

2003-2004 CATALOG

# The Graduate College *of* UNION UNIVERSITY

Reach a Higher Degree of Excellence



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**The Graduate College**

*of* UNION UNIVERSITY

2003 - 2004

**CATALOG**



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## Admissions Quick Facts

**Applications:** Filed on a rolling basis throughout the year for Clinical Leadership, Computer Science, Engineering, Master of Science for Teachers and the MBA programs. Bioethics student applications are recommended to be filed by June 15th. MAT students applications must be filed by March 1. Joint program students with Albany Law School and Albany College of Pharmacy who wish to start in the fall are recommended to be filed by April 1. Separate applications are required for the Joint Programs to both colleges.

Combined degree programs with Union College are required to file their application prior to the end of tenth term. The MAT applicant can file as early as their eighth term and all other applicants may file during their sophomore year.

**School Transcripts:** The Bioethics program requires the official transcript from the highest degree earned. All other programs require all previous college transcripts.

**Essay:** Required by all programs. Instructions for required essays can be found on the back of the specific program application.

**Application Fee:** \$60 for all degree-seeking applicants. Union College students/alumni and those applying to the Engineering and Computer Science programs through the Engineering Consortium (BPMI, KAPL, Plug Power and General Electric) may waive the application fee. Non-degree students are not required to pay an application fee.

**Interviews:** Required by the MAT and MST program and recommended for all other programs.

**Recommendations:** Three recommendations are required for all programs. The MAT program requires that two of them be academic.

**Entrance Exams:** The MBA programs require the GMAT. For GMAT waivers see the *Admissions Information* section of this catalog. The Bioethics program may request a standardized test. The MAT program may request the GRE in specific instances. All other programs do not require entrance exams.

**Immunizations:** All students are required to submit immunization records. For specific instructions see the *Registration Information* section of this catalog.

**International Applicants:** The TOEFL is required for all programs unless you have studied in an English-speaking university for a minimum of two years. The Admission's Committee may request a telephone interview. It is recommended that international applicants currently studying or living outside the United States who require an I-20 or IAP-66 submit their applications five months prior to the first term they plan to start their studies.

**Financial Aid Applications:** A Free Application for Federal Student Aid (FAFSA) is required for students applying for financial aid. Applicants need to contact the Financial Aid office at Union College. Specific program scholarships are listed in this catalog in the *Financial Aid Section* of this catalog. Students may also contact the Office of Graduate Admissions and Registration for updates.

**Admissions Office Hours:** Weekdays 8:00 a.m. – 4:30 p.m., closed from 1:00 – 2:00 p.m.. The first week (M-Th) of each term the Office of Graduate Admissions and Registration has extended hours until 6:30 p.m. For any additional extended hours consult the web site and term course listings.

**Contact Information:**

- **Sue Lehrman, PhD** . . . . . (518) 388-6235  
President
- **Lloyd B.Tredwell** . . . . . (518) 388-6239  
Vice President for Administration and Student Services
- **Rhonda Sheehan** . . . . . (518) 388-6238  
Director of Graduate Admissions and Registrar

**The material in this Catalog is designed to inform you of the The Graduate College's policies and the services available to you that will take affect in October 2003. We hope you find it useful.**

The information in this Catalog was prepared as of July 2003. Provisions of this publication are not to be regarded as an irrevocable contract between the student and The Graduate College. The Graduate College reserves the right to make changes in its course offerings, degree requirements, regulations and procedures, and fees and expenses as educational and financial considerations require.

The Graduate College does not discriminate on the basis of age, race, color, religious belief, disability, sexual orientation, or national origin. The Graduate College's policy of nondiscrimination extends to all areas of its operations, including, but not limited to, admissions, student aid, athletics, employment, and educational programs. All the rights, privileges, programs, and activities generally accorded to all full-time matriculated students of The Graduate College are accorded on a nondiscriminatory basis.

The Graduate College is committed to assisting all members of its community in providing for their own safety and security. Information regarding campus security and personal safety, including topics such as crime prevention, campus safety law enforcement authority, crime reporting policies, crime statistics for the most recent three-year period, and disciplinary procedures is available from the Director of Campus Safety of Union College at 807 Union Street, Schenectady, NY 12308. This information is also available from the Union College website at [www.union.edu/PUBLIC/SAFETY/CommunityReport.html](http://www.union.edu/PUBLIC/SAFETY/CommunityReport.html)

Union College shall be a non-degree awarding partner of The Graduate College of Union University for Master of Business Administration (MBA) programs for the academic year 2003-2004.

## A Message from the President

It's my pleasure to introduce you to the unique programs offered by The Graduate College of Union University. Union University, established in 1873, is a federation of institutions consisting of Union College, Albany Medical College, Albany Law School, the Dudley Observatory, Albany College of Pharmacy and The Graduate College of Union University. The Graduate College is located on the beautiful Union College campus in Schenectady, New York, and our students have access to all Union College services.

The Graduate College serves full- and part-time students, providing outstanding master's-level professional degree programs that meet the needs of New York's Capital Region and beyond. We currently offer graduate programs in educational studies, engineering (electrical and mechanical), computer science, business administration, health administration and bioethics. A number of joint programs exist between The Graduate College and other Union University institutions, including joint MBA and MS programs with the Albany Law School, Albany Medical College, Albany College of Pharmacy, and Union College.

Our mission statement describes us well: Interactive classes, personalized attention, and experiential learning promote the acquisition of critical thinking, effective communication and quantitative skills, and the capacity for life-long professional learning. GCUU alumni act responsibly, independently and ethically within their institutions and assume leadership roles as they advance their careers.

Of course no catalog can capture the heart and soul of a college: the dedication of our faculty, the camaraderie and collegial relationships of our students, the care and concern of our administrators, and our close working relationships with the professional community are hard to fully express in print.

We invite you to start your exploration of The Graduate College with our catalog. However, we hope that you will call us or visit the campus to get the true flavor of our offerings and our environment. Reach a higher degree of excellence with a graduate degree at The Graduate College of Union University!

Sue Lehrman, PhD  
President

## Mission and Goals

*Adopted October, 2003*

The Graduate College of Union University is located on the campus of Union College in Schenectady, NY. The Graduate College contracts with Union College for a number of services. Thus, this catalog and The Graduate College requirements, regulations, and procedures refer to some policies and offices that are part of Union College.

### Union University

The Graduate College is part of Union University, a federation of independent institutions. Other members are Union College, Albany Medical College, Albany Law School, Dudley Observatory, and Albany College of Pharmacy. Each has its own governing board and is responsible for its own programs. There are several joint programs. Union College, The Graduate College and Albany Medical College offer a BS/MS or MBA/MD in eight calendar years. Union College and Albany Law School have a joint BA/JD program. There is a joint MS/Pharmacy program with Albany College of Pharmacy and The Graduate College and a MBA/JD program with Albany Law School and The Graduate College.

### Mission

The Graduate College of Union University serves full- and part-time students, providing outstanding master's-level professional degree programs that meet the needs of New York's Capital Region and beyond. Interactive classes, personalized attention, and experiential learning promote the acquisition of critical thinking, effective communication and quantitative skills, and the capacity for life-long professional learning. The Graduate College alumni act responsibly, independently and ethically within their institutions and assume leadership roles as they advance their careers.

### Goals

- To increase the size, quality, and diversity of the student body without sacrificing small class size and close student-faculty interaction.
- To maintain a faculty of sufficient size, quality and diversity to ensure program success.
- To ensure that graduates attain the necessary knowledge, attitudes, and skills to be valued workers and leaders in their professional positions.
- To provide effective career planning and placement services for all students.
- To promote faculty service and research which enrich the classroom and help students and alumni grow professionally.
- To create innovative partnerships with key internal and external constituents.
- To establish self-monitoring programs which adjust curriculum and policies to meet significant constituent needs.

### A Statement on Academic Honesty

The Graduate College of Union University does not tolerate dishonest academic behavior. Any work that students represent as their own—exams, papers, etc.—is their own; students understand that it is their responsibility if they have questions about what constitutes their own work to seek advice from the appropriate faculty member. (Refer to the *Graduate Student Handbook* for more information.)

### AUGUST 2003

18 - 29 Fall registration  
20 Open House with Evening Advising\*

### SEPTEMBER 2003

8 Fall term classes begin\*

### NOVEMBER 2003

10 - 21 Winter registration  
13 Fall term classes end  
17 - 20 Fall term exams  
21 Fall recess begins

### JANUARY 2004

5 Winter classes begin\*

### MARCH 2004

8 - 19 Spring registration  
11 Winter term classes end  
15 - 18 Winter term exams  
19 Winter recess begins  
29 Spring term classes begin\*

### MAY 2004

17 - 28 Summer registration

### JUNE 2004

3 Spring classes end  
7 - 10 Spring term exams  
12 Commencement

For withdrawal rules and fees see *Costs* section on "Fees for withdrawal from courses"

#### Admissions' and Registrar's Office Hours:

8:00 a.m. – 4:30 p.m.; closed 1:00 p.m. – 2:00 p.m.

\*Special Office Hours:

8:00 a.m. – 6:30 p.m.; closed 1:00 p.m. – 2:00 p.m.

In addition the office will be open until 6:30 pm Monday through Thursday the first week of Fall, Winter and Spring terms.

**Snow Closing:** Snow closing announcements will be broadcast on the following stations: Television—WRGB (6), WTEN (10), WNYT (13), FOX (8); Radio—WGY (810 AM), WYJB (95.5), WQBK (103.9), WPYX (106.5), WKLI (101.9), WFLY (92.3), WRVE (99.5), WTRY (98.3) after 2:00 p.m.

**Religious Observances:** Classes will be held; students observing holidays may request make-up sessions for exams.

### HISTORY OF THE GRADUATE COLLEGE OF UNION UNIVERSITY

The Graduate College of Union University was formed in 2003 out of the graduate programs of Union College. Bolstered by expanding enrollments in all graduate programs, and the growing regional demand for full- and part-time graduate study, a need for a new professional graduate college was recognized. At the same time, this move clarified and strengthened Union College's reputation as a nationally-recognized leader in undergraduate liberal arts and engineering education.

The Graduate College consists of three graduate schools and a center: the School of Management, the School of Education, the School of Engineering and Computer Science, and the Center for Bioethics and Clinical Leadership.

The Graduate College is a part of Union University, a federation of independent undergraduate and graduate institutions, currently consisting of Union College, Albany Medical College, Albany Law School, Dudley Observatory and Albany College of Pharmacy. Established in 1873, the University has a board of governors made up of representatives of the member institutions' boards of trustees. The president of Union College serves as the chancellor of Union University.

The Graduate College believes in the philosophy of providing an educational environment characterized by high faculty-student interaction and small classes.

The Graduate College values its Union College heritage and its rich and multi-varied connection to the liberal arts and sciences. In fact, it was founded on the premise that these connections could enrich professional graduate education. Local, national, and global markets are embedded in political, economic, and cultural systems. As The Graduate College goes forward, it will build on its historical foundations.

### THE GRADUATE PROGRAMS

The Graduate College of Union University through its graduate schools offers the following graduate degrees: Master of Business Administration, Master of Science, Master of Science for secondary school teachers of mathematics and science, and Master of Arts in teaching.

Master of Science degrees can be earned in clinical leadership in health management, bioethics, computer science, and electrical or mechanical engineering. The Master of Business Administration program also offers a specialization in health systems administration.

### Academic Requirements

Students may matriculate as either part-time or full-time students depending on their program (see the *Admissions Information* section of this catalog). A student is considered full-time if they are enrolled in two or more courses per term.

A minimum of one academic year of course and thesis work is required for the master's degree in most programs. This is equivalent to nine or ten full courses or seven or eight full courses plus two thesis courses. Students must finish their degree requirements within six years of matriculating at The Graduate College.

The MBA degrees offered by the School of Management require considerably more course work (see the *School of Management* section of this catalog).

Bioethics degree candidates must pass an oral and/or written comprehensive examination given by a committee selected by their major department. The committee will be composed of three faculty members and, usually, one member from outside the college faculty. The oral or written examination will relate to the student's course work and thesis research. A student who fails the examination may be given one more opportunity for examination upon recommendation of the Examining Committee. The reexamination must take place during the following year.

### Joint Degree Programs

Five-year joint degree programs in conjunction with Union College lead to undergraduate degrees in various disciplines and graduate degrees in the MBA, MAT, mechanical engineering, electrical engineering, or computer science areas.

Union College undergraduate students who want to enter combined bachelor's-master's degree programs apply for graduate admission to The Graduate College no later than the end of the fall term of their senior year. A cumulative grade point average of 3.0 is expected. They are encouraged to apply as early as their sophomore year for the MBA and Engineering and Computer Science programs. The MAT program requires them to apply after the start of their eighth term and before the conclusion of their tenth term. Acceptance into a program may enable students to apply up to three 200-level graduate courses for credit in fulfillment of their undergraduate degree at Union College and their graduate degree at The Graduate College, depending upon their program of study. A petition requesting overlapping degree credit must be approved by Union College and The Graduate College and filed with both registrars' offices.

The Graduate College offers opportunities for joint degrees with other members of Union University. An eight-year Leadership in Medicine program with Union College, The Graduate College and Albany Medical College allow students to earn three degrees: a BS in Biology or Chemistry, an MS in Health Management or an MBA in Health Administration, and a Doctor of Medicine. In cooperation with Albany Law School and the School of Management of The Graduate College, students may earn a joint JD/MBA. A joint Pharmacy Doctorate and MS in Health Management in conjunction with the Albany College of Pharmacy is also offered.

### Online Learning

The Graduate College strongly believes in the integration of online learning technology with traditional learning modalities. A number of our traditional classroom courses use online technology to supplement the classroom environment. Our MS in Bioethics is our first totally online degree with a short summer on-campus component.

The Graduate College uses the *Blackboard Learning System*, a Web-based server software platform that offers industry-leading course management, an open architecture for customization and interoperability, and a scalable design that allows for integration with student information systems and authentication protocols.

### HMAC (Consortium) Courses

As a member of the Hudson-Mohawk Association of Colleges and Universities, The Graduate College of Union University participates in programs of cross-registration, permitting students to take courses at other consortium colleges and universities. Consortium cross-registrations are subject to several conditions. In general, students are advised to confer with the instructor of the course proposed to be taken, but in any case they must fulfill the prerequisites set by the institution giving the course, including permission of the instructor if that is a normal condition for entering the course. Separate applications obtainable from the registrar, must be completed for each course. When institutional calendars do not coincide, as will be the case in most instances, the individual student will be responsible for making the necessary accommodations, including food and lodging if the home institution is closed during the period of the course. Cross-registered students will be expected to abide by all regulations including attendance, parking, honor systems, etc., at the host institution.

Cross-registrations will be approved only for courses not offered at the home institution; in general, they will be limited to a maximum of half the normal course load. Further, students must have their academic advisor's permission to cross-register for the course(s) in question. Cross-registration will be permitted only in courses that The Graduate College normally would consider for transfer credit.

Through the consortium, Graduate College students may enroll in Reserve Officer Training Corps programs of the Navy and Air Force at Rensselaer Polytechnic Institute, Troy, and in the Army ROTC program at Siena College, Loudonville. ROTC courses do not carry credit toward graduation. Such ROTC students may be eligible for scholarships and other benefits available under two- and three-year programs of the Selective Services. Students interested should contact the respective branches of the ROTC.

Members of the consortium, in addition to The Graduate College are Union College, Siena, Adirondack Community College, Albany College of Pharmacy, Albany Law School,

Albany Medical College, The College of Saint Rose, Columbia-Greene Community College, Empire State College, Fulton-Montgomery Community College, Hartwick College, Hudson Valley Community College, Junior College of Albany, Maria College, Massachusetts College of Liberal Arts, Rensselaer Polytechnic Institute, Russell Sage College, Schenectady County Community College, Skidmore College, the State University of New York at Albany, and the State University of New York College at Cobleskill.

**Charter and Accreditation**

The Graduate College of Union University is chartered by the New York State Board of Regents. The Graduate College is in the process of Institutional Accreditation by the New York State Education Department and Middle State Association of Colleges and Secondary Schools.

