 475-7033

First-Year Enrichment (FYE) is a program that addresses the transition needs and concerns of students as they begin their college experience. The offerings include two required courses as well as the use of a coaching model. The courses are interactive and specifically designed to enhance the personal, academic, and professional success of first-year students and to facilitate academic and social integration into college. They also intentionally engage students in small-group learning experiences and provide support for students during their critical transition to college by examining issues common to first-year students. Course instructors also serve as coaches who partner with students to provide assistance with transitional issues, establish academic and personal goals, encourage involvement in campus activities, and foster connections with their peers and their academic program.

Course Descriptions: FYE is a two-course requirement for all first-year students. Students receive one quarter credit hour for the successful completion of each of the two required courses, Discovery (1720-050, 051) and Pathways (1720-052, 053). First-year transfer students who have successfully completed the equivalent of two full-time quarters (24 quarter credits) at an accredited institution of higher education and students who are at least 20 years of age may request exemption from the FYE requirement.

Discovery 1720-050, 051: Discovery assists and supports students in making a successful adjustment and transition to collegiate life. The course is required for all first-year entering students and meets one time per week in the fall quarter (a limited number of winter or spring sections are offered). The course includes classroom experiences, individual coaching appointments, online resources, and connections to the various services available to students across campus.

Pathways 1720-052, 053: This course assists students in understanding the pathways available to them. All students work collaboratively with peers on a project team. Additionally, students work individually on the development of potential pathways and plans for success at RIT via the continued coaching experience. Course sections focus on one of three thematic areas—leadership, innovation and creativity, or service—and include classroom experiences, teamwork, online resources, and connections to services available to students across the campus. This course is required for all first-year entering students and meets one time per week in the winter or spring quarter.

Graduate Enrollment Services

www.rit.edu/grad
(585) 475-2229

The Office of Graduate Enrollment Services provides central information and counseling services for students interested in enrolling in graduate degree programs offered through RIT's various schools and colleges. Contact the office for assistance in selecting an academic program, exploring financial aid opportunities, registering for classes, or receiving information about any aspect of graduate study at RIT. Staff members are available from 8:30 a.m. to 6 p.m., Monday through Thursday, and from 8:30 a.m. to 4:30 p.m. on Friday. You may also refer to the current online Graduate Bulletin.

Higher Education Opportunity Program

www.rit.edu/studentaffairs/heop/
(585) 475-2221 (voice/TTY)

The Arthur O. Eve Higher Education Opportunity Program (HEOP) is a New York State- and RIT-funded program that provides eligible students with financial aid and academic support. A need-based access program, HEOP is committed to the recruitment and academic success of students with strong academic potential and personal initiative who would otherwise be excluded from higher education due to circumstances of academic and economic disadvantage.

To qualify, students must meet strict academic and financial guidelines set by the New York State Education Department. In addition to meeting economic criteria, applicants must have graduated from high school or the equivalent, be New York State residents, never have attended college previously, and not be admissible through regular RIT admissions.

Transfer students may be eligible if they have initially attended college through an HEOP, EOP, SEEK or College Discovery program in New York State. Transfers must apply to and be accepted by the HEOP office, the academic department they are applying for, and the Admissions office. HEOP transfers are accepted on a space-available basis. Please contact the HEOP office to ascertain availability prior to applying.

Students accepted as freshmen must attend and pass a four-week summer preparatory program prior to fall quarter entrance. During the summer program, students live on campus and attend skills classes designed to facilitate their entry into RIT. Further services for HEOP students include broad-based tutoring and comprehensive counseling services. In addition, HEOP staff act as campus resources and advocates.

International Student Services

http://www.rit.edu/studentaffairs/iss/
(585) 475-6943 (voice/TTY)

International Student Services is the primary resource for more than 1,500 hearing and deaf international students from 100 countries, as well as for members of the campus community seeking cross-cultural information. The office provides assistance with immigration regulations and travel documents, helps international students adjust to academic and cultural expectations in the United States, and provides cross-cultural programming for international students and the campus at large. The staff works closely with Global Union, international student clubs, and International House (the special-interest house in the residence halls for both international and American students). Off-campus programs are regularly coordinated with the Rochester International Council.

Information and Technology Services

www.rit.edu/its/
(585) 475-4357

Computing and network services at RIT are provided by Information and Technology Services (ITS).

Wireless, portal, and more

The campus-wide network includes wireless capabilities in open public areas such as the Student Union, Crossroads Café, Wallace Library, and every college. Popular features are e-mail and access to the Internet, including Internet 2, a second-generation Internet technology with increased broadband capabilities for better access to digital libraries, scientific instruments, and other research applications. Many faculty members have incorporated these features into their curricula.

A campus-wide online portal is available at http://my.rit.edu. Users can customize their own site on the portal with personal Web links in addition to enjoying such standard features as access to student government and RIT sporting events, University News, and the Student Information System, where individual student course information and grades are posted.

ITS, in conjunction with the Educational Technology Center, manages numerous computer labs and smart classrooms containing Windows and Macintosh workstations and printers. Most of these facilities are available to students for general computing use and to faculty for reserved class work. Lab assistants help people use the hardware and software available in the labs.

RIT computer accounts

Computer accounts are issued to students, faculty, and staff so that they can perform activities supporting educational goals and internal RIT functions. New students receive instructions for setting up their computer account upon payment of their tuition deposit. This allows incoming students to use their accounts, get familiar with RIT online systems, and feel more a part of the RIT community before they arrive on campus.

Computer security and safeguards

RIT's Code of Conduct for Computer and Network Use guides campus-wide use of all computers and networks. This document, found online at www.rit.edu/computerconduct, outlines RIT's official policy related to ethical use of computing and network resources. ITS put into place multiple safeguards to protect RIT's network environment and the integrity of individual user accounts. Additionally ITS provides all students, faculty, and staff anti-virus software free of charge.

Computer-based training

ITS, along with the Center for Professional Development, provides computer-based training modules that cover a wide variety of topics. Students, faculty, and staff can access numerous online courses in the areas of technology, e-business, and business/interpersonal skills. For more information on computer-based training, visit www.rit.edu/eLearningZone.

Student employment information

ITS employs more than 250 students and is one of the largest student employers at RIT. Student employment opportunities are available at the ITS HelpDesk, in Desktop Support, at colleges through Distributed Support Services, and within Technical Support and Administrative Support services. More specific information about job opportunities within ITS is available at www.rit.edu/its/about/student_employment. Additional information about student employment opportunities can be found at the Student Employment Office site at www.rit.edu/seo.

Residential Networking (Resnet)

Residential Networking provides computer support to students living in residential housing at RIT. The Resnet team can assist students with connecting their computers to the RIT network, accessing campus computing resources, and troubleshooting computer software and hardware. Contact Resnet at (585) 475-2600 (voice), (585) 475-4927 (TTY), or resnet@rit.edu, or visit http://resnet.rit.edu.

Contacting the HelpDesk
The ITS HelpDesk is located in room 1113 of the Gannett Building. Contact HelpDesk staff via telephone/TTY, e-mail, or the Internet:

(585) 475-HELP (4357)
(585) 475-2810 (TTY)
E-mail: helpdesk@rit.edu
Online: www.rit.edu/its/help

Service hours
Fall, winter, and spring quarter hours:
Monday-Thursday: 7:30 a.m. to 9 p.m.
Friday: 7:30 a.m. to 5 p.m.
Saturday-Sunday: Noon to 5 p.m.
Summer quarter, holidays, and quarter breaks:
Monday-Friday: 7:30 a.m. to 5 p.m.
Saturday-Sunday: Closed

RIT Libraries

library.rit.edu

The RIT Libraries are comprised of four separate entities, Wallace Library, the Cary Collection, RIT Archive Collections, and The Lab for Social Computing. Recently added resources include the RIT Museum and the Lawson Center, home to the RIT Cary Graphic Arts Press.

Wallace Library is a high-technology, multimedia resource center and is the main library on campus. Its vast information resources are conveniently available via the Internet, which provides access to a wide selection of current electronic resources in Web-based and text formats. Users can easily access the library's online catalog, search electronic databases, and surf the Internet. The staff offers hands-on instructional sessions for using various resources, and specialized class instruction can be scheduled upon request. Reference librarians are available during the week and on weekends to provide individual assistance at the RE:SEARCH ZONE, while in-depth assistance also is available by appointment. The Publishing and Scholarship Support Center provides one-stop service for advice and assistance in preparing research, articles, books, and other documents for publication.

Videotapes (VHS) and DVDs can be checked out at the circulation desk. Audio books and wireless laptop computers also are available. Information Delivery Services (IDS) manages interlibrary loans, and patrons can request materials online through IDS Express. ConnectNY is a service that makes available the combined resources of a large consortium of academic libraries in New York State. Online requests usually are fulfilled within 48 hours. The combined collection of ConnectNY member institutions exceeds 3 million items. The Rochester Regional Library Council's Access program allows patrons to obtain a library card that offers access to other area libraries, including those of the University of Rochester and the state university colleges at Geneseo and Brockport.

The Idea Factory is a multipurpose room featuring The Soap Box, a living coral reef aquarium, and modular study tables. Special events are frequently held here, offering educational and recreational programs throughout the academic year. The Idea Factory is adjacent to Java Wally's café, a favorite spot for anyone interested in relaxing, studying, or meeting in an informal setting. The Book Nook features a constantly changing array of books on various topics of interest. Additional recreational reading material is available in the library's leisure collection.

The VIA Lab provides access to numerous state-of-the-art workstations, image scanning, and color copying. The Cary Library is a unique collection of more than 14,000 volumes of rare books illustrating fine printing and other materials detailing the history of printing, book design and illustration, papermaking, and other aspects of the graphic arts. The RIT Archive Collections acquires, organizes, preserves, and displays materials from the university's past. The archives are housed in a temperature- and humidity-controlled environment that supports the preservation of paper and photographs. The RIT Archive Collections is the primary resource for studying the history of the university.

Wallace Library is open more than 100 hours a week, with extended hours before and during finals. For library hours, call (585) 475-2046 (voice); for the RE:SEARCH ZONE, call (585) 475-2563 (voice/TTY) or (585) 475-2564 (voice). You can e-mail the library at 610wmlref@rit.edu. The circulation desk can be reached at (585) 475-2562 (voice) and (585) 475-2962 (TTY).

Margaret's House

www.rit.edu/studentaffairs/margaretshouse
(585) 475-5176 (voice/TTY)

Childcare programs
Margaret's House is a state-licensed childcare center offering full-day quality care and education for children 8 weeks to 8 years of age. It includes a district-approved full-day kindergarten as well as after-school, vacation, and summer programs. The center is open to children of RIT students, faculty, and staff and to members of the greater Rochester community. Margaret's House is located on campus and is open year-round. Call for information and registration material.

- Infant and toddler programs: 8 weeks to 36 months
- Preschool programs: 3- and 4-year-olds
- Full-day kindergarten/after-school programs: 5- to 8-year-olds
- Lil' Kids on Campus summer program for children entering grades 1 through 4

New Student Orientation

www.rit.edu/studentaffairs/orientation/
(585) 475-7995 (voice/TTY)

RIT provides all entering students with programs designed to prepare them for a successful transition and adjustment to college life and further acquaint them and their families with the RIT community. Our programs provide the opportunity to:

- meet the faculty and dean of the student's college,
- address the academic and social issues involved in beginning college or transferring from one college to another,
- attend academic planning sessions,
- learn about student services,

- understand the family's role in promoting student achievement and success,
- learn about financing a college education, and
- participate in community and social activities.

Our fall orientation programs are offered prior to the start of classes. The first-year student program lasts five days, and attendance is required. Transfer students participate in a series of programs designed to meet their unique needs. Brief mini-orientations are offered at the start of the winter and spring quarters.

North Star Center for Academic Success and Cultural Affairs

www.rit.edu/studentaffairs/northstar/
(585) 475-4704 (voice/TTY)

Established in 2000 as part of a university-wide initiative to increase student retention and graduation, the North Star Center for Academic Success and Cultural Affairs serves all students, regardless of ethnic background, but primarily exists to retain and graduate African American, Latin American, and Native American students. The center strives to be a gateway for students, faculty, and staff committed to utilizing the rich African, Latino, and Native American cultures as a vehicle to enhance academic success, embrace inclusive student development, and promote cross-cultural student dialogue.

In addition to being an academic support unit, the center emphasizes and supports student development through personal advising, advocacy, leadership, development opportunities, cultural diversity education, cultural programming, and a connection to campus and community resources. This philosophical approach encourages students to better understand themselves, others, and the rich inheritance that comes from living in a global and pluralistic society.

NTID resources

www.ntid.rit.edu/current/resources/

The National Technical Institute for the Deaf offers an array of educational and service activities for deaf and hard-of-hearing students. These activities and services include career and mental health counseling, student-life programming, and communication skills development in the form of speech-language instruction, speechreading, and listening/audiological services, as well as a state-of-the-art learning center.

NTID Learning Consortium

www.ntid.rit.edu/nlc

The NLC is a partnership among NTID and RIT academic departments and educational programs. The goal is to support student success in the college curriculum. A primary resource of the Learning Consortium is the NTID Learning Center (NLC).

The NLC represents a creative combination of human, physical, and technological resources through which partnerships can be realized. Resources include:

- regular tutorial support from faculty and advanced students directly tied to discipline-specific curricula and classroom activities. Tutoring is offered in a range of disciplines, including English, math, and technical program majors. Tutorial support for students is available on a walk-in, scheduled, or assigned basis, either individually or in small groups;
- educational workshops (tied either to credit-bearing courses or independent experiences) addressing skills, knowledge, and attitudes important for success in college and beyond;
- computers supporting tutorial activities and course assignments as well as independent student work; and
- designated areas for individual and small-group tutoring and studying.

The NTID Learning Consortium also sponsors the Sprint Relay Experimental Distance Learning/Access Demonstration Lab. The Sprint Relay Lab is an RIT-wide resource for experimenting with innovative technologies in support of remote learners. Key features of the lab include:

- focusing on both instructional activities and access strategies for deaf and hard-of-hearing learners participating in remote educational experiences;
- evaluating alternative technologies in the context of varied educational objectives, access goals, and student and teacher preferences;
- serving as a beta testing site where instructional and access technologies in support of remote learning can be developed, refined, and exported for use throughout RIT;
- providing a forum for information exchange; exploration of new instructional and access strategies; and training among teachers, students, access service providers, instructional designers and technologists, and researchers; and
- sponsoring vendor-display/consumer-testing for new products related to instructional and access technologies.

The lab includes PC workstations and wireless Mac Book laptops; an IdeaBoard with networked capabilities; a central projector/display system; a matrix router enabling versatile distribution of information to computer monitors and wall-mounted displays throughout the room; and two built-in videoconferencing systems.

NTID Self-Instruction Lab

www.ntid.rit.edu/aslie/sil.php

The Self-Instruction Lab (SIL) supports American Sign Language and spoken language skill development. The lab serves students, faculty, and staff as well as the greater Rochester community.

Improving and maintaining communication and language skills requires drill and practice. The lab offers resources for practicing both expressive and receptive communication skills within a self-instruction format. These resources include materials related to American Sign Language, speechreading skills, listening skills, Spanish, cultural and creative studies, and English. Many of the lab's materials are designed to supplement classroom instruction but may also be used for independent practice and study.

Workstations are equipped so that learners can use instructional video resources, computer programs, and audio resources. The lab also offers two private video production rooms where learners can record themselves individually or interacting with another person using split-screen technology. There are also flex cams available for making video recordings.

Communication studies and services

www.ntid.rit.edu/current/css.php

NTID strongly encourages all students to expand their communication skills to communicate with diverse audiences in educational, civic, and professional settings. Communication studies focuses on the effective expression of ideas independent of the language (ASL or English) that the student chooses to use. The communication studies and services department, the department of American Sign Language and interpreting education, and the department of cultural and creative studies provide intensive support and instruction for the development of communication competencies needed to enhance students' professional and personal success. The faculty and staff of the communication studies program conduct assessments and provide course work, workshops, and individualized instruction. They also work in collaboration with faculty and staff across the university.

Speech and language services: Faculty and staff who work in speech and language services provide learning activities that focus on the development of a full range of communication competencies. These activities include individual speech-language assessment and instruction, speech-language lab activities that support technical vocabulary/communication and second-language learning, and individualized use of multimedia and computerized visual feedback systems. Through these activities, students can work on conversational interactions, job-related communication skills, technical and formal presentations, and job interviews.

These services are open to all RIT students and are available through individual appointments with faculty or staff or on a walk-in basis through the Spoken Language Learning and Practice Lab. This lab has individual workstations for pronunciation practice, computers for speech and language practice and visual feedback, and stations for digital recording and playback. The faculty and staff in the department are certified by the American Speech-Language-Hearing Association.

Audiology services: The audiology faculty/staff offer a variety of services and information related to hearing aids, cochlear implants, communication strategies, telecommunications, assistive technologies, auditory training, speechreading, and job interviewing. Hearing and hearing-aid evaluations are available through the Hearing Aid Shop (Johnson Building, room 3130). Evaluations are provided by audiologists certified by the American Speech-Language-Hearing Association and licensed through the State of New York. Faculty/staff are available daily in the Hearing Aid Shop to discuss issues related to hearing loss, tinnitus, cochlear implants, and other areas. FM systems can be loaned to students for the academic year at no cost.

Students can go to the Hearing Aid Shop to purchase hearing aid accessories, including batteries, earhooks and earmolds, and for hearing aid or cochlear implant repairs, as well as other services. In addition, students can schedule appointments for audiology and cochlear implant clinics with faculty/staff as well as with consultant ophthalmologists and optologists in the Eye and Ear Clinic. Services are available to all students, and most are provided at no cost.

NTID Counseling and Academic Advising Services

(585) 475-6468 (voice)

www.ntid.rit.edu/current/counseling_index.php

NTID Counseling and Academic Advising Services is committed to helping students realize their full potential for a successful college experience. In pursuit of this goal, each NTID-sponsored student is assigned a professionally trained counselor who provides a full complement of counseling, advising, assessment, advocacy, and referral services. Counselors are trained in career development theory and techniques. Some hold individual certifications from the National Board for Certified Counselors. All counselors follow the guidelines for ethical standards set forth by the American Counseling Association. Counselors assist with student orientation, educational and career planning, adjustment to college life, study-skill development, access and referral to on-campus and community resources, and a wide range of personal and interpersonal concerns. They also assist in coordinating special services for students with secondary disabilities.

NTID Mental Health Services

(585) 475-2261 (voice), (585) 475-6897 (TTY)
(585) 475-3333 (after hours)

The Counseling Center provides confidential mental health counseling to all hearing, deaf, and hard-of-hearing students requesting assistance. Members of the center work closely with RIT's Student Health Center, the Center for Residence Life, the NTID Counseling and Academic Advising Services department, Public Safety, and related campus units. Some of the counselors at the center are fluent in sign language.

Some concerns that students may need help resolving include medication referral and management, depression, anxiety, family conflicts, intimate relationships, and sexual and personal identity matters. Workshops, discussion groups, and group counseling on topics such as stress management, eating disorders, managing emotions, and improving relationships also are offered.

A 24-hour emergency crisis intervention service for students experiencing mental or emotional trauma is provided in conjunction with other relevant campus units.

NTID Student Life Team

(866) 761-3896 (VP/VRS)

The Student Life Team is committed to providing quality co-curricular programs designed to help students enhance their quality of life, sense of relevancy to their studies, and overall satisfaction with and success in college. Through collaboration with other units within NTID and RIT, creative program strategies, and commitment to utilizing student paraprofessionals, the Student Life Team emphasizes cultural diversity, minority student support, leadership development, deaf culture and ASL, and contemporary social issues.

NTID Center for Intercollegiate Athletics and Recreation Support Team

www.ntid.rit.edu/sports/overview.html
(585) 475-6104 (voice), (585) 475-6530 (TTY)

The NTID Support Team is committed to services that maximize access and success for deaf and hard-of-hearing students within wellness, intercollegiate athletics, intramurals, recreational, and club sport programs. The team members teach a variety of wellness courses and provide consultation, mentoring, and educational programs to deaf and hard-of-hearing athletes, coaches and teams. The team also coordinates and supervises a leadership/paraprofessional sport assistant program for deaf and hard of hearing students.

NTID Summer Vestibule Program

www.ntid.rit.edu/prospective/svp.php

The Summer Vestibule Program is NTID's required orientation program for new deaf and hard-of-hearing students that assists and prepares them for complex tasks; i.e., career awareness, decision making, adjustment to college life, and assessment of academic skills and competencies. Students learn about the programs offered at NTID and the other RIT colleges, while faculty and staff members evaluate students' skills, abilities, and motivation. Through this process, students gain information that assists in the selection or confirmation of an appropriate program and the design of their individual academic plans.

Acceptance into a program does not automatically guarantee admission to the program the student selects. The final decision on acceptance into a program of study for the fall quarter is the responsibility of each academic department. Admission to a program depends on successfully completing the program, having requisite skills to begin the program, and availability of space in that program.

During the program, students participate in various activities, including orientation to college services and academic expectations, career sampling, career planning, and placement assessment in mathematics and English. Recreational and social activities also are part of the program.

NTID Support Service Orientation Workshops

The NTID Support Service orientation workshops are designed for deaf and hard-of-hearing students who have been accepted into an RIT bachelor's degree program. These workshops provide students with information on how to use the various NTID educational access and support services available to them, acquaint them with RIT's campus and services, and allow them to meet other new students, as well as their department's chairperson and faculty members, who will assist them with fall quarter class registration and support services throughout the year.

Part-time Enrollment Services

www.rit.edu/parttime
(585) 475-2229

The Office of Part-time Enrollment Services provides central information and counseling services for students interested in enrolling in part-time and online studies offered through RIT's various schools and colleges. Contact the office if you need assistance with selecting an academic program, exploring financial aid opportunities, registering for classes, or receiving information about any aspect of part-time study at RIT.

Staff members are available from 8:30 a.m. to 6 p.m., Monday through Thursday, and from 8:30 a.m. to 4:30 p.m. on Friday.

Student Health Center

www.rit.edu/studentaffairs/studenthealth
(585) 475-2255 (v), (585) 475-5515 (tty)

The Student Health Center provides primary medical care on an outpatient basis. The staff includes physicians, nurse practitioners, registered nurses, health educators, an alcohol/drug counselor, and an interpreter for the deaf. Services are available by appointment. Health education programs also are provided.

The Student Health Center is located along the walkway linking the academic and residence hall areas of the campus. Students are seen Monday through Thursday, 8:30 a.m. to 7 p.m., and Friday, 8:30 a.m. to 4:30 p.m., by appointment. Emergencies are seen as need requires. Hours are subject to change and are posted.

The university requires students to maintain health insurance coverage—which they may purchase either on their own or through RIT—as long as they are enrolled at the university.

The quarterly student health fee is mandatory for all full-time undergraduate students. All other students may pay either the quarterly fee or a fee for service. Some laboratory work ordered through the Student Health Center is not covered by this fee; there is an additional charge for this service. Prescription medicines may be purchased from local pharmacies or, for some specific prescriptions, from the Student Health Center. The health fee does not include prescription medications.

Questions about the Student Health Center should be directed to the office. Questions regarding health insurance available through RIT should be directed to University Health Plans at (800) 437-6448.

RIT ambulance

(585) 475-3333 (v), (585) 475-6654 (tty)

RIT ambulance is a New York State certified volunteer ambulance service that serves the campus community, including adjoining apartment complexes. The ambulance is staffed by emergency medical technicians with service available 24 hours a day, seven days a week. If, for some reason, RIT ambulance is not available, there may be a charge for services provided by another corps.

Health records

Medical records are confidential. Information is not released without the written consent of the student. Exceptions to this rule are made only when required by the public health laws of New York State, a court-ordered subpoena, or in a life-threatening situation.