The MBA program is accredited by AACSB-International (Association to Advance Collegiate Schools of Business), the world's leading business school accrediting body. The Graduate College's program is unique in being the smallest of all AACSB accredited business programs and one of only 28 accredited programs—along with such institutions as Harvard University, Stanford University, and Dartmouth College—that focus solely on graduate degrees. Less than 30 percent of all business programs are accredited nationwide. The Accrediting Commission on Education for Health Services Administration (ACEHSA) and AACSB-International dually accredits the Health Systems Administration program.

The MAT is accredited by The Teacher Education Accreditation Council.

**The Academic Calendar and Academic Year**

The Graduate College divides the nine-month academic year into three terms of ten weeks each. The normal course load for a full-time student is three courses in each of the three terms, or nine courses a year. Credits are computed on a course-unit system. With few exceptions, each course unit is complete within itself, concluding with an examination period. There are also two summer sessions of five weeks each for the MBA programs and one eight to ten week session for other programs. The Academic year starts with the beginning of the summer sessions and concludes with the spring semester.

**ACADEMIC AND STUDENT SERVICES AND FACILITIES**

**Office of the Vice President for Administration and Student Services . . . . . (518) 388-6239**

The Vice President for Administration and Student Services oversees a wide range of programs and services intended to help students to meet their academic and personal goals at The Graduate College. Students who have questions or problems of any sort, ranging from college policies to personal needs are encouraged to come to the office for advice or referral.

The Vice President for Administration and Student Services oversees all policies related to student conduct and is publisher of the *Graduate Student Handbook*, which is available on the College website at [www.graduatecollege.union.edu/StudentHandbook](http://www.graduatecollege.union.edu/StudentHandbook) or in hard copy by request.

**Office of Graduate Admissions and Registration . . . . . (518) 388-6148**

The Office of Graduate Admissions and Registration handles all matters dealing with admissions, registration, class schedules, grades, academic records, graduation, commencement, veterans affairs, and certification of attendance or eligibility in such areas as veterans' benefits, government loan deferment, insurance, etc.

**The Olin Building**

The fall 1998 completion of the \$9 million Olin Building introduced two new high-technology classroom formats to The Graduate College. The first is a Collaborative Computer Classroom. These rooms contain all the electronic presentation tools available in the Electronic Presentation Classroom. The lectern, however, contains only a single computer type (Windows or Mac). These rooms contain eight to twelve desktop computers for shared use by up to 36 students. Depending on class size, no more than four students collaborate on a single computer. All computers are linked to a high-quality, high-volume laser printer in each classroom. These classrooms are ideally suited for demonstrations of course and/or management software and group-oriented problem solving. Four such classrooms with Windows PCs and one classroom with Macintosh computers are available to The Graduate College.

The Olin Building also houses a Computer Lab classroom. This facility is similar to the Collaborative Classrooms, but is larger in size and allows up to 40 students per class. It currently contains 25 PCs. This room is ideally suited for language-based instruction and can also be used to teach simulation and other computer-intensive subjects.

Although Olin classrooms and electronic classrooms elsewhere on campus are in heavy demand during the day, The Graduate College's evening program schedule means the Institute has no trouble using desired rooms. All Graduate College faculty have file storage space on a Windows-2000 server. There is also a course area in which to post files for student access.

## Laboratories

Laboratories frequently used include the following (all located in the Science and Engineering Building):

- **Electrical Engineering Labs**
  - N102 - Electronics lab
  - N104 - Computer lab
  - N108 - Microprocessor lab
  - N206 - Electronics lab
- **Mechanical Engineering Labs**
  - S&E 201 - Computer lab
  - S&E 205 - Computer lab
  - Olin 015 - Mechanics lab
- **Computer Science Labs**
  - S&E - S004 Computer lab
  - S&E - N102 Electronics lab
  - S&E - N104 Computer lab
  - Olin - 110 Computer lab

For out-of-classroom work, students use study and group meeting space in Lamont House. Almost the entire lower level of the building is dedicated to student use; three rooms on the third floor (two conference spaces and student lounge) are also provided.

## Network Infrastructure

The Graduate College's main network connects all computers located in offices, labs, and student residence halls. The network uses fiber optic cables between buildings and intelligent hubs (with 10BaseT/100BaseT technology) within buildings. Each workstation (Windows, Mac, or Unix) is a 10BaseT or 100BaseT node on the network. The network has been very reliable and responsive.

The Graduate College has also established a wireless network in Lamont House. Access to this wireless network is available in Schaffer Library, the Nott Memorial, the Olin Center High-Tech Learning Center, all Olin Center electronic classrooms, the Schaffer Library Plaza, and several other study space locations on campus.

## Internet

Currently, The Graduate College has one OC3 line with a dedicated 20 Mbps of Internet access. Since the OC3 line is capable of up to 155 Mbps, there is plenty of room for future growth. Internet use has grown substantially for student and faculty research purposes. However, available capacity is more than adequate to meet institutional needs.

Union University has been very aggressive in pursuing Internet use by all campus constituents. The college has a full-time webmaster (who also manages two additional full-time people) to manage the many intranet and Internet web applications in use on campus. All students are given a default web subdirectory for web publishing.

## Computing Facilities

Non-workstation computing is conducted on *idol* and *dutch*. Both are DEC Alpha Servers 2100 4/275 running Compaq TruUNIX64. Applications on *idol* include Internet access, e-mail, secure-telnet, secure-ftp, and other Internet applications. *Dutch* has various programming languages and software packages such as C++, Prolog and MatLab. *Idol* and *dutch* accounts may be accessed through Windows or Mac workstations from individual offices, electronic classrooms, Information Technology Services (ITS) computer labs, special departmental labs (including the Lamont House Graduate Student Computer Lab), dorm rooms, and dial-in modems. Several terminals and computers are also located in the College Center.

Numerous computer labs are available for student use. Typically, these labs are available on a 24-hour, 7-day-per-week basis. Students may use pre-installed software for course- and career-related purposes. Personal software may not be installed; work must be saved to a student's own storage media. Graduate College students may use the computer laboratory in Lamont House (for graduate student use only). The Windows Lab, Mac Lab and Graphics Lab on the first floor of Steinmetz Hall are also available. Steinmetz labs are staffed by student consultants and are adjacent to Information Technology Services, where additional college employees can assist with problems during regular working hours. Graduate College students may also use the Olin Learning Center, the Statistics Lab (located in the Social Science Building) and CHUC Lab (located in the Humanities Building). All labs are equipped with printers.

## Lamont House Graduate Student Computer Laboratory

Opened in the fall of 1998, the Graduate Student Computer Lab is located on the lower level of Lamont House. It includes twelve Pentium workstations, two Power Macintosh workstations, and three older machines for lower-intensity applications (Internet and word processing). The lab is staffed by student technicians 30 hours per week. Laser printers are provided for student use. Applications on the lab's Pentium machines include:

- Analysis applications: JMP IN statistical software
- Course-specific applications: AweSim, ©Risk for Windows, Storm, Turbo Tax
- Databases: Access
- Presentation packages: PowerPoint
- Spreadsheets: Excel
- Word processing: Word
- Internet: Netscape, Windows FTP for Windows, Telnet for Windows, FrontPage
- Programming languages: Visual Basic

**Windows Computer Lab**

Located in Steinmetz Hall, this lab offers 15 Pentium computers (equipped with CD-RW drives) running Microsoft Windows XP. Students may use earphones for applications with sound. The lab offers free dot-matrix printing and with both black and white and color laser printing for a minimal fee. Each computer has the following applications:

- Analysis applications: Matlab, Mathematica, SPSS, SAS, MathCAD
- Course-specific applications: E-views
- Databases: Access
- Spreadsheets: Excel
- Word processing: Word
- Graphics packages: PowerPoint, Paint Shop Pro, Photoshop Elements
- Internet: Internet Explorer, SSH Secure FTP for Windows, SSH Secure Telnet for Windows, and FrontPage for web page development
- Programming languages: Visual C++, Visual Basic

**Macintosh Computer Lab**

Located in Steinmetz Hall, this lab contains ten computers using the Mac OS and equipped with CD-ROM drives. The lab offers free-dot matrix printing and both black and white and color laser printing for a minimal fee. One of the Macintosh workstations is connected to an HP ScanJet scanner. Scanned images can be edited with Graphics Converter with 1200 ppi image resolution. Each machine has the following applications:

- Analysis applications: Mathematica
- Course-specific applications: Fractals and Chaos, Geometer's Sketchpad, OzTek
- Graphics packages: PowerPoint, Graphic Converter, CA Cricket Graph III, Photoshop Elements
- Spreadsheets: Excel
- Word processing: Word
- Multimedia: iMovie, iTunes
- Internet: Internet Explorer, Mac SSH Telnet, Mac SSH FTP, and Dreamweaver for web page development

**Steenstrup Graphics Lab**

Located in Steinmetz Hall, this lab offers eight Windows computers with CD-RW drives, running Windows XP and connections for four laptop computers. As with the other labs, this lab offers free dot-matrix printing and both black and white and color laser printing for a minimal fee.

Two PC workstations are connected to HP ScanJet scanners. Scanned images can be edited with Paint Shop Pro with 1200 ppi image resolution. Each machine has the following applications:

- Analysis applications: Matlab, Mathematica, MathCad, SPSS
- Course-specific applications: E-views
- Databases: Access
- Graphics packages: PowerPoint, Paint Shop Pro
- Spreadsheets: Excel

- Word processing: Word
- Internet: Internet Explorer, FrontPage for web page development, SSH Secure FTP for Windows, SSH Secure Telnet for Windows
- Programming Languages: Visual C++, Visual Basic

**Social Sciences Statistics Lab (Stat Lab)**

The Stat Lab has 13 desktop computers and one multimedia notebook with an LCD projection plate for classroom use. Installed software includes: SAS, SPSS, P-Stat, RATS, Limdep, Lindo, MacroBytes, MathCAD, MicroCase, Micro-TSP, Warwick DEA, E-Views, Great American History Machine, and Notebuilder.

Data sets available include: CITIBASE (quarterly updates), EconLit on CD-ROM (quarterly), International Financial Statistics (CD-ROM), Penn World Tables, U.S. Dept. of Transportation datasets (several CD-ROMs), Women's Indicator (UN CD-ROM), and World Resources Database.

**CHUC Lab**

Located on the lower level of the Humanities Building, this lab offers Windows computers and laser and dot-matrix printers. The lab is intended primarily for word processing and includes software for writing in foreign languages.

**High-Tech Learning Center**

Located in the Olin Building, the Center is designed for campus-wide group study, tutorials, faculty/student interaction, and classroom breakout areas. The Center includes conference and seminar rooms that can seat up to 15, smaller group study rooms for up to six, and a central open study space. The Center provides access to the Schaffer Library Instructional Technology Center and has full computer and VCR capabilities. There are four Windows computers, two Macintosh computers, network connections for laptops, and a color laser printer.

**Athletic Facilities . . . . . (518) 388-6284**

The Alumni Gymnasium offers an eight-lane swimming pool with seating and a diving area, a multi-use gym, five racquetball and three squash courts, as well as an exercise room, locker rooms, and offices. Alumni Gym has two weight rooms, one with fifteen Cybex machines and the other with first-rate free-weight equipment.

The Memorial Field House contains a one-tenth mile indoor track, two basketball courts, and a multi-station universal gym.

The all-weather, artificial turf field is the main outdoor facility for a very active intramural program.

**Campus Safety . . . . . (518) 388-6911**

The Campus Safety Department is located in the Campus Operations Building on the north side of campus, between

the Science and Engineering Building and the Field House. The Department provides a 24-hour, 7-day-per-week Operations Control Center and preventive patrol. The Control Center monitors fire alarms and receives emergency calls and requests for service (6911). During business hours, the Department handles vehicle registrations, lost and found, and parking tickets.

The Security Office also issues campus IDs which are mandatory for all Graduate College students, faculty, and staff.

Emergency telephones are strategically placed around the campus. "Hotline" phones are activated simply by removing the handset from the cradle. Outdoor emergency phones housed in red telephone boxes can be found at the following locations: 27 North Terrace Lane; the southeast corner of the Arts Building; the East Side of Achilles Rink near Whipple Bridge; the East Side of Bailey Hall; the corner of South College (South Terrace Lane & South Lane); the northeast corner of Davidson; the southwest corner of Humanities; the northeast corner of Social Science; and behind 17 South Lane. "Interior Hotline" and courtesy phones are located in most campus buildings.

A student operated escort service is available between 8:00 p.m. and 1:00 a.m. This service is to provide personal security and is not intended to be a shuttle service. Please contact Campus Safety for further information.

**Becker Career Development Center . . (518) 388-6176**

The Career Development Center, located in Becker Hall, offers a variety of services for matriculated graduate students.

Persons who are interested in exploring career options may request individual appointments with a career counselor and/or use the career information materials in the Career Development Center library. Students may also sign up for group workshops designed to help with the career planning process, resume writing, and interviewing skills. The Center is open Monday through Friday from 8:30 a.m. to 5:00 p.m. and certain evenings. Call the Center for evening hours.

On-campus recruiting sign-ups begin in September for the fall term and in January for the winter term. Interested students should contact the Career Development Center at the beginning of the fall term to get additional information. The dates and times for group workshops and on-campus recruiting are printed in the monthly newsletter published by the Career Development Center. The newsletter is available at the Center.

**Counseling Center . . . . . (518) 388-6161**

The Counseling Center provides services for The Graduate College for those students who experience personal or psychological problems and who voluntarily seek assistance for these problems. Services are offered to deal with every-day concerns such as decision-making difficulties, anxiety, and depression. Communications are kept confidential. The Counseling Center will also assist with psychiatric and other off-campus referrals.

**Union College Bookstore . . . . . (518) 388-6188**

The Union College Bookstore provides Graduate College students tools needed to achieve academic excellence, including computers and computer peripherals, in addition to textbooks and school supplies. The Bookstore also carries a large variety of emblematic products, (i.e., apparel, glassware, decals, etc.), candy and snacks, health and beauty care products, recorded CDs, film and film developing, general reading books, magazines and magazine subscriptions, online shopping, textbook buyback, and much more. The staff is always happy to accommodate any special customer needs. For more information visit the website: [www.Bookstore.union.edu](http://www.Bookstore.union.edu)

**Dining Facilities . . . . . (518) 388-6050**

Dutch Hollow, located in the Reamer Campus Center, features fast food and much more. Beverages, pizza, ice cream, submarine sandwiches, and "broiled to order" items are readily available before and after evening classes from 7:30 a.m. to 12:00 a.m. Specials are served from 11:30 a.m. to 2:00 p.m., and 5:00 to 7:30 p.m., Monday through Friday. Another popular spot is the Rathskellar, opened by students in the 1950s and located in the basement of Old Chapel.

**Health and Accident Insurance . . . . . (518) 388-6642**

Full-time students may purchase a health and accident insurance policy at affordable cost through The Graduate College.

**Health Services . . (518) 388-6120; Fax (518) 388-6147**

Union College Health Services provides the following free professional care for The Graduate College:

- A registered nurse on duty from 7:30 a.m. to 11:00 pm Monday through Friday and 11:00 a.m. to 5:00 p.m. Saturday and Sunday.
- Physician available: 8:00 to 10:00 a.m. Monday, Wednesday, and Friday, and 4:15 to 6:15 p.m. Tuesday and Thursday. No appointment is necessary.
- Women's Health Service at Silliman every Tuesday 9:00 a.m. to 12:00 p.m. provided by a nurse practitioner. Appointments are required.

Union College Health Services provides students who have completed their pre-enrollment health form the following services:

- Medical and nursing care for illness and injuries
- Allergy injections during MD hours
- Laboratory testing (limited)
- Health teaching and counseling
- A list of local physician specialists and health agencies
- Follow-up care as recommended by family MD or specialist
- Vision test for DMV
- TB skin testing
- Emergency Contraception/pregnancy testing
- Loan of medical equipment as needed (limited)
- Women's Health Clinic

All students' health records are confidential.

For further information, visit:  
[www.union.edu/CampusLife/Services/HealthServices](http://www.union.edu/CampusLife/Services/HealthServices)

**Library . . . . . (518) 388-6277**

The newly renovated Schaffer Library houses over 515,000 volumes and 1500+ current periodical subscriptions. It is a government depository library and also has substantial microform collections. Special Collections houses the College archives and collections of rare books and manuscripts. Several online services provide access to additional bibliographic databases and full text sources.

The building, which was completed in the fall of 1998, contains group study rooms, a fully wired classroom, faculty study spaces, and general seating areas. It operates on an open stack plan and offers interlibrary loan, mediated online searches, and document delivery services. Students in good standing are permitted to borrow materials from the library once they are registered with the library. Students may also obtain a direct access card through the circulation department which permits direct borrowing from many libraries in the area.

The library's web page (<http://www.union.edu/PUBLIC/LIBRARY>) describes much more about the library's services, policies and collections.

**School of Education Library**

Accessible 24 hours a day, the School of Education's Curriculum Library (located in the basement of Lamont Graduate Center) is a non-circulating collection of books, magazines, articles, textbooks, and other professional materials that have been purchased and/or donated to the education program. The School of Education has accumulated substantial holdings on current and historical material on topics central to teachers, schools, and teaching in each of the disciplines. National Board Certification Support Groups have used the library as an educator's professional library.

**Multicultural Resource Center**

The Multicultural Resource Center (Reamer Campus Center-308) is open during normal business hours Monday through Friday, and during the evenings for reserved events. The Center offers a space for educational, cultural, and social programming on issues relating to cultural diversity for all members of the Union College and The Graduate College community, including the history and experiences of African-American, Asian-American/South East Asian, East Indian, Hispanic/Latino, Native American, and Gay, Lesbian, and Bisexual peoples.

**Parking . . . . . (518) 388-6178**

Parking on the College campus is restricted. Students who wish to park on campus must purchase a decal and park in designated areas. There is absolutely no parking on any campus roadways as they are fire lanes. Decals, parking regulations, and campus maps may be obtained from the Union College Campus Safety Office.

Cars parked on campus without decals will be ticketed and may be towed at their owner's expense. All roadways are considered fire lanes. A vehicle parked in a fire lane, creating a hazard, blocking access to others, blocking dumpsters or loading zones, or parked in an improper designated lot, will be subject to a fine and towing.

**Religious Programs**

- Silliman Hall-Lower Level
- Rev. Victoria Brooks-McDonald, Protestant Campus Ministry . . . . . (518) 388-6618
  - George Forshey, Catholic Campus Ministry . . . . . (518) 388-6087
  - Margo Strosberg, Jewish Campus Ministry, and Bonnie Cramer, Jewish Program Professional . . (518) 388-6539

The College chaplains offer students venues for community, for worship, for spiritual and ethical exploration, for personal growth, for community service, and for religious holiday observances.

**Catholic Campus Ministry:** Sponsored by the Diocese of Albany, the chaplain supports the Catholic community on campus by coordinating student engagement in liturgy, theological reflection, community service, and social activities. The chaplain is also available for individual consultations with students, faculty, or staff and serves as advisor to the Newman Club.

**Campus Protestant Ministry:** This ministry offers students a variety of programmatic and individual opportunities for spiritual exploration, worship and service to the community. Sponsored by local congregations, the Campus Protestant Minister is available to students, faculty, staff and administration for spiritual counsel and nurture. For more information visit [www.union.edu/cpm](http://www.union.edu/cpm).

GENERAL INFORMATION

## Admissions Information

**Campus Jewish Community:** Sponsored in part by Hillels of Northeastern New York, the Jewish Chaplain and the Jewish Program Professional offer students and faculty opportunities for socialization, for religious observance and growth, for community service, for cultural enrichment, and for personal development. They serve as a link between the campus and the greater Jewish community.

### **Reamer Campus Center . . . . . (518) 388-6118**

The Reamer Campus Center with its multi-story atrium serves as the crossroads for the campus. The atrium is framed by the Auditorium, the Dutch Hollow Restaurant and Upper-class Dining Hall, Chet's Pub, the College Bookstore, the Convenience Store, the student mailroom, and exterior terraces overlooking Jackson's Garden.

The Center also offers meeting facilities, music rehearsal rooms, games, commuter student lockers, and the offices of the Dean of Students, Dining Services, Telecommunications, *Concordiensis* (college newspaper), *The Sentinel* (opinion), *The Garnet* (yearbook), Inner View (video club), and WRUC (Union College radio station).

The Graduate College's Office of Admissions and Registration has a friendly and helpful staff waiting to assist you through the process of applying. We welcome applications from both full- and part-time applicants. The office, which is located in Lamont House, oversees all admissions, registration and graduation processes for the students convenience. Please feel free to contact us at (518) 388-6148 with any questions.

### **General Requirements For Admissions**

Evidence of intellectual achievement, motivation, and aptitude are required for admission to graduate programs. All students must have or be a candidate for an undergraduate degree from an accredited college before applying for graduate admissions status. A grade average of "B" (3.0 cumulative index) or better in undergraduate work is expected for admission. Students who wish to apply for degree status must consult with the Office of Graduate Admissions and Registration and discuss their academic program with the appropriate admission staff or program advisor. Students with advanced degrees or substantial graduate work will also be judged on the record of previous graduate accomplishments. The Admission Committees attempt to meet the desire of the Board of Trustees for broad geographic and socioeconomic distribution in the student body. We also accept students who will broaden the range of backgrounds and lifestyles within the College community.

### **When To Apply**

Applications are filed on a rolling basis throughout the year for Computer Science, Engineering, Master of Science for Teaching, MS Clinical Leadership in Health Management, and the MBA programs. It is recommended that applicants to the Bioethics program file by June 15. MAT student applications must be filed by March 1. Students applying to joint programs with Albany Law School, Albany College of Pharmacy and Union College who wish to start in the fall should be file by April 1. Separate applications are required for the joint programs to both colleges.

Combined degree program applicants with Union College are required to file their applications prior to the end of the tenth term. The MAT applicant may file as early as their eighth term and all other applicants may file during their sophomore year.

### **Application**

Applicants to all programs are required to submit:

1. Application first page
2. Application fee of \$60\*
3. All official college transcripts (Bioethics requires highest degree only)
4. Three letters of recommendation (MAT requires two of the letters be academic)
5. Testing (see testing section below in this section)
6. Immunization record (required to take classes)
7. Essay (see program application for essay instructions)

Interviews are required for the MAT and MST programs and recommended for all other programs. Applicants are notified within four weeks of an admissions decision after a completed application is received.

Once submitted, all application materials become the property of Union College and are not returnable.

The application fee is waived for Union College students and alumni and applicants to the Engineering and Computer Science programs through the Engineering Consortium (BPMI, KAPL, General Electric and Plug Power).

### Additional MAT Applicant Requirements

Applicants to the MAT program must have completed the equivalent of at least 30 semester hours in the liberal arts major area (English, language, mathematics, science, social sciences) in which they seek certification. A minimum grade point average of 3.0 in this discipline is expected. Two of the three letters of recommendation must be academic.

### Testing

The Graduate Management Admissions Test (GMAT) is required for applicants to the MBA programs. Joint applicants from Union College or Siena College for the MBA program may waive the GMAT if their undergraduate grade point average is equal to or higher than a 3.4 cumulative average. For other colleges where we have 4-1 articulation agreements, the GMAT is not required for students with a cumulative GPA of 3.5 or above. Joint applicants from Albany Law School may waive the GMAT if they submit their LSAT and a college transcript with a calculus grade of "B-" or better.

Joint MS in Clinical Leadership with Albany College of Pharmacy applicants must submit the GMAT, MCAT or PCAT for admissions.

The GRE may be requested by the MAT program in specific instances.

The Bioethics admissions committee may also request a standardized test.

All other programs do not require entrance exams. Information and the test applications can be obtained from the Educational Testing Service, Princeton, NJ 08540. Official scores must be sent to the Office of Graduate Admissions and Registration before applicants are considered for admission.

Joint Albany Law School students should request a copy of LSATs be sent from the Law School to The Graduate College.

### Deferment

Students may request a deferment of their admission for one year. The request is required in writing to the Director of Admissions and Registration. Extensions beyond the one year deferment must be submitted in writing to the appropriate admissions committee through the Director of Admissions.

### Course Load Status: Full/Part time

The Computer Science, Masters of Science for Teaching, Electrical Engineering, Mechanical Engineering, MBA, MBA in Health Systems Administration and MS Clinical Leadership in Health Management programs can all be completed either full-time or part-time. The Bioethics program is a part-time on-line program with a short summer on-campus component. The MAT program is a one-year full-time program, which begins in June.

The classification of a **full-time** student is based on a course load of two or more courses per term, with a minimum of six courses during the Fall, Winter, and Spring terms.

Full-time students in the MS programs take three to four academic terms to complete and the MBA programs take two years to complete. Part-time students must complete program requirements within six years from the date of matriculation.

### Non-Matriculated Status

All programs except Bioethics allow non-matriculated students. Part-time students may enroll in graduate courses as non-matriculated students before admission to a graduate program, provided they satisfy the course prerequisites and have a Bachelor's degree with at least a 2.7 undergraduate grade point average. Applicants with undergraduate GPAs below 2.7 may petition the Academic Committee to waive the 2.7 requirement for non-matriculated course work. There is a limit of two non-matriculated courses for the MAT. All other programs have a limit of three. Non-matriculated students are required to consult with a graduate program advisor before registration. All students must submit an application for graduate admission, unofficial college transcripts, and an application fee before registering for their first course. Official transcripts are required for the admissions decision. If applicants will be taking one course per term, they are asked to submit an immunization form within 30 days of registration, completed and signed by a physician. If applicants will be taking more than one course per term, the immunization form must be submitted before the start of classes, as required by New York State law. Before registering for their third course (for MAT program) fourth course (for other programs), an admissions decision on the student's application must be made.

### **Combined Union College and The Graduate College Degree Programs**

Union College undergraduate students with excellent academic record may apply for a combined degree program with the Masters in Computer Science, Masters in Electrical Engineering, Masters in Mechanical Engineering, Masters of Arts in Teaching, Masters in Business Administration, or the MBA in Health Systems Administration programs.

A cumulative average of 3.0 in undergraduate course work is expected. Acceptance into the program enables students to apply up to three graduate college courses for credit (depending on the major) in fulfillment of both undergraduate Union College and The Graduate College graduate degree requirements. MAT students may apply between the beginning of their eighth term and the end of their senior year. All other program applicants are encouraged to apply their sophomore year and must apply for graduate admission no later than the end of the fall term of their senior year at Union College. A petition requesting overlapping degree credit must be approved by both Union College and The Graduate College and filed with both college's registrar's offices.

### **International Students**

All international students requiring an I-20 or IAP-66 form are encouraged to submit their applications by April 1 for fall admission. For other terms they are encouraged to allow a minimum of five months to process all required paperwork. Applicants must also provide proof of financial independence and submit a score from the Test of English as a Foreign Language (TOEFL). The TOEFL is required for all programs unless you have studied in an English-speaking university for a minimum of two years. A telephone interview may also be requested.

### **Transfer Credit/Course Waivers**

With the approval of the program advisor and/or waiver review committee, graduate work completed on a satisfactory level (minimum grade of "B-") at other institutions may be counted toward a Graduate College degree if it contributes to the completion of degree requirements. Credits transfer in, but grades do not. Engineering, Computer Science and MAT programs may allow up to two transfer courses. Bioethics students may transfer up to three qualified courses. MBA and Health MBA students may transfer/waive up to eight courses. Transfer credits must come from courses not used for another degree.

Matriculated students interested in receiving credit for courses taken elsewhere are advised to obtain a permission form at the Office of Graduate Admissions and Registration and acquire the necessary approval prior to registration at another school.

MBA and Health MBA program applicants may waive and/or transfer up to a maximum of eight full courses. Upper level courses will be waived with a replacement. Waiver decisions are made by the Waiver Committee. Bioethics students may waive and/or transfer up to three courses. Matriculated students are notified at time of admission of pre-approved waivers and transfers. Students who want to appeal this decision and request a further review should contact the Director of Admissions and Registrar or their academic advisor. Course outlines and descriptions to complete these reviews may be required.

### **Intent to Enroll/Deposit**

All programs require a response form and a monetary deposit to secure a place in the class. The exact amount of the monetary deposit is listed in their offer of admissions letter. The deposit is applied towards tuition and in some cases mandatory resource fees.

### **Academic Committee**

The Academic Committee is responsible for recommending and applying graduate policy for the admission and academic performance of students. The Committee consists of faculty representatives, a student representative, Deans from the Graduate Schools, Vice President of Administration and Student Services, and President of The Graduate College. The Committee reviews petitions for applicants accepted by The Graduate College's Admissions Committees to degree status that fall below the 2.7 minimum requirement and reviews petitions submitted by students with academic considerations. Students who wish to petition the Committee with regard to grades, graduate status, or other matters must do so in writing to the Vice President for Administration and Student Services.

### **Advisory Services**

Questions regarding admission to graduate programs should be directed to the Office of Graduate Admissions and Registration. Faculty members are available by appointment and during posted office hours each term. All students must consult with an academic advisor before enrolling in courses.

## Registration Information

### IMMUNIZATION

**All students attending New York State colleges and universities, whose birthdates are on or after January 1, 1957, are required to show proof of immunity against measles, mumps, rubella, and tuberculosis.**

Proof of immunization must be submitted to the Health Services Office prior to registration for all full-time students or part-time students taking two or more courses. Part-time students taking fewer than two courses are asked to submit the form within 30 days of registration for their first course. A form is available for this purpose from the Office of Graduate Admissions and Registration or downloadable from the web site. Students may also provide a physician's written statement as proof of immunization but such documentation must provide all required information and be attached to our form. The Health Services Office will either electronically post a health clearance or provide the student with a Health Clearance form indicating compliance with the law. This form must be presented in order to register.

Students participating in programs that require being in contact with patients at a healthcare facility will be required to meet more stringent immunization requirements and have a physical within the last year.

Students whose religious beliefs prohibit immunization, or for whom these immunizations would be detrimental to their health, will be required to submit documentation in support of their request for a waiver. Questions concerning immunization requirements should be directed to the Union College Health Services Office at (518) 388-6120.

### REGISTRATION

#### When To Register

Students may register in person, by mail, or by fax prior to each term. Registration times are listed in the *2003-2004 College Calendar* section of this catalog and on the course listings each term and on the web site. Program advisors are available during the special evening advising held prior to each term and by appointment at other times. Registrations will be accepted through the last day of each registration period. A non-refundable late registration fee of \$50 will be assessed to all registrations received after the last day of the posted registration period and before the first day of class. This is in addition to the required \$100 non-refundable tuition deposit. A non-refundable late registration fee of \$150 will be assessed to all registrations received within seven days after the first class meeting. This is in addition to the required \$100 non-refundable tuition deposit. A non-refundable late registration fee of \$300 will be assessed to all registrations received between seven and fourteen days after the first class meeting. This is in addition to the required \$100 non-refundable tuition deposit.

#### How To Register

1. All registration materials are available from the Office of Graduate Admissions and Registration at The Graduate College. Prospective students may pick up the materials in person Monday through Friday, 8:00 a.m. to 4:30 p.m., or may request that they be mailed to them. Materials are automatically mailed to currently active students prior to the registration period.
2. All non-matriculated students must submit an application, application fee of \$60, and college transcript(s) before registering for courses. Proof of immunization is required prior to the start for two or more courses and within 30 days for one course. Note that non-matriculated students must complete their application and be matriculated before they can take their third MAT course or fourth course in the other programs. Applications for all graduate programs are to be submitted to the Office of Graduate Admissions and Registration. Proof of immunization must be submitted to the Union College Health Services Office, Silliman Hall.
3. Complete the registration form, including securing the appropriate faculty advisor's signature. (Students who have an advisor-approved plan of study on file with the Office of Graduate Admissions and Registration and follow it for the term in which they are registering will not require an advisor's signature.) Return it either in person or by mail to the Office of Admissions and Registration. A Health Clearance form must be presented along with the registration form or prior to your first registration.
4. A non-refundable tuition deposit of \$100 must accompany your registration which will be applied to that term's tuition. You may pay with a check or by MasterCard/Visa. Full payment—either by check or charge card—is due by the first week of classes.
5. All students should check with the Office of Graduate Admissions and Registration prior to registration for additions to or deletions from the course listings or changes in class times or locations.
6. Some courses have enrollment restrictions. It is the student's responsibility to register early to reserve a space in such courses.
7. The College retains the right to cancel a course if the enrollment is insufficient.
8. International students must obtain an international advisor's signature prior to registration. This advisor is the Dean of the Management School for MBA programs and the Director of Graduate Admissions and Registrar for all other programs.