New York State and RIT immunization requirements

New York State public law requires that all students enrolled for more than 4 quarter credit hours in a term and born after January 1, 1957, must provide the RIT Student Health Center with proof of having received the appropriate immunizations against measles, rubella, and mumps or of having immunity to each disease validated by laboratory results from blood titers. Immunization requirements include two measles vaccinations, at least one month apart, with a live virus, after January 1, 1968, and after the first birthday; and one vaccination each against mumps and rubella after January 1, 1969, and after the first birthday. RIT requires that these immunizations be given in two doses of combined MMR vaccine at least 30 days apart. New York State requires students to sign the meningitis awareness form. RIT requires all students age 26 and under to be immunized against meningitis. Failure to comply with the NY State immunization law may lead to exclusion from classes and the RIT community until compliance is obtained.

Other immunization requirements include Hepatitis B, TD booster, and PPD (for students from high-risk areas). Additional information concerning these requirements, the necessary documentation, and where documentation must be sent is included with the Admissions Office acceptance packet and also is available from the Student Health Center. Additional detailed immunization information and forms are available on the center's website or by calling the office.

Student Financial Services

http://finweb.rit.edu/sfs/
(585) 475-6186

Student Financial Services (formerly the Bursar's Office) offers a variety of financial services for students, including billing, payment options, and loan repayment. The office has implemented an e-mail/Web-based system called eServices for billing and payments, real-time account inquiry, and electronic payment. Each student's RIT e-mail account is the official address to which notification is sent regarding billing.

TRiO Student Support Services

www.rit.edu/studentaffairs/triosss
(585) 475-2833

TRiO Student Support Services is a federally funded program that provides the academic and personal support that will enables students who qualify to realize their potential and to graduate. SSS has been hosted at RIT for more than 30 years and includes academic, counseling, and programming components. Each has a distinct purpose but is integrally linked with the others.

The academic component offers a full complement of services—including tutoring, math mentoring, advisement, and skills development—to assist students with academic concerns, enable them to understand and refine their learning process, and use academic resources more effectively.

The counseling component works to bring students into the program and provides support that enables them to direct their energies toward their academic and personal goals. A counselor assists students in understanding all resources available and how to access the appropriate assistance. A counselor also will work with students on areas of general concern.

The programming component provides complementary experiences that enhance the student's academic and personal perspectives by drawing on RIT and other community resources. This component can provide the student with new opportunities for personal and professional growth.

To qualify for the program, students must meet one of the following criteria: financial eligibility, documented disability, or first-generation college student status. Any full-time undergraduate student who is a U.S. citizen or has a green card and meets one of the eligibility requirements may become a member of RIT TRiO Student Support Services.

Veteran Enrollment Services

www.rit.edu/emcs/ptgrad/veterans.php3
(585) 475-6641

If you have questions regarding VA Benefits, NYS War Veteran Scholarships, TA, or the RIT Active Duty Service Member Scholarship, contact RIT's Veteran Enrollment Services.

All RIT courses and programs are approved for the education of members of the U.S. Armed Forces, veterans, and eligible dependents under the Veterans Readjustment Benefits Act, the Rehabilitation Act, and the War Orphans Act.

To receive benefits, contact us through our Web page, call, or live chat. Eligible students must submit an application for the VA Certificate of Eligibility. This application can be submitted online through the VA'S website. All VA educational benefits paid to RIT students are the responsibility of the VA Regional Office in Buffalo, N.Y. We can send most enrollment information well in advance of the beginning of the starting quarter, thus eliminating long delays in payments. Applications for all benefits are available online, at local VA offices, or on campus in the Office of Part-time Enrollment Services. To ensure a smooth transition and successful academic program completion, start your benefits paperwork early.

The RIT Community

Among the nation's top universities, RIT is an exciting living and learning environment. Within our engaging and challenging academic setting, you'll find a strong commitment to undergraduate education and a vibrant campus life that creates sparks of creativity and community. Students from all 50 states and more than 100 countries find the RIT campus and Rochester, N.Y., crackling with life.

Center for Residence Life

www.rit.edu/reslife

The Center for Residence Life serves the needs of approximately 6,800 students in residence halls, Greek houses, special-interest houses, lifestyle floors, the RIT Inn and Conference Center, and on- and off-campus apartments. The center helps create a supportive living environment that enhances individual development and promotes a strong sense of campus community.

RIT recognizes the significance of the on-campus living experience and its effect on students' academic and social development. To ensure a positive experience, the center's residence halls offer a comprehensive campus living experience.

The center plans events on each floor of the residence halls as well as larger scale events in each quad area. Social activities at the beginning of the year are designed to help students meet one another, make friends, become familiar with campus resources, and generally ease their transition to college life. Programs are continually offered throughout the year on a variety of topics, including diversity awareness, time management, study skills, personal safety, wellness, decision making, and roommate agreements.

Residence halls

The RIT community begins in the 13 campus residence halls, where more than 3,400 first-year and returning students reside each year. It is in these halls where engineering students live side-by-side with art students, international students mix with students from other cultures, and hearing and deaf students experience each others' cultures. The residence halls are a diverse and exciting living experience.

Lifestyle floors and special-interest houses provide additional options for a more personalized living environment. Special-interest houses are designed for students to share mutual interests. Seven houses offer a specific academic focus and provide a way to tailor activities to a common group. Eight special-interest houses are self-governing organizations with a resident adviser living on the floor: Art House, Business Leaders of Tomorrow, Computer Science House, Engineering House, House of General Science, International House, Photo House, and Unity House.

Apartments

RIT's apartment complexes offer a more independent living experience while extending the advantages of living on campus. Apartments include one-, two-, and four-bedroom units, and townhouses have two or three bedrooms.

Although the majority of apartment residents are undergraduates, each complex features a mixture of graduate and undergraduate, single and married students. Each complex offers the privacy of a small community, with individual mail and newspaper delivery. Apartment residents enjoy other community benefits such as basketball and volleyball courts, barbecues and picnic areas, plus playground equipment for children.

RIT Inn and Conference Center

A living experience for upperclass students, the Inn and Conference Center features a hotel-like setting. Each room features high-speed Internet access. The inn features indoor and outdoor pools, a sauna, a whirlpool, a fitness center, and a business center. Café dining and a gourmet coffee shop are also located on the premises.

The Residence Hall Association

Representing all residential students and serving as a liaison between the student body and the administration, the RHA develops the policies and procedures that benefit the resident population. RHA also provides students with a variety of services, facilities, programs, and equipment, including RITchie's, a free game room managed by the association that features a relaxing lounge with video games (X-Box, Playstation 2, and Gamecube); pool, air hockey, and foosball tables; and a variety of board games.

The Housing Connection

A service of RIT Housing Operations, the Housing Connection is designed to meet the general housing needs of the RIT community. It offers the only on-campus clearinghouse for apartment residents in need of additional roommates, providing a continually updated listing of available roommates and their specific interests.

The Center for Intercollegiate Athletics and Recreation

http://www.rit.edu/ciar

The Center for Intercollegiate Athletics and Recreation oversees the athletics, recreation, intramurals, and wellness programs.

Athletics

The Intercollegiate Athletics program consists of one NCAA Division I team (men's ice hockey) and 21 Division III teams.

Athletics are conducted in accordance with the National Collegiate Athletic Association (NCAA) Division III rules and the Atlantic Hockey Association. The athletics program serves approximately 550 student athletes with 24 men's and women's varsity sports. Several teams have reached national playoff competition. Over the years, RIT also has boasted numerous All-Americans, individual national champions, and two NCAA postgraduate scholars.

Athletics supports its student athletes in their academic endeavors. They achieve an impressive overall grade point average that exceeds that of the general student population.

Sports offered through the Intercollegiate Athletics program promote development of leadership skills and values as well as campus spirit and provide visibility for the university.

Recreation

With recreational interests at an all-time high, RIT offers something for everyone. Through payment of full-time tuition (12 quarter credit hours), students are automatically eligible to use the recreation facilities. Students registered for a co-op are also automatically provided with a recreation membership. Students taking 0-11 credit hours, or those who are considered to have full-time equivalency, must purchase a membership at the Student Life Center Main Office. Available recreational facilities include the following:

Clark Gymnasium: The gymnasium features a main gymnasium and a smaller auxiliary gymnasium used primarily for varsity practices and contests, a wrestling room, an athletic weight room, and a sports medicine center.

Gordon Field House and Activities Center: The field house includes a 160,000-square-foot, multi-purpose field house; a 60,000-square-foot multi-purpose arena; a 200-meter jogging track; four indoor tennis courts; a multi-level fitness center; and an aquatics center with an eight-lane competitive pool with moveable bulkhead diving area, recreational pool, and hot tub.

Hale-Andrews Student Life Center (SLC): The SLC is an 88,000-square-foot complex that features five multi-purpose courts (basketball, volleyball, badminton), eight racquetball courts (four equipped for wallyball), two dance studios/fitness rooms, a mini-gym (basketball, volleyball, and multi-purpose court), an elevated 200-meter jogging track, an equipment cage (for equipment loans and towel service), a spinning room, a boxing/kick-bag room, locker rooms with saunas, classrooms, a CPR room, and an overnight equipment rental office.

Outdoor Facilities: There are nine all-weather, lighted tennis courts next to the U Parking Lot. The athletic fields, which feature an all-weather track with generous seating, host soccer, lacrosse, and track events. Other fields include baseball, softball, practice fields, jogging trails, archery range, nature trails, and artificial turf field.

Red Barn: The Red Barn houses the Interactive Adventures Program, which includes an array of adventure-based wellness activity classes, teambuilding programs, and the Red Barn climbing gym, which consists of a 32-foot top-roping wall and extensive bouldering areas.

Ritter Arena: Ritter Arena is home to men's and women's ice hockey teams as well as the Genesee Figure Skating Club. Public skating and learn-to-skate programs also are available.

Reservations

Reservations for all facilities are on a priority system. Reservations for groups of 10 or more people (with the exception of racquetball and indoor tennis) must be made two business days in advance. Reservations and requests for longer than two hours or multiple reservations will be handled on an individual basis and should be requested well in advance by calling the appropriate number and possibly completing a request form. Racquetball and indoor tennis courts may be reserved one day in advance by calling (585) 475-2280.

Intramurals

Intramurals offer a wide range of activities for students, faculty, and staff. The tournament league is designed for those who want to play in a more competitive, elimination-playoff-type format. There also is a recreational league, in which league champions are based on a point system and there are no playoffs. Tournament and recreational play is separated into three divisions, including a co-ed division. Each co-ed team must have specific numbers of men and women on the playing field, depending on the sport.

The following sports are offered: indoor soccer, three-on-three basketball, five-on-five basketball (winter and spring), volleyball, ultimate Frisbee (spring), dodgeball, flag football (fall), softball (fall and spring), ice hockey (fall and winter), speedball, tennis (fall and spring), table tennis, racquetball, and badminton.

Wellness

The wellness instructional program is offered to students, faculty, staff, and alumni (with current SLC memberships). More than 200 courses are offered each quarter in the following categories: health and wellness seminars, dance, fitness, life support and safety, lifetime recreation and leisure, interactive adventures, martial arts, and ROTC.

Campus social events

The RIT campus is a melting pot of activity and fun for all students. During the course of the year clubs and organizations host more than 700 student events. In addition, major social events are a part of the campus culture and can be found on the RIT calendar at all times of the year. RIT sponsors a variety of events beginning with the Week of Welcome during New Student Orientation and ending with the Senior Night social event for graduating seniors.

Between these bookend events, RIT sponsors the Brick City Festival, which also encompasses Parents and Alumni Weekend, and Spring Fest, with its traditional carnival. Major concerts are held four to five times a year. Past concerts have featured Kanye West, Ludacris, Lupe Fiasco, and Taking Back Sunday. RIT also has hosted famous comedians such as Wayne Brady, David Spade, Dane Cook, Carlos Mencia, and Jon Stewart. The Cultural Spotlight Series and the Performing Artists' Series feature cultural events with a variety of performers. Past series have included performances and artists such as Maya Angelou, Edward James Olmos, Rochester Classic Jazz Band, Yo Soy Latina, Aventura, the Rochester Philharmonic Orchestra, Richard Smallwood and Vision, Byron Cage, and Kurt Carr and the Kurt Carr Singers.

Numerous speakers, including Magic Johnson, Colin Powell, Robert Redford, Rudolph Giuliani, and former presidents Gerald Ford, Jimmy Carter, and Bill Clinton, have spoken at campus events. The RIT Players hold quarterly theater productions. Weekend evenings feature a number of activities, such as the Thursday Night Cinema Series and Friday Night in the RITZ. Other events are held annually, including the RHA Vegas Night, RIT Greek Week, and the CAB Winter Concert. Every other year, the College of Liberal Arts sponsors a musical theater production and NTID hosts the RIT/Gallaudet Weekend.

Park Point

Park Point, a 60-acre residential, retail, and commercial complex featuring fully furnished luxury apartments and a variety of shopping and dining, including:

- *Barnes & Noble@RIT*, RIT's campus bookstore, which features a Starbucks;
- *Wok With You*, featuring Asian cuisine;
- *Lovin' Cup Bistro and Brews*, with live music;
- *Abbott's Frozen Custard*, an authentic Rochester creation;
- *Paradiso Pizza*, featuring a variety of pizzas, pasta, and subs;
- *T.C. Riley's*, a sports bar and Irish pub;
- *M&T Bank*, for banking and financial needs; and
- galleries highlighting arts and crafts by students and faculty.

Global Village

Global Village is a new retail marketplace and housing complex that bears a resemblance to the street-side cafés of Europe. Residential housing features furnished suites, single, and double rooms, community kitchens, free wireless access, free standard cable, free laundry services, and lounges and study rooms.

In addition to housing options, Global Village features:

- *Salsarita's Fresh Mex Cantina*, offering healthy, fresh Mexican favorites;
- *Global Grille,* with a menu of rotating international cuisines and recipes from around the world;
- *Sushi Station*, offering a variety of fresh-made sushi;
- *Global Village Market,* including a vast assortment of ethnic spices, foods, and products from around the world, as well as commonly purchased American items. Hispanic, Asian, Indian, Middle Eastern, Kosher, and Halal foods are among the selections available;
- *Global Village Pizza*, in addition to a menu of pizza selections, will feature heated, outdoor seating, a small stage area for concerts and student programming, and a fire pit;
- *Better Me Wellness Center*, a state-of-the-art fitness facility featuring a variety of work out equipment and spaces for fitness and wellness classes; and
- *HUB Print Center and Post Office*, services include digital printers; postal services; wide-format printing, mounting, laminating, and coil binding; and a retail section will offer school supplies such as pads, pencils, pens, notebooks, and printer paper for purchase.

Student Government clubs

(585) 475-4483 (voice/TTY)

http://campuslife.rit.edu/clubs

For more information about the following clubs, please contact the Clubs Office at (585) 475-4483 (voice/TTY), visit our website at http://campuslife.rit.edu/main/clubs/index, or stop by the office in the RITreat. Look for the quarterly Club Day in the Student Alumni Union. The following is a partial list of recognized clubs. For the most up-to-date information, visit the website.

Career Related
AIGA (Graphic Arts)
ASCE (Civil Engineers)
Aero-Design Club
American Marketing Association
Animal Advocacy Group
Audio FX
Biomedical Photo Student Association
Ceramics Guild
Chem Club
Electric Bike Club
Emerging Black Artists
Engineers for a Sustainable World
Financial Management Association
Forensic Science Club
Game Developers Club
Gamma Epsilon Tau
Glass Guild
Graduate Management Association
Hospitality Association
IDEA (Interior Design)
IIE (Industrial Engineers)
ITSO (Information Technology)
International Business Group
Jewelry and Metals Association
Life Science Club
MESA (Microelectronic Engineering)
MISST (Management of Information Systems)
MacRIT
Malaysian Student Association
Materials Research Society–RIT Chapter
National Press Photographers Association
National Society of Black Engineers
New Media Fusion
PUB
Physician Assistant Student Association
Pi RIT
Premedical Student Association
Psychology Club
SHPE (Hispanic Engineers)
SPARSA (Security Practices)
SSWO (Social Work)
Society of Manufacturing Engineers
Society of Plastics Engineers
Student Dietetic Association
Society of African American Business Students
Student Interpreting Association
TPSA (Technical Photographer)
Ultrasound Student Association
Women in Technology

Ethnic
Asian Culture Society
Asian Deaf Club
Caribbean Deaf Club
Caribbean Student Association
Chinese Student Scholar Association
DISA (Deaf International)
Ebony Club
Hispanic Deaf Club
Kazakh Group of Bolashakers
Korean Student Association
LASA (Latin American)
OASIS (Indian Student Alliance)
Organization of African Students
Piazza Italiana
Taiwanese Student Association
Vietnamese Student Association

Hobby and Special Interest
Alpha Phi Omega
Amateur Radio Club
Anime Club
Ballroom Dance Club
Break Dancing Club
College Democrats
College Republicans
Comedy Troupe
Country Line Dancing Club
Creative Outlet
Dance Team
Dead Saints Society
Debate Society
Doves
Electronic Gaming Society
Empty Sky Go Club
FACES (Feminist Group)
FIRST
Formula SAE Racing Team
Graduate Photography Association
Habitat for Humanity
Hooks and Needles
Human Powered Vehicle Team
International Socialist Organization
Invisible Children–RIT Chapter
Juggling Club
Linux Users Group
Masquers Drama Club
Metalworks
Micro-Air Vehicle Club
Mini-Baja Club
Model Railroad Club
Offroaders
Outing Club
Patent Club
RIsTep
RIT Gay Alliance
RIT Greenvehicle Team
RIT Players
RITveg
RWAG (Wargamers)
Rally Enthusiast Club
Robotics Club
Rotaract
SEAL (Environmental Action)
Signatures Magazine
Social Action Group
Spectrum
Students for Cambodian Schools
Students in Free Enterprise
Swing Dance Club
Table Tennis Club
Wood Club

Music Related
Gospel Ensemble
Jazz Messengers
Pep Band
Student Music Association

Religious
Agape Christian Fellowship
BASIC (Christian Fellowship)
Campus Crusade for Christ
Hillel/Jewish Student Union
Hindu Students Council
InterVarsity Christian Fellowship
Korean Christian Fellowship
Muslim Student Association
WOLK

Sports
Alpine Ski and Snowboard
Badminton Club of RIT
Bowling Club
Equestrian Club
Fencing Club
Field Hockey Club
Golf Club
Gymnastics Club
Horizontal Ultimate Frisbee
Kendo Club
Lacrosse
Paintball Club
Pool Club
Roller Hockey
Running Club
Sailing Club
Soccer Club
Tae Kwon Do Club
Tennis Club of RIT
Triathlon Club
Volleyball
Water Polo
Weightlifting Club

Student professional associations

Students also can become involved with departmental and professional associations. This includes groups such as Alpha Chi Sigma (chemistry), Gamma Epsilon Tau (printing), Pi Tau Sigma (mechanical engineering), Beta Alpha Psi (accounting), and Tau Beta Pi (engineering).

A number of national technical associations have student affiliate chapters on campus. These societies play an important part in campus life by bringing together students who have common interests in special subjects. Students should ask their academic departments about organizations for their academic interests.

Reporter magazine

Reporter, RIT's weekly news magazine, is the nation's only full-color weekly college magazine. With a circulation of 6,000, *Reporter* delivers 32 pages of on- and off-campus news, features, entertainment, and sports coverage to the RIT community every Friday. The magazine is completely student-run and staffed, and all editorial, photographic, business, design, and production work is done entirely on campus with the help of the printing application lab's Heidelberg press. A winner of numerous state and national awards, *Reporter* is highly regarded as one of the nation's most innovative college publications and respected for its high-quality writing, photography, illustration, and design. *Reporter* takes pride in its memberships in the Associated Collegiate Press and the American Civil Liberties Union. Students of all educational backgrounds, majors, experience levels, and skills are encouraged to join.

Student Government

http://sg.rit.edu/
(585) 475-2204 (voice/TTY)

Student Government is the representative body for students and works with the university's administration, faculty, and staff to communicate the needs and desires of the student body and the decisions of the administration to RIT students. It provides a variety of services to student organizations and recognizes approximately 160 clubs and eight other major organizations. It actively engages in the university's open governance system where it serves as the voice of students.

All full-time and part-time undergraduate and full-time graduate students become members of the Student Government when they pay the student activities fee.

Off-Campus and Apartment Student Association

www.rit.edu/studentaffairs/ocasa/
(585) 475-6680 (voice/TTY)

The Off-Campus and Apartment Student Association (OCASA) is the representative student government for all RIT students who do not reside in a residence hall. Formed in 1978, OCASA is composed of both commuter students and students who live in RIT-operated apartment complexes or in off-campus apartments. OCASA provides input from off-campus students to the RIT administration.

The OCASA main office, located in the Student Alumni Union RITreat, offers complimentary services that include an area with PCs and Macintosh computers, a copier, fax machine, and various office supplies. Also available are a microwave, refrigerator, free coffee, tea, and hot chocolate. A daily newspaper and a variety of magazines are on hand.

College Activities Board

http://cab.rit.edu
(585) 475-2509 (voice/TTY)

The College Activities Board (CAB) is a student-run organization responsible for providing a balanced program of social and recreational events for the campus community. CAB presents concerts, festivals, movies, and off-campus trips each quarter. For information on CAB programs, stop by the office in the Student Alumni Union or contact us via phone or Internet.

Black Awareness Coordinating Committee

(585) 475-5624 (voice/TTY)

The Black Awareness Coordinating Committee (BACC) fosters an awareness of the role of African American men and women in the total society and creates a greater understanding of the African American culture among students, faculty, and staff at RIT. Each year the committee sponsors various social and cultural programs designed to achieve these objectives.

Residence Halls Association

www.rit.edu/studentaffairs/rha/
(585) 475-6655 (voice/TTY)

The Residence Halls Association (RHA) represents all students living in the residence halls. It is the liaison between the residence hall student body and the administration. RHA strives to provide diverse programming for students by supporting programs with Residence Life staff and other organizations. RHA also provides students with a variety of services such as a video library with over 800 videos and DVDs. RHA also operates RITchie's, a student-run arcade with a coffeehouse atmosphere located in the tunnel under Gibson Hall. The RHA office is located in the tunnel under Baker Hall.

Global Union

www.rit.edu/sg/globalunion
(585) 475-2567

The diversity of RIT's global student body warrants an organization that encourages interaction among different ethnic groups. The Global Union promotes communication, cooperation, and mutual support among all students. It intends to unify all its affiliated organizations and encourage pluralism and understanding. The Global Union provides a platform for expression for campus international and minority communities. It is RIT's multicultural student organization.

Greek Council

http://campuslife.rit.edu/main/fratsorlife/index
(585) 475-7123 (TTY)

The RIT Greek Council is the governing body that represents all members of recognized social fraternal organizations. The council represents the College Panhellenic Association, the Interfraternity Council, the National Pan-Hellenic Council, and GAMMA (Greeks Advocating the Mature Management of Alcohol). Greek Council is responsible for regulating standards and practices that affect the entire fraternal community. It oversees the recognition procedure for special-interest groups that have the intention of becoming a fraternity or sorority. There are also many programs that Greek Council sponsors throughout the year: Greek Weekend, Adopt-a-Highway, Tree of Angels, leadership conferences, social programs, national education speakers, Greek intramural league, and much more.

WITR Radio

http://witr.rit.edu/

WITR is an FM radio station operated by RIT students and licensed by the Federal Communications Commission as a noncommercial, educational station. It also is licensed to be on the air 24 hours a day with a power of 910 watts, which covers the Rochester area.

Students make up the staff, working in four major departments: engineering, news and public affairs, programming, and promotions. WITR Radio has been operating for more than 30 years with two major goals: to provide programming to RIT and the surrounding community and to provide a noncommercial training ground for participating staff.