### Enrollment In Union College Courses

Students who wish to enroll in day courses at Union College must consult with the Office of Graduate Admissions and Registration and their academic advisor. Many day program courses have restricted enrollments. In cases where day course enrollment is limited, it is necessary to obtain a permission card from the Union College academic department offering the course during the eighth week of the preceding term. Please consult the Registrar's office of Union College in Silliman Hall at (518) 388-6109 for the exact dates.

### Auditing of Courses

Students may audit courses for one-half the tuition charged for a credit course. Auditors must have appropriate course prerequisites and obtain written permission from the instructor. Laboratory courses and independent studies are not open to auditors. Audit status is indicated by a "Z" on the student's transcript and is not calculated in the student's cumulative average.

Students who wish to change from credit to audit may do so by notifying the Office of Admissions and Registration in writing by the end of the sixth week of classes. No tuition refunds are available for changes from credit to audit.

### Cross-Registration

As a member of the Hudson-Mohawk Association of Colleges and Universities, The Graduate College participates in a cross-registration agreement which enables full-time matriculated graduate students to take courses at other member colleges and receive credit at The Graduate College. At least one-half of a student's term load must be taken at The Graduate College. Registration for each course must be approved by the student's advisor and the host institution. Generally, cross registrations will be approved only for courses not offered at the home institution. Cross-registration forms with detailed instructions are available from the Office of Graduate Admissions and Registration.

### Non-Degree Students

Students who are not planning to work toward a degree must submit the first page of the application, unofficial college transcripts, an immunization form, and \$100 non-refundable tuition deposit. They are required to register during the posted registration periods (may be found in the *2003-2004 College Calendar* section of this catalog) to avoid any penalty.

### Graduating Students

A student who intends to graduate in June must submit a letter of intent to the Office of Graduate Admissions and Registration by December 1 of the preceding year. This obligation rests with the student for assuring that the program presented for graduation fulfills all requirements, both in general and in specialized study. A form is available at the Office of Graduate Admissions and Registration or on the The Graduate College web site.

### Graduation Requirements:

To qualify for a degree from The Graduate College of Union University a student must:

1. Complete degree requirements as outlined by their advisor and program (see *program* section of this catalog and consult with an advisor).
2. Attain a minimum of a 3.0 GPA overall by time of graduation.
3. Have paid all sums due to The Graduate College, and have made satisfactory provision for payment of any other financial obligations assumed while in The Graduate College. All books borrowed from the library must be returned.
4. Submit an intent to graduate form to the Office of Graduate Admissions and Registration by December 1 prior to June graduation. Forms and description of the graduation process can be found on the web site.

The Graduate College of Union University graduates once a year in June. Students who have completed their degree requirements can request a Certificate of Completion by contacting the Office of Graduate Admissions and Registration at (518) 388-6295.

# Costs

## FINANCIAL INFORMATION

### Application Fee . . . . . **\$60 (Non-refundable)**

The application fee is required of all degree-seeking applicants except Union College students/alumni and students employed as part of the Engineering Consortium (BPML, KAPL, and General Electric and Plug Power). There is no application fee for non-degree students.

### Tuition, Fees, and Withdrawal Fees

Full tuition payments are due at the Office of Graduate Admissions and Registration by the end of the first week of classes. Students who pay after the first week of classes will be charged a late payment fee. Tuition for graduate courses is listed below with an accompanying schedule of fees for withdrawal from courses. No refund of tuition will be given more than fourteen days after the first class meeting. The \$100 tuition deposit is non-refundable. The receipt of the registration is your first bill. There will be a courtesy bill the third week of the term and a formal bill the fifth week of the term.

Type of Course	Tuition	Withdrawal Within 7 Days of 1st Class Meeting	Withdrawal Within 8-14 Days of 1st Class Meeting
School of Engineering *	\$2140	no charge	\$200
School of Management	\$1800	no charge	\$200
School of Education	\$1450	no charge	\$200
Bioethics	\$2100	no charge	\$200
Clinical Leadership/ Post Bacc	\$1800	no charge	\$200

To withdraw from a course, a student must notify the Office of Graduate Admissions and Registration in writing and contact the professor. Withdrawals made more than fourteen days after the first class meeting will be charged the entire course fee. Students may withdraw from a course up until the end of the sixth week of classes. Withdrawal after the sixth week will appear as an "F" on the student transcript. Any student who stops attending a course without written notification to the Office of Graduate Admission and Registration will also receive an "F" and be charged the entire course amount. Please note: Students will not be permitted to withdraw if there is an outstanding balance on their bill.

### Books and Supplies

It is estimated that books and supplies will be approximately \$1200 per academic year.

### Room and Board

Students are required to secure their own off-campus housing. The estimated cost of housing is from \$300 to \$500 per month depending on an individual's personal choice. The total average estimated cost is \$4,800. Meals are estimated at \$4,000 per year. This is an estimated total of \$8,800 per year.

### Other Living Expenses

These costs may include, but are not limited to, costs related to the use of a vehicle, travel, and personal living expenditures. The estimated cost is \$3,500 annually.

### Senior Citizens

Persons over 65 are eligible for a tuition waiver for one credit course per year on a space-available basis, and with the permission of the instructor.

## OTHER FEES

### Tuition Deposit . . . . . **\$100 (non-refundable)**

A tuition deposit that is applied towards the student's tuition must accompany all registrations. The deposit must be paid before a registration will be processed. The deposit is non-refundable unless the College must cancel all courses for which a student has registered.

### Registration Late Fee—After registration period and before classes begin . . . . . **\$50 (non-refundable)**

A non-refundable late registration fee of \$50 will be assessed to all registrations received after the last day of the posted registration period (specific dates are listed in the catalog for each term) and before the first day of class. This is in addition to the required \$100 non-refundable tuition deposit.

### Registration Late Fee—Within 7 days of the first class . . . . . **\$150 (non-refundable)**

A non-refundable late registration fee of \$150 will be assessed to all registrations received within seven days after the first class meeting. This is in addition to the required \$100 non-refundable tuition deposit.

### Registration Late Fee—Between 8-14 days of the first class . . . . . **\$300**

A non-refundable late registration fee of \$300 will be assessed to all registrations received between eight and fourteen days after the first class meeting. This is in addition to the required \$100 non-refundable tuition deposit.

**Late Tuition Payment—After the first week of classes . . . . . \$50 (non-refundable)**

**Resource Fee (MBA and Bioethics students only) . . . . . \$150**

After accepting an offer of admission to the MBA and Bioethics programs full-time students are required to pay an annual \$150 resource fee. Part-time students are required to pay this fee once at time of matriculation. This resource fee is used to support student-organized events, speakers, and expenses related to operation of the graduate student computer lab.

**Admission Deposit—Intent to Enroll**

All programs require a response form and a monetary deposit to secure a place in the class. The exact amount of the monetary deposit is listed in their offer of admissions letter. The money is applied towards tuition and if applicable resource fees.

**General Financial Obligations**

Diploma and transcripts will be withheld from a student who has not met all financial obligations to the College. Failure to satisfy all financial obligations will result in the account being sent to an agency for collection; the student will be responsible for all collection and/or legal fees that are assessed.

**Fee For Checks Returned To The College**

First Check . . . . . \$10  
Second Check . . . . . \$15

**Proficiency Examinations . . . . . \$250**

Proficiency examinations for course credit are provided to students with previous experience or study. Applications should be made with the department chair. Registration and fee payment must be made at the Office of Admissions and Registration prior to taking the examination.

**Status Continuation . . . . . \$100**

Graduate students who are degree candidates and are working on their thesis must pay a continuation fee for any term in which they are not formally enrolled in one of the required research and thesis courses. The summer term is not applicable.

**Other Fees**

Master's Thesis . . . . . \$15  
Diploma Fee . . . . . \$30  
Transcripts . . . . . \$3  
Parking Decal . . . . . \$15

**TUITION WAIVER POLICY**

Students with waivers must pay all fees other than course tuition.

**MASTERCARD AND VISA**

Tuition and fees may be charged on MasterCard and/or Visa accounts. The authorization section of the registration form must be completed.

**COMPANY BILLING**

Some companies and government agencies pay their employees' tuition directly to the College. If your tuition will be paid in this manner, please supply authorizing forms or letters from your employer. If your employer intends to pay 100 percent of your tuition at the start of the term, your tuition deposit will be waived.

**COMPANY REIMBURSEMENT**

Some companies and government agencies pay their employees' tuition once grades are received. If your tuition will be paid in this manner, you will be responsible to pay tuition in full the first term you register. For subsequent, consecutive terms, providing the same numbers of classes are taken, you may register with a tuition deposit of \$100 with the balance to be paid when the previous term's reimbursement is received. **Please note:** If payment is not received in our office by the fifth week of the current term, whether reimbursement has been received or not, a late payment fee of \$50 will be assessed.

The Office of Financial Aid and Family Finance of Union College is located in Grant Hall. It is responsible for financial aid services to the students of The Graduate College of Union University. Questions concerning eligibility for state and federal programs should be directed to the Office of Financial Aid and Family Finance of Union College at (518) 388-6123. Students may qualify for one or more of the programs listed below. The Office of Graduate Admissions and Registration has an Admissions and Financial Assistant who will process loan disbursements.

### FEDERAL SUBSIDIZED STAFFORD LOANS

Matriculated graduate students who are United States citizens or permanent residents may borrow up to \$8,500 per year, aggregate maximum of \$65,500 (including undergraduate loans).

Loans carry a variable interest rate capped at 8.25%, which is deferred until six months after completion of studies or a drop in enrollment below half time. Students have up to ten years to repay. Eligibility is determined by completing a Free Application for Federal Student Aid (FAFSA) and a loan application, and submitting federal tax returns and other supporting documentation to the Financial Aid and Family Finance Office of Union College. Allow twelve weeks from start of the application process to receipt of the loan check. Loans are disbursed in at least two payments.

### FEDERAL UNSUBSIDIZED STAFFORD LOANS

Matriculated graduate students are eligible for up to \$10,000 per year up to an aggregate maximum of \$73,000.

**Note:** If the loan originally covers a term in which you do not enroll at least half time, a portion of the amount received must be returned to the bank. Students who withdraw from The Graduate College of Union University must visit the Financial Aid Office for exit information regarding their loan. Upon graduation, this information session is required.

### FEDERAL WORK STUDY

Awarded to qualified students who have submitted their FAFSA information and income tax forms and applied for financial aid.

### FEDERAL PERKINS LOANS

Awarded to qualified students who have supplied their FAFSA information and applied for financial aid.

### SUPPLEMENTAL LOAN PROGRAMS

Available to students attending The Graduate College of Union University on a full- or part-time basis. Loan approval is based on a review of credit worthiness and ability to repay. Loans are funded through private lenders and financial institutions such as Citibank, Sallie Mae, Sallie Mae-MBA, and Fleet Bank. Applications are available at the Financial Aid and Family Finance Office of Union College, located in Grant Hall.

### TUITION ASSISTANCE PROGRAM (TAP)

Full-time matriculated graduate students who are residents of New York may apply for TAP. Eligibility is based on New York State net taxable income. Graduate students may receive up to \$550 per year. FAFSA forms are available at the Offices of Graduate Admissions and Registration and Financial Aid. In order to receive TAP, you must file a FAFSA application.

### VETERANS ADMINISTRATION EDUCATIONAL BENEFITS

Students who are eligible to receive educational benefits under the various chapters administered by the V.A. may obtain more information by contacting the Office of Graduate Admissions and Registration at (518) 388-6295.

Entitlement will vary depending on the education program.

Students claiming veteran's benefits are required to submit written monthly statements attesting to the fact that they are attending class. The following statement must be submitted in person or by mail to the Office of Graduate Admissions and Registration, Attn: Veteran's Benefits:

"The undersigned attests that he/she continued to regularly attend classes for those courses in which he/she is currently enrolled."

Please contact the Graduate Admissions and Registrar's Office for monthly deadline dates.

Any veteran not forwarding this statement will be decertified, resulting in the termination of benefits. Students pay tuition and fees upon registering and subsequently receive benefit checks from the V.A. on a timely basis.

### SCHOLARSHIPS AND FELLOWSHIPS

Below is a listing of available scholarships through The Graduate College of Union University. Students interested in these should contact the specific programs for requirements, updates, and availability. MBA scholarships are awarded starting in late April of each year and continue through August **while funds are available**.

**Athletic Assistant Scholarship for MBA:** Two full-tuition scholarships are offered through the Athletic Director of Union College for up to a period of two years. They are reviewed annually. All fees are still required.

**Graduate Electrical Engineering Scholarship:** A full one-year scholarship is awarded to a qualified undergraduate to earn his/her graduate electrical engineering degree. This also carries a stipend of \$6,300.

**Graduate Mechanical Engineering Scholarship:** A full fifteen-month scholarship awarded to a qualified undergraduate student to earn his/her graduate mechanical engineering degree. This also carries a stipend of \$6,300.

**Graduate Computer Science Scholarship:** A full one-year scholarship awarded to a qualified undergraduate to earn his/her graduate computer science degree. This also carries a stipend of \$6,300.

**MAT Scholarship:** A limited number of program fellowships or fee remission scholarships are available from the program. Other students who qualify based on financial need may receive some assistance in the form of tuition reduction through the graduate program. Application forms for graduate MAT assistantships are available from the School of Education office.

**Computer Lab Assistantship:** A stipend is awarded to a qualified student to supervise the Graduate Computer Lab in Lamont House. In addition, there are two smaller lab assistant positions available, one through the School of Management and one through the School of Education.

**German Federation Exchange Program:** Two full nine-course load scholarships are awarded in conjunction with the German Federation Exchange Program. Each is a two-year scholarship.

## **MERIT BASED AID CRITERIA FOR THE MBA SCHOLARSHIPS:**

### **Full Time Students**

Full-time MBA students are automatically considered for scholarships and need not fill out a separate scholarship form. **As long as funds are available**, scholarships are given based on the following criteria.

A) Students with a grade point average of 3.5 or higher and a GMAT score (or equivalent) of 700 or better, automatically qualify for a merit scholarship of at least 75% of tuition a year based on a ten-course load. Students will be notified of their awards at the time of acceptance. Note that a high GMAT score may compensate for a somewhat lower GPA.

B) Students with a grade point average of 3.5 or higher and a GMAT score (or equivalent) of 600 to 700, automatically qualify for a merit scholarship of at least 50% of tuition per year based on a ten-course load. Students will be notified of their awards at the time of acceptance. Note that a high GMAT score may compensate for a somewhat lower GPA.

C) Students with a grade point average of 3.2 to 3.5 and a GMAT score (or equivalent) of 500 to 600, will be considered for tuition waivers which will be awarded between April and August of each year.

Students in category A or B above must maintain a grade point average of 3.5 in the MBA program to automatically receive a merit scholarship in the second year.

Students in category C above must maintain a minimum grade point average of 3.2 in the MBA program to automatically receive a merit scholarship in the second year.

Accelerated BS/BA/MBA students who wish to qualify for merit scholarships under category A or B above must take the GMAT regardless of their grade point average at Union College. Otherwise, assuming at least a 3.2 GPA, they will be considered for an award under category C above. This scholarship cannot be awarded until the student has completed Union College requirements.

### **Part-time MBA Students**

Students pursuing the MBA on a part-time basis will be considered for merit scholarships based on that portion of their tuition that is not reimbursable by an employer. Tuition waivers will be awarded during April and August. Students interested in being considered for part-time financial aid **must** inform the Director of Graduate Admissions and Registrar at (518) 388-6238 and submit a copy of their employer's tuition benefits policy.

### **International Students**

International students will be considered for merit-based scholarships on an individual basis.

### **Special Scholarships for the MBA programs**

There are a number of other scholarships for MBA students. Candidates who fit the criteria are automatically considered and need not fill out a separate application form.

## Academic Information

### THE GRADUATE COLLEGE STUDENT RETENTION/GRADUATION RATES

#### The Graduate College Student Retention Rates For Full-Time Students Graduating in June 2001 and June 2002

Program	# of New FT Students Entered Program	# Who Left the Program	# Still in Process	# Graduated (Percentage Figure Equates to Cohort Completion Rate)
<b>School of Education</b>				
Class of June 2001 (started fall 2000)	50 (100%)	1 (2%)	0	49 (99%)
Class of June 2002 (started fall 2001)	44 (100%)	5 (12%) *	0	38 (88%)
<b>School of Management—MBA and MBA in Health Systems Management</b>				
Class of June 2001 (started fall 1999)	43 (100%)	4 (9%)	0	39 (91%)
Class of June 2002 (started fall 2000)	37 (100%)	3 (8%)	2 (5%)	32 (87%)
<b>MS Clinical Leadership in Health Management</b>				
Class of June 2001 (started fall 2000)	0	0	0	0
Class of June 2002 (started fall 2001)	1 (100%)	0	0	1 (100%)
<b>MS Engineering/Computer Science**</b>				
Class of June 2001 (started fall 2000)	4 (100%)	0	0	4 (100%)
Class of June 2002 (started fall 2001)	4 (100%)	0	0	4 (100%)

\*Two of these individuals were asked to leave.

\*\*Primarily part-time program.

#### Engineering and Computer Science Student Retention Rates For Part-Time Students Commencing the Program between 1996 and 2000

The School of Engineering program is basically a part-time program and students. In general, students will take from two to four years to graduate.

Program	# of New PT Students Entered Program	# Who Left the Program	# Still in Process	# Graduated (Percentage Figure Equates to Cohort Completion Rate)
<b>Electrical Engineering</b>				
Cohort starting 1996	18 (100%)	1 (6%)	0	17 (94%)
Cohort starting 1997	12 (100%)	1 (8%)	0	11 (92%)
Cohort starting 1998	1 (100%)	0	0	1 (100%)
Cohort starting 1999	11 (100%)	0	0	11 (100%)
Cohort starting 2000	12 (100%)	0	3 (25%)	9 (75%)
<b>Mechanical Engineering</b>				
Cohort starting 1996	11 (100%)	4 (29%)	0	10 (71%)
Cohort starting 1997	17 (100%)	2 (12%)	0	15 (88%)
Cohort starting 1998	12 (100%)	4 (33%)	1 (8%)	7 (58%)
Cohort starting 1999	11 (100%)	2 (18%)	2 (18%)	7 (64%)
Cohort starting 2000	15 (100%)	1 (7%)	8 (53%)	7 (40%)
<b>Computer Science</b>				
Cohort starting 1996	11 (100%)	3 (27%)	0	8 (73%)
Cohort starting 1997	17 (100%)	2 (18%)	0	15 (88%)
Cohort starting 1998	10 (100%)	0	0	10 (100%)
Cohort starting 1999	9 (100%)	0	2 (12%)	7 (78%)
Cohort starting 2000	4 (100%)	0	1 (25%)	3 (75%)

\*Two of these individuals were asked to leave.

## ACADEMIC YEAR AND COURSE LOAD

The Graduate College has adopted the Union College trimester system, approved by the New York State Department of Education in 1966. Under this system, each course equates to 3<sup>1</sup>/<sub>3</sub> semester hours. A full-course load is considered two courses per term or six courses per year.

It is expected that students will spend from 2.5 to 3.0 hours outside of class for each hour spent in class.

## GRADING POLICIES AND PROCEDURES

### Course Numbering System

The Graduate College of Union University uses a course numbering system with two levels. Courses numbered Pre 1-9 are those which are taken as prerequisites for which no credit is given. 100-199 courses can be taken for Union College undergraduate credit or Graduate College credit with additional graduate level work determined by the faculty. Courses numbered 200-399 are Graduate College courses.

Academic credit is computed using a system which counts the number of course units completed. Most courses are for full credit (1 course unit) which is equivalent to 3<sup>1</sup>/<sub>3</sub> semester credit hours or five quarter hours. All courses listed in this catalog are full credit courses unless designated otherwise.

### Grading

Grades are awarded according to the following system:

A	4.0	B+	3.3	C+	2.3
A-	3.7	B	3.0	C	2.0
		B-	2.7	F	0.0

A student who receives a grade of "F" may request approval to repeat the course. Once they have been reinstated by the Academics Committee. Both the "F" and the new grade appear on the transcript and are included in the cumulative index. Please refer to the *Academic Standing* paragraph of this section below.

All grades are mailed to the students and are not released over the phone.

### Incompletes

Incomplete grades should only be assigned in extenuating circumstances. A grade of "incomplete" may be requested before the submission of grades, but only on the grounds of circumstances beyond the control of the student. Both the instructor's signed approval and the signature of the student acknowledging the terms of the incomplete must be submitted to the Office of Graduate Admissions and Registration on a form available from that office. All work must be completed at the end of the following term and a grade turned in to the Office of Graduate Admissions and Registration. The incomplete grade cannot extend beyond

one term. For cases in which it is not possible to complete the work within the deadline because of circumstances beyond the control of the student, a petition for an extension of incomplete may be submitted to the Dean of the graduate school for which the student is a member.

### Withdrawal from a Course

With the advisor's approval, and with proper notice to the Office of Graduate Admissions and Registration, a student may withdraw from a course (with a grade of "W") at any time in the first six weeks of a term. Withdrawals within the first seven days of the first class meeting will receive a full tuition refund, less the \$100 deposit. Withdrawals made from eight to fourteen days of the first class meeting will be charged a \$200 withdrawal fee and the \$100 deposit. Withdrawals after that will be charged the entire course fee. Students may withdraw from a course up to the end of the sixth week of classes.

In accordance with federal immigration regulations, international students (F-1 and J-1 visa holders) must consult their Foreign Student Advisor/Designated School Official, as well as their academic advisor for approval to withdraw from a course.

Dropping a course after the first six weeks will result in a grade of "F", unless the advisor and the Dean of the graduate school of which the student is a member, agree that there are extraordinary personal circumstances that justify altering this procedure. If proper notice of withdrawal from a course is not given to the Office of Graduate Admissions and Registration, a grade of "F" will be posted on the record.

**Please note:** Students will not be permitted to withdraw if there is an outstanding balance on their bill. They will receive an "F" for the course.

### Pass/Fail Grades

The first part of a graduate theses, internships, and projects are graded with a pass/fail grade. A grade of "Pass" will not be calculated in the cumulative index; a grade of "Fail" however, will count as a failing grade. After completion of all parts a final grade is assigned.

### End of Term Grade Changes

Grades are assessments, as fair and objective as possible, of the student's work at the end of the term. Fairness demands that all students be held to the same reasonable deadlines, within the term. All instructors are expected to make fair and careful appraisals of each student's work at the end of the term, and to submit grades to the Office of Graduate Admissions and Registration no later than the due date specified by that office for the final exam period.

## ACADEMIC INFORMATION

Grades, once submitted, come within the protective domain of the College. Grade changes (other than clerical error) can only be made upon petition to and with the approval of the Academic Committee.

Should a member of the faculty wish to change a grade for substantive reasons, it is necessary to make a request to the Academic Committee, which may be sent to the Vice President for Administration and Student Services. The Academic Committee will not accept a request without a full explanation supported with detail. Faculty may not allow a student to submit late or additional work in order to improve his/her grade, unless an official grade of Incomplete has been assigned.

The Academic Committee will grant a grade change appeal by a student only under extraordinary circumstances, namely when it can be demonstrated that the grade was inequitably awarded.

This is limited to one or more of the following:

1. The assignment of a grade on some basis other than performance in the course.
2. The assignment of a grade by applying more exacting and demanding standards than were used for other students in the course.
3. The assignment of a grade involving a gross violation of the professor's own announced grading standards for the course.

A student wishing to appeal a grade in a course should do so no later than the end of the second week of the subsequent term. The student should confer with the faculty member who assigned the grade (if this faculty member is not available, the student should meet directly with the dean of his/her appropriate school. The student should inform the instructor of his/her concerns and seek to understand fully the grounds and procedures the instructor used in determining the grade. The aim of this conference is to try to reach a mutual understanding about the grade and the process by which it was assigned.

If upon meeting with the faculty member as outlined above, the matter is not resolved within two weeks, the student may make a formal written complaint to the dean of his/her school. A copy of this complaint must also be sent to the Vice President for Administration and Student Services.

If the issue is not yet resolved within a second two-week period, the matter may be forwarded to the Vice President for Administration and Student Services, who will consult with the faculty member and/or dean of the student's school. After considering the relevant information, the Vice President for Administration and Student Services may deny the appeal. This decision is final.

If upon review, the Vice President finds sufficient grounds of an inequitable awarding of the grade to warrant an official hearing, the Vice President may consult the Academic Committee. If so, the Academic Committee will consider the student's letter of appeal, and any other relevant materials provided by the Vice President for Administration and Student Services, and make a determination regarding the appeal. The decision of the Academic Committee is final.

In no case will the Academic Committee substitute its judgment on the merits of a student's work for the bona fide judgment of a faculty member.

### Repeat Policy

Students who repeat a course they have previously failed will have both grades listed on the transcript. All credits attempted and total quality points earned will be used in calculating the cumulative grade point average. Students who repeat a course they have previously passed (with a grade of "C" or better) will have both grades listed on the transcript, but neither the quality points associated with the second grade nor the credits attempted or earned will be factored into their GPA.

### Academic Standing

The Graduate College regards a student "in good standing" academically if he/she satisfies two conditions: 1) satisfactory progress toward the degree; and 2) maintenance of a minimum index of grades.

**For full-time students**, satisfactory progress means a sufficient accumulation of course credits toward the degree. In order to achieve the minimum satisfactory academic progress, students must complete six courses in the first-year, twelve by the end of the second, eighteen by the end of the third and all courses by the end of their fourth-year of full-time academic enrollment. Students failing to achieve these academic year standards may be placed on academic warning and forfeit their access to Federal Student Aid Funds until minimum standards are met. These minimum standards are in addition to the minimum index standards described below. The New York State Tuition Assistance Program (TAP) has stricter requirements.

**For part-time students**, satisfactory progress means a sufficient accumulation of course credits toward the degree. In order to achieve the minimum satisfactory academic progress, students must complete their degree within six years of matriculation. Students failing to achieve these academic year standards may be placed on academic warning and forfeit their access to Federal Student Aid Funds until minimum standards are met. These minimum standards are in addition to the minimum index standards described below. The New York State Tuition Assistance Program (TAP) has stricter requirements.

**For both full-time and part-time students,** minimum index means an average grade of approximately "B" (3.0) in all courses. For graduation, the student must present a cumulative index of at least 3.0. Students with cumulative indices below 3.0 will be sent an academic warning letter in writing. If permitted to continue, they must raise their grade average to "B". Failure to do so will lead to placement on academic probation and possible termination of graduate status. A grade of "F" in one course or a grade of "C" or "C+" in two graduate level Engineering, Computer Science, Bioethics, or Educational Studies courses or three MBA courses may indicate that the student is not of graduate caliber. Students receiving a "C" or "C+" will be sent a letter indicating substandard performance. Students receiving a maximum number of "C"s, "C+"s or an "F" will be sent official termination letters. Matriculated students may petition the Academic Committee with regard to reinstatement in writing. A grade of "B-" is considered to be substandard performance for a graduate level course.

A student placed on academic warning or probation due to non-attainment of minimum GPA standards but permitted to remain at the College as an enrolled student shall be considered in "good standing" where questions of eligibility for Federal Student Aid Funds are concerned.

The Academic Committee will review the status of any student whose indices or other considerations suggest questions of satisfactory progress toward graduation. If after such a review, the student's record is deemed unacceptable, the Academic Committee may adopt one of the following actions:

**Academic Warning/Academic Probation:** The student may remain in college, but unless the record improves the student will be subject to subsequent action.

**Suspension:** When, in the judgment of the Academic Committee, a student's record makes it inadvisable to continue in college, he /she may be suspended, normally for no fewer than two terms. The student may then petition the Vice President for Administration and Student Services for readmission in some cases.

**Dismissal:** In certain cases, the Academic Committee may dismiss a student permanently.

Petitions for readmission or for waivers to Graduate College-wide graduation requirements must be submitted in writing to the Academic Committee through the Office of the Vice President for Administration and Student Services.

Likewise, requests to the Academic Committee for reconsideration of its decisions must be submitted in writing through the same office. Reconsideration will occur only when information not previously available to the Academic Committee is submitted and, in the judgment of the Academic Committee, that information could have affected its decision. Such reconsideration in no way implies that the Academic Committee will subsequently reverse its original decision.

Appeals from decisions of the Academic Committee (as opposed to requests for reconsideration) should be directed to the President of The Graduate College. Such appeals will be considered only with respect to procedural issues.

### Transcripts

Official transcripts from The Graduate College of Union University must be requested in writing. They cannot be sent to students, but will be mailed to other educational institutions, employers, prospective employers, etc. This insures the privacy of the student's academic records. Unofficial transcripts, without the college seal, are available for the student's personal records. A fee of \$3.00 must be paid for each transcript.

## Family Education Rights and Privacy Act (FERPA)

The Graduate College complies fully with the provisions of the Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. 1232g. Under FERPA, students have, with certain limited exceptions, the right to inspect and review their education records and to request the amendment of their records to ensure that they are not inaccurate, misleading, or otherwise in violation of the students' privacy or other rights.

Requests to inspect or review education records should be addressed to the Office of Graduate Admissions and Registration, Vice President for Administration and Student Services, or other record custodian and will be honored within 45 days. Any student questioning the accuracy of any records may state his/her objection in writing to the appropriate record custodian, who will notify the student of his or her a decision within 45 days of receiving the objection. If the decision is in agreement with the student's request, the appropriate records will be amended. If the decision is not in agreement with the student's request, the College will notify the student of the decision and advise the student of his/her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing. Students alleging failure to comply with FERPA also have the right to file complaints with the U.S. Department of Education under its regulations (see 34 C.F.R. Part 99). The name and address of the office that administers FERPA are:

Family Policy Compliance Office  
U.S. Department of Education  
600 Independence Avenue SW  
Washington, D.C. 20202-4605

FERPA further requires, again with certain limited exceptions, that the student's consent must be obtained before disclosing any personally identifiable information in the student's education records. One exception, which permits disclosure without consent, is disclosure to school officials with legitimate educational interests, as determined by the administrator responsible for the file. A "school official" includes: anyone employed by the College in an administrative, supervisory, academic or research, or support staff position (including law enforcement, unit personnel and health staff); any person or company acting on behalf of the College (such as an attorney, auditor or collection agent); a member of the Board of Trustees or other governance or advisory body; and a student serving on an official committee (such as a disciplinary or grievance committee) or assisting another school official in performing his/her tasks. Other exceptions which permit disclosure without consent are: to persons or organizations providing student financial aid, to accrediting agencies carrying out their accreditation function, to persons in compliance with a judicial order, and to persons in an emergency in order to protect the health or safety of students or other persons. Another exception permits disclosure without consent to parents and guardians in cases of violation of

institutional policies governing the use or possession of alcohol or a controlled substance if the student is under the age of 21 and if the College determines that there has been a violation with respect to such use or possession.

The College considers the following to be directory information: name, address (campus, home, e-mail), telephone numbers, date and place of birth, academic fields of study, dates of attendance, ID photographs, participation in recognized activities and sports, degrees and awards, weight and height of athletic team members, most previous educational agency or institution attended, or other similar information. The College may publicize or respond to requests for such information at its discretion. However, the use of these records for commercial or political purposes is prohibited unless approved by the Vice President for Administration and Student Services.

All requests made on or before August 15th of this year, will make it possible to be excluded from the College's campus directory. In addition, currently enrolled students may also request that directory information be withheld from disclosure by making a request, in writing, to the Vice President for Administration and Student Services on or before the 5th day of the Fall Term. The College assumes that failure on the part of the student to specifically request the withholding of any directory information indicates approval of disclosure. Request for non-disclosure will be honored by the institution for only one academic year; therefore, authorization to withhold directory information must be filed annually.