Participation in WITR can be an educational and enriching experience. It offers students practical experience in broadcasting, engineering, and management. WITR disc jockeys gain the qualifications and experience to work in any radio station. Some former and current members now work full or part time at several commercial radio stations, while other members have attained positions with recording studios or are active representatives of record companies such as A&M, MCA, Sony, Mercury, and Polydor.

WITR promotes RIT events and public-service activities, including both on- and off-air participation in many events. It is a major source of local music in the Rochester community. WITR is the primary broadcast source of RIT sports and campus events such as the president's annual address.

NTID Student Congress

nsc.rit.edu/about.php

The NTID Student Congress is an organization comprised of deaf and hard-of-hearing students who represent and provide programs for members of their community. The organization helps interested students communicate their needs, ideas, and concerns about campus life to faculty members, administrators, and other student organizations within RIT; provides opportunities for developing leadership skills; and encourages student activities and integration by providing deaf and hard-of-hearing students with opportunities to interact with their peers socially, academically, athletically, and culturally. Students interested in getting involved may stop in at the NTID Student Congress office in the CSD Student Development Center.

NTID Performing Arts

www.rit.edu/~w-npart/about.html

RIT/NTID Dance Company: The RIT/NTID Dance Company is a unique ensemble of deaf, hard-of-hearing, and hearing students that enriches the educational life of its dancers by providing challenging and rewarding choreographic and performance opportunities. Membership in the company is open to the entire RIT community (dancers as well as nondancers, from every level of ability and experience) at an annual audition in the fall quarter.

The RIT/NTID Dance Company has presented a diverse repertoire consisting of full-length ballets and student and faculty choreography in modern dance, jazz, and a variety of ethnic-based dance. The company also has had guest choreographers and performers, including Garth Fagan, Sahomi Tachibana, Tim Draper, Michael Thomas, Sean McLeod, Carolyn Dorfman, Thomas Warfield, Hong Kong-based choreographer Andy Wong, deaf choreographer Christopher Smith, the Nrityagram Dance Ensemble of India, and Jim Donovan, lead drummer for Rusted Root. For information, contact Thomas Warfield, director of dance, at (585) 475-6252 (voice/TTY) or tfwnvc@rit.edu .

Panara Theatre: Students and faculty produce major plays and performances featuring deaf and hearing actors, dancers, and technical staff. Call the box office at (585) 475-6254 (voice/TTY). For more information, please visit www.rit.edu/ntid/theater.

Lab Theater: Lab Theater features experimental, new, or unusual productions. New directors and student writers also use the space for developing their skills. For information, call (585) 475-6250 (voice/TTY).

NTID performing arts course offerings: For information regarding acting, mime, technical theater, lighting, play creating, script translation, or dance classes, call NTID's Performing Arts Program, (585) 475-6250 (voice/TTY).

Literary Series: A joint activity of the RIT Creative Arts Committee, the College of Liberal Arts and various other campus organizations, the Literary Series brings both well-known and developing writers to campus. Students who wish to participate should call (585) 475-2475 (voice/TTY).

Visiting Artists and Critics Series: Sponsored by the College of Imaging Arts and Sciences, the Creative Arts Program, and the Student Affairs Office, this series features many of the country's leading artists and critics who deal with the issues of technology in art today. For more information, call (585) 475-2646 (voice/TTY).

Student Music Association

www.rit.edu/cla/finearts/music/

RIT Singers: The university-sponsored vocal ensemble, RIT Singers, is composed of 80 to 90 members and is open to students, faculty, and staff. New members are welcome during the first three weeks of each quarter. The ensemble performs classical and popular music and gives one or two concerts each quar-

ter. The RIT Singers also participates in the Western New York Intercollegiate Choral Festival. One credit hour is awarded for participation in the group. For more information, call (585) 475-6087, or e-mail Edward Schell at etsgsh@rit.edu.

Men's A Cappella Ensembles: Selected through auditions, these are ensembles of eight to 12 singers chosen from the RIT Singers. The current groups are Eight-Beat Measure, Brick City Singers, and Surround Sound. Rehearsals for both on- and off-campus appearances are adjusted to fit ensemble members' schedules. For more information, call (585) 475-6087.

Women's A Cappella Ensemble: Selected through auditions, the current group, Encore, is an ensemble of eight to 12 singers chosen from the RIT Singers. Rehearsals for both on- and off-campus appearances are adjusted to fit ensemble members' schedules. For more information, call (585) 475-6087.

Gospel Ensemble: This group of approximately 25 members has developed a repertoire of black spirituals, modern gospel songs, interdenominational anthems, and hymns. The group performs three times a year, during Brick City Festival, their annual Gospel Fest in February, and their annual anniversary concert. During the past few years they have opened for such renowned performers as Richard Smallwood, Vision, and Byron Cage. They perform twice a month for the gospel worship service in the Interfaith Center. For more information, call Campus Life, (585) 475-4483 (voice/TTY).

RIT Orchestra: The RIT Orchestra is open to all RIT students, faculty, staff, and musicians from the surrounding area. The repertoire includes masterworks from the Baroque to the 20th century. Past performances have included pops concerts and chamber music performances. One credit hour is awarded for participation in the group. For more information, call (585) 475-2014, or e-mail Michael Ruhling at mergsl@rit.edu.

RIT Jazz Ensemble: Instrumentalists with a background in jazz will want to check out the RIT Jazz Ensemble. Open to all RIT students, the Jazz Ensemble welcomes those who play the following instruments: saxophone, trumpet, trombone, bass guitar, guitar, piano, and drums. Performing a repertoire of varying styles, the ensemble presents quarterly concerts and performs for campus activities and academic functions. The ensemble rehearses at least once a week, on Tuesday evenings in the SAU music room, 7-10 p.m. One credit hour is awarded for participation in the ensemble. For more information, call (585) 475-5366, or e-mail Jonathan Kruger at jhkgsl@rit.edu.

RIT Concert Band: The Concert Band is open to all RIT students who play traditional band instruments. Performing repertoire of varying styles, the ensemble presents quarterly concerts and performs for campus activities and academic functions. The ensemble rehearses at least once a week, on Wednesday evenings in the SAU music room, 7-9 p.m. One credit hour is awarded for participation in the band. For more information, call (585) 475-5366 or e-mail Jonathan Kruger at jhkgsl@rit.edu.

RIT World Music Ensemble: The World Music Ensemble is open to all RIT students, faculty, and staff. Repertoire focuses on various non-Western music traditions. The ensemble regularly performs on its extensive collection of handmade African drums. One credit hour is awarded for participation in the ensemble. For more information, call (585) 475-4439 or e-mail Carl Atkins at cjagsh@rit.edu.

Center for Religious Life

www.rit.edu/studentaffairs/religion/
(585) 475-2135

The Center for Religious Life is unique in the RIT community. Recognizing the balance of mind and spirit, the center's interfaith staff provides worship and observances within diverse religious and cultural traditions. Several religious clubs also gather each week around the campus. Nondenominational Christian, Southern Baptist, Catholic, Muslim, Jewish, Hindu, Lutheran, and Orthodox Christian are among the many communities serving campus needs and interests. In a time of intellectual and spiritual growth, the center establishes an affirming environment for students, faculty, and staff to explore and discuss values informed by religious beliefs.

The Kilian J. and Caroline F. Schmitt Interfaith Center

RIT's Interfaith Center, a gift of Kilian and Caroline Schmitt and other generous donors, is located on the east side of the Student Alumni Union. It is a focal point for the diverse religious traditions within the university, housing two chapels, meeting rooms, and offices for the campus ministry staff.

Women's Center

www.rit.edu/studentaffairs/womenscenter/
(585) 475-7464 (voice/TTY)

The Women's Center serves to support, promote, and celebrate the educational and personal success of RIT women. The center provides information, programming, support, and advocacy to address a wide variety of issues affecting women (and men), including healthy relationships, sexuality, pregnancy, body image, pornography, interpersonal violence, sexual assault, sexual harassment, personal safety, and exploration of gender-related issues. The Women's Center strives to provide a visible and accessible location and a supportive environment where students are encouraged to engage in dialogue, exchange viewpoints, and find assistance.

Through its programs, speakers, and workshops, the center addresses topics relevant to the academic, social, psychological, and physical needs and interests of women. The center sponsors the women's mentoring program, which connects second-year students with upperclass students. The center also has an active program for men interested in becoming better allies of women.

RIT Leadership Institute and Community Service Center

www.rit.edu/lead
(585) 475-6974

The RIT Leadership Institute and Community Service Center provides a variety of experiences in which students may engage to learn about leadership and community service. Some examples of our opportunities include: a weekend leadership adventure with ropes course, a leadership certificate program, four different leadership courses, a corporate and an RIT leadership conference, a public speaking series, an alternative spring-break program, participation in the American Heart Walk and Hillside's Special Santa drive, and volunteer connections with more than 260 agencies in

the Rochester area. For more information on leadership and community service opportunities, call or contact us via the Web.

Public Safety

http://finweb.rit.edu/publicsafety/
(585)475-2853

The Public Safety Department is open 24 hours a day and is located in Grace Watson Hall. To report an emergency on campus, dial 3333 (voice/TTY) from any campus phone or (585) 475-3333 (V/TTY) from any cell phone and the RIT apartment complexes to contact the Public Safety Department. The department staff encourages everyone to take responsibility for their safety by staying informed of these services and reporting suspicious activity. Although each individual is ultimately responsible for his or her own personal safety, learning and practicing basic safety precautions can enhance one's well being.

The department provides the following services:

Blue light call boxes: Campus courtesy call boxes, identified by a blue light, are located across campus. These call boxes provide a direct line to Public Safety 24 hours a day. The location of the call is automatically recorded at the Public Safety Communications Center, making it possible for hard-of-hearing individuals to use the call boxes also. The call boxes may be used to request an escort, assist a motorist, report suspicious individuals or activity, or request access to a locked building or room.

Mobile escort service: Public Safety strongly encourages students to use the mobile escort service available to anyone, seven days a week, on a timed schedule between 11 p.m. and 3 a.m. Call the Public Safety Department at (585) 475-2853 (voice/TTY), or use one of the blue light call boxes located across campus.

Lost and found: All items lost and found on campus are stored by the Public Safety Department. To report an item lost, please visit https://finweb.rit.edu/publicsafety/safety/lostitems.html to submit information. Public Safety will contact you if the item is found on campus.

Emergency notification: If a family member needs to make an emergency notification to a student, he or she should contact Public Safety at (585) 475-2853 or (585) 475-6654 (TTY). Public Safety will locate the student and relay the message.

Presentation programs: Throughout the year, Public Safety hosts a variety of prevention programs on various topics, including fire safety (video and slide presentations), crime prevention, personal safety, alcohol awareness, and driver safety as well as a state-certified defensive driving program. Call (585) 475-2074 for more information.

Annual Safety and Security Report: Public Safety's security report is available online and offers a description of security practices and information on reported occurrences of crime.

http://finweb.rit.edu/publicsafety/ritsaftey2009.pdf

Tip Line: The goal in providing this service is to obtain information that is unattainable through conventional methods and to alert Public Safety to endangering behavior that might go otherwise unreported. Individuals who utilize the tip line are encouraged to leave their names and contact information; however, they will not be contacted. http://finweb.rit.edu/publicsafety/forms/tipline/

The Advisory Committee on Public Safety will provide, upon request, all campus crime statistics as reported to the Department of Education. RIT crime statistics also can be found at the Department of Education website (http://ope.ed.gov/security/) or by contacting RIT's Public Safety department at (585) 475-6620 (v/TTY). A hard copy of reported crime statistics required to be ascertained under Title 20 of the U. S. Code Section 1092(f) will be mailed to you within 10 days of the request.

Sexual assault information hotline: Confidential counseling services are available to anyone in need by calling (585) 546-2777 (voice/TTY).

Emergency Preparedness: RIT's emergency responses are based on a national model that is very flexible and can be applied to any scenario. RIT regularly communicates, prepares, and practices emergency management with area service providers and campus managers. If necessary, we will provide updated information through broadcast e-mail, mass notification system (3N), voicemail, and the university's website at http://www.rit.edu/.

Parking and Transportation Services

facilities.rit.edu/pats/
(585) 475-2074

To maintain order and safety, Parking and Transportation Services maintains parking policies that require all vehicles operated on campus by students, faculty, and staff to be registered within 10 days of arrival on campus. Students are not required to own a vehicle to register it, but the address used to register the vehicle must be the same address as that at which students reside while attending classes or working at RIT.

Transportation services are provided free of charge for all RIT housing residents, Park Point residents, and The Province residents via a shuttle service, which makes regularly scheduled stops to and from the academic areas on campus, housing areas, and other pertinent campus locations.

The Parking and Transportation Services office is located in Grace Watson Hall and is open Monday through Friday from 8 a.m. until 5 p.m. during the academic year. Summer hours may vary.

Bus and shuttle services: Transportation Services operates a van service for those with impaired mobility. The service runs Monday through Friday, 7 a.m. to 6 p.m., during fall, winter, and spring quarters. The transportation division also provides vans for use by student groups, clubs, and organizations. Information may be obtained by calling the transportation office at (585) 475-7300 or the front desk at (585) 475-2074.

Parking permits and vehicle registration: All vehicles operated on campus must be registered with the parking office annually. Vehicle registration decals must be properly displayed on each vehicle. Fines are imposed for those in violation of RIT parking and traffic regulations. Transportation Services encourages everyone to become fully familiar with RIT parking policies and procedures, including online registration.

Handicap parking permits: RIT honors ADA-approved handicap parking permits from every state. Handicap parking permits can be obtained at local municipalities. Resident students can apply for a New York State permit from the Town of Henrietta. The RIT parking office does issue a one-week temporary handicap permit.

Student conduct

Expectations for community behavior

- RIT is a learning community where time, energy, and resources are directed toward learning and personal development.
- Members of the community live and work together to foster their own learning as well as the learning of others, both in and outside the classroom.
- Within the community, members hold themselves and each other to high standards of personal integrity and responsibility.
- Individual members continually strive to exceed their personal best in academic performance and the development of interpersonal and professional skills and attributes.
- As a member of the community, each person continually conducts himself/herself in a manner that reflects thoughtful, civil, sober, and considerate behavior.
- As a member of the community, each person respects the dignity of all people and acts to protect and safeguard the well-being and property of others.
- As a member of the community, each individual contributes to the continued advancement and support of the community, personally challenging behavior that is contrary to the welfare of others.
- Members of the community create a campus culture that values diversity and discourages bigotry while striving to learn from individual differences.

RIT Honor Code

Integrity and strong moral character are valued and expected within and outside of the RIT community. Members of the campus community, including students, trustees, faculty, staff, and administrators, have adopted an honor code to:

- demonstrate civility, respect, decency, and sensitivity toward our fellow RIT community members, recognizing that all individuals at this university are part of the larger RIT family and as such are entitled to support and respect.
- conduct ourselves with the highest standards of moral and ethical behavior. Such behavior includes taking responsibility for our own personal choices, decisions, and academic and professional work.
- affirm through the daily demonstration of these ideals that RIT is a university devoted to the pursuit of knowledge and a free exchange of ideas in an open and respectful climate.

Diversity

Commission for Promoting Pluralism

The Commission for Promoting Pluralism was established to formulate a plan of action that would address seriously and deliberately the subject of pluralism and community building in every part of the university. Its evolution is the result of an identified need for RIT constituents to deepen their respect and appreciation for all people in the RIT community and beyond. This institutional focus attempts to:

- proactively identify and eliminate barriers that restrict equality throughout the RIT community;
- develop and implement programs that promote commitment to equality and justice in campus-wide activities; and
- develop and nurture a support system that increases participation by all members of the RIT community.

Summary of conduct policies

The following broad areas of conduct for students, although not all-inclusive, indicate, in general terms, the standards of student conduct that are important to the educational mission of RIT and the quality of campus life. The RIT conduct code and disciplinary processes are printed in their entirety in The Student Rights and Responsibilities Handbook. All policies and procedures relating to student and organization conduct are printed in this document and should be reviewed by all RIT students.

Human rights and dignity: Students are expected to follow RIT's policy prohibiting discrimination and harassment. All students should practice high regard for the rights and dignity of other people, preventing all types of discrimination. RIT attempts to resolve conflicts between individuals and groups with differing backgrounds and views through discussion and clarification of values and attitudes. Students should not physically or verbally abuse any person on RIT premises or at RIT-sponsored or supervised events.

Computer use: Students are expected to follow RIT's code of conduct for computer and network use. A variety of computing resources are available at RIT, ranging from application-specific microcomputers to central multiuser systems. Computer abuse is expensive and can have far-reaching consequences. Students should not intentionally disrupt the educational process through deletion of another's course assignment, dampen the creative process through theft of intellectual property, violate an individual's privacy or institutional confidentiality or infringe on copyright.

Off-campus conduct: The conduct of RIT students off campus will be held to the same standards and policies as on campus. Any off-campus action that interferes with the completion of the educational mission of RIT or any member of the RIT community is subject to disciplinary action.

Academic honesty: Students are expected to follow RIT's policy on academic dishonesty. Students should not engage, or allow others to engage, in any form of academic dishonesty. These acts include, but are not limited to, plagiarism in any form or using information and materials not authorized by the instructor during an examination. Dishonesty also includes furnishing false information to RIT and forgery. Alteration or use of RIT documents or instruments of identification with intent to defraud are prohibited.

Disruption of RIT activities: Students should refrain from unreasonable disruption or obstruction of teaching, research, administration, organizational activities, disciplinary proceedings, or any other RIT activities.

Parking and traffic: All drivers on campus should follow RIT's parking and traffic regulations. New York state motor vehicle and traffic laws are in effect on campus. RIT may enact supplemental parking and traffic regulations for RIT-owned properties. The regulations are intended to promote order and ease of movement of pedestrians and motorists and to safeguard people and property.

Regard for property: Students are expected to exercise appropriate care for RIT property and the property of others. Theft, damage, or unauthorized possession of either RIT property or the property of a member of the academic community on RIT premises is subject to disciplinary action.

Library materials and laboratory facilities are of utmost importance to the completion of RIT's academic mission. Consequently, students should show considerable care in the handling of these items.

RIT officials: Students must furnish proof of enrollment through a valid student identification card upon request from RIT officials. Students should comply with the directions or instructions of RIT officials acting in performance of their duties.

Safety: Safety is an issue all students should care about deeply—not only the safety of themselves, but the safety of others. Students should behave sensibly to protect the welfare of others and minimize hazardous situations. Safety is of critical importance at all places on the campus, but particularly important in the apartments and residence halls, where the carelessness of one individual can affect the lives of hundreds. Willful violations of safety, such as causing false fire alarms, will result in immediate disciplinary action according to judicial procedures.

Sexual harassment/misconduct: RIT acknowledges that an individual student's sexual attitudes and values are a matter of choice. Nonetheless, responsible sexual behaviors must take into account the dignity, privacy, and rights of others. RIT's policy prohibiting discrimination and harassment and the RIT sexual assault policy should be observed at all times. Moreover, no individual should be subjected to exploitative actions.

Study environment: Students need a campus environment that is conducive to studying, especially in facilities designed primarily for study. Individuals should respect the rights of others to study and should be understanding of different study habits.

Student-sponsored events: In the planning and scheduling of events, students should consider the safety and overall welfare of members of the academic community. Students should not knowingly conduct events that might inhibit the completion of the academic mission of the university or any member thereof.

Student alcohol and drug policy

RIT is a learning community. The best environment for learning occurs when the community promotes and supports healthy and responsible behavior among its members. Students ultimately are responsible for their behavior and must assume full consequences for it. This includes the responsible and legal use of alcohol. The goal of RIT's student alcohol and drug policy is to promote individual responsibility and advance the goals and expectations stated in the previous section, "Expectations for Community Behavior."

This policy applies to all student members of the RIT community and their guests. It also applies to all student activities on the RIT campus and to all RIT-sponsored events where students are present. Faculty, staff, and their guests are governed by a separate policy.

RIT students are subject to federal, state, and local laws regarding alcohol and drug use. Serious civil and criminal legal liabilities can result from possessing, using, serving, selling, or unlawfully manufacturing drugs/alcohol. RIT will not protect individuals or groups from law enforcement by legal authorities with respect to drugs and alcohol use or abuse.

Individuals or organizations who hold private parties or sponsor private events where alcohol is served or consumed assume full personal responsibility and liability for compliance with the law and conduct related to the consumption of alcohol by attendees, participants, and guests. Officers of organizations that sponsor parties or events, or other hosts or people whose apartment, residence hall room, or office is the site where drinking occurs, will be held responsible for complying with the provisions of this policy.

Provisions governing the possession and use of alcohol

1. Alcohol may not be illegally used, possessed, manufactured, or exchanged on RIT-owned or -operated property or at RIT-sponsored events. No alcohol may be sold or exchanged for money on RIT property or at RIT-sponsored events without a New York state liquor license. The RITskeller is a licensed premise and is permitted to serve alcohol to individuals who are at least 21 years of age.
2. The consumption or possession of alcoholic beverages is prohibited in all RIT residence halls (including Greek houses and house basements), regardless of age or circumstances.
3. The consumption or possession of alcoholic beverages is permitted in RIT-operated apartments only by those residents of the apartment who are at least 21 years of age. Alcohol possession and consumption is not permitted in common or public areas within apartment complexes. Parties in apartments are to be limited to invited guests of a number that is defined by building occupancy codes and can be accommodated without disturbing the community. These numbers may be found in the RIT apartment contract for a particular facility or obtained from apartment management.
4. Guests at all privately sponsored parties where alcohol is to be served must be invited by direct personal invitation only. General "come all" posters, flyers, or mass electronic invitations will not be permitted for events designated as private parties. Only the RITskeller or an institutionally designated space can be used for a communitywide event where alcohol is to be served to students or student groups.
5. Public Safety and other RIT officials have the right to terminate events and take appropriate action if they determine that it is probable that university policy and/or New York state law is being violated at any gathering on the RIT campus, in RIT-operated facilities, or at campus-sponsored functions.
6. Bulk containers of beer (kegs or beer balls) are prohibited in all RIT-operated apartments. Such containers are permitted only in institutionally designated party areas where alcohol can be served for parties or special events, or in areas that are covered by a New York state liquor license.
7. Open containers of alcohol are not permitted outdoors on the RIT campus without prior authorization. Authorization will be given in situations where alcohol is to be served in conjunction with an officially sponsored RIT student event. The authorization process for use of alcohol in these situations is coordinated through the Center for Campus Life in

the Student Alumni Union. (See "Registration Procedures for Events Where Alcohol Is Served/Consumed on the RIT Campus" for specifics.)

8. All student events and parties where alcohol is served, possessed, or consumed must abide by all existing university policies and procedures regarding the use, possession, sale, and distribution of alcohol, and may be restricted further by existing municipal and state ordinances. Prior to planning any activity or event were alcohol is to be served, individuals/groups should consult the Center for Campus Life, located in the Student Alumni Union, regarding the provisions and restrictions governing alcohol use at RIT activities and events.
9. Student-sponsored parties/events where alcohol is served may be held in designated areas on the RIT campus. (Private parties held in RIT-operated apartments are covered in item No. 3.) Alcoholic beverages can be served at these student-sponsored parties and events on campus only by RIT Food Service or by an approved third-party vendor. Registration and authorization for such events can be obtained through the Center for Campus Life. The center coordinates the procedures for securing authorization from the State Liquor Board to sell/serve alcohol; this process takes a minimum of 10 business days.
10. Behavior that is dangerous to one self or others and/or disturbs the learning and/or living environment in RIT-operated facilities or at any RIT-sponsored activity/event is strictly prohibited. Such behavior will result in Public Safety intervention and campus judicial action.
11. Serving, selling, or providing alcohol to those under 21 years of age or possession of alcohol by someone under 21 years of age is prohibited by both New York state law and RIT regulations. Any person who exhibits behavior that suggests excessive drinking has occurred cannot be served or permitted continued access to alcohol. Individuals who serve such individuals alcoholic beverages will face Public Safety intervention, campus judicial action, and possible civil and criminal prosecution.
12. Use of false or altered identification or other misrepresentation of one's age in order to possess or consume alcohol is explicitly forbidden.
13. In order to avoid the dangerous and possibly fatal effects of alcohol poisoning, an individual who has "passed out" or shows other signs of serious effects from alcohol consumption should immediately be brought to the attention of Public Safety, RIT Ambulance, the Residence Life staff, or some other person able to assist or get assistance. Seeking such help is encouraged by RIT.
14. Students violating the RIT Student Alcohol and Drug Policy will be subject to the campus judicial process published in the Student Rights and Responsibilities Handbook, as well as the judicial actions and sanctions described in this policy. All guests or visitors to the campus also must comply with the provisions of this policy or risk removal from the campus and possible future restriction from campus property.

Sanctions regarding violations of RIT student alcohol policy
If a student or student organization violates the RIT alcohol policy, the following judicial outcomes should be anticipated:

BEHAVIOR	CONSEQUENCES
Possession of alcohol • In residence halls and Greek houses regardless of age • Under 21 years of age • Possession of bulk alcohol	First offense: Disciplinary probation Second offense: Deferred disciplinary suspension/deferred removal from housing and possible referral for a chemical dependency screening Third offense: Disciplinary suspension or removal from housing, with appropriate conditions
Behavior that suggests the excessive consumption of alcohol	First offense: Probable deferred disciplinary suspension/deferred removal from housing; possible referral to alternative educational sanction program or a chemical dependency screening Second offense: Disciplinary suspension and/or removal from housing, with appropriate conditions
Serious policy violations (including serving alcohol to minors, hazing events involving alcohol, or dangerous behavior as a result of alcohol)	First offense: Probable disciplinary suspension and/or removal from housing, with appropriate conditions
DWI on campus	First offense: Referral to local law enforcement agency and disciplinary suspension
Student organizational violations related to alcohol	First offense: Educational/community related sanctions; possible disciplinary suspension of organization and/or removal of recognition

These guidelines are examples of responses that will most likely result when there have been violations of the RIT alcohol policy. Each incident is handled individually. The prior judicial background of the student(s) involved and the impact of the incident on the student and the RIT community are considered when decisions are rendered. In some cases, even with first offenses, the impact of an incident may call for a more serious response. A sanction of deferred suspension or higher will require the dependent student to notify his or her parents or legal guardians about the decision and have the parents/legal guardians contact the Center for Student Conduct and Conflict Management Services for verification.

Registration procedures for student-sponsored events where alcohol is served/consumed on the RIT campus
The following procedures do not apply to private parties held in RIT-operated apartments.

1. Student-sponsored events where alcoholic beverages are to be served require that an event registration form be initiated and approved. This process takes a minimum of 10 business days prior to the event. Such events can be arranged on a space-available basis. Inquiries regarding the availability of space/rooms for events where alcohol is permitted can be obtained at the Center for Campus Life.
2. Alcohol can be provided, possessed, or consumed by students only in institutionally designated spaces on the RIT campus. RIT Food Service or an approved third-party vendor must dispense all alcohol at these parties/events. Arrangements for private parties where alcoholic beverages are served can be made through the Center for Campus Life. Only individuals who are at least 21 years of age may register an event where alcoholic beverages are to be served.
3. Public Safety will determine the security staffing levels for each event where alcoholic beverages are to be served. The required number of officers must be present for the duration of the event. The costs of these officers will be billed directly to the sponsoring/host organization. Public Safety will discuss requirements for security with the sponsoring individuals or groups prior to the event.

4. The guests at all privately sponsored parties where alcoholic beverages are to be served must be invited by direct personal invitation only. General "come all" posters, flyers, or mass electronic invitations will not be permitted for events designated as private parties. Only the RITskeller or an institutionally designated space can be used for a communitywide event where alcoholic beverages are to be served to students or student groups.
5. When alcoholic beverages are served at student-sponsored parties/events, nonalcoholic beverages and food also must be served. Guidelines may be obtained at the Center for Campus Life.
6. Individuals/officers of the student organization sponsoring the event will be held responsible for the behavior of guests. An officer of the organization must be present for the duration of the event. The organization officer is also responsible for assuring that only individuals who are at least 21 years of age are consuming alcohol during the party/event.
7. Student organizers of a party/event should ensure that appropriate transportation is available for individuals who have been consuming alcohol during the party. They should ensure that individuals who have been drinking do not drive while intoxicated.

Provisions governing the possession and use of illegal drugs

1. RIT explicitly prohibits the use, possession, sale, manufacture, or trafficking of illegal drugs on RIT-owned or -operated property, or at RIT-sponsored events.
2. In order to avoid the dangerous and possibly fatal effects of drug overdose, an individual who has "passed out" or shows other signs of serious effects from drug use should immediately be brought to the attention of Public Safety, RIT Ambulance, the Residence Life staff, or some other person able to assist or to get assistance. Seeking such help is encouraged by RIT.
3. Students violating the RIT student alcohol and drug policy will be subject to the campus judicial process, published in the Student Rights and Responsibilities Handbook, and the judicial actions and sanctions described in this policy. RIT students will be held responsible for the behavior of their guests. All guests or visitors to the campus also must comply with the provisions of this policy or risk removal from the campus and possible future restriction from campus property.

Sanctions Regarding Violations of RIT Student Drug Policy
If a student or student organization violates the RIT drug policy, the following judicial outcomes should be anticipated:

BEHAVIOR	CONSEQUENCES
Use/possession of illegal drugs	**First Offense:** Deferred disciplinary suspension; deferred removal or removal from RIT housing; possible referral for a chemical dependency screening and alternative education program **Second Offense:** Disciplinary suspension or dismissal; drug treatment while on suspension from the university
Selling or trafficking of illegal drugs	Disciplinary suspension, dismissal or expulsion; referral to local law enforcement agencies

These guidelines are examples of responses that will most likely result when there have been violations of the RIT drug policy. Each incident is handled individually. The prior judicial background of the student(s) involved and the impact of the incident on the student and the RIT community are considered when decisions are rendered. In some cases, even though it may be a first offense, the impact of an incident may call for a more serious response. A sanction of deferred suspension or higher will require the dependent student to notify his/her parents or legal guardians about the decision and have the parents or legal guardians contact the Center for Student Conduct and Conflict Management Services for verification.

RIT process for student misconduct

RIT has established well-defined processes for handling student misconduct cases while protecting the civil and academic rights of all members of the RIT community. Student conduct and appeals processes are administered through the Center for Student Conduct and Conflict Management Services. Sanctions imposed upon those found responsible for violating the RIT conduct code may range from a written warning to restitution to disciplinary suspension, dismissal, and expulsion from the university. Students suspended from RIT may not enroll in any course until such time as the suspension is waived by the Center for Student Conduct and Conflict Management Services.

RIT Conflict Management Services

Students involved in a dispute may utilize RIT Conflict Management Services. Mediation is a process by which students, organizations, faculty, or staff voluntarily meet with trained mediators to discuss ways in which problems or differences can be resolved.

Facilities

Academic

Conveniently located five miles from the Greater Rochester International Airport and the New York State Thruway (Interstate 90), the RIT campus is situated in the suburb of Henrietta, only a few minutes from downtown Rochester.

Students, faculty, and staff moved from RIT's original downtown Rochester location to its 1,300-acre suburban campus in 1968. Since then, the campus landscape has undergone significant growth and renewal, including new academic buildings, student apartments and Greek housing, walkways, plantings, and lighting. A 160,000-square-foot field house was completed in 2004. The 73-foot-high steel and bronze sculpture "The Sentinel," by Albert Paley, and a Japanese garden add further interest to a campus that continues to evolve.

In 2009, RIT opened the Center for Student Innovation, a 10,000-square-foot space that serves as a multi-purpose hub where teams of students from all corners of the university can develop and showcase innovative and entrepreneurial projects. Future development plans on campus include the Global Village, a residential and commercial space that will feature housing, a courtyard, a convenience shop, restaurants, a bank, a printing and postage center, and a fitness center.

Excellent facilities add to the quality of academic life. RIT is a leader in academic computing, and students work with state-of-the-art computer equipment regardless of their major. Central computer systems can be accessed via a high-speed data network connecting our library, academic facilities, residence hall rooms, and on-campus apartments. *The Princeton Review* has ranked

RIT among the most connected campuses in the country. RIT is also among a select group of institutions with access to the Internet 2 research network.

Students also have access to a laser optics laboratory, an observatory, an animal care facility, more than 100 color and black-and-white photography darkrooms, electronic prepress and publishing equipment, ceramic kilns, glass furnaces, a blacksmithing area, a student-operated restaurant, computer graphics and robotic labs, and some of the most up-to-date microelectronic, telecommunications, and computer engineering facilities in the United States.

Housing

Serving nearly 7,000 students, RIT's residence halls, the RIT Inn, and campus apartments offer many living options to meet the diverse needs, interests, and backgrounds of our students. They may choose from a variety of living arrangements, including residence hall floor assignments such as same gender, coeducational, wellness, alcohol/substance free, intensified study, over 21 years of age, or mainstream (hearing/deaf students living on the same floor). Living options in Greek fraternities and sororities or special-interest houses (Art House, Computer Science House, Engineering House, House of General Science, International House, Photo House, and Unity House) also are available. Internet and campus data network access are available in all residence hall rooms.

RIT also houses students in nearly 1,000 individual townhouse and apartment units**.** Apartment housing is available to students in five RIT apartment complexes.

Approximately 400 upperclass students are housed at the university-operated RIT Inn and Conference Center, near the campus. Residents of the RIT Inn enjoy many of the perks of a first-rate hotel, including an indoor/outdoor swimming pool and a fitness center.

The RITreat

The RITreat is an area in the Student Alumni Union dedicated to students. The following resources can be found in the RITreat:

- Club and organization space
- Computers/word processors/fax machine
- Ombuds Office
- Student Government Office, also housing an attorney two mornings a week
- Mail folders for clubs and organizations
- Off-campus and Apartment Student Association
- Study tables/lounge area
- Center for Campus Life
- The RIT Leadership and Community Service Center

Student Alumni Union

The Student Alumni Union is designed specifically to service events sponsored by and for the entire campus community–– students, faculty, administrative groups, alumni, and guests. The staff is available to assist and advise various individuals and groups in planning and coordinating their activities. The SAU information desk is located in the main foyer.

The three-level facility is the center of co-curricular activities and features the 500-seat Ingle Auditorium; a complete game room with billiards, foosball, and electronic games; music practice room; a unisex hairstyling and tanning salon; candy counter; a Ben & Jerry's ice cream shop; two separate dining areas (the main cafeteria and the Ritz Sports Zone); meeting rooms; and lounges. Organizations with offices housed in the Student Union include Student Problem Resolution, Student Affairs, Student Conduct and Conflict Management Services, Women's Center, International Student Services, the North Star Center, Black Awareness Coordinating Committee, Food Service, College Activities Board, The Center for Campus Life, Leadership Institute and Community Service Center, Student Government, WITR, the RIT Credit Union, *Reporter* magazine, Off-campus and Apartment Student Association, Staff Council, and Global Union.

Recreation and intramurals

The Gordon Field House and Activities Center is a two-story, 160,000-square-foot building that features three areas:

- The event venue/athletic field can be divided into three sections, holding more than 8,000 people for special events such as convocation, guest speakers, or concerts. It also can accommodate activities such as lacrosse, tennis, floor/field hockey, indoor track, baseball, softball, soccer, and volleyball.
- The aquatics center includes a competition pool, recreational pool, and spectator seating. The eight-lane, 25-meter competition pool features a moveable bulkhead to separate the diving and swimming areas. The recreational pool includes a spa area with hot tub, waterspouts, and a current channel for relaxation and therapy.
- A fitness center of approximately 16,000 square feet includes separate areas for free-weight training and cardiovascular equipment.

Food service venues

Restaurants and dining halls

The food service establishments on campus provide a large array of dining choices.

Brick City Café: Features full breakfast and lunch entrée menus, as well as an extensive salad bar, subs, wraps, full deli, grill items, display cooking, rotating specialty vendors, fresh soups, desserts, snacks, and a coffee station.

The Café and Market at the Crossroads: Features a market-style food court, convenience store, Starbucks coffee, and café smoothie bar. Specialty items include subs, made-to-order salads, grill items, made-to-order pasta bar, Jump Asian Chinese cuisine, pizzas, calzones, and the Crossbar featuring rotating international cuisines.

The Commons: Featuring subs, Hettie's Grill, Stone Oven Pizza & Pasta Cucina, made-to-order salads, soups, pasta, and lunch and dinner entrees in a cozy environment with a fireplace. Online delivery orders also available via The Commons' website.

Global Grille at Global Village: Cook-to-order international cuisines prepared on a Mongolian grill using fresh ingredients. Freshly made sushi is also available.

Gracie's Dining Hall: Offers all-you-care-to-eat fare for students, faculty, staff, and guests. Specialty items include Mongo's Grill, offering fresh cook-to-order ingredients, Just Veggie bar,

Bonichi Brothers Pizza, Ancho Grill, fresh soups, freshly baked desserts, waffle bar, grill items, and salad bar.

Petals at the RIT Inn and Conference Center: Bistro-style dining offering breakfast, lunch, and dinner menus. Snacks, grab-and-go offerings, and coffee station are also available.

RITZ SportsZone: Sports restaurant with big-screen HDTVs open for lunch, dinner, and special sporting events. Menu includes flat bread pizzas, wraps, quesadillas, Ancho Grill, panini sandwiches, soups, salads, grill items, subs, rotating international vendors, and desserts. The RITZ also features a bar (21 years old and over only) and game room complete with pool tables and arcade games.

Salsarita's at Global Village: Freshly prepared, made-to-order tacos, burritos, quesadillas, Mexican pizzas, nachos, and salads with fresh ingredients and a variety of salsas and sides.

Markets & Convenience Stores

Markets and convenience stores offer easy access to food and other grocery items.

The Café and Market at the Crossroads: The convenience store carries a selection of grocery items including fruits, snacks, dry goods, international foods, refrigerated and frozen foods, dairy products, beverages, school supplies, and other common food items.

The Corner Store: Open until 2 a.m. offering a wide range of snacks, beverages, dairy products, dry goods, refrigerated and frozen items, fruits and vegetables, coffee station, DVDs, and gifts. Special-delivery gift and food baskets/packages for birthdays, celebrations, and holidays also available via The Corner Store's website.

Global Village Market: International foods and spices, ready-to-eat ethnic meals, refrigerated and frozen items, fresh fruits and vegetables, cheeses, local, sustainable products, breads, dry goods, snacks, beverages, and coffee station.

Sol's Underground: A large variety of health and beauty products, vitamins and supplements, fresh flowers, housewares, school supplies, greeting cards, gifts and balloons, grocery items, snacks, and international and gourmet packaged food. Sol's Underground also offers flatbread pizzas, quesadillas, paninis, fresh soups, and wraps, as well as Freshens frozen treats.

Express Dining

Cafes, bakeries, and coffee spots offer quick options for snacks or small bites to eat in between class or while studying.

Artesano Bakery & Café: On-campus bakery offering the best in gourmet tortes, pastries, desserts, organic rolls, breads, bagels, muffins, and scones. Artisan breads, rolls, and baguettes can be purchased par-baked to take home and served deliciously warm. Also features Peets coffee and tea products, including frozen blended drinks, cappuccinos, café lattes, café mochas, and hot chocolate. Freshly made sandwiches and salads are also available.

Beanz: Offers freshly baked gourmet pastries and desserts, bagels, muffins, cookies, fruit, Panini's soups, sandwiches, and salads. Also features Finger Lakes roasted coffee, cappuccinos, espresso, and teas, as well as Sicilian sodas and Freshens Smoothies.

Ben & Jerry's: Ice cream, sundaes, cakes, cookies, real fruit smoothies, and shakes. Catering services also available.

Bytes on the Run: Convenient grab-and-go meals, including freshly made soups and salads, sandwiches, wraps, fresh-baked pizzas, snacks, and beverages.

Ctrl Alt Deli: Design your own sandwich from a selection of wraps, breads, meats, cheeses, veggies, and sauces. Other popular items include chili bread bowls, sizzling cheese sandwiches, traditional flatbread pizzas, quesadillas, hearty soups, baked goods, and cut fresh fruit and salads. Grab-and-go items also available.

The College Grind: Offers a variety of Starbucks' brewed coffee and tea beverages, Panini sandwiches, salads, freshly baked goods, cold drinks, and Freshens Smoothies.

Gordie's: Gordie's offers premium fresh and healthy grab-and-go meals, snacks, and drinks and is conveniently located on the Quarter Mile in the Gordon Field House – ideal for grabbing a quick meal on your way to work, class, or before or after your workout.

Campus stores

Two major stores make everything you need—from textbooks, art supplies, and photography equipment to laptops, software and iPads—easily available on campus.

Barnes & Noble @ RIT—The official college bookstore, Barnes & Noble @RIT is located at Park Point. The 40,000-square-foot store features educational textbooks for all of RIT's courses, 60,000 titles, and RIT-related merchandise. The store offers wireless access, a Starbucks Café, and regular shuttle service to and from campus.

Digital Den—Located in the Student Alumni Union, the Digital Den offers a wide array of merchandise, including computer equipment, hardware and software, iPods, and photography equipment and accessories. The store is staffed with knowledgeable personnel who can offer guidance on equipment and purchases.

Undergraduate Admission

www.rit.edu/admission

Freshman admission

Students applying for freshman admission for the fall quarter (September) may apply through an **Early Decision Plan** or **Regular Decision Plan.** The Early Decision Plan is designed for those who consider RIT their first-choice college and wish to receive an early notification regarding admission. Early Decision requires that candidates file their applications and all supporting documents by December 1 in order to receive admission notification by January 15.

Freshmen who choose not to apply for Early Decision are considered under our Regular Decision Plan. Regular Decision applicants who have provided all required application materials by February 1 will receive admission notification by March 15. Applications received after February 1 will be reviewed on a space-available basis, with notification letters mailed four to six weeks after the application is completed.

All applications for winter, spring, or summer quarter entry are reviewed as they are received, and notification letters are mailed four to six weeks after all application credentials are received. Some programs are limited to fall entry only.

Transfer admission

Applications for transfer admission are reviewed as they are received, and notification letters are mailed four to six weeks after the application is completed. A transfer credit evaluation is completed as part of the application process. Transfer credit is granted by the academic departments for course work that is related to students' intended programs, if it is completed at a regionally accredited college or university. Usually a grade of C or better is required for transfer credit to be awarded.

There is no limit on the number of credit hours that can be awarded. However, a recipient of a two-year degree from an accredited university cannot receive more than 90 credits for that degree. A matriculated undergraduate student's year level is determined by the number of credit hours the student has earned, according to the scale below.

Year Level	1- 4-Year Programs	5-Year Programs
1	0-39	0-39
2	40-83	40-83
3	84-127	84-113
4	128-above	114-143
5		144-above

Specific instructions for completing the application process are contained in the application packet (also online). Be sure to read the instructions carefully before applying.

Factors considered in the admissions decision include, but are not limited to, past high school/college performance (particularly in required academic subjects), admission test scores, competitiveness of high school or previous college, and related experiences (work, military, etc.). Recommendations from those familiar with your academic performance and interviews with admissions counselors often are influential.

If you are accepted for admission, a $300 nonrefundable enrollment deposit reserves a place in your class and is credited to your first-quarter costs at RIT. The due date for this deposit is indicated with each offer of admission.

International applicants

International students whose native language is not English must submit results of the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination along with the requirements listed below. International applicants applying for fall quarter (September) admission should have all educational records and admission materials on file by March 1. Applications are reviewed on a "rolling" basis, with admissions notification four to six weeks after all materials are received by RIT.

Application requirements

In order to complete the application process, you need to submit the following:

1. a fully completed application for admission (includes any required supplemental forms);
2. a nonrefundable $50 application fee;
3. an official high school transcript for all freshman applicants and transfer students with fewer than 30 semester hours or 45 quarter hours completed at the time of application;
4. official American College Test (ACT) or Scholastic Reasoning Test (SAT-I) results for all freshman applicants;
5. official transcripts of all completed college course work and a list of any courses in progress (and not on the transcript) or courses to be completed before enrolling at RIT; and
6. a portfolio of original artwork as part of the application process for students applying for admission to academic programs offered by RIT's School of Art, School of Design, and School for American Crafts. Please review the portfolio guidelines available at admissions.rit.edu/applyonline.php3 before submitting your portfolio.

Early admission: Students who complete the prescribed number and distribution of high school units in three years, with the exception of fourth-year English/history, may seek admission under an Early Admission Program. Please contact the Undergraduate Admissions Office for details.

Placement testing for admitted students: Many programs at RIT depend on a solid foundation in mathematics. In an effort to enable students to succeed in their college mathematics courses, the School of Mathematical Sciences has developed a Mathematics Placement Exam. This exam is taken by all entering students whose programs require a calculus sequence. It assesses students' mastery of some of the fundamental mathematical concepts they

have seen in their high school mathematics courses. Students without a calculus sequence who are not sure about the appropriate mathematics course with which to begin their studies at RIT may contact the department of mathematics and statistics at (585) 475-5780 to arrange for a special mathematics diagnostic test.

The Liberal Arts Qualifying Exam (LAQE) is a placement test for which students are asked to write an essay on an assigned topic. The purpose of the exam is to determine whether students should be registered for the required Writing Seminar course, or must first take the Basic Writing course. **The LAQE is a placement test required of all first-year students who do not meet one of the following criteria: a score of 560 or higher on the verbal section of the SAT, a score of 23 or higher on the English portion of the ACT, or a score of 6 or higher on the SAT essay exam.**

New York State immunization requirement: New York State Public Law 2165 requires that all matriculated students enrolled for more than 6 quarter credit hours in a term and born after January 1, 1957, must provide RIT's Student Health Center with proof that they have received the appropriate immunizations against measles, rubella, and mumps. Immunization requirements include two measles vaccinations, at least one month apart, with a live virus (after January 1, 1968, and after the first birthday) and one vaccination each against mumps and rubella (after January 1, 1969, and after the first birthday). Additional information concerning the necessary documentation and where it must be sent is included with the Admissions Office acceptance packet or available from the Student Health Center office.

Admissions services and campus visits: Selecting the appropriate college is a difficult decision, and visiting a campus often helps students form more accurate impressions. We encourage campus visits and personal admission interviews because they allow students to see our outstanding facilities firsthand and get answers to questions they may have while examining personal, academic, and career goals.

Experienced admissions counselors are available to provide information and assist students with exploring academic options. Students may choose to participate in Admissions Open House programs or arrange personal interviews and campus tours. These options are not required for admission. An appointment for an admissions interview and campus tour may be scheduled by contacting the Undergraduate Admissions Office via our website, admissions.rit.edu, or calling (585) 475-6631. Office hours are Monday through Friday, 8:30 a.m. to 4:30 p.m. Easter time.

Deaf and hard-of-hearing students who wish to enter NTID or another RIT college may contact the NTID Office of Admissions at www.ntid.rit.edu or by calling (585) 475-6700 (voice/TTY). Office hours are Monday through Friday, 8:30 a.m. to 4:30 p.m. Eastern time.

Part-time Enrollment Services: The Office of Part-time Enrollment Services provides central information and counseling services to students interested in enrolling in part-time undergraduate studies offered through RIT's various schools and colleges. Contact the office if assistance is needed in selecting an academic program, exploring financial aid opportunities, registering for classes, or receiving information about any aspect of part-time study at RIT.