## Student Conduct and Academic Honesty

Your first responsibility as a student is academic honesty. The College assumes that students will not resort to plagiarism, theft and mutilation of library books and periodicals, or any other form of academic dishonesty. Any student found guilty of academic dishonesty will be subject to appropriate disciplinary action. Additional information is found in the *Graduate Student Handbook*, which is available at the Office of Graduate Admissions and Registration.

All members of The Graduate College community are bound together by respect for the individual and the collective rights of others. Any student who violates the safety and security of The Graduate College community is subject to disciplinary action by the College as outlined in the Student Code of Conduct (See the *Graduate Student Handbook*). Any member of The Graduate College community or a guest/visitor may file an incident report against a student and upon review by the Vice President a decision will be made whether or not to initiate charges.

Allegations of misconduct against a student enrolled in graduate programs must be submitted in writing to the Vice President for Administration and Student Services. Responsibility for adjudicating violations and imposing disciplinary actions rests with the Vice President according to the procedures stated in the Student Code of Conduct.

The Graduate College of Union University has a central concern for establishing and maintaining a community in which work and learning proceed in a humane and caring atmosphere for all its members. Sexual harassment is a violation of law and will not be tolerated in any form at The Graduate College.

Sexual harassment, according to the definition developed by N.O.W., is any repeated or unwanted verbal or physical sexual advance, sexually explicit derogatory statements, or sexually discriminatory remarks made by someone in the classroom or workplace which is offensive or which causes the recipient discomfort or humiliation or which interferes with the recipient's education or job performance.

Should students feel they have been the victims of any form of the behavior noted above, they may initiate informal discussion or more formal procedures through any of the following administrators: the Vice President for Administration and Student Services or the Director of Affirmative Action. The policy in the *Graduate Student Handbook* regarding sexual harassment outlines appropriate actions students may take. It is distributed to all new students.

The Graduate College of Union University's policy of nondiscrimination on the basis of age, race, religion, disability, sexual orientation or national origin extends to all areas of College operations including, but not limited to, admissions, student aid, athletics, employment and educational programs.

## Programs and Advisors

**Office of Graduate Admissions and Registration**  
(518) 388-6288 FAX: (518) 388-6686

**School of Management**  
(518) 388-6235 FAX: (518) 388-6754

**School of Education**  
(518) 388-6361 FAX: (518) 388-6686

**School of Engineering and Computer Science**  
(518) 388-8068 FAX (518) 388-6754

**Center for Bioethics and Clinical Leadership**  
(518) 388-6085 FAX (518) 388-6086

MS	Telephone	Professor
• Bioethics	(518) 388-8045	R. Baker
• Clinical Leadership in Health Management	(518) 388-8045	R. Baker
• Computer Science	(518) 388-6319	D. Hemmendinger
• Engineering:		
Electrical	(518) 388-6272	E. Hassib
Mechanical	(518) 388-6408	W. Keat
<b>Post-Bacc</b>	(518) 388-6597	S. Lehrman
<b>Educational Studies</b>		
• Master of Arts in Teaching	(518) 388-6361	P. Allen
	(518) 388-6361	B. Hall
	(518) 388-6361	K. Blom
• Master of Science for Teachers	(518) 388-6361	P. Allen
	(518) 388-6361	B. Hall
	(518) 388-6361	K. Blom

MBA		
• Master of Business Administration		
Part-time students	(518) 388-6297	R.A. Bowman
Full-time students	(518) 388-6248	J. Schmee
• Health Systems Administration		
Part-time students	(518) 388-6299	M. Strosberg
Full-time students	(518) 388-6253	J. Lambrinos
• International Students	(518) 388-6447	M. Chudzik

Combined Degree Programs		
• JD/MBA	(518) 388-6302	J. Schmee
• JD/MBA Health	(518) 388-6782	V. Manna
• MS in Clinical Leadership in Health Management and Pharmacy Doctorate	(518) 388-6782	V. Manna
• Accelerated Master of Business Administration	(518) 388-6447	M. Chudzik
• Accelerated Master of Health Systems Administration	(518) 388-6782	V. Manna

## Schools and Programs

### School of Education

Location: ..... Lamont House  
Telephone: ..... (518) 388-6361  
Fax: ..... (518) 388-6686

Dean: ..... Patrick F. Allen  
Associate Deans and Clinical Faculty: ..... Beatrice Hall  
Ken Blom

#### Degrees Offered:

- Master of Arts in Teaching
- Master of Science for Teachers of Mathematics and Science

#### Professional Development Projects with Schools:

- Teacher Leadership/Quality Grant with Schenectady County Schools
- National Board Certification Support Groups
- Establishing Effective Mentoring Programs in Schools

#### Mission Statement

The School of Education certification program was established to promote excellence in teaching and learning. The program develops classroom teachers who practice the art of teaching, an orchestration of personal skills and research-based instructional approaches serving adolescent learners. Building upon each candidate's liberal arts background, which includes education in the arts, sciences, foreign language, social sciences, mathematics, English language arts, and technology, the course of study emphasizes fundamental principles essential for the teaching profession. Graduates have a deep understanding of organizing concepts and methods of knowledge generation in their discipline. They know the developmental levels of their students and use that understanding to create productive, challenging learning environments for adolescents with a wide range of abilities. By actively participating in learning communities with their students and their peers, graduates demonstrate a commitment to lifelong learning. Trained in the principles of educational research, they see the pursuit of knowledge as a foundation for sound decision-making. Recognizing the vital link between theory and practice, Education faculty, students, and programs promote and form ongoing meaningful interpersonal and professional relationships with colleagues in educational institutions serving K-12 students. Motivated by strong ethical values of adults committed to serving youth, School of Education graduates cultivate the dispositions, knowledge, and skills to practice accomplished teaching, modeling professional excellence in their schools, districts, and communities.

### THE MASTER OF ARTS IN TEACHING (MAT)

The MAT degree is designed for individuals who have completed a baccalaureate degree in a liberal arts discipline and who would like to teach subjects such as English, languages, mathematics, science, social studies, or technology in secondary schools. This program provides the pedagogical course work and experience necessary for New York State initial certification, grades 7-12. It also provides the opportunity to extend and deepen knowledge in the subject area of certification and the Master's degree necessary for professional certification.

#### MAT Program Requirements

The MAT program requires at least 16 courses: 10-12 in pedagogy and 3-5 in the subject area for which certification is sought. Prerequisites are: PSY 001 (Educational Psychology); one year of a college level of foreign language or its equivalent; and EDS 200 A, B, C (Field Experiences). Taken together these three written field experiences comprise one course credit. Core requirements are: EDS 240 (Psychology of Teaching), EDS 240L (Psychology of Teaching Lab), one of the EDS 211-216 courses (Curriculum and Methods of Teaching English, foreign language, mathematics, science, social studies or technology), and EDS 250A (Seminar in Special Needs Populations), 250B (Seminar in Assessment) and 250C (Seminar in School Reform), EDS 241 (Literacy for Secondary Teachers), and EDS 244 (Literacy for the Content Classroom). The program requires a year-long teaching internship, Master's research (either a two-term thesis in the discipline, or a classroom-based, one-term project plus course work in the academic discipline). Students who plan to complete the course work and internship over a two- or three-year period may apply at any time in the academic year, but they must apply no later than March 1 of the year in which they intend to enroll in the special summer program.

Union College undergraduates are also eligible for a BA/MAT or BS/MAT combined degree program (see below). Students may begin the combined degree program in their senior year as long as they meet the prerequisites for entering the intensive summer program (see below). They must complete the intensive summer program prior to the beginning of their internship. Students expecting to begin the program in the summer must submit application materials no later than March 1 of their senior year. Interested students must see a program advisor before registering and may register for only two elective courses before matriculation. Students are expected to have completed before the special summer program: 1) an undergraduate educational psychology course or the equivalent competency examination, and 2) three weeks of structured field experiences as defined in School of Educational Program literature. All students must complete one year of a foreign language at the college level, or its equivalent before the college can recommend certification.

### The Teaching Internship

All MAT candidates will complete a half-day, year-long internship in a secondary school, taking full responsibility for at least two classes. Students will be interviewed at the site(s) where they expect to intern. Entrance into the internship portion of the program is contingent upon completion of the Psychology of Teaching and the appropriate Curriculum and Methods course with minimum grades of "B".

### Master's Research and Thesis

The thesis generally comprises two of the three to five courses in the discipline. For students attempting to complete the program in one calendar year, the thesis is generally undertaken in the fall and winter terms. The thesis advisor is normally a faculty member in an academic discipline directly related to the student's area of certification.

### The MAT Project

In lieu of a thesis, students may enroll in EDS 280, which involves carrying out classroom-based research in pedagogy as it relates to an academic discipline. Students who write an MAT Project normally undertake it during the winter term with an Educational Studies faculty member. Opting to complete a project usually means enrolling in one more elective course in the discipline than those who undertake an MAT thesis.

### Computer Literacy

Each student in the MAT program is expected to leave the program with much greater computer literacy than the degree of literacy with which he/she entered. Students are generally expected to select as an elective CST 265, 270, or 271 unless they can demonstrate existing computer competence.

### Elective Course Work

Students in the MAT program are normally required to take at least three courses in their academic discipline selected with the approval of their advisor. If the student chooses to undertake an MAT Project in lieu of an MAT Thesis, then the student must select an additional elective for a total of four courses in the academic discipline and one graduate elective; four of those courses must be related to the area of certification. Courses are offered in the late afternoons and evenings during the academic year. With the approval of an advisor, up to two graduate-level courses may be transferred into the MAT program.

### POST-GRADUATE TEACHING CORE

For some individuals already holding an advanced degree in a discipline related to their prospective teaching area, it may be unnecessary to complete the entire MAT degree program in order to qualify for permanent certification. Selected students will be accepted into the Post-Graduate Degree Teaching CORE. The CORE consists of seven graduate courses

in pedagogy and a year-long internship. A full-time, eight-week summer term is required. Students who complete only the CORE are not normally recommended for certification by the School of Education. Each CORE student must apply for certification on his/her own. That means each CORE student must meet the letter of New York State certification standards as defined by the Office of Teaching Certification.

### BA or BS/MAT Combined Degree Program with Union College

Although all undergraduate students who meet the School of Education's entrance requirements are eligible to become secondary school teachers, a combined degree is open to those Union College undergraduates with exceptional grades. To be eligible for the joint undergraduate/graduate degree program with The Graduate College, a student must be a Union College undergraduate and must normally have a grade point average of at least 3.25. Students must apply to the program no earlier than their 8th term and no later than the end of their 10th term. Students will complete the usual requirements for the baccalaureate degree, including PSY 001 (Educational Psychology) and the structured field experiences (EDS 200 A, B). The summer prior to their last year (in most cases between the senior year and their graduate year), students will complete the graduate eight-week summer term of EDS 240 (Psychology of Teaching), EDS 240L (Psychology of Teaching Lab), the appropriate Curriculum and Methods course, EDS 211-216, and EDS 241 (Essential Reading for Secondary Teachers). In the fall, students will complete a two-week field observation, EDS 201 C. They will take EDS 250A, B, and C concurrently with the year-long teaching internship. In addition to the education courses required for certification, combined degree students must enroll in either a two-term thesis in the discipline or a one-term master's degree project. Students who undertake a thesis must enroll in one additional elective; students who undertake a project must enroll in two additional electives. For undergraduate and graduate work, students in the combined degree program will complete a minimum of 14 courses, allowing them to apply two of their academic courses to both the undergraduate and graduate degrees.

### New York State Certification

Those students requesting New York State Certification through The Graduate College with the endorsement of the School of Education should complete the "blue" certification form and attach a fifty-dollar postal money order. These documents should be sent to the Office of Graduate Admissions and Registration in The Graduate College. Official transcripts should be requested from all colleges/universities attended and sent to the Office of Graduate Admissions and Registration in sealed envelopes. The deadline for receiving this information is July 1 following graduation from the MAT program. Anyone who has not completed this process by that date will be required to seek certification on his/her own.

**Job Placement Statistics**

Among MAT Graduates looking for jobs:

2001 Graduates

Percent placed by time school started in fall 2001—98%

2002 Graduates

Percent placed by time school started in fall 2002—96%

**Outline of MAT Program**

**Prerequisites:** PSY 050 or equivalent, EDS 200 A, B, and C, and one year of a college-level foreign language or its equivalent.

**Summer Session:** An eight-week intensive summer session is required of all students immediately prior to their internship, comprised of EDS 240, EDS 240L, and EDS 211-216 (depending on major), and EDS 241.

**Fall:** EDS 250A, EDS 251, one course in the academic discipline, 1 technology course.

**Winter:** EDS 250B, EDS 252, EDS 244, and one course in the academic discipline

**Spring:** EDS 250C, EDS 253, and one course in the academic discipline

**Typical MAT Full-time Program, One Year**

**Summer:** EDS 211-216, EDS 240, EDS 240L, EDS 241

**Fall:** EDS 250A, EDS 251 (internship), EDS 298 (Thesis) or course in the academic discipline, Course in technology

**Winter:** EDS 244, EDS 250B, EDS 252 (internship), EDS 299 (Thesis) or EDS 280 (MAT Project)

**Spring:** EDS 250C, EDS 253 (internship), Course in the academic discipline

**THE MASTER OF SCIENCE FOR TEACHERS OF MATHEMATICS AND SCIENCE**

This graduate program is designed for individuals who already hold provisional certification with the State of New York and wish to gain the Master's degree necessary for permanent certification. The program offers courses in topics of contemporary importance in the life sciences, physical sciences, mathematics, and computer fields. Courses are designed to provide knowledge in specific subject areas and the means to integrate them into the classroom. The program enables teachers to enhance their subject matter competence, to develop further competence in their present teaching assignments, to move from one subject area or teaching level to another, or to meet additional certification requirements. A different selection of courses is offered each academic year.

The MS degree in science or mathematics is awarded for the completion of eleven courses (36.6 credits). Normally, six courses are taken in one of three general subject areas: Life Sciences (biology, chemistry, geology), Physical Sciences (chemistry, geology, physics), or the Mathematics/Computer field. Students interested in the degree must consult an academic advisor in planning their program of study and should matriculate no later than the end of their second course. One or two graduate level courses from other institutions may be transferred into the program, as determined by a faculty advisor.

**Master's Research and Thesis**

The thesis generally comprises two of the six courses in the discipline area of concentration. The thesis advisor is normally a faculty member in the academic discipline.

**The MS for Teachers of Mathematics and Science Project**

In lieu of a thesis, students may enroll in EDS 280, which involves carrying out classroom-based research in pedagogy as it relates to the discipline of the student's academic concentration. Students who write an MS for Teachers of Mathematics and Science Project normally complete it during the winter term with a School of Education faculty member. Electing to complete a project usually means completing one more required elective in the discipline than those who complete an MS for Teachers thesis.

**Elective Course Work**

MS for Teachers students are normally required to take five elective courses beyond the six courses required in their discipline area, selected with the approval of an advisor. Graduate courses in the subject area of certification and in education-related subjects are offered late afternoons and evenings of the academic year. With the approval of an advisor up to two graduate-level electives may be transferred into the MS for Teachers.

**Computer Literacy**

Students in the MS for Teachers program are expected to leave the program with a much greater degree of computer literacy than that with which they entered. Students who enter with less than basic computer knowledge, must take CST 265. Students who are admitted with a greater level of computer literacy/facility are expected to include as an elective CST 270, 271, 277, 278, or 279 or demonstrate competence in one of these areas.

## School of Engineering and Computer Science

Location ..... Steinmetz Hall  
 Telephone ..... (518) 388-8068  
 Fax ..... (518) 388-6789

Dean of Engineering and  
 Computer Science ..... Robert J. Kozik

### Degrees Offered:

- Master of Science in Computer Science
- Master of Science in Electrical Engineering
- Master of Science in Mechanical Engineering

### Mission

The School of Engineering and Computer Science is dedicated to providing students with the advanced theoretical, practical, and professional knowledge needed to advance in their careers. We believe a balanced approach that includes specializations in a particular discipline, along with exposure to multidisciplinary perspectives best prepares graduates to thrive in a rapidly changing world.