Staff members are available to assist you from 8:30 a.m. to 6 p.m., Monday through Thursday, and from 8:30 a.m. to 4:30 p.m. on Friday. We invite you to visit our website at www.rit.edu/part-time, call (585) 475-2229 for information, or visit our office on the lower level of the Bausch & Lomb Center on campus.

Applying to NTID

In addition to the six application requirements listed above for admission to RIT, deaf and hard-of-hearing students applying for admission to programs offered at the National Technical Institute for the Deaf (NTID) or to any other college of RIT must submit the Audiological Record Form or submit an audiogram without the form. All audiograms must be unaided and have been completed within three years of the application date. This form is required in order to qualify for educational access and support services as well as NTID's federally supported tuition rate. Eligibility for NTID access and support services, which is agreed upon by RIT and the United States Department of Education, includes this criteria:

Hearing loss—An audiogram is required. Students must demonstrate a significant hearing loss and demonstrate the ability to benefit from the models used at RIT/NTID designated specifically to provide access to academic programs for deaf and hard-of-hearing students.

The NTID Office of Admissions typically sends notification of admission decisions four to six weeks after all application materials have been provided.

Deaf and hard-of-hearing students may enter into an NTID program, or they may qualify for entry directly into a program in another RIT college with NTID sponsorship. The transfer credit of deaf students accepted to NTID's Summer Vestibule Program will be evaluated in the fall when they are accepted into a specific program.

Freshman Admission Guidelines

College of Applied and Science and Technology

Academic Programs	High School Preparation Required[1]
Engineering Technology: Civil, Computer, Electrical, Electrical/Mechanical, Manufacturing, Mechanical, and Telecommunications Engineering Technology programs; Undeclared Option[2]	Algebra, geometry, trigonometry and two years of science (including physics or chemistry) required; pre-calculus and technology courses desirable
Environmental Sustainability, Health and Safety	Three years of mathematics (including trigonometry) and two years of science (including physics or chemistry)
School of Hospitality and Service Management: Hospitality and Service Management, Nutrition Management	College preparatory program including algebra, geometry and two years of science; chemistry required for Nutrition Management program
Multidisciplinary Studies: Applied Arts and Science (transfer only)	Freshmen should apply to the University Studies Program[3]
Packaging Science	Algebra, geometry, trigonometry and two years of science required

E. Philip Saunders College of Business

Academic Programs	High School Preparation Required[1]
Accounting, Finance, International Business, Management, Management Information Systems, Marketing, New Media Marketing, Undeclared Business Option[2]	College preparatory program including algebra, geometry, and two years of science; trigonometry or precalculus and courses emphasizing writing skills also desirable

B. Thomas Golisano College of Computing and Information Sciences

Academic Programs	High School Preparation Required[1]
Applied Networking and System Administration, Information Security and Forensic[s]	Algebra, geometry, and two years of science required; physics, chemistry, computing, precalculus and technology courses recommended
Computer Science	Algebra, geometry, trigonometry, and two years of science (including physics or chemistry) required; precalculus recommended
Information Technology, New Media/ Interactive Development, Game Design and Development	Algebra, geometry, and two years of science required; trigonometry/pre-calculus and technology courses desirable
Medical Informatics	Algebra, geometry, trigonometry, biology, and chemistry required
Software Engineering	Algebra, geometry, trigonometry, and two years of science (including physics or chemistry) required; precalculus recommende[d]
Computing Exploration, Informatics Exploration2	Algebra, geometry, trigonometry, and two years of science (including physics or chemistry) required; precalculus recommended

Kate Gleason College of Engineering

Academic Programs	High School Preparation Required[1]
Biomedical, Chemical, Computer, Computer/Software, Electrical, Electrical/Biomedical, Electrical/ Computer, Electrical/Robotics, Industrial and Systems, Industrial/Ergonomics, Industrial/Information Systems, Industrial/Lean Six Sigma, Industrial/ Manufacturing Mechanical, Industrial/ Six Sigma, Mechanical/Aerospace, Mechanical/Automotive, Mechanical/ Bioengineering, Mechanical/Energy and Environment, and Microelectronic Engineering programs; Engineering Exploration Program[2]	Four years of mathematics required (algebra, geometry, trigonometry, and precalculus); physics and chemistry required for all programs, biology also required for biomedical and electrical/ biomedical engineering option

College of Imaging Arts and Sciences

Academic Programs	High School Preparation Required[1]
School of Art: Fine Arts Studio, Illustration, Medical Illustration, Undeclared Art Option[2] School of Design: 3D Digital Graphics, Graphic Design, Industrial Design, Interior Design, New Media/Design, Undeclared Design Option[2] School for American Crafts: Ceramics/ Ceramic Sculpture, Glass/Glass Sculpture, Metals/Jewelry Design, Woodworking/Furniture Design, Undeclared Crafts Option[2]	Studio art experience, in addition to a balanced academic program with courses in English, social studies, mathematics, and science, is required. Mechanical drawing also is desirable for Industrial or Interior Design applicants. Medical Illustration program requires two years of science (biology preferred). A portfolio of original artwork is required for all programs, with drawing skills being most important. Craft students should also show examples of work in their area of interest, if possible.
School of Film and Animation: Digital Cinema, Film and Animation	College preparatory program, including two years of mathematics and two years of science. Digital Cinema requires trigonometry and chemistry or physics; precalculus is recommended.
School of Photographic Arts and Sciences: Advertising Photography, Fine Art Photography, Photojournalism, Biomedical Photographic Communication, Imaging and Photographic Technology, Visual Media	College preparatory program, including two years of mathematics and two years of science; biology required for Biomedical Photographic Communicatio[n]
School of Print Media: New Media Publishing	Algebra, geometry, trigonometry, and two years of science (physics or chemistry required)

College of Liberal Arts

Academic Programs	High School Preparation Required[1]
Advertising and Public Relations, Criminal Justice, Cultural Resource Studies, Economics, International Studies, Journalism, Philosophy, Political Science, Professional and Technical Communication, Psychology, Public Policy, Urban and Community Studies, Liberal Arts Exploration[2]	College preparatory program, including algebra, geometry, and two years of science required; trigonometry also required for Public Policy.

National Technical Institute for the Deaf

Academic Programs	High School Preparation Required[1]
Accounting Technology, Administrative Support Technology, Applied Computer Technology, Applied Liberal Arts, Applied Mechanical Technology, Arts and Imaging Studies, ASL-English Interpretation, Business, Business Technology, Computer Aided Drafting Technology, Computer Integrated Machining Technology, Hospitality and Service Management, Laboratory Science Technology, Pre-baccalaureate Studie[s]	General college preparatory courses in science, mathematics, and English; see program descriptions for specific requirements or contact NTID Office of Admissions, (585) 475-6700 (voice/ TTY)

College of Science

Academic Programs	High School Preparation Required[1]
Applied Mathematics, Applied Statistics, Computational Mathematic[s]	Algebra, geometry, trigonometry, and two years of science required; precalculus recommended
Biology, Bioinformatics, Biotechnology	Algebra, geometry, trigonometry, biology, and chemistry required; precalculus recommended
Biochemistry, Chemistry, Environmental Chemistry, Polymer Chemistry	Algebra, geometry, trigonometry, and chemistry required; physics and precalculus recommended
Environmental Science	Algebra, geometry, trigonometry, biology, and chemistry required; precalculus recommended
Physics	Algebra, geometry, trigonometry, physics or chemistry required; precalculus recommended
Biomedical Sciences, Diagnostic Medical Sonography (Ultrasound), Physician Assistant	Algebra, geometry, trigonometry, and biology required for all programs; chemistry or physics required for Ultrasound program, and chemistry required for Biomedical Sciences and Physician Assistant programs; precalculus recommended
General Science Exploration2, Premedical Studies	Algebra, geometry, trigonometry, and two years of science required; physics, chemistry and precalculus recommende[d]
Center for Imaging Science: Imaging Science	Algebra, geometry, trigonometry, and chemistry or physics required; precalculus recommended

1 Students attending high schools in New York state should note that algebra, geometry, and trigonometry are the equivalent of Mathematics Course I, II and III.

2 A one-year program for students wishing to explore alternatives before selecting a specific degree program within this RIT college or school.

3 A one-year program for students who are undecided on a major and wish to explore program options in one or more of RIT's colleges.

Transfer Admission Guidelines

College of Applied Science and Technology

Program at RIT	Co-op[1]	Entry Term	Appropriate Associate Degree Program for Transfer	Transfer Course Recommendations Without Associate Degree
Engineering Technology: Civil Engineering Technology	1	Fall preferred	Civil, Construction, Environmental, Architectural, Transportation or Surveying Technology; Engineering Science	Courses in mathematics, science, and engineering technology
Computer Engineering Technology	1	Fall preferred	Computer Technology, Electrical or Electronic Technology, or Computer Science	Courses in computer science, math, science, and engineering technology
Manufacturing Engineering Technology	1	Fall preferred	Manufacturing, Mechanical, Drafting and Design, Robotics, or Electromechanical Technology; Engineering Science	Courses in mathematics, science, and engineering technology
Electrical Engineering Technology	1	Fall preferred	Electrical Technology, Electronic Technology, Engineering Science	Courses in mathematics, science, and engineering technology
Mechanical Engineering Technology	1	Fall preferred	Mechanical, Design and Drafting, Air Conditioning, or Electromechanical Technology; Engineering Science	Courses in mathematics, science, and technology
Telecommunications Engineering Technology	1	Fall preferred	Telecommunications, Electrical or Electronic Technology; Engineering Science	Courses in mathematics, science, and technology
Environmental Management: Environmental Management & Technology Safety Technology	1	Any quarter	Biology, Chemistry, or Environmental Sciences; Business or Public Administration; Liberal Arts with math/science	Math through Calculus I, micro- and macroeconomics, introductory courses in biology, chemistry and physics
School of Hospitality and Service Management: Hospitality and Service Management, Nutrition Management	1	Any quarter	Dietetics or Nutrition, Foodservice Management, Hotel/Resort Management, Travel/ Tourism Management, Agriculture, Technology, Business, or Liberal Arts	Courses in business and economics, a foreign language, math, science, and liberal arts; science courses are required for Nutrition Management program
Multidisciplinary Studies: Applied Arts and Science	2	Any quarter	Transfer from associate degree programs considered on individual basis.	Courses in the liberal arts, sciences, and math
Packaging Science: Management Option, Technical Option, Printing Option	1	Any quarter	Business Administration, Marketing, Management, Graphic Arts, Engineering Science, Liberal Arts with math/science	Courses in business, mathematics, science, the liberal arts, and statistics or computer science

E. Philip Saunders College of Business

Program at RIT	Co-op[1]	Entry Term	Appropriate Associate Degree Program for Transfer	Transfer Course Recommendations Without Associate Degree
Accounting	1	Any quarter	Accounting or AS degree in Business Administration	Courses in economics, accounting, the liberal arts, science, and mathematics
Finance, International Business, Management, Marketing, New Media Marketing	1	Any quarter	AS degree in Business Administration or Liberal Arts	Courses in economics, the liberal arts, science, and mathematics

Management Information Systems	1	Any quarter	Data Processing/Management Information Systems, or AS in Business Administration	Courses in the liberal arts, math, science, economics, and computer science

B. Thomas Golisano College of Computing and Information Sciences

Program at RIT	Co-op[1]	Entry Term	Appropriate Associate Degree Program for Transfer	Transfer Course Recommendations Without Associate Degree
Computer Science, Software Engineering	1	Fall preferred	Computer Science Engineering Science	Courses in computer science, calculus, the liberal arts, and calculus-based physics, chemistry, or biology
Applied Networking and System Administration, Information Technology, Information Security and Forensics, Game Design and Development, Medical Informatics, New Media/ Interactive Development	1	Any quarter (fall preferred for New Media/ Interactive Development)	Computer Applications, Computer Science, Information Systems	Courses in programming, computer applications, calculus, lab sciences, and the liberal arts

Kate Gleason College of Engineering

Program at RIT	Co-op[1]	Entry Term	Appropriate Associate Degree Program for Transfer	Transfer Course Recommendations Without Associate Degree
Biomedical Engineering, Chemical Engineering, Computer Engineering, Electrical Engineering, Industrial and Systems Engineering, Mechanical Engineering, Microelectronic Engineering	1	Fall preferred	AS degree in Engineering Science (plus computer science electives for computer engineering applicants)	Pre-engineering courses such as calculus, calculus-based physics, chemistry and the liberal arts; computer science courses for Computer Engineering applicants

College of Imaging Arts and Sciences

Program at RIT	Co-op[1]	Entry Term	Appropriate Associate Degree Program for Transfer	Transfer Course Recommendations Without Associate Degree
School of Art: Fine Arts Studio, Illustration, Medical Illustration School of Design: 3D Digital Graphics, Graphic Design Industrial Design Interior Design New Media/Design and Imaging	4	Fall preferred	Related programs or studio art experience in desired disciplines	Courses in studio art, art history, and the liberal arts; portfolio of original artwork required
Transfer Adjustment: Graphic Design		Summer only		Summer courses can lead to third-year status
School for American Crafts: Ceramics/ Ceramic Sculpture, Glass/ Glass Sculpture, Metals/ Jewelry Design, Woodworking/Furniture Design	4	Fall preferred	Transfer as a third-year student is uncommon as comparable programs are not generally available at other colleges.	Courses in art history, studio art, and the liberal arts; portfolio of original artwork required
School of Film and Animation: Film and Animation, Digital Cinema	2	Fall only	No common program available	Courses in the liberal arts; science; design; drawing; and film, video, or animation
School of Photographic Arts and Sciences: Biomedical Photographic Communications	3	Fall preferred	No common program available	Courses in biology, photography, and the liberal arts; portfolio required for photo credit

Imaging and Photographic Technology	1	Fall preferred	No common program available	Courses in college physics, mathematics, photography, and the liberal arts; portfolio required for photo credit
Advertising Photography Fine Art Photography Photojournalism Visual Media	4	Fall preferred	Applied Photography	Courses in the liberal arts, photography, design, and art history; portfolio required for photo transfer credit
Transfer adjustment: Available in all photography programs		Summer only	Transfer adjustment leading to second- or third-year status in most programs	
School of Print Media: Graphic Media New Media/Publishing	1	No summer entry	Transfer from associate degree programs considered on an individual basis	Courses in the liberal arts, college math, physics and chemistry, and business

College of Liberal Arts

Program at RIT	Co-op[1]	Entry Term	Appropriate Associate Degree Program for Transfer	Transfer Course Recommendations Without Associate Degree
Advertising and Public Relations	1	Any quarter	Liberal arts, business, communication, advertising, public relations	The liberal arts, business, communication, advertising, and public relations
Criminal Justice	2 or 3	Any quarter	Criminal Justice, Human Services, or Liberal Arts	Courses in criminal justice or related areas, the liberal arts, math, and science
Economics	2	Any quarter	AS degree in Business Administration or Liberal Arts	Courses in business, the liberal arts, math, science, and computer science
International Studies	2	Any quarter	Liberal arts with social sciences, science, languages	Courses in the liberal arts, social sciences, sciences, and languages
Journalism	1	Any quarter	Liberal arts with social sciences	Courses in the liberal arts, social sciences, sciences, and languages
Professional and Technical Communication	1	Any quarter	Liberal arts with emphasis in communication and a technical field such as business, photography	Courses in the liberal arts, math, science, and computer science
Psychology	1 or 3	Any quarter	Liberal arts with science or social sciences	Courses in the liberal arts, sciences, and social sciences
Public Policy	1	Any quarter	Liberal Arts, Environmental Studies, Economics, Government, Science	Courses in the liberal arts, sciences, and social sciences
Urban and Community Studies	1 or 3	Any quarter	Liberal Arts, Environmental Studies, Economics, Government, Science	Courses in the liberal arts, sciences, and social sciences

National Technical Institute for the Deaf

Program at RIT	Appropriate Associate Degree Program for Transfer	Transfer Course Recommendations Without Associate Degree
Accounting Technology, Administrative Support Technology, Applied Computer Technology, Applied Liberal Arts, Applied Mechanical Technology, Arts and Imaging Studies, ASL-English Interpretation, Business, Business Technology, Computer Aided Drafting Technology, Computer Integrated Machining Technology, Hospitality and Service Management, Laboratory Science Technology, Pre-Baccalaureate Studies	Transfer requirements vary by program. Please contact NTID Office of Admissions (585) 475-6700 (voice/TTY).	The liberal arts, business, communication, advertising, and public relations

College of Science

Program at RIT	Co-op[1]	Entry Term	Appropriate Associate Degree Program for Transfer Recommendations Without Associate Degree	Transfer Course Recommendations Without Associate Degree
Biology	2	Fall preferred	Biology or Liberal Arts with biology option	Courses in the liberal arts, sciences, or math
Bioinformatics	1	Fall preferred	Biotechnology or Liberal Arts with biology	Courses in the liberal arts, sciences, and math
Biotechnology	2	Fall preferred	Biotechnology or Liberal Arts with biology	Courses in the liberal arts, sciences, and math
Biochemistry, Chemistry, Environmental Chemistry Option, Polymer Chemistry	2	Any quarter	Liberal Arts with chemistry option; Chemical Technology, Laboratory Technology	Courses in the liberal arts, chemistry, math, and physics
Biomedical Sciences	2	Fall preferred	Liberal Arts with science option; Allied Health; Radiologic Technology	Courses in the liberal arts, sciences, and math
Diagnostic Medical Sonography (Ultrasound)	3	Fall preferred	Liberal Arts with science option; Allied Health; Radiologic Technology	Courses in the liberal arts, sciences, and math
Environmental Science	2	Fall preferred	Biology, Chemistry, Environmental Science, Liberal Arts with science option	Courses in the liberal arts, sciences, and math
Applied Mathematics, Computational Mathematics, Applied Statistics	2	Any quarter	Liberal Arts with math/science option, Computer Science, Engineering Science, Sciences	Courses in math, computer science, and the liberal arts
Physician Assistant	3	Fall only	Liberal Arts with science option; Allied Health areas	Courses in the liberal arts, sciences, and math
Physics	2	Fall preferred	Liberal Arts with math/science option	Courses in the liberal arts, physics, math, and chemistry
Center for Imaging Science: Imaging Science	2	Fall preferred	Liberal Arts with math/science option.	Courses in calculus or higher mathematics, college chemistry, calculus-based physics, and the liberal arts

1 Cooperative Education: 1-required, 2-optional, 3-internship or practicum required, 4-no specific requirement.

University Costs

The following information is provided to assist students and their families in understanding the full range of student financial aid and scholarship programs available to undergraduates, as well as the costs, payment procedures, and refund policies associated with enrollment at RIT.

Costs and payment procedures

Charges for tuition, fees, and room and board are computed on a quarterly basis. University billing statements may be paid by cash, check, or electronic check (e-check). The university does not accept credit card payments for tuition, fees, and room and board that appear on the student billing statement. However, we have an arrangement for a third-party vendor to accept MasterCard and Discover Card when payment is made online. The vendor does charge a service fee for each credit card transaction.

Billing-related payments by check may be mailed to: Rochester Institute of Technology, Student Financial Services, P.O. Box 92878-200, Rochester, N.Y. 14692-8978. Payment also may be made in person at the Student Financial Services Office on the first floor of the George Eastman building. Credit card and e-check payments may be made at http://ipay.rit.edu/.

Due dates are clearly designated on the billing statement and our website. Failure to pay the amount due or arrange an optional payment plan by the due date will result in a late payment fee for students without a valid deferral.

Due dates for the 2010-2011 school year are as follows:

Fall Quarter—August 18, 2010
Winter Quarter—November 22, 2010
Spring Quarter—March 3, 2011
Summer Quarter—May 20, 2011

Tuition assessment policies

1. Matriculated day college students are charged the day rate for ALL courses taken, including evening division courses and courses taken while on co-op.
2. Students on co-op will not be charged tuition for those quarters unless they also are enrolled in classes.
3. Nonmatriculated students are charged for the type of course taken (evening rate for evening division courses; the Tier 2 day rate for day courses, graduate rate for graduate courses).
4. Students taking courses during summer quarter should refer to the Summer Quarter Bulletin for policies and procedures.

FEE SCHEDULE 2010-11 (MATRICULATED DAY COLLEGE STUDENTS EXCEPT NTID)*

Tuition	Per Quarter	Per Year—Three Quarters
Full-time Undergraduate (12–20 Credit Hrs.)	$ 10,094	$ 30,282
Part-time Undergraduate (Less than 12 Credit Hrs.)	$ 673/Cr. Hr.	
Student Activities Fee (Mandatory Charge)		
Full-time Undergraduate	$ 73	$ 219
Part-time Undergraduate	$ 37	$ 111
Student Health Fee (Mandatory Charge)		
Full-time Undergraduate	$ 72	$ 216
Residence Hall Room Charges §		
Double Occupancy	$ 1,954	$ 5,862
Single Occupancy	$ 2,247	$ 6,741
Board/Meal Plans **		
Ultra-Meal Plan (continuous entry to Grace Watson)+5 meal options	$ 1,563	$ 4,689
14 Meals (Includes $89 debit/qtr.) + 5 meal options	$ 1,394	$ 4,182
12 Meals (Includes $228 debit/qtr.) + 5 meal options	$ 1,394	$ 4,182
All Debit (upperclassmen only)	$ 1,394	$ 4,182
Matriculated Evening Division students		
Undergraduate Tuition	$ 453/Cr. Hr.	

**See the National Technical Institute for the Deaf section of this bulletin for NTID cost information.*

§ Additional single-occupancy rates are available, depending on square footage of rooms.

***Additional meal plans also are available, providing for different meal and debit account amounts. Information can be obtained from RIT Food Service upon request.*

Other fees

In addition to the fees specified below, certain groups of students may incur other fees, as follows:

Orientation fee: $80 (one-time charge for new transfer students)

Orientation fee: $200 (one-time charge for new freshman students)

Quarterly photo/print facilities fee: $96 charged to all full-time photo and print media students; $45 per quarter charged to all part-time photography and print media students

Some courses require additional charges to cover laboratory, studio, or supply fees. Consult the registrar's quarterly schedule for those courses with additional fees.

Costs for books and supplies: These costs vary with the program followed and, to some extent, the electives chosen. In programs with minimal expenses (e.g., liberal arts, business, hospitality), books and supplies will average $1,925 or more annually. In the arts and crafts, costs may range from $900 to $1,100, and in photographic illustration, a realistic allowance is $2,000 a year in addition to cameras and related supplies.

Student accident and sickness insurance: All registered students are required to maintain medical insurance while attending RIT. Insurance coverage can be through RIT, a family member's policy, or a personal policy.

A student accident and sickness insurance plan is available through RIT. There is a separate charge for this insurance. The plan provides coverage, within limits specified in the policy, for sickness and injury, outpatient services, emergency care, and prescriptions.

Enrollment in this plan is voluntary for all students except registered international undergraduate students (full- and part-time) on A, B, E, F, G, I, J, K, O, Q, R and V visas. These students will be enrolled automatically in the basic accident and sickness policy on a semiannual basis.

There is no need to waive coverage if it is not desired. Students who want to enroll in this plan may enroll online or by mail. An open enrollment period is available at the beginning of each academic quarter. Payment can be made by check, money order, or credit card, or the premium can be added to the student's account.

The open enrollment period ends 30 days after the start of the academic quarter in which the student first registers at RIT For plan and enrollment information, visit the Web at www.universityhealthplans.com, or call (800) 437-6448. Students are not required to obtain the RIT student accident and sickness insurance plan to receive services at the RIT Student Health Center.

Vocational rehabilitation

Students receiving vocational rehabilitation (VR) support for fees and tuition must file authorization with RIT before registration. If authorization has not been received before registration, students must either obtain from their VR counselors a letter of commitment stating the dollar amount that is authorized and present it to Student Financial Services or be prepared to pay for the charges in question. If authorization is received after a student has paid the charges, he or she will receive a refund.

5. Students must pay all charges not authorized for payment by VR before the quarterly due date.
6. VR counselors should specify each charge they are covering on their authorization forms.
7. Clarification of VR authorization/billing procedures should be addressed to:

   Rochester Institute of Technology
   NTID/VR Billing
   Student Financial Services
   25 Lomb Memorial Drive
   Rochester, NY 14623-5603

NTID students receiving monthly Social Security benefits can make arrangements to pay at the Student Financial Services Office. Students need to sign a promissory note quarterly. For additional information, call (585) 475-6186.

Financial standing

Students, former students, and graduates are in good financial standing when their account is paid in full through the Student Financial Services Office. A late payment fee will be charged to all student accounts that become past due. This includes, but is not limited to, deferred payment accounts that become past due. Those whose account is not paid in full will not receive transcripts, diplomas, or other forms of recognition or recommendation from the university.

The university reserves the right to change its prices and pricing policies without prior notice.

Electronic billing procedures

The university has an electronic billing (eBill) program for students. Each quarter, all RIT students receive an e-mail notification to their official university e-mail account stating that their eBill is available. Students have the option of selecting three additional e-mail addresses to allow for a parent, guardian, sponsor, or other authorized user to receive eBill notifications.

Refund policies

1. The acceptable reasons for withdrawal with full refund during the quarter are:
2. Active military service: A student called to active military service during the first eight weeks of the term may receive a full tuition refund. If called after the eighth week, he or she may elect to complete the course by making special arrangements with both the instructor and department, or may withdraw and receive a full tuition refund. If he or she withdraws, the course must be repeated at a later date.
3. Academic reasons: Students sometimes register before grades for the previous quarter are available. If such a student later finds that he or she is subject to academic suspension or has failed prerequisites, the student will be given a full refund upon withdrawal.
4. Part-time students: If part-time students drop a course during the official drop/add period (first six days of classes in any quarter), they may contact the Student Financial Services Office for a full refund for the course dropped.

A full-time student must officially withdraw from all courses or take a leave of absence in order to be eligible for a partial tuition refund. Students must complete a leave of absence or withdrawal form, which can be initiated with their academic department. A partial refund will be made during a quarter if withdrawal/leave of absence is necessitated for one of the following reasons:

1. Illness, certified by the attending physician, causing excessive absence from classes

2. Withdrawal for academic or disciplinary reasons, at the request of RIT, during a quarter
3. Transfer by employer, making class attendance impossible
4. Withdrawal for academic, disciplinary, or personal reasons at the request of the student, approved by the student's adviser or department representative and the Student Financial Services Office

Partial refund schedule for tuition

Partial refunds will be made according to the following withdrawal schedule and percentage of tuition reduction:

1. During official drop/add period (first six days of classes)—100 percent tuition reduction
2. From the end of the official drop/add period through the end of the second week of classes—70 percent tuition reduction
3. During the third week of classes—60 percent tuition reduction
4. During the fourth week of classes—50 percent tuition reduction
5. During the fifth week of classes—25 percent tuition reduction
6. Sixth and subsequent weeks—no tuition reduction

Please note that nonattendance does not constitute an official withdrawal.

A student is not officially withdrawn until he or she receives a copy of the withdrawal form. The date on which a withdrawal form is properly completed will be the date of official withdrawal used to determine the refundable amount.

If the student drops his or her course load from full-time (12 or more credits) to part-time (less than 12 credits) status during the official drop/add period, he or she may contact the Student Financial Services Office for a refund based on the difference between the full-time tuition charge and the total per-credit charge for the part-time course load.

No refund will be made for classes dropped after the official drop/add period unless the student is officially withdrawing from the university.

Advance deposits are not refundable.

If institutional charges are reduced due to withdrawals, financial aid programs are reimbursed before a cash refund is issued to the student. The student also is responsible for any unpaid balance at the time of withdrawal. Aid programs are reimbursed in the following sequence: Federal Direct Unsubsidized Loan, Federal Direct Subsidized Loan, Graduate PLUS Loan, Parent PLUS Loan, Federal Pell Grants, Federal SEOG, other federal grants, state aid, institutional aid. If a credit balance still remains, the student is then issued a refund.

For further information or comments regarding refund policies and specific withdrawal dates, contact the Student Financial Services Office.

Appeal process

An official appeal process exists for those who feel that individual circumstances warrant exceptions from published policy. The inquiry in this process should be made to Mary Beth Nally, director of Student Financial Services.

Partial refund schedule for room and board

To complete a withdrawal from RIT, a resident student must check out with Housing Operations. All students on a meal plan should check out with the Food Service administrative office, located in the Student Alumni Union, Room A520 (lower level). Refunds, when granted, are from the date of official checkout. Room and board refund policies are established by the Center for Residential Life and RIT Food Service.

Refund schedule and percentages for room and board are as follows:

Room

1. During the first week of classes—90 percent of unused room charge
2. During the second week of classes—75 percent of unused room charge
3. During the third week of classes—60 percent of unused room charge
4. During the fourth week of classes—50 percent of unused room charge
5. Fifth and subsequent weeks—no refund

Board

1. Within the first four weeks—75 percent of the unused meal/debit charges
2. After the fourth week (during week five through the end of week eight)—50 percent of the unused meal/debit charges
3. During the last two weeks of classes—no refund

Any student who intentionally defrauds or attempts to defraud the university of tuition, fees, or other charges, or who gives false information in order to obtain financial aid, is subject to legal liability, prosecution, and university disciplinary action.

Financial Aid and Scholarships

We feel strongly that no qualified student should refuse to consider RIT because of cost. With this in mind, RIT offers a full range of traditional financial aid programs and a number of innovative financing plans as well.

More than 75 percent of RIT's full-time undergraduate students receive some type of financial assistance each year. Last year, RIT undergraduates received more than $213 million from all sources, including more than $114 million in scholarships and grants. Many families also took advantage of RIT's monthly, interest-free payment plan and a prepayment plan that guarantees participants no increase in tuition.

Your financial need

Eligibility for need-based financial aid at RIT begins with three basic requirements: graduation from high school or its equivalent, enrollment in a degree program (matriculation), and demonstration of financial need. Most financial aid programs also require at least half-time enrollment.

Financial need is the difference between the cost of education and the amount a student is expected to contribute toward those educational costs (the expected family contribution). The formula used to calculate the expected family contribution is called the *federal methodology*, and use of the formula is required when colleges are determining a student's financial need for any federal financial aid programs. Financial aid programs are designed to supplement the expected family contribution.

The Free Application for Federal Student Aid (FAFSA) should be completed in order to determine a student's financial need. Information on the FAFSA is used to calculate the expected family contribution. All colleges and universities that award federal financial aid use the FAFSA. Students can complete the FAFSA online at www.fafsa.gov/.

Determination of financial aid eligibility can be complex. Therefore, families are encouraged to contact the Office of Financial Aid and Scholarships with any questions or concerns. It is impossible for families to determine their eligibility for financial aid on their own. If students are denied financial aid from one source, that does not necessarily mean they will be denied financial aid from another source. Students and families are encouraged to pursue all available sources of financial aid.

Application

The process of applying for financial aid should begin in January of the year the student plans to attend college. It is important that freshman and transfer applicants file the FAFSA by March 1 in order to receive full consideration. Current RIT students should file the FAFSA and the RIT Financial Aid Form by April 1 in order to receive full consideration.

Students must reapply for financial aid each year by completing the FAFSA and the RIT Financial Aid Form. Also, students must maintain minimum standards of satisfactory academic progress. The Office of Financial Aid and Scholarships will make every effort to provide a similar amount of institutional gift aid, provided students apply on time and demonstrate a similar amount of financial need.

Notification

Freshman and transfer students can expect notification of financial aid awards beginning March 15. Current RIT students can expect award notification beginning in June.

Types of aid

At RIT, there are four general categories of financial aid: scholarships, grants, loans, and employment. An applicant for financial aid is considered for each of these categories.

Scholarships

Scholarships generally are awarded on the basis of academic record. RIT awards many such scholarships each year. Other typical scholarship sources are competitions, corporations, private donors, foundations, fraternal organizations, unions, and local and state governments.

RIT offers academic merit scholarships to both freshman and transfer students. For example, Presidential Scholarships, Achievement Scholarships, and Computing Medal Scholarships are awarded to freshmen. Trustee Scholarships, Achievement Scholarships, and Phi Theta Kappa Scholarships are awarded to transfer students. Winners are chosen on the basis of their academic record, recommendations, extracurricular activities, and requirements for their intended major. The combined value of merit scholarships from all sources cannot exceed tuition. Please contact the Office of Financial Aid and Scholarships for more details on these programs.

The Office of Financial Aid and Scholarships encourages students to apply for scholarships awarded by private organizations. This is an excellent source of funding that may reduce the need to borrow. In many cases, no alterations to a student's financial aid award are necessary. If we are required by federal regulations to amend a financial aid award as a result of an outside scholarship, we will make every effort to reduce the student's loan or work study award before reducing RIT need-based grants.

Grants

Grants are gifts of financial assistance awarded on the basis of demonstrated need. Grant award amounts from RIT vary up to $15,000 per academic year. RIT also awards grants under the

federally funded Supplemental Education Opportunity Grant Program. The Federal Pell Grant and the New York State Tuition Assistance Program (TAP) are additional examples of grants. Many other states offer grants as well.

Student loans

Student loans are provided through a formal financial obligation that must be repaid. Students need to be aware of the interest charges, the method of payment after graduation, and the effect that loans will have on their ability to meet later financial obligations. Student loans generally are not repaid until after graduation or termination of study.

Many students utilize the Subsidized Federal Direct Loan or the Unsubsidized Federal Direct Loan in meeting their costs. RIT also awards Federal Perkins Loans. These programs are administered by the Office of Financial Aid and Scholarships for eligible students.

Parents also are eligible to participate in several educational loan programs designed to make funds available for college expenses. Federal PLUS Loans are available to supplement other aid programs in meeting educational costs. While the parent loan is not based on need, the amount borrowed in any year cannot exceed educational costs minus other financial aid received.

Private lenders also may offer alternative educational loans to assist families in meeting educational expenses. These loans are available to students who are determined to be credit worthy by the lender. We encourage students and families to use alternative loans as a last option after first pursuing all federal loan options. If you decide that an alternative loan is right for you, you may borrow from any lender that you choose. Additional information is available from the Office of Financial Aid and Scholarships.

Employment

Employment opportunities are available to assist RIT students in meeting college expenses. Students may choose to defray some of their expenses through employment while attending the university.

As part of a financial aid award at RIT, students may be offered employment in the federal work-study program. More than 6,000 students are employed on campus each year. The Student Employment Office also helps students secure part-time employment off campus.

RIT's cooperative education program also may contribute to meeting college expenses. Students are encouraged to contact the Office of Cooperative Education and Career Services and their academic adviser to learn more about co-op opportunities.

Payment plans

The RIT Monthly Payment Plan combines the elements of a deferred payment plan and a prepayment plan to allow students and their families to finance educational costs over a 10-month period, with the initial payment beginning August 1. Fixed costs include tuition, fees, RIT housing charges, and RIT meal plans. The enrollment deposit required of all new undergraduates and the advance housing deposit required of returning students will be credited against annual charges. Financial aid also may be deducted from student charges to reduce the amount financed through the plan. Applications cannot be accepted after the first day of fall quarter classes for the academic year.

Additional information, as well as applications for the monthly payment plan, may be obtained from the Student Financial Services Office.

RIT also offers a tuition prepayment plan that guarantees no tuition increases for the equivalent of two or four years (six or 12 academic quarters) of undergraduate education. The cost for the plan is established each. The plan is available to matriculated full-time undergraduate students who are not receiving any form of RIT need-based aid. Additional information is available from the Office of Financial Aid and Scholarships or the Student Financial Services Office.

Academic progress requirements for state aid programs

New York State Tuition Assistance Program (TAP)

In order to receive a TAP grant, an individual must be admitted as a full-time matriculated student, meet New York State residency and income requirements, pursue the program of study in which he or she is enrolled, and make satisfactory progress toward completion of his or her program of study.

TAP academic requirements are current as of the 2009-10 year. Standards are subject to change by legislative action.

In addition to accruing degree credits and earning a minimum grade point average, TAP recipients must:

1. Complete 6 credits per quarter to receive TAP payments two to four
2. Complete 9 credits per quarter to receive TAP payments five to seven
3. Complete 12 credits per quarter to receive TAP payments eight to 12

Completion of a course is defined as meeting course requirements and receiving a letter grade of A, B, C, D or F.

State regulations mandate that if a student repeats a course in which a passing grade acceptable to the university was previously received, the repeated course does not count toward the minimum 12-credit-hour course load required for TAP and other state programs.

In addition, an accelerated TAP payment cannot be received unless the recipient completes a minimum of 36 RIT credit hours in the previous three quarters. An accelerated quarter is the fourth consecutive quarter of enrollment at RIT.

Waiver of academic progress standards for TAP

Students who have been denied TAP benefits due to failure to maintain satisfactory standards of academic progress may request a one-term waiver of those standards. State regulations require that these waivers be granted only under extraordinary circumstances. Students failing to meet satisfactory progress standards will be given the opportunity to contact an institutional representative in the Office of Financial Aid and Scholarships to discuss their situation. The institutional representative will require documentation as appropriate and establish deadlines for submission of this documentation.

Under the regulations established by the Commissioner of Education, the decision of the institutional representative will be final. Students who, in the judgment of the institutional representative, satisfactorily meet the criteria for the waiver may have

one waiver at the undergraduate level. One waiver also may be granted at the graduate level. Those wishing to apply for waivers must do so during the quarter in which notification of TAP denial was sent.

Reasons for which a waiver may be granted include the following:

1. Verifiable illness of the student or member of the student's immediate family during the quarter in which academic standards were not met

2. Death of a member of the student's family during the quarter in which standards were not met

3. Divorce/separation within the student's immediate family creating a demonstrable financial/emotional disruption sufficient to affect progress

4. Circumstances that the student feels were extenuating; applicants must explain why circumstances were extenuating and beyond their control

These regulations are subject to legislative change.

Academic progress requirements for federal aid programs

Federal regulations require financial aid recipients to maintain minimum standards of satisfactory academic progress for continued receipt of federally sponsored aid. All students receiving federal assistance must maintain matriculated status in a degree program. Regulations require a maximum time frame for degree completion, a quantitative measurement (credits earned toward a degree) and a qualitative measurement (cumulative grade point average). The annual review of academic progress considers all terms of enrollment, including terms in which no federal aid was received.

Full-time students who have never attended another college are allowed a maximum of six academic years (18 full-time academic quarters) to attain the bachelor's degree. Those pursuing associate degrees are allowed three academic years (nine academic quarters) for degree completion.

Students enrolled in eligible certificate or diploma programs in colleges other than NTID must complete credit hours on a full-time equivalent basis. Certificate/diploma program students are allowed a maximum of 150 percent of the published number of quarters required to complete their program.

Academic progress is reviewed at the end of spring quarter each year and includes a review of cumulative grade point average and degree credits completed. Minimum cumulative grade point average standards for full- and part-time students enrolled in RIT or NTID programs are as follows:

Completion of first quarter—minimum cumulative GPA = 1.0
Completion of second quarter—minimum cumulative GPA = 1.2
Completion of third quarter—minimum cumulative GPA = 1.4
Completion of fourth quarter—minimum cumulative GPA = 1.6
Completion of fifth quarter—minimum cumulative GPA = 1.8
Completion of quarters 6 to 18—minimum cumulative GPA = 2.0

Full-time students in colleges other than NTID are expected to complete 30 degree credits after every three academic quarters, as detailed below:

Completion of first academic year (three academic qtrs.)—
30 degree credits required
Completion of second academic year (six academic qtrs.)—
60 degree credits required
Completion of third academic year (nine academic qtrs.)—
90 degree credits required
Completion of fourth academic year (12 academic qtrs.)—
120 degree credits required
Completion of fifth academic year (15 academic qtrs.)—
150 degree credits required
Completion of sixth academic year (18 academic qtrs.)—
180 degree credits required

Part-time students must accumulate credit hours on a full-time equivalent basis.

Students enrolled in certificate, diploma, or associate degree programs at NTID must meet the same GPA standards required for other RIT colleges. However, for NTID programs, the qualitative standard is based on successful completion of 66 percent of annual credit hours attempted. In addition, the maximum time frame for program completion is equal to attempting a maximum of 150 percent of the published credit hours required for a particular NTID certificate, diploma, or degree.

Standard of Satisfactory Progress for the Purpose of Determining Eligibility for New York State Student Aid

Associate Degree—Quarter System

Before being certified for this payment	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
a student must have accrued at least this many credits	0	3	9	20	32	44	56	68	80
with at least this grade point average	0	.50	.75	1.00	1.20	1.30	2.00	2.00	2.00

Bachelor's Degree—Quarter System

Before being certified for this payment	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th
a student must have accrued at least this many credits	0	3	9	20	32	44	56	68	80	92	104	116	132	148	164
with at least this grade point average	0	1.10	1.10	1.20	1.20	1.30	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

Graduate Degree—Quarter System

Before being certified for this payment	1st	2nd	3rd	4th	5th	6th
a student must have accrued at least this many credits	0	12	24	36	48	60
with at least this grade point average	0	2.00	2.50	2.70	2.80	2.90

The federal standards of satisfactory academic progress listed are applicable to the following aid programs: Federal Work-Study, Federal Pell and SEOG grants, and Federal Perkins, Direct Subsidized, Direct Unsubsidized, and Direct PLUS loans.

Student loan recipients also should note that all Federal Direct Loan Programs have specific annual and cumulative maximum amounts. The loan limits are listed in the Undergraduate Financial Aid Programs 2009–10 chart and in the U.S. Department of Education Student Guide. Copies of the guide are available in the Office of Financial Aid and Scholarships.

Notification and appeal

Students whose academic progress is not in compliance with federal requirements will be notified of the deficiency and advised of the appeal process. Copies of the policy are available upon request.

Academic progress requirements for RIT grants and scholarships

Academic progress requirements for RIT need-based grants and scholarships are the same as the requirements for federal aid programs. Academic requirements and award duration for merit or special-purpose scholarship programs sponsored by RIT may differ from those used in RIT's need-based programs. Recipients are advised of merit scholarship terms and conditions at the time awards are made.

Additional eligibility requirements

Transfer students

Cumulative grade point average requirements are the same as for nontransfer students (i.e., students must obtain a 2.0 GPA at the end of six academic quarters). Transfer students also are expected to accumulate 30 degree credits for each three-quarter academic year. However, the maximum number of quarters allowed for full-time students to accumulate remaining degree credits may be reduced. For every 10 credits, or fraction thereof, granted as transfer credit by RIT, the maximum number of quarters to accumulate remaining degree credits is reduced by one. For example, a student transferring from another college and granted 30 transfer credits would have 15 rather than 18 quarters to accumulate remaining degree credits; the same student transferring to an associate degree program would be allowed six rather than nine quarters to complete the degree. The calculations used in the reduction in maximum quarters allowed for degree completion apply to both federal aid programs and RIT-sponsored awards (18 academic quarters maximum).

Part-time students

Students registering for 6 to 11.5 credits per quarter and receiving federal financial assistance must meet the same grade point average requirements as full-time students (i.e., attainment of a 2.0 GPA after six academic quarters). The established time frame for part-time students is 12 academic years (36 half-time quarters) for completion of bachelor's degree requirements. Associate degree candidates are allowed six academic years (18 half-time quarters) for degree completion. At the end of each three-quarter academic year, 15 credits must be accumulated toward the degree. Quarters in which a student is registered for less than 6 credit hours will be counted on a prorated basis.

Student responsibilities

Recipients of financial aid are responsible for reporting any significant changes in their financial situation during the year to the Office of Financial Aid and Scholarships for review. These changes may require a revision to the applicant's financial aid.

Financial aid refund policy

Return of federal funds

In accordance with federal regulations, the Office of Financial Aid and Scholarships recalculates quarterly federal aid eligibility for students who withdraw, drop out, are suspended, or take a leave of absence prior to completing 60 percent of a quarter.

"Withdrawal date" is defined as the actual date the student initiated the withdrawal process, the student's last date of recorded attendance, or the midpoint of the quarter for a student who leaves without notifying the university. Recalculation is based on the percent of earned aid using the following formula: number of days completed up to the withdrawal date/total days in the quarter. Aid returned to federal programs is then equal to 100 percent minus the percentage earned multiplied by the amount of federal aid disbursed.

Funds are returned to the federal government in the following sequence: Federal Direct Unsubsidized Loans, Federal Direct Subsidized Loans, Federal Perkins Loans, Federal Graduate PLUS, Federal Parent PLUS Loans, Federal Pell Grants, Federal SEOG, other federal grants.

Late disbursement

If the student is otherwise eligible, the first disbursement of Federal Direct Subsidized Loan or Federal Direct Unsubsidized Loan proceeds is allowed up to 180 days after the student has ceased to be enrolled. Subsequent disbursements are not allowed.

State scholarships

Regulations vary. Any adjustments are done in accordance with the specific requirements of the sponsoring state.

Privately funded grants and scholarships

In the absence of specific instructions from the sponsor, 100 percent of the quarterly award will be credited to the student's account.