### MASTER OF SCIENCE IN COMPUTER SCIENCE

The Computer Science department offers a Master of Science in Computer Science. Students may take courses in a variety of subjects from both the Computer Science and Electrical and Computer Engineering departments.

**Requirements for the degree:** Nine courses numbered 200 or higher, are required, including CSc 211. Three of the nine courses must come from the Computer Science department and be numbered between 230 and 280. Two of the nine courses must be either a project (CSc 294–295) or a thesis (CSc 296–297). Students who have extensive software experience may petition to take other graduate-level courses instead of the project/thesis requirement. The following courses from the EER department may also be used toward the degree: EER 218, EER 229, EER 230, EER 247, EER 252, EER 254. The nine courses must include a course from each of the core areas:

- Computational theory CSc 212, CSc 242
- Programming languages CSc 213, CSc 231, CSc 250
- Software systems CSc 210, CSc 216, CSc 233, CSc 248
- Hardware systems EER 218, EER 252, EER 254, CSc 237

For those without sufficient background in computer science, the following are additional required courses beyond the minimum nine: CSc Pre1 (for students without experience in discrete mathematics and computer architecture), CSc Pre2 (for students who do not have experience with object-oriented programming), and CSc Pre3 (for students without

a background in data structures). All students entering the Master's program must pass candidacy exams that cover the material in CSc Pre1, CSc Pre2, and CSc Pre3 unless they have passed these or similar courses with grades of a "B" or better.

In addition to the nine courses, all candidates are required to participate in the MS Graduate Seminar in Computer Science (CSc 299). This non-credit seminar serves as the capstone experience of the MS in Computer Science degree. It is normally taken in the last year of the candidate's program.

### MASTER OF SCIENCE IN ELECTRICAL ENGINEERING

The electrical engineering profession involves the design and/or manufacture of electrical products and devices. Typical applications include digital computers, digital and analog control systems, communication systems, electric machinery and power systems, solid-state electronics, and electromagnetics.

A minimum of ten graduate courses and an MS Graduate Project in Electrical Engineering are required. Each student's program should include at least seven electrical engineering courses and three technical electives. Each student should, in conference with the graduate advisor, plan a complete graduate program prior to taking any courses for graduate credit. Students with weak backgrounds may need to take more than ten courses.

Technical electives should normally be chosen from graduate level courses in electrical engineering, computer science, mechanical engineering, and MBA programs. The advisor must approve every course taken for graduate credit. A thesis could be considered as one or two technical electives.

All candidates not completing a thesis or independent study are required to participate in the MS Graduate Project in Electrical Engineering. This is a non-credit, no-fee project that serves as the culminating experience of the MS in Electrical Engineering degree.

### MASTER OF SCIENCE IN MECHANICAL ENGINEERING

The mechanical engineering profession involves the use of the fundamentals of mechanics, materials, thermodynamics, and systems analysis as they apply to the design and/or manufacture of engineering devices and systems. Graduates of this program may be prepared to enter any of the major branches of mechanical engineering, including solid mechanics, thermal fluid science, control instrumentation, energy systems, thermal and nuclear power generation.

The MSME requires a total of ten courses. Three of the courses will form a core in mechanical engineering and must be taken by all students at the start of their program: MER 202 (Engineering Analysis), MER 200 (Elasticity), and MER 201 (Transport Phenomena). Of the remaining seven courses, five must be in the mechanical engineering major at the 200

level. The remaining two courses are selected from engineering (mechanical or electrical), computer science, and mathematics. One of these two courses may be selected from the MBA program. Not all courses from these areas are satisfactory selections; therefore all course selections must be approved by the graduate advisor before course registration. Each student must submit a program plan of study (to be approved by the advisor) before completion of the first course taken for graduate credit.

For students who wish to concentrate in a specific area, the department offers course selections in the thermal-fluids and solid mechanics areas. Students wishing to focus on the thermal-fluids area may choose from among the following courses: MER 232, 234, 235, 236, 237, 238, 240, 250, 252, 254, 260, and 339. Students wishing to focus on the mechanics area may choose from among the following courses: MER 208, 210, 212, 214, 216, 222, 225, 232, 301, 319, and 329.

Full-time degree candidates are required to do Research and Thesis for two courses. Part-time students can complete the degree by taking ten courses and the MS Graduate Project in Mechanical Engineering noted below. They also have the option of replacing one or two courses with independent research conducted in the form of a Master's Project (one course) or a thesis (two courses) with departmental approval. All students, either part-time or full-time, intending to do Research and Thesis must consult the department for appropriate guidance. Part-time students not completing a Master's Project, thesis, or independent study are required to complete an MS Graduate Project in Mechanical Engineering. This is a non-credit, no-fee project that serves as the culminating experience of the MS in Mechanical Engineering degree.

**MS DEGREE REQUIREMENTS IN ENGINEERING AND COMPUTER SCIENCE**

MS Program Required?	MS Thesis	MS Project	Core Program Required?	Remaining Program	Capstone Experience
<b>Computer Science</b> Nine courses required	The student must choose one of the following: 1. Complete a two-course thesis 2. Complete a two-course independent programming project 3. Substitute two courses with faculty approval.		<b>Yes</b> , CSc211 as part of nine courses numbered 200 or higher. CSc Pre1, CSc Pre2, CSc Pre3 are required for students lacking experience in these areas.	The nine courses must include one course from each of these four areas: 1. Computational theory 2. Programming languages 3. Software systems 4. Hardware systems	<b>The MS Graduate Seminar in Computer Science*:</b> A regularly scheduled seminar in which all candidates participate in a discussion of a current topics in Computer Science.
<b>Electrical Engineering</b> Ten courses required	Not required If the student elects to do a thesis, it counts as one or two technical electives.	Not required If the student elects to do an independent study, it counts as one technical elective.	No	Seven EE courses and three technical electives	<b>The MS in Electrical Engineering Culminating Experience:</b> The candidate must choose one of the following: Thesis, independent study, or MS Graduate Project* approved by the faculty advisor.
<b>Mechanical Engineering</b> Ten courses required	Required for full-time students. Not required for part-time students. If the student elects to do a thesis, it counts as two technical electives.	Not required If the student elects to do an independent MS project, it counts as one course.	<b>Yes</b> , three core courses: 1. MER 202, Engineering Analysis 2. MER 200, Elasticity 3. MER 201 Transport Phenomena	Five ME courses at the 200 level plus two technical electives.	<b>The MS in Mechanical Engineering Culminating Experience:</b> The candidate must choose either a thesis or MS Graduate Project* approved by the faculty advisor.

\*MS Graduate Seminar and MS Graduate Project are no-fee, no-credit course listings.

## School of Management

Location . . . . . Lamont House  
 Telephone . . . . . (518) 388-6235  
 Fax . . . . . (518) 388-6754  
 Website . . . . . www.mba.union.edu

Dean . . . . . Mel Chudzik  
 Associate Dean . . . . . Joanne Fitzgerald  
 Chair, MBA . . . . . R. Alan Bowman  
 Chair, MBA Health Systems  
 Administration Program . . . . . Martin A. Strosberg

### Degrees Offered:

- Master of Business Administration (MBA)
- Master of Business Administration—Health Systems Administration (MBA-HSA)

### Mission

To graduate MBAs who bring excellence to their work immediately and who assume leadership roles as they advance in their careers—who think analytically, are technologically current, communicate effectively, work well in teams, have the ability to work in cultures other than their own, and are committed to ethical action. To enrich the learning process by maintaining close personal interaction between students and faculty. To hire and support faculty who are active researchers and dedicated to creating a collegial, student-focused learning environment. To enter into mutually beneficial partnerships with the business community.

### AACSB—International Accreditation

The School of Management's program is accredited by AACSB—International (Association to Advance Collegiate Schools of Business), the world's leading business school accrediting body. The program is unique in being the smallest of all AACSB—International accredited business programs and one of only 28 accredited programs—along with such institutions as Harvard University, Stanford University, and Dartmouth College—that focus solely on graduate degrees. Fewer than 30 percent of all business programs nationwide are accredited.

### Transfer Credit

With the approval of the program advisor and/or waiver review committee, graduate work completed on a satisfactory level (minimum grade of "B-") at other institutions may be counted toward a Graduate College degree if it contributes to the completion of degree requirements. One transfer reduces the total courses required by one. Credits transfer in, but grades do not. MBA students may transfer/waive up to eight courses. Matriculated students are notified at time of admission of pre-approved transfers. Students who want to appeal this decision and request a further review should contact their academic advisors. The request

for further transfers must be submitted in writing and accompanied (at minimum) with a copy of the transcript showing relevant courses. Students are encouraged to attach a catalog description, course syllabi and/or other materials that will aid in the decision. All requests must be submitted by the end of the first term (fall, winter or spring) during which the student takes a course as a matriculated student.

Matriculated students interested in receiving credit for courses taken elsewhere are advised to obtain a permission form at the Office of Graduate Admissions and Registration and acquire the necessary approval prior to registration at another school.

### Course Waivers

MBA and MBA Health students may be granted a course waiver for most core courses based on comparable graduate or undergraduate level courses with a minimum grade of "B-" or better. Generally, two undergraduate courses are required to waive one graduate course. Waiver requests for advanced level courses will require a replacement of that course. MBA program applicants may waive and/or transfer up to a maximum of eight full courses. The decisions are made by the Waiver Committee. Matriculated students are notified at time of admission of pre-approved waivers. Students who want to appeal this decision and request a further review should contact their academic advisors. The request for further waivers must be submitted in writing and accompanied (at minimum) with a copy of the transcript showing relevant courses. Students are encouraged to attach a catalog description, course syllabi and/or other materials that will aid in the decision. All requests must be submitted by the end of the first term (fall, winter or spring) during which the student takes a course as a matriculated student.

### MBA Internships

All full-time MBA students are required to complete a minimum of 400 hours of meaningful employment in a business environment. This also applies to JD/MBA, pharmacy/MBA and the accelerated BA or BS and MBA program students.

The internship is an opportunity for the student to apply theories, concepts and skills learned in the course of the MBA Program. The student will gain an understanding of the administrative elements and day-to-day functioning of an organization while accomplishing assigned tasks. This will strengthen judgment, decisiveness, and team skills. It will also allow the student to assess his/her own potential in the work environment and possible areas needing development to realize a successful career in management.

MBA students register for GMI 283 and Health MBA students register for HSS 283. This is a no cost, no credit course, that appears as pass/fail on students' transcripts. It is required for full-time students to graduate. The internships are coordinated with the MBA Associate Dean.

At the conclusion of the internship an evaluation is required from the employer and the student before the pass/fail grade will be given.

**Requirements for obtaining an MBA after an MS**

Students who received one of the School of Management's previously offered MS degrees may obtain an MBA by taking nine additional courses beyond those taken to satisfy their MS degree requirement, assuming that all MS courses fit within the degree requirements of their desired MBA program. In order to count toward the MBA, an MS course must have been completed within the past five years and the students must have received a grade of at least a "B-".

**Job Placement Statistics for 2001 and 2002**

Among MBA Graduates looking for jobs:

**2001 Graduates**

Percent placed by time of graduation . . . . . 73%  
 Percent placed by two months post graduation . . . . 85%  
 Percent placed by six months post graduation . . . . 94%  
 Percent placed by 12 months graduation . . . . . 100%

**2002 Graduates**

Percent placed by time of graduation . . . . . 62%  
 Percent placed by two months post graduation . . . . 80%  
 Percent placed by six months post graduation . . . . 92%  
 Percent placed by 12 months graduation . . . . . 100%

Among MBA in Health Systems Administration Graduates looking for jobs:

**2001 Graduates**

Percent placed by time of graduation . . . . . 75%  
 Percent placed by two months post graduation . . . . 86%  
 Percent placed by six months post graduation . . . . 95%  
 Percent placed by 12 months graduation . . . . . 100%

**2002 Graduates**

Percent placed by time of graduation . . . . . 62%  
 Percent placed by two months post graduation . . . . 90%  
 Percent placed by six months post graduation . . . . 90%  
 Percent placed by 12 months graduation . . . . . 100%

**THE MBA GENERAL MANAGEMENT PROGRAM**

Chair: R. Alan Bowman . . . . . (518) 388-6297  
 Bowmana@union.edu

**Mission**

The MBA Management program prepares students for analytical, managerial, and executive-level positions in a variety of enterprises. The design and delivery of the curriculum emphasize broad exposure to core business disciplines; the building of analytical, computer, communication, and human management skills; and the development of an ethical, systems-oriented, cross-functional perspective for decision-making.

**MBA Management Coursework**

As shown below, the MBA program includes ten required core courses and ten advanced courses (two required; eight elective). After waivers and transfers, a minimum of twelve courses must be completed in the MBA. For more details, see the waiver policy above. At least one advanced level course is required in each of the seven categories shown. Students must complete at least eight core courses before taking any advanced courses. Students must take all core courses (except GMI 270) within each category before taking an advanced course in that category. GMI 201, 202 and 206 must be taken before any advanced courses are taken. The capstone course (GMI 381) is typically the last course taken. Full-time students take core courses in their first year and advanced courses in their second year. An internship or relevant business experience is required for the degree. An internship is not considered one of the twenty required courses. By taking up to four courses in a given category, students can create their own unique programmatic focus.

**Finance**

MBA Core Courses: GMI 210, 212  
 MBA Advanced Required Courses: GMI 217, 229, 261, 310, 311, 319

**Economics and Environment**

MBA Core Courses: GMI 220, 270  
 MBA Advanced Required Courses: ECO 225, 244, 263, GMI 221

**Marketing and Operations**

MBA Core Courses: GMI 225, 231  
 MBA Advanced Required Courses: GMI 226, 227, 232, 241, 263, 265, 282

**Management Science**

MBA Core Courses: GMI 201/2, 206  
 MBA Advanced Required Courses: GMI 232, 241, 282

**Management**

MBA Core Course: GMI 251  
 MBA Advanced Required Courses: GMI 245, 250, 252, 253, 257, 260, 264

**Global**

MBA Core Course: GMI 200  
 MBA Advanced Required Courses: GMI 260, 261, 262, 265, 310, 311, ECO 244

**Capstone**

MBA Core Courses: None  
 MBA Advanced Required Courses: GMI 381

Students must take either GMI 217 or GMI 261, and GMI 381. Note that several courses can count in more than one category.

**Completing the MBA program in twelve months**

Students who waive at least six courses may be able to complete the MBA program in one year by starting in the summer term. Four courses can be taken during the summer in two terms and twelve courses can be taken in the three

terms during the regular academic year. Students interested in this option must meet with an academic advisor during the previous academic year.

### THE MBA–HEALTH SYSTEMS ADMINISTRATION PROGRAM

Chair: Martin Strosberg . . . . . (518) 388-6299  
Strosbem@union.edu

#### Mission

The primary purpose of the MBA Program in Health Systems Administration is to prepare its graduates for management positions in health service delivery organizations (e.g. hospitals, managed care organizations, group practice, long-term care) and in related organizations (e.g. consulting, government, corporate benefits). A successfully prepared graduate will be able to obtain an entry-level or mid-level position, competently perform the duties of that position, and advance and grow professionally in a career.

The program serves students with diverse educational backgrounds and work experiences fully supporting and encouraging those with limited or no clinical and managerial experience who matriculate on both a part-time and full-time basis. The program provides its education in an environment that fosters a high level of interaction among and between students and faculty, both in and out of the classroom. Faculty and students value this small-class environment.

#### Goals

Program graduates will be able to:

- 1) Understand the organizational setting of health services delivery including the inputs, processes, outcomes and the legal and ethical context.
- 2) Acquire the interpersonal skills necessary for fulfilling managerial roles including leadership, communication, negotiation, and conflict resolution.
- 3) Apply analytical and functional skills to solve a range of business problems facing health delivery and health-related organizations.
- 4) Assist their organizations in effectively responding to changes in the reimbursement and health policy environment.

#### Overview

The MBA in Health Systems Administration prepares graduates for careers as administrators and analysts in health care, governmental, and private sector organizations with strong health care interests. Typical organizations hiring health systems graduates include hospitals, clinics, health maintenance organizations, consulting firms, planning and regulatory agencies, and research firms. The curriculum is designed to help students understand the complexities of the health care system and to manage health and health-related facilities more effectively.

#### ACEHSA Accreditation

The MBA in Health Systems Administration is accredited by the Accrediting Commission on Education for Health Service Administration (ACEHSA) and AACSB–International. The program has been continuously accredited since 1981 and was most recently re-accredited in 2000. The MBA in Health Systems Administration program is one of only 21 programs nationwide dually-accredited by both ACEHSA and AACSB.

#### MBA–Health Systems Administration Coursework

As shown below, the MBA–Health Systems Administration program includes ten required core courses and ten advanced courses (seven required; three elective). Note that at least two electives must be GMI (versus HSS) courses. After waivers and transfers, a minimum of twelve courses must be completed at the School of Management. For more details, see the waiver policy above. Students must complete at least eight of the core courses before taking any advanced course. Students must take all core courses within each category before taking an advanced course in that category. The capstone course (HSS 381) is typically the last course taken.

Full-time students take core courses in their first year and advanced courses in their second year. An internship or relevant business experience is required for the degree. An internship is not considered one of the twenty courses.

#### Required Courses

##### Finance

MBA–HSA Core Courses: GMI 210, 212  
MBA–HSA Advanced Required Courses: HSS 217

##### Economics

MBA–HSA Core Courses: GMI 220  
MBA–HSA Advanced Required Courses: HSS 220

##### Marketing and Operations

MBA–HSA Core Courses: GMI 225, 231  
MBA–HSA Advanced Required Courses: HSS 225

##### Management Science

MBA–HSA Core Courses: GMI 201/2, 206  
MBA–HSA Advanced Required Courses: None

##### Management

MBA–HSA Core Courses: GMI 200, HSS 201  
MBA–HSA Advanced Required Courses: HSS 250, HSS 256, HSS 258

##### Health Environment

MBA–HSA Core Courses: HSS 200  
MBA–HSA Advanced Required Courses: HSS 274, 280

##### Capstone

MBA–HSA Core Courses: None  
MBA–HSA Advanced Required Courses: HSS 381

## Joint Degree and Other Programs

### ACCELERATED BA OR BS AND MBA PROGRAM

Union undergraduate students considering entrance into the accelerated Bachelor's/MBA program should consult with an MBA program advisor and apply for admission during the sophomore, junior, or first term of the senior year. Joint degree students must complete twenty graduate courses, three of which may count toward Bachelor's degree requirements. Graduate courses may not be taken until the junior year and are typically completed during the senior and fifth years.

### FOUR-YEAR JD/MBA PROGRAM

This program is designed to meet the management development needs of students enrolled at Albany Law School. Students spend their first year in law studies, their second year in management studies, and their third and fourth years in law and management studies. Four designated law courses transfer into the MBA degree.

### CERTIFICATE PROGRAMS IN HEALTH SYSTEMS AND FINANCE

These programs—which include six courses—are designed for individuals who already have a graduate degree but would like to expand their expertise in either health care or finance. The curriculum is tailored to the needs of each student.

### ARTICULATION AGREEMENTS

The School of Management has established 4+1 agreements with Elmira College, Siena College, SUNY Brockport, SUNY Geneseo, Hartwick College and SUNY Potsdam to allow their students to complete their MBA degree at The Graduate College in one additional year after graduation from their undergraduate program. See the following pages for specifics.

### Elmira College

Students must complete the Elmira College courses listed below with a grade of "B-" or above to waive up to the eight MBA equivalents to graduate from the MBA program in one additional year. Upon completion of the junior year, students may be granted Early Admission if they have achieved a GPA of 3.4 and a GMAT score of 600 or above. Regular Admission applicants must have a GPA of 3.0 and a GMAT score of 500 or above. Students with a minimum cumulative GPA of 3.5 in their senior year may waive the GMAT. GMAT scores are required however for students wishing to be considered for the top two financial aid scholarship levels.

### Elmira College Courses

### MBA Equivalent Courses

MAT 2010 Calculus I	GMI 201 Mathematics of Management (1/2 course)
MAT 1050 Basic Statistics <i>or</i> MAT 2090 Statistical Methods	GMI 202 Introduction to Probability (1/2 course)
MAT 2050 Inference Statistics <i>or</i> MAT 3040 Mathematical Statistics <i>and</i> MAT 2090 Statistical Methods	GMI 206 Statistical Models for Management
ECO 2010 Principles of Microeconomics <i>and</i> ECO 2020 Principles of Macroeconomics	GMI 220 Principles of Economics
ACC 2010 Principles of Accounting I <i>and</i> ACC 2021 Principles of Accounting II	GMI 210 Financial Accounting
ACC 2010 Principles of Accounting I <i>and</i> ACC 2021 Principles of Accounting II <i>and</i> FIN 4010 Corporation Finance	GMI 210 Financial Accounting <i>and</i> GMI 212 Managerial Accounting & Finance
MGT 2010 Business Law I <i>and</i> MGT 2020 Business Law II	GMI 270 Legal Principles of Business
MGT 2240 Principles of Management and one of the following: MGT 2640 Human Relations, MGT 3121 Business and Organizational Psychology, MGT 3720 Personnel Administration, MGT 4020 Managerial Leadership and Supervision	GMI 251 Managing People & Teams in Organizations
MGT 3410 Operations Planning and Control <i>and</i> MGT 3849 Decision Theory and Methods	GMI 231 Operations Management
MKT 2250 Marketing and any other marketing course	GMI 225 Marketing Management Strategy course

### Siena College

Students must complete the Siena College courses listed below with a grade of B- or above to waive up to the eight MBA equivalents in order to graduate from the MBA program in one additional year. Students with a 3.4 cumulative GPA or better are not required to take the GMAT. Upon completion of the Junior year, students may be granted Early Admissions if they have achieved a GPA of 3.4 and a GMAT score of 600 or above. Regular Admissions applicants must have a GPA of 3.0 and a GMAT score of 500 or above.

Siena Courses	MBA Equivalent Courses
ECON 101 Principles of Economics (Micro) <i>and</i> ECON 102 Principles of Economics (Macro)	GMI 220 Principles of Economics
BLAW 300 Legal Environment of Business <i>and</i> BLAW 310 Commercial Transactions	GMI 270 Legal Principles of Business
ACCT 200 Accounting I <i>and</i> ACCT 205 Accounting II <i>and</i> FINC 301 Managerial Finance I	GMI 210 Financial Accounting <i>and</i> GMI 212 Managerial Accounting & Finance
QBUS 100 Mathematics for Decision Making I <i>and</i> QBUS 110 Mathematics for Decision Making II <i>and</i> QBUS 200 Business Statistics I	GMI 201 Mathematics of Management (1/2 course) <i>and</i> GMI 202 Intro. to Probability (1/2 course)
MKMG 211 Organization & Management <i>and</i> One Advanced Management Course (beyond core)	GMI 251 Managing People & Teams in Organizations
MKMG 212 Marketing <i>and</i> One Advanced Marketing Course (beyond core)	GMI 225 Marketing Management Strategy
FINC 302 Managerial Finance II <i>and</i> FINC 418 Case Problems in Financial Management (waiver only with Replacement Elective Course)	GMI 217 Advanced Corporate Finance
QBUS 310 Management Science <i>and</i> QBUS 300 Operations Management <i>and</i> MKMG 321 Distribution Management	GMI 231 Operations Management

### SUNY Brockport

Students must complete the SUNY Brockport courses listed below with a grade of "B-" or above to waive up to the eight MBA equivalents in order to graduate from the MBA program in one additional year. Upon completion of the junior year, students may be granted early admission if they have achieved a GPA of 3.4 and a GMAT score of 600 or above. Regular admissions applicants must have a GPA of 3.0 and a GMAT score of 500 or above. Students with a minimum cumulative GPA of 3.5 in their senior year may waive the GMAT. GMAT scores are required however for students wishing to be considered for the top two financial aid scholarship levels.

SUNY Brockport Courses	MBA Equivalent Courses
ECN 201 Principles of Microeconomics <i>and</i> ECN 202 Principles of Macroeconomics	GMI 220 Principles of Economics
BUS 375 Business Law I <i>and</i> BUS 376 Business Law II	GMI 270 Legal Principles of Business
ACC 285 Fundamentals of Accounting I <i>and</i> ACC 286 Fundamentals of Accounting II <i>and</i> BUS 325 Principles of Finance	GMI 210 Financial Accounting <i>and</i> GMI 212 Managerial Accounting & Finance
ECN 204 Introduction to Statistics <i>and</i> ECN 304 Intermediate Statistics <i>and</i> ECN 473 Introduction to Econometrics Management	GMI 202 Intro. to Probability (1/2 course) <i>and</i> GMI 206 Statistical Models for Management
MTH 2xx Math Course at/above Calculus	GMI 201 Mathematics of Management (1/2 course)
BUS 365 Principles of Management <i>and</i> BUS xxx One Advanced Management Course	GMI 251 Managing People & Teams in Organizations
BUS 335 Principles of Marketing <i>and</i> BUS xxx One Advanced Marketing Course	GMI 225 Marketing Management & Strategy
BUS 461 Production & Operations Mgmt <i>and</i> BUS 438 Marketing Channels & Logistics <i>and</i> BUS 462 Quality Management Systems	GMI 231 Operations Management

**SUNY Geneseo**

Students must complete the SUNY Geneseo courses listed below with a grade of "B-" or above to waive up to the eight MBA equivalents in order to graduate from the MBA program in one additional year. Upon completion of the junior year, students may be granted early admission if they have achieved a GPA of 3.4 and a GMAT score of 600 or above. Regular admission applicants must have a GPA of 3.0 and a GMAT score of 500 or above. Students with a minimum cumulative GPA of 3.5 in their senior year may waive the GMAT. GMAT scores are required however for students wishing to be considered for the top two financial aid scholarship levels.

<b>SUNY Geneseo Courses</b>	<b>MBA Equivalents</b>
ECON 101 Introduction to Microeconomics <i>and</i> ECON 102 Introduction to Macroeconomics	GMI 220 Principles of Economics
MGMT 263 Business Law I <i>and</i> MGMT 264 Business Law II <i>or</i> MGMT 261 Legal Environment of Economy <i>and</i> MGMT 360 Labor Relations <i>and</i> MGMT 346 Human Resource Management	GMI 270 Legal Principles of Business
ACCT 102 Intro to Financial Accounting <i>and</i> ACCT 103 Intro to Managerial Accounting <i>and</i> MGMT 311 Managerial Finance	GMI 210 Financial Accounting <i>and</i> GMI 212 Managerial Accounting & Finance
MATH 213 Calculus for Social Science <i>and</i> ECON 202 Business & Economic Statistics	GMI 201 Mathematics of Management (1/2 course) <i>and</i> GMI 202 Introduction to Probability (1/2 course)
MKMG 300 Organizational Behavior <i>and</i> MKMG 390 Strategic Management	GMI 251 Managing People & Teams in Organizations
MKMG 311 Marketing <i>and</i> One Advanced Marketing Course (MGMT 333, 334, or 337)	GMI 225 Marketing Management & Strategy
ENGL 205 Business & Professional Writing <i>and</i> COMN 204 Presentational Speaking <i>and</i> PHIL 237 Ethics <i>and</i> MGMT 370 International Business <i>or</i> MGMT 316 International Finance	GMI 200 Managing Ethically in a Global Organizations and Environment

**SUNY Potsdam**

Students must complete the SUNY Potsdam courses listed below with a grade of "B-" or above to waive up to the eight MBA equivalents in order to graduate from the MBA program in one additional year. Upon completion of the junior year, students may be granted early admission if they have achieved a GPA of 3.4 and a GMAT score of 600 or above. Regular admission applicants must have a GPA of 3.0 and a GMAT score of 500 or above. Students with a minimum cumulative GPA of 3.5 in their senior year may waive the GMAT. GMAT scores are required however for students wishing to be considered for the top two financial aid scholarship levels.

<b>SUNY Potsdam Courses</b>	<b>MBA Equivalents</b>
MATH 151 Calculus <i>or</i> ECON 375 Mathematical Economics	GMI 201 Mathematics of Management (1/2 course)
MATH 125 Probability <i>and</i> Statistics I <i>or</i> ECON 300 Statistical Methods in Economics and Business	GMI 202 Introduction to Probability (1/2 course)
Any TWO of the following FOUR: ECON 380 Introduction to Econometrics MATH 126 Probability & Statistics II MATH 461 Probability & Math Statistics I MATH 562 Probability & Math Statistics II	GMI 206 Statistical Models for Management
ECON 105 Principles of Microeconomics <i>or</i> ECON 305 Principles of Microeconomics <i>and</i> ECON 110 Principles of Macroeconomics <i>or</i> ECON 310 Principles of Macroeconomics	GMI 220 Principles of Economics
BUEC 201 Principles of Accounting I <i>and</i> BUEC 202 Principles of Accounting II	GMI 210 Financial Accounting
BUEC 385 Managerial Accounting <i>and</i> ECON 401 Corporate Finance	GMI 212 Managerial Accounting & Finance
BUEC 303 Legal Environment of Business <i>and</i> EMRE 301 Employment Law <i>or</i> EMRE 322 Labor Law	GMI 270 Legal Principles of Business

(continued on next page)

BUEC 350 Principles of Management  
and ONE of the following:  
EMRE 330 Human Resource Management  
BUEC 355 Organizational Behavior  
BUEC 375 Leadership in Organizations  
EMRE 432 Organizational Development

GMI 251 Managing People & Teams in Organizations

BUEC 360 Principles of Marketing *and*  
BUEC 362 Promotions Management *or*  
BUEC 365 Marketing Research

GMI 225 Marketing Management & Strategy

**Hartwick College**

Students must complete the Hartwick College courses listed below with a grade of “B-” or above to waive up to the eight MBA equivalents in order to graduate from the MBA program in one additional year. Upon completion of the junior year, students may be granted early admission if they have achieved a GPA of 3.4 and a GMAT score of 600 or above. Regular admission applicants must have a GPA of 3.0 and a GMAT score of 500 or above. Students with a minimum cumulative GPA of 3.5 in their senior year may waive the GMAT. GMAT scores are required however for students wishing to be considered for the top two financial aid scholarship levels.

Hartwick College Courses	MBA Equivalents
MATH 121 Calculus I	GMI 201 Mathematics of Management (1/2 course)
MATH 108	GMI 202 Introduction to Probability (1/2 course)
MATH 308 and ACCO 348 Statistical Analysis in Operations	GMI 206 Statistical Models for Management
ACCO 141, ACCO 142 Principles of Accounting I, II <i>and</i> FINA 327 Financial Management <i>or</i> MANA 380 Management III	GMI 210 Financial Accounting <i>and</i> GMI 212 Managerial Accounting & Finance
ECON 251-9 <i>and</i> ECON 301 Microeconomic Theory <i>or</i> ECON 302 Macroeconomic Theory	GMI 220 Principles of Economics
MANA 340 Management I <i>and</i> MANA 440 Management V	GMI 225 Marketing Management & Strategy
MANA 341 Management II <i>and</i> ACCO 348	GMI 231 Operations Management

MANA 261 Management and Organization *and* MANA 381 Management IV

GMI 251 Managing People & Teams in Organizations

ACCO 310 and ACCO 311 Business Law I and II

GMI 270 Legal Principles of Business

**Center for Bioethics and Clinical Leadership**

Location . . . . . Humanities Building, Room 020  
Telephone . . . . . (518) 388-8045  
Fax . . . . . (518) 388-8046  
E-mail . . . . . bioethics@union.edu  
Website . . . . . www.bioethics.union.edu

Director . . . . . Robert Baker  
Assistant to the Director . . . . . Ann Nolte  
Technical Support . . . . . Lloyd Tredwell  
Ryan Maloney

**Degrees Offered:**

- Master of Science in Bioethics (Joint Degree with Albany Medical College)
- Master of Science in Clinical Leadership and Health Management
- Pharmacy Doctorate and Master of Science Clinical Leadership in Health Management

**Mission**

The mission of the Center for Bioethics and Clinical Leadership is to coordinate educational and research programs and projects relevant to bioethics