RIT grants and scholarships

If a credit balance remains after all federal, state, and private adjustments, a percentage of the remaining credit balance is returned to the RIT scholarship account according to the following formula:

$$\frac{\text{Scholarship}}{\text{Scholarship plus student payments}} = \text{Percent returned to RIT scholarship program}$$

UNDERGRADUATE FINANCIAL AID PROGRAMS 2009-10

MERIT SCHOLARSHIPS	ELIGIBILITY	AMOUNT†	WHERE TO APPLY
RIT Presidential Scholarships	Freshman applicants with combined SAT scores of 1950 or higher (or ACT composite of 28 or higher) and a secondary school rank in the top 20% at the end of junior year, OR combined SAT scores of 1860 or higher (or ACT composite of 27 or higher) and a secondary school rank in the top 10% at the end of the junior year.	$7,500 to $13,000 per year (amounts based on merit). Renewable.	All freshman applications submitted to RIT by February 1 will be reviewed for possible selection.
National Merit, National Achievement, and National Hispanic Scholarships	Semifinalists or finalists in any of these three national scholarship programs.	Combined RIT Presidential and Merit Scholarships totaling $15,000 or more per year. Renewable.	High school records provided for admission must indicate student's semifinalist or finalist selection.
RIT Achievement Scholarships for Business, Liberal Arts, and Hospitality Management	Freshman applicants for these programs demonstrating outstanding leadership, service, entrepreneurship, or citizenship with combined SAT score of 1800 or higher (ACT 26) and B+ average.	$5,000 to $7,500 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable.	Freshman admission applications for these academic programs submitted by February 1 will be reviewed for possible selection based on activities, recommendations, and academic record.
RIT Achievement Scholarships for Art, Design, and Crafts	Freshman applicants for these academic programs with combined SAT score of 1800 or higher (ACT 26) and B+ average who submit outstanding art portfolios.	$5,000 to $7,500 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable. Up to 25 awarded each year.	Freshman admission applications andart portfolios submitted by February 1 will be reviewed for possible selection.
RIT Achievement Scholarships—All Programs	Freshman applicants with combined SAT score of 1800 or higher (ACT 26), strong extracurricular achievements, and B+ average.	$5,000 to $7,500 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable. Up to 100 awarded each year.	Freshman admission applications submitted by February 1 will be reviewed for possible selection.
RIT Honors Program Scholarships	Freshmen admitted to the RIT Honors program.	$1,000 per year. Renewable with Honors program membership. Awarded in addition to the RIT Presidential Scholarship.	See the undergraduate admission application for instructions. Must apply by February 1.
RIT Computing Medal Scholarships	Awarded to RIT Computing Medal winner from a participating high school.	$6,000 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable.	Must apply for admission to RIT by February 1 to be considered.
RIT Innovation and Creativity Award Scholarships	Awarded to Innovation and Creativity Award winners selected by participating high schools based on outstanding achievements in innovation, creativity, and entrepreneurship.	$6,000 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable.	Must apply for admission to RIT by February 1 to be considered.
RIT National Co-op Scholarships	Winners selected based on academic record and required scholarship application essay.	$6,000 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable. Up to 10 awarded each year.	Submit scholarship application online at: www.rit.edu/co-opscholarship. Apply between October 1 and February 15.
RIT/SAE Engineering Scholarships	Freshman applicants to engineering technology or engineering programs. Based on academic record.	$6,000 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable. Up to 25 awarded each year.	Download scholarship application at: www.students.sae.org/awdscholar/scholarships/. Mail application to SAE by Dec. 1.
RIT/FIRST Robotics Scholarships	Freshman applicants with combined SAT score of 1800 or higher (ACT 26) and B+ average who have participated on a high school FIRST team.	$6,000 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable. Up to 10 awarded each year.	Download scholarship application at: www.usfirst.org. Mail scholarship application to RIT and apply for admission by February 1.
RIT/Project Lead The Way (PLTW) Scholarships	Freshman applicants with combined SAT score of 1800 or higher (ACT 26) and B+ average who complete two or more PLTW courses.	$6,000 per year. Students qualifying for an additional RIT merit scholarship will automatically be awarded the scholarship with the highest amount. Renewable. Up to five awarded each year.	Submit a letter of recommendation from a PLTW teacher along with RIT admission application and school transcripts by February 1.
RIT Trustee Scholarships for Transfer Students	Transfer applicants with a GPA of 3.3 or higher (computed by RIT) who will complete an associate degree before entering RIT.	$9,000 per year with transfer GPA of 3.6 or higher; $6,000-$7,500 per year with GPA of 3.3-3.59. May be combined with Phi Theta Kappa scholarship. Renewable.	Submit all required admission application documents by: April 1 for summer/fall entry; October 1 for winter entry; January 15 for spring entry.
RIT Achievement Scholarships for Transfer Students	Transfer applicants with 3.3 or higher transfer GPA (computed by RIT) and 30 semester or 45 quarter hours completedat previous institution.	$6,000 per year. May not be combined with RIT Trustee Scholarship. Renewable.	Submit all required admission application documents by April 1 for summer/fall entry; October 1 for winter entry; January 15 for spring entry.
RIT Phi Theta Kappa Scholarships for Transfer Students	Awarded to transfer students with an associate degree elected to Phi Theta Kappa honor society.	$2,000 per year. May be combined with RIT Trustee or Achievement Scholarship. Renewable.	Proof of PTK membership must be submitted with transfer admission application.
RIT Nathaniel Rochester Society (NRS) Scholarships	Full-time undergraduate students who have completed at least 72 credit hours at RIT with a GPA of 3.4 or higher. Winners selected by NRS scholarship Committee.	Maximum award is $2,000 for six quarters of academic study ($333 per quarter applied toward tuition charges). Awarded in addition to other financial aid and scholarships.	Download scholarship application at:www.rit.edu/nrs and file the completed application in March.
ROTC Scholarships	Students enrolling in ROTC who are academically qualified.	Tuition support, fees, books, and monthly stipend.	Air Force: (585) 475-5197; Army: (585) 475-2881; Navy: (585) 275-4275
RIT/ROTC Subsidy	Army, Air Force, or Navy ROTC cadets awarded three- or four-year scholarships prior to enrollment.	Up to the amount of a standard room and board plan, minus other financial aid and benefits.	Contact the Office of Financial Aid and Scholarships.

† Scholarship amounts indicated are based on RIT day tuition rates. Awards may be prorated for NTID-sponsored students or for evening tuition rates.

NEED-BASED GRANTS	ELIGIBILITY	AMOUNT†	WHERE TO APPLY
RIT Grants	Students demonstrating financial need.	Amounts vary up to $15,000 per year for full-time study.	File the Free Application for Federal Student Financial Aid (FAFSA) by March 1 for priority consideration.
RIT Endowed Scholarships	Full-time RIT students meeting selection criteria as established by the donor for each program; most awarded to upperclassmen based on financial need and academic performance at RIT.	Amounts vary	File the Free Application for Federal Student Aid (FAFSA) by the priority deadline.
NTID Grant-in-Aid	Full-time students enrolling in RIT's National Technical Institute for the Deaf (NTID) who demonstrate financial need.	Amounts vary.	File the Free Application for Federal Student Aid (FAFSA) by the priority deadline.
RIT/NTID Grant	NTID students who are enrolled in an RIT bachelor's degree program who demonstrate financial need.	Amounts vary.	File the Free Application for Federal Student Aid (FAFSA) by the priority deadline.
RIT Part-time Studies Grant	Part-time undergraduate students enrolled for less than 12 credit hours in an RIT degree program who demonstrate financial need.	Amounts vary.	File the Free Application for Federal Student Aid (FAFSA) by the priority deadline.
RIT Opportunity Scholarships	Full-time matriculated students who demonstrate exceptional financial need. Preference is given to students who are from underrepresented populations and those not traditionally studying in certain academic disciplines.	Up to $3,000 per academic year; renewable.	Apply for admission to RIT by February 1 and file FAFSA by March 1.
New York State Tuition Assistance Program (TAP)	Full-time students who are New York State residents and meet state income guidelines.	$500-$5,000 per year for entering freshmen; transfer and returning student maximum varies.	File New York State Express TAP Application and the Free Application for Federal Student Aid (FAFSA).
New York State Aid for Part-time Studies (APTS)	Matriculated undergraduate New York State residents enrolled for 6-11 credits per term who meet NYS residency requirements and demonstrate financial need based on NYS net taxable income; must not have received the equivalent of four years of NYS TAP aid.	Maximum award is $2,000 per year, not to exceed cost of tuition.	Submit Aid for Part-time Studies Application to RIT's Office of Financial Aid and Scholarships.
Federal Pell Grant	Students who are pursuing their first bachelor's degree and meet need criteria.	$555 to $5,550 per year; prorated for part-time study.	File the Free Application for Federal Student Aid (FAFSA).
Federal Academic Competitiveness Grant (ACG)	Full-time or half-time students who are Pell Grant-eligible and who completed a rigorous secondary school program and meet need criteria.	Up to $750 for first-year students; up to $1,300 for second-year students.	File the Free Application for Federal Student Aid (FAFSA).
National Science and Mathematics to Retain Talent (SMART) Grant	Full-time or half-time students who are Pell Grant-eligible and who are enrolled in certain math and science programs. Applicants need to maintain a 3.0 GPA and meet need criteria.	Up to $4,000 for third- or fourth-year students.	File the Free Application for Federal Student Aid (FAFSA).
Federal Supplemental Educational Opportunity Grant (SEOG)	Students with high financial need (those who qualify for a Federal Pell Grant).	$100-$4,000 per year.	File the Free Application for Federal Student Aid (FAFSA).
NYS Higher Education Opportunity Program (HEOP)	Economically and academically disadvantaged residents of New York State.	Amounts vary, based on individual need and New York State funding.	Contact the HEOP director at RIT (585-475-2221) for eligibility guidelines.
Other State Grants	Varies.	Amounts vary.	Contact the state education department in your state.

† Scholarship amounts indicated are based on RIT day tuition rates. Awards may be prorated for NTID-sponsored students or for evening tuition rates.

LOANS	ELIGIBILITY	AMOUNT†	WHERE TO APPLY
Federal Perkins Loans	Students who meet requirements established by federal government.	Up to $5,000 per year;	File the Free Application for Federal Student Aid (FAFSA).
Federal Direct Loans	All students enrolled at least half-time in a degree program.	Maximum amount: 1st year: $3,500; 2nd year: $4,500; 3rd, 4th, 5thyears: $5,500. Additional maximum $2,000 Unsubsidized Federal Direct Loans – all years.	File the Free Application for Federal Student Aid (FAFSA).
Federal Direct Loans – Independent Students	All independent undergraduates enrolled at least half time in a degree program.	Maximum amount (including unsubsidized): 1st year: $9,500; 2nd year: $10,500; 3rd, 4th, 5thyears: $12,500.	File the Free Application for Federal Student Aid (FAFSA).
Federal Direct PLUS Loans	Parent of a dependent student who is enrolled at least half time in a degree program.	Total cost of education minus all other financial aid awarded.	File the FAFSA and obtain loan application from RIT Office of Financial Aid and Scholarships.

† Scholarship amounts indicated are based on RIT day tuition rates. Awards may be prorated for NTID-sponsored students or for evening tuition rates.

EMPLOYMENT	ELIGIBILITY	AMOUNT†	WHERE TO APPLY
Federal Work Study Program	Students with financial need; most jobs provided are on campus, and some community service positions are available.	Varies depending on hours and wage rate (RIT wage rates start at $7.25 per hour).	File the Free Application for Federal Student Aid (FAFSA).
RIT Employment Program	No financial need requirement; may be on campus or off campus.	Varies, depending on hours and wage rate (RIT wage rates start at $7.25 per hour).	Contact the RIT Student Employment Office at www.rit.edu/emcs/seo.

† Scholarship amounts indicated are based on RIT day tuition rates. Awards may be prorated for NTID-sponsored students or for evening tuition rates.

OTHER AWARDS	ELIGIBILITY	AMOUNT†	WHERE TO APPLY
Regents Award for Child of Veterans (CV)	Students whose parent(s) served in the U.S. Armed Forces during specified periods of war or national emergency and, as a result of service, either died, suffered a 40% or more disability, was classified as missing in action, or was a prisoner of war. The veteran must currently be a New York State resident or have been a New York State resident at the time of death.	$450 per year, for up to five years, depending on the normal length of the program.	Same as TAP. In addition, file the CV Award Supplement available on at www.hesc.com. May 1 deadline.
Military Service Recognition Scholarship (MSRS)	Children, spouses, and financial dependents of members of the United States Armed Forces or state-organized militia who, at any time on or after Aug. 2, 1990, while New York State residents, died or became severely and permanently disabled while engaged in hostilities or training for hostilities.	Award equal to SUNY four-year college tuition and mandatory educational fees (or student's actual tuition and fees, whichever is less) and allowances for room and board, books, supplies, and transportation.	Same as TAP. In addition, file the Military Service Recognition Scholarship Supplement, available at www.hesc.com.
Memorial Scholarships for Families of Deceased Firefighters, Volunteer Firefighters, Police Officers, Peace Officers and Emergency Medical Service Workers.	Must be a child or spouse of deceased firefighter, volunteer firefighter, or emergency medical service worker, police officer, peace officer, who died as a result of injuries sustained in the line of duty.	Award equals SUNY four-year college tuition and fees and allowances for room and board, books, supplies and transportation.	Same as TAP. In addition, file the appropriate award supplement, available at www.hesc.com. May 1 deadline.
NYS Aid to Native Americans	Members of a New York state tribe and their children who are attending, or planning to attend, a college in New York state and are New York State residents.	Up to $2,000 per year for a maximum of four years (five years for certain programs)	Contact: the Native American Education Unit, NYS Education Department, Room 374 EBA, Albany, NY 12234, (518) 474-0537.
Vietnam Veterans Tuition Award Program	Eligible Veterans who are New York state residents.	$2,000 per year for full-time study or $1,000 per year for part-time study; available for undergraduate or graduate study.	Same as TAP. In addition, file the Vietnam Veterans Tuition Award Supplement at www.hesc.com.
NYS Regents Professional Opportunity Scholarship	U.S. citizen and permanent NYS resident as defined by legislation, for certain approved professional programs (e.g., accounting, engineering, physician's assistant); must agree to practice for 12 months in chosen profession in NYS for each annual payment received.	$1,000-$5,000 per year (TAP and some other benefits may supplement this award).	Contact: NYS Education Department, Office of K-16 Initiatives and Access Programs, Scholarship & Grants Administration Unit, Room 1078 EBA, Albany, NY 12234. Call (518) 486-1319.
Robert C. Byrd Honors Scholarship Program (federally funded)	Academically talented high school seniors who are U.S. citizens and NYS residents attending any approved institution of higher education.	$1,500 per year, 310 awards statewide (10 to each of 31 congressional districts).	Contact high school guidance counselor for application information.
New York Scholarships for Academic Excellence	Outstanding graduate from registered New York State high schools. Awards are based on grades in certain Regents exams.	$1,500 to top graduating senior of each high school in the state; $500 to other academically gifted students.	Contact your high school guidance counselor.
New York Lottery Leaders of Tomorrow Scholarship	U.S. citizen and graduate of NYS high school; must attend NYS college or school.	$1,250 per year. Maximum of four years; one award for each high school in the state.	Contact your high school guidance office.
Veterans Benefits	Eligible veterans and children of deceased veterans or service-connected disabled veterans.	Amounts vary.	Contact the Office of Veterans Affairs at (888) 442-4551, or visit their website at www.va.gov.
Aid to Native Americans	Students who are at least one-quarter American Indian, Eskimo, or Aleut who demonstrate financial need	Amounts vary	Contact U.S. Department of Interior, Bureau of Indian Affairs, Federal Bldg., Room 523, 100 S. Clinton St., Syracuse, NY 13202.

† Scholarship amounts indicated are based on RIT day tuition rates. Awards may be prorated for NTID-sponsored students or for evening tuition rates.

Notes:

This chart covers the most commonly awarded financial aid programs available to full-time undergraduate students at RIT. Information is correct as of May 2010. Most programs require satisfactory progress toward degree completion to maintain eligibility. Filing the FAFSA by March 1 (March 15 for transfer students and April 1 for continuing students) will ensure priority consideration for all programs. Applications filed after this date will receive consideration as long as funds remain available.

Named Scholarships

Each year the university awards named scholarships, made possible through the generosity of hundreds of individuals and organizations. Awards are made by RIT's Office of Financial Aid and Scholarships or RIT academic departments in accordance with the special criteria of each scholarship. All applicants for financial aid are automatically considered for scholarships for which they meet the established criteria.

Harriet Thayer Adams Scholarship

Max Adler Scholarship

George Alden Scholarship Fund

Mary R. Alexander Scholarship

Fanny Knapp Allen Scholarship

Altier & Sons Scholarship

Alumni Legacy Scholarship

Amzalek Ames Scholarship

Salvador Anchondo Jr. Memorial Scholarship

Association of Women in Computing

Avis Mason Andrews Graduate Scholarship

Robert Anderson Scholarship

Betsy L. Andrews Scholarship

Clara L. Andrews Scholarship

Ezra R. Andrews Scholarship

Kate Rider Andrews Scholarship

Randall Andrews Scholarship

Howard Applegate Scholarship

Lee Augustine Memorial Scholarship

Ralph Avery Scholarship

Alfred Bader COB International Study Program

Helen Bader Foundation

Joseph Bader Scholarship

Andrew Baker Scholarship at NTID

David Baldwin Scholarship

Thomas Ward Ball Scholarship

Barlow Endowed Scholarship Fund

John & Mary Bartholomew Scholarship

Bruce and Nancy Bates Scholarship

Bausch & Lomb Scholarship

John Bausch Scholarship

Clarence & Birdice Beal Scholarship

Alice Beardsley Memorial Endowed Scholarship Fund for Interpreting Students at NTID

Ned Behnke Memorial Scholarship at NTID

Richard Benjamin Memorial

Hillary Blair Benner Memorial Scholarship

Bennett Family Scholarship

Frank P. Benz Jr. Memorial Scholarship

Ruth L. Bernhardt Scholarship

Ruth E. Bice Endowed Chemistry Scholarship

Fanny R. Bigelow Scholarship

Roscoe Bills Scholarship

Howard Bingham/Eastman Kodak Scholarship

Helen & Frederick Blaessig Memorial Scholarship

Joseph & Helen Blatecky Scholarship

Harriet Blickwede Scholarship

Boeing Company Scholarship

Donald & Jaris Boyce Scholarship

Farid Bozorgi Memorial Endowed Scholarship Fund

John and Honorable Caroline Branch

Braverman Scholarship

Joseph Briggs Endowed Scholarship

Chester W. Brink Scholarship

Stephen Briody Scholarship

Bernard B. Brody Medical Sciences Scholarship

Steffan Brown Scholarship

Peter C. Browne Scholarship

Nettie Bullis Scholarship

Cheryl Bulls, Lynette Moore, and Susan Willoughby Memorial Scholarship

Business Alumni Scholarship

Business Faculty Endowed Scholarship

College of Business Recent Alumni

Business Women's Alumni Network

Owen Butler Scholarship

Orilla Butts Scholarship

Harold Cadmus Memorial Scholarship

Deborah Cahn Memorial Scholarship

Cala Family Endowment

Donn J. Calabrese Scholarship

Campus Connections Book and Supply Scholarship

Richard Capilla Scholarship

Chester Carlson Scholarship

Howard F. Carver Scholarship

Howard T. Case Scholarship

Theodore Chapman Scholarship

John & Ruth Christie Scholarship

Citigroup Foundation Endowed Scholarship Fund at NTID

Adele Hathaway Clark Scholarship

Erma and Earl Clark Scholarship

Florence Clark Scholarship

H. E. Clark Scholarship

Ruth and Brackett Clark Scholarship

Class of '69 Scholarship

Albert G. Coenen Scholarship

Eugene Colby Scholarship

Wells Coleman Scholarship

Coleman Corporation Scholarship

Colleges of RIT Annual Fund Awards

Ward D. Collister Scholarship

Comstock Foundation Scholarship

Karen Conner Annual Scholarship

Continental Corporation Scholarship Endowed Fund at NTID

Henry and Pinney Cooke Scholarship

Jerome Countryman Memorial

Lillian M. Cowin Memorial Endowed Scholarship Fund

Walter Crighton Scholarship

Alvin Cronig Scholarship

Crowe, Chizek and Company

CSX Scholarship

Bryon Culver Scholarship

Curtice Burns Scholarship

Robert R. and Donna E. Davila Endowed Scholarship Fund

Alfred L. Davis International Student Scholarship

Alfred L. & Ruby C. Davis Continuing Education Scholarship

Alfred L. & Ruby C. Davis Leadership Award

Nancy J. Davis Scholarship

Donald F. and Maxine B. Davison Scholarship

James J. DeCaro Endowed Scholarship Fund

Del Rosso Family Scholarship

De Ridder Corporation Scholarship

Eliot Derman–GTS Scholarship

Michael DiRoma Memorial Scholarship

Ronald Dodge Engineering Scholarship

Ronald Dodge Faculty/Staff Grants Endowed Scholarship

Ronald Dodge Memorial Endowed Scholarship Fund

Patrick Donovan Memorial

Doolittle/Merrill Scholarship

Dorothy E. Ann Fund (D.E.A.F.) Endowed Scholarship

Thomas W. Dougherty Scholarship

Chris Dudek Memorial Scholarship

Mr. and Mrs. Joseph F. Dyer Endowed Scholarship Fund

Eberly Family Scholarship

ECI Systems & Engineering

ECT Department Academic Excellence Scholarship

Educational Technology Center Scholarship

Eisenhart Memorial Scholarship

Robert Elder Scholarship

Ellingson Foundation Scholarship

Fred Emerson Foundation Scholarship

Isabel & Benjamin Emerson Scholarship

Raymond Englert Scholarship

Gerald Ephraim Scholarship

Louise Epstein Supply Scholarship in SAC

Eyer Foundation Scholarship

Max Factor Family Foundation Endowed Scholarship Fund

John Doane Fay Scholarship

Rose & George Feigenbaum Scholarship Endowed Scholarship Fund

Nancy and Len Fein Endowed Scholarship

William & Mildred Feinbloom Scholarship

Ruth H. Fenyvessy Memorial Endowed Scholarship Fund

Joseph Ferraro Memorial Scholarship

James Fitz Memorial Scholarship

Flora J. Foley Scholarship

Benjamin Forman Scholarship

Maurice & Maxine Forman Endowed Scholarship Fund

Donald J. Forst Endowed Scholarship

J. Andrew Foster Senior and J. Andrew Foster Junior Scholarship

Dr. Eugene Fram Scholarship

Ron Francis Scholarship

R. T. French Scholarship

Richard A. Freund Scholarship

Ann Wadsworth Frisina Memorial

Dr. Robert Frisina Award

Max & Helene Frumkes Memorial

Karl Fuchs Scholarship

Garlinghouse Endowed Scholarship Fund

Garthwaite-Brennan Endowed Scholarship

Gegeheimer/McClure Scholarship

Frank Geist Scholarship

Gelsomino Entrepreneurship Scholarship

General Motors Scholarship

George T. Georgantis Memorial Scholarship

Sarah Margaret Gillam Scholarship

Jean Gillings Scholarship

Gitner Family Scholarship

E. B. Gleason Scholarship

George & Anne Gleason Memorial Scholarship

Kate Gleason COE Alumni Endowed Scholarship

Kate Gleason Scholarship

Good Samaritan Association Scholarship

Allen & Gloria Gopen Endowed Scholarship Fund

George Gordon Scholarship

Isaac Gordon Scholarship

Goulds Pumps Inc. Award

Graflex Scholarship

Phillip L. Graham Scholarship

Gravure Foundation Scholarship

Edward Hableib Scholarship

Hakes Assoc. Scholarship

Ezra Hale Scholarship

Hale Foundation Packaging Scholarship

William B. Hale Scholarship

Mildred F. Hall Endowed Scholarship

Sil Hall Scholarship

Carter Harmon Scholarship

Denton P. and Alice F. Harris Endowed Scholarship

Harris Semiconductor Scholarship

Dr. Howard N. Harrison Scholarship

Franz Haverstick Scholarship

G. Sherwin Haxton Scholarship

Safford Hazlett Scholarship

Healthcare Purchasing Scholarship

William Randolph Hearst Endowed Scholarship

Heidelberg/RIT Scholarship

Hermance Family Scholarship

Sol Heumann Scholarship

Brian E. and Jean P. Hickey Scholarship

John and Catherine Hill Endowed Scholarship

Francis Sallie Ann Hilliard Scholarship

Laura Church Hillman Scholarship

Richard J. Hoerner Endowed Scholarship

Hoffend Scholarship Fund

Hogadone & Larwood Scholarship

Holmes Family Endowed Scholarship

Eric Honsberger Endowed Memorial Scholarship

Charles C. Horn Scholarship

Frank Horton Endowed Scholarship Funds

Jerry Hughes Endowed Scholarship

Frank Hutchins Scholarship

The Ralph Hymes Endowed Scholarship Fund

Arthur Ingle Scholarship

Insero and Company Scholarship

Institute of Fellows Scholarship

Interpretek Scholarship

Louis & Sylvia Jackson Scholarship

Candy Thompson Jagus Endowed Memorial Scholarship

Dorothy B. James Scholarship

Sharyn & Steven Janis Scholarship

Jack Jenkins Endowment Scholarship

Lucille Ritter Jennings Endowed Scholarship Fund

Leo Joachim Scholarship

Helen Lucille Jones Memorial Scholarship

John Wiley Jones International Scholarship

John Wiley Jones Science Scholarship

Michael Jones Memorial Scholarship

Isaac Jordan Memorial Scholarship

Abraham & Teresa Katz Scholarship

Robert and Doris Kaufman Memorial Endowed Scholarship

David T. Kearns Endowed Fund for Technical Excellence

Henry & Mary Kearse Memorial Fund

Stephen J. Kersting Memorial Scholarship

Katherine Keyes Scholarship

Drew & Francis King Endowment Fund

Ruth Klee Award

David Klieman Scholarship

Kodak Professional Imaging Award

Lowell Koenig Scholarship

Bernard & Mary Kozel Entrepreneurial Scholarship

Jack Kronenberg Scholarship

Sara L. Kuhnert Endowed Scholarship Fund at NTID

Lancer Graphics Scholarship

Francis Lang Scholarship

Learning Support Services Scholarship

LeChase Corp. Scholarship

Leenhouts Family Scholarship

Lehigh Press Scholarship

JayJ and Stephanie M. Levine Scholarship

Richard B. Lewis Memorial Scholarship

Liberal Arts Alumni and Friends Endowed Scholarship

The Edward H. Lichtenstein Memorial Endowed Scholarship Fund

Abe Lincoln Scholarship

Dawn and Jacques Lipson M.D. Scholarship

Lockheed Martin Scholarship

Lomb Citizen Soldier Scholarship

Lomb People Scholarship

Arthur E. Lowenthal Scholarship

Eugene M. Lowenthal Jr. Memorial Scholarship

Max Lowenthal Memorial Scholarship

Claire Booth Luce Scholarship

Patrick T. Lynch Memorial Scholarship

M/E Engineering

MITEL Scholarship

MMET Faculty, Staff, Alumni

M&T Bank Urban Scholars Scholarship

Barbara MacCameron Scholarship

Lois C. Macy Scholarship

Magazine Publishers Scholarship

Jack & Judy Maltby Scholarship

Manufacturers Hanover Scholarship

Donald Margolis Scholarship

Marine Midland Fellowship

William Mariner Scholarship

Clara Martin Scholarship

Dr. James C. Marsters Endowed Scholarship Fund

John McIntee Scholarship

McIntosh Education Fund

Dean McWhirter Memorial Scholarship

Melissa Meisenhelder Scholarship

Alice Melnyk Scholarship

Bernadette Merkel Memorial Scholarship

Norman Miles Scholarship

Norman Miller Electrical Engineering Scholarship

Barbara Milliman Scholarship

Abraham & Sadie Milstein Scholarship

Earl Morecock Scholarship

Bernice Skinner Morelock Scholarship

Clifford Waite Morgan Scholarship

Catherine Morse Scholarship

Mowris-Mulligan Memorial Scholarship

Charles W., Sue L., Freda L. Muffitt Scholarship

Dennis and Cathy Mullen Endowed Scholarship

Irene Muntz Endowed HSM Scholarship

Irene L. Muntz Endowed Scholarship

Dr. Gengi Murai Endowed Scholarship Fund

Michelle "Shelley" Nagoette Memorial Scholarship

Nathaniel Rochester Society Scholarships

Don Naylor Scholarship

C. B. Neblette Memorial Scholarship

Evaline and Louis Neff Scholarship

Grace B. Norton Scholarship

Ruth D. Norton Endowed Scholarship Fund

Joseph F. Noveck Memorial Scholarship

Meta Noveck Memorial Scholarship at NTID

NTID Alumni Association Endowed Scholarship Fund

NTID Annual Fund

NTID Architectural Technology Award Scholarship Fund

NTID Business Careers Endowed Scholarship Fund

NTID Foundation Endowed Scholarship Fund

NTID Performing Arts Endowed Scholarship Fund

NTID Printing Production Scholarship

NTID Science/Engineering Careers Endowed Scholarship Fund

NTID Visual Communication Endowed Scholarship Fund

NYS Federation of Home Bureaus, Inc. Endowed Scholarship Fund in Honor of Martha Perry

Milton H. & Ray B. Ohringer Endowed Scholarship Fund

Omnova Foundation

Osher Foundation Family Scholarship

PAETEC Scholars Program

Robert F. Panara Endowed Scholarship Fund

Mohal Patel Scholarship

Sarah Louise Patterson and Minneiska Louise Hall Scholarship

Barbara Paul Memorial Scholarship

William Farley Peck Scholarship

Gerald & Pamela Pelano Scholarship

Paul Pelletier Memorial Scholarship

Phillips ECG Inc. Scholarship

Phoenix Fiction Award

Physics Faculty and Alumni Endowed Scholarship

Seth Policzer and Syed Ali Turab Memorial Endowed Scholarship

Eugene and Wanda Polisseni Award

Polyfibron Technologies

Paul W. Porter Industrial Design Scholarship

A. C. Powers Memorial Scholarship

Praxair Scholarship

David Presco Scholarship

John Myers Pritchard

Pulver Family Endowed Scholarship Fund

Q. C. I. Corporation Scholarship

Queens Group Scholarship

RTEMD Scholarship

Harold Rafael Memorial

Byron J. Ramseyer

Eustis and Thelma Rawcliffe

Real Time Enterprises Scholarship

Redcom Undergraduate Scholarship

Bill Reedy Eastman Kodak Scholarship

Bill Reedy Memorial Scholarship

Kenneth & Margaret Reek Scholarship

Russell Reilly Scholarship

R. Bruce Reinecker Scholarship

Jack Renfro Scholarship

Carl Reynolds Computer Science Scholarship

Tom and Betty Richards Endowed Scholarship

Ronald S. Ricotta Scholarship

Edward J. Ries Memorial Scholarship

RIT Alumni Legacy Scholarship

RIT Alumni Network

RIT Facilities Management Employer Endowed Scholarship

RIT International Student Alumni Endowed Scholarship

RIT International Student Association

RIT Parents Endowed Scholarship

RIT Womens Council Scholarship

Frank Ritter Memorial Scholarship

Robbins & Meyers Scholarship

Archibald & Mary Robinson Scholarship

Rochester Area Business Ethics Foundation Scholarship

Rochester Midland Endowed Scholarship

Rochester Sales & Marketing Executives Scholarship

Rock-Tenn Packaging Scholarship

Ian Rodgers Memorial Scholarship

Roosevelt Paper Scholarship

Robert Root Award

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Madelon and Richard Rosett Scholarship

Rothman Family Endowment

Rubens Family Foundation

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Stuart L. Saikkonen Memorial Scholarship

Janet R. Salitan Liberal Arts Scholarship

Esther G. Sanders Scholarship

Nelson & Celeste Sanford Memorial Scholarship

Elizabeth Dunlap Sargent Memorial Endowed Scholarship Fund at NTID

Ryoichi Sasakawa Endowed Scholarship Fund

E. Phillip Saunders Business Scholarship

E. Phillip Saunders COB Class Gift Scholarship

Robert J. Scheiber Memorial Scholarship

Paul & Katherine Schmidt Scholarship

Robert Pitman Schmidt Scholarship

Kilian & Caroline Schmitt International Scholarship

William J. Schmitt Memorial Scholarship

Martin L. Schultz Memorial Scholarship

Ruth S. Schumacher Fund

Marlene E. Scott Memorial Scholarship

Scripps-Howard Endowed Scholarships

James Scudder Memorial Scholarship

Wilfrid & Isabel Searjeant Scholarship Endowment

Norman C. and Mercedes S. Selke Scholarship

Eric Senna Scholarship

Sarah Shelton Scholarship

Helen Monar Short Scholarship

Igor Shot Scholarship

F. Ritter Shumway Scholarship

S. Richard Silverman Endowed

Scholarship Fund for International Deaf Students

Fred Simmons Scholarship

Albert J. Simone Entrepeneurship Scholarship

Albert & Carolie Simone Margaret's House Scholarship

Albert & Carolie Simone NRS Scholarship

Louis & Nellie Skalny Scholarship

Edythe & Edward Sklar Endowed Scholarship Fund

Joseph & Deidre Smialowski Honors Scholarship

Susan Smigel International Student Scholarship

David Alan Smith Endowed Scholarship

David Alan Smith Engineering and Entrepreneurship Scholarship

Dr. Fred W. Smith Endowed Scholarship

Kevin Smith Memorial Award

Sidney Smith Family Endowed Scholarship

Southwest Printing Management Fund

C. Sherwood Southwick Jr. Endowed Scholarship

Harry Speck Scholarship

Karl Sperber Scholarship

Sprint Scholarship Fund @ NTID

Alfred L. Stern Fund

Hattie M. Strong Scholarship

Pearl Hewlett Stutz Scholarship

Matthew Sullivan Memorial Scholarship

Solon E. Summerfield Foundation Endowed Scholarship Fund

William Swart Award

Michael A. Swartzman Memorial Endowed Scholarship Fund

David F. Sykes Endowed

Peter H. Sykes Endowed Scholarship

George Tanzer Memorial Scholarship Daniel D. Tessoni Endowed Scholarship

Theta Xi Alumni Greek Organizations Award

Michael Thomas Endowed Scholarship Fund in the Performing Arts

Eloise Thornberry Endowed Scholarship Fund

Louis C. Tiffany Foundation

Times Mirror Foundation Scholarship

Erik Timmerman Scholarship

Hollis Todd Scholarship

Kenneth & Barbara Tornvall

Kate Louise Trahey Scholarship

Donald and Christina Truesdale Endowed Scholarship

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Clarence Tuites Scholarship

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Turri & Brown Scholarship

Clifford & Ruth Ulp Memorial Scholarship

United Way Child Care Scholarship

Walter Vanderwheel Memorial Scholarship

Elizabeth VanHorne Memorial Scholarship

James Ventimiglia Memorial Printing Award

Volpe Scholars Annual Fund

Charles and Andrea Volpe Scholarship

Joseph Waldinsperger Scholarship

Dewitt Wallace Scholarship

A. Stephen Walls Scholarship

Walls, Olsen Memorial Scholarship

Stephanie Warren Scholarship for Excellence in Emergency Medicine

J. Watumul Indian Scholarship

Kathleen Wayland-Smith Scholarship

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David Weinstein Scholarship

Harold J. Weisburg Scholarship

Mark & Beulah Welch Scholarship

Cy Welcher Scholarship

James Weldon and Lillie Chaney Brumfield Scholarship

Edwin Welter Fund

Western New York Village Superintendents Scholarship

Weyerhaeuser Fellowship

Nelson Whitaker Scholarship

Ron & Joann White Scholarship

Whitman Family Scholarship

Eloise Wilkin Memorial Scholarship

Elizabeth W. Williams Endowed Fund for the Performing Arts

Becky Wills Scholarship

James Wilson Memorial Scholarship

Thomas B. Wilson Scholarship

Wallace & Paula Wilson Scholarship

John J. Wittman II Scholarship

Henry Wolf Scholarship Endowment

Joseph C. & Loretta F. Wolf Endowed Scholarship Fund

Louis S. and Molly B. Wolk Foundation Endowed Scholarship Fund for Deaf Students at RIT

Rose Wollner Scholarship

Rudolph Wollner Scholarship

Women in Printing Scholarship

Women's Club of Rochester Endowed NTID Scholarship

Women's Council Endowed NTID Scholarship

William D. Wright Scholarship

Xerox Endowed Scholarship

Myles G. Yerdin Endowed Memorial Scholarship

Richard and Lois Zakia Scholarship

Jeffrey W. Zielasko Memorial Scholarship

Donald Zrebiec Scholarship

The Rochester Community

Rochester is a true college town. Home to 11 colleges and universities, four of which are within five miles of the RIT campus, Rochester provides unsurpassed educational and cultural opportunities. Home to more than 1 million people, the greater Rochester metropolitan area is one of America's top-rated places to live, work, and play. Our four-season climate is perfect for a variety of activities such as snow skiing, sailing, hiking, cycling, and kayaking. The city provides an incredible backdrop for higher learning, career growth, high-tech start-ups, and arts and culture.

Here is just a sampling of what Rochester has to offer:

Sports and Recreation

Rochester was rated the best minor league sports market by *Street & Smith's Sports Business Journal*. Take a look at our local teams:

Rochester Americans (www.amerks.com), the AHL affiliate of the NHL's Florida Panthers

Rochester Red Wings (www.redwingsbaseball.com), the Triple-A affiliate of Major League Baseball's Minnesota Twins

Raging Rhinos (www.rhinossoccer.com), a United Soccer League First Division professional soccer team

Knighthawks (www.knighthawks.net), a professional lacrosse team

Razor Sharks (www.razorsharks.com), 2005-06 American Basketball Association Champions

Wegman's LPGA (www.wegmanslpga.org), hosted at Locust Hill Country Club, features the world's best female golfers.

Other great recreational outlets:

- *Golf Digest* has ranked Rochester as one of the top 40 "Best Golf Towns in America," plus it's a hot spot for disc golf as well.
- Rochester has 12,000 acres in its park system, great for hiking, biking, and cross-country skiing.
- Bristol Mountain Winter Resort and Swain Ski and Snowboard Resort offer intense downhill skiing and snowboarding.
- Indulge in boating, kayaking, and more on three major bodies of water: Lake Ontario, the Genesee River, and the historic Erie Canal.
- Nearby Watkins Glen International hosts NASCAR Sprint Cup, NASCAR Nationwide Series, Craftsman Truck Series, and Indy Car races.

Music and the Arts

Downstairs Cabaret Theatre (www.downstairscabaret.com), offering live, professional theater

Dryden Theater (dryden.eastmanhouse.org), which screens rare silent and popular films from the Motion Picture Collection at George Eastman House

New York Wine and Culinary Center (www.nywcc.com), a celebration of New York wine and food, created through a partnership of RIT's School of Hospitality and Service Management, Wegmans Food Markets, Constellation Brands, and the New York Wine & Grape Foundation

Garth Fagan Dance (www.garthfagandance.org), the internationally acclaimed modern dance company

George Eastman House (www.eastmanhouse.org), the National Historic Landmark home and gardens of Kodak founder George Eastman and the world-renowned international museum of photography and film

Geva Theatre (www.gevatheatrecenter.org), the most well-attended regional theater in New York State

The Little Theatre (www.thelittle.org), features American independent and foreign films and is one of the most widely known "art house" movie theaters in the country

Memorial Art Gallery (mag.rochester.edu), explores 50 centuries of world art

Rochester Broadway Theatre League (www.rbtl.org), hosts national Broadway tours. Past shows have included *Wicked*, *West Side Story*, *Disney's The Lion King*, *A Chorus Line*, and many acclaimed musical performances and plays.

Rochester Museum and Science Center (www.rmsc.org), a hands-on, educational museum exploring science and technology, the natural environment, and the region's cultural heritage

Rochester Philharmonic Orchestra (www.rpo.org), the only major orchestra in the country supported by a mid-sized city; winner of the 2006 ASCAP Award for Adventurous Programming

Seneca Park Zoo (www.senecaparkzoo.org), a public exhibition of animals in naturalistic environments

Sonnenberg Gardens (www.sonnenberg.org), one of America's most extensively maintained country estates

Strasenburgh Planetarium (www.rmsc.org/strasenburghplanetarium), where you can enjoy a laser show or giant-screen film beneath a 65-foot dome—one of the world's largest

Strong National Museum of Play (www.museumofplay.org), the first and only major museum in the world devoted to the study and interpretation of play

Xerox Rochester International Jazz Festival (www.rochesterjazz.com), one of the nation's largest and fastest growing music festivals. Drawing fans from all across the United States and around the world, the festival includes more than 500 artists and more than 100 concerts.

Events and Festivals

360|365 Film Festival (www.film360365.com), interactively engages filmmakers and audiences in education, discovery, and celebration through the medium of film in all aspects and directions

Clothesline Arts Festival (mag.rochester.edu/clothesline), a juried artists' showcase and sale hosted by the Memorial Art Gallery

Corn Hill Arts Festival (www.cornhill.org/), a national two-day arts and crafts festival

Imagine RIT: Innovation and Creativity Festival (www.rit.edu/imagine), a campus-wide event that welcomes more than 25,000 people. Exhibits showcase the innovative and creative spirit of RIT students, faculty, and staff.

Lilac Festival (www.lilacfestival.com), celebrates the arrival of spring with Rochester's 1,200 lilac bushes in Highland Park.

The Deaf Community

DeafRoc (www.deafroc.com), deaf-related news and events for deaf Rochesterians

Deaf Rochy (www-deafrochy.com), Community Event Calendar

Northeast Deaf Recreation, Inc. (www.deafrec.org), which offers recreation and education opportunities for deaf, hard-of-hearing, and hearing populations

Rochester Recreation Club for the Deaf, Inc. (www.rochesterdeafclub.com), a hub for the greater Rochester community

Open caption movies, available at a number of cinemas in Rochester

Learn more

To learn more about the Rochester area, visit these websites:

City of Rochester
www.ci.rochester.ny.us

Greater Rochester Visitors Association
www.visitrochester.com

The Democrat and Chronicle Newspaper
www.democratandchronicle.com

Rochester Business Journal
www.rbj.net

City Guide to Rochester
www.inforochester.com

Greater Rochester International Airport
www.monroecounty.gov/airport-index.php

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Distinguished Professorships

College of Applied Science and Technology

Russell C. McCarthy Professorship in Engineering Technology
Established: 1979
Purpose: The Russell C. McCarthy endowed chair was created in 1980 by a group of six donors to augment the creation of the RIT School of Applied Industrial Studies. The endowed chair now resides in the College of Applied Science and Technology and reports to the college dean. The purpose of the chair is to build relationships between the college and industrial and professional communities worldwide that share the college's interests, goals, and values.
Held by: John Morelli

Paul A. Miller Professorship in Continuing Education
Established: 1981
Donor: RIT Board of Trustees
Purpose: Established in honor of former RIT President Paul A. Miller, it recognizes RIT faculty making distinguished contributions to continuing education with a record of matching university intellectual and educational resources with the needs of students and the community.
Held by: Maureen S. Valentine

E. Philip Saunders College of Business

J. Warren McClure Research Professorship in Marketing
Established: 1977
Donor: Mr. and Mrs. J. Warren McClure
Purpose: To perpetuate Mr. McClure's professional interest in the field of marketing
Held by: open

Madelon and Richard Rosett Chair
Established: 2000
Donor: Madelon and Richard Rosett
Purpose: To support a professorship of a nationally prominent scholar in any field of business
Held by: Ashok Robin

Kate Gleason College of Engineering

James E. Gleason Professorship in Mechanical Engineering
Established: 1967
Donor: Estate of James E. Gleason
Purpose: To provide a permanent memorial for Mr. Gleason, who served as a trustee of RIT from 1930 until 1964, and to strengthen RIT in the field in which he received his education
Held by: Satish G. Kandlikar

Gleason Professor
Established: 1993
Donor: Gleason Memorial Fund
Purpose: To provide for a faculty member to lead a research and development program in electrical engineering
Held by: open

Kate Gleason Chair
Established: 1999
Donor: Gleason Foundation
Purpose: To honor Kate Gleason and increase the visibility of engineering for young women
Held by: open

Micron Technology Professor
Established: 2005
Donor: Micron Technology, Inc.
Purpose: To enhance microelectronics education at the undergraduate and graduate level and to foster development and collaboration in areas of mutual interest
Held by: Karl D. Hirschman

Earl W. Brinkman Professor of Screw Machine Technology
Established: 1995
Donor: Brinkman Family Charitable Trust and an anonymous foundation
Purpose: To create a lasting memorial to Earl W. Brinkman, an innovative leader in the screw machine industry, who retired from Davenport Machine Company in Rochester, N.Y., in 1979 after devoting 53 years to the company
Held by: Denis R. Cormier

Intel Professor of Research and Technology
Established: 2000
Donor: Intel Corporation
Purpose: To support RIT's Microelectronic Engineering Department and to develop new methods of manufacturing computer chips
Held by: Bruce W. Smith

College of Imaging Arts and Sciences

Ann Mowris Mulligan Distinguished Professorship in Contemporary Crafts
Established: 1999
Donor: Ann Mowris Mulligan
Purpose: The holder must have a distinguished record of excellent teaching, wide recognition as a renowned artist, and a demonstrated commitment to students' career development in the craft industry.
Held by: Leonard Urso

Gannett Center for Integrated Publishing Sciences
Established: 1987
Donor: Gannett Foundation
Purpose: The distinguished professor is engaged in research and academic study to address problems in the news and information business.
Held by: Patricia Albanese

Artist-in-Residence Professorship
Established: 1984
Purpose: To work with apprentice woodworkers and participate in conferences and lectures at RIT.
Held by: Wendell Castle

Charlotte Fredericks Mowris Professorship in Contemporary Crafts
Established: 1973
Donor: Mrs. Charles F. Mowris
Purpose: To perpetuate interest in the School for American Crafts through the work of faculty and students as talented craftspeople.
Held by: Albert Paley

Melbert B. Cary Jr. Professorship in Graphic Arts
Established: 1969
Donor: Mary Flagler Cary Charitable Trust
Purpose: To provide a permanent memorial for Mr. Cary, a former president of the American Institute of Graphic Arts, and to perpetuate his interest in the field.
Held by: Charles Bigelow

Gravure Research Professor
Established: 2004
Purpose: To promote gravure education in the curriculum.
Held by: Robert Chung

James E. McGhee Professorship in Photographic Management
Established: 1967
Donor: Master Photodealers and Finishers Association and friends of Mr. McGhee
Purpose: To provide a permanent memorial for Mr. McGhee, a former vice president of Eastman Kodak Company and lifelong friend of the photofinishing industry.
Held by: Franziska Frey

Paul and Louise Miller Distinguished Professorship in Newspaper Operations Management
Established: 1979
Donor: Frank E. Gannett Newspaper Foundation
Purpose: To honor the former chairman of the board of the Gannett Company and perpetuate his interest in good management practices in the newspaper industry.
Held by: Twyla Cummings

Roger K. Fawcett Distinguished Professorship in Publications Color Management
Established: 1991
Donor: World Color Press, Fawcett family, and industry colleagues
Purpose: The endowed chair, the only one of its kind in the nation, was established to address color quality and productivity in both the magazine and the newspaper publishing industries as well as promotion of RIT color research activities.
Held by: Patricia Sorce

College of Science

Richard S. Hunter Professorship in Color Science, Appearance, and Technology
Established: 1983
Donors: Mr. and Mrs. Richard S. Hunter
Purpose: To enable RIT to increase its research and educational efforts in the areas of color science, technology, and appearance science in order to benefit the industry and science of color.
Held by: Roy S. Berns

Frederick and Anna B. Wiedman Professorship
Established: 1985
Donor: Frederick Wiedman Jr.
Purpose: To establish a permanent memorial to Frederick and Anna B. Wiedman, lifelong residents of Rochester and long-time friends of RIT.
Held by: John R. Schott

Xerox Professorship in Imaging Science
Established: 1996
Donor: Xerox Corporation
Purpose: Established to expand and enhance the research and teaching activities within the Chester F. Carlson Center for Imaging Science.
Held by: Stefi Baum

College of Liberal Arts

Caroline Werner Gannett Professorship in the Humanities
Established: 1974
Donor: Mrs. Frank E. Gannett
Purpose: To perpetuate Mrs. Gannett's lifelong interest in education, especially in those fields of study that have a humanistic perspective
Held by: Mary Lynn Broe

Arthur J. Gosnell Professorship in Economics
Established: 1985
Donor: Family and friends of Arthur J. Gosnell
Purpose: To perpetuate the memory of Arthur J. Gosnell through recognition of the importance of good teaching in economics and by facilitating research into public policy questions
Held by: Amit Batabyal

Ezra A. Hale Professorship in Applied Ethics
Established: 1989
Donors: William B. and Patricia F. Hale and Lawyers Cooperative Publishing Company
Purpose: To establish a permanent memorial to a long-time and valued friend of RIT, Ezra A. Hale, and to provide instruction in applied ethics in keeping with his beliefs in sportsman-like conduct, fair play and honesty
Held by: Wade L. Robison

William A. Kern Professorship in Communication
Established: 1971
Donor: Rochester Telephone Corporation
Purpose: To commemorate the 100th anniversary of that company and to provide a memorial for a former president of the company and a man who served as an RIT trustee from 1959 to 1964
Held by: Jonathan E. Schroeder

Barber B. Conable Jr. Professorship in International Studies
Established: 2004
Donor: The Starr Foundation
Purpose: To honor the late statesman and former World Bank President and ensure that Barber Conable's legacy of principled and innovative leadership in the national and international arenas will be preserved for all time.
Held by: Benjamin N. Lawrance

Faculty

College of Applied Science and Technology

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Civil Engineering Technology/Environmental Management and Safety

Civil Engineering Technology

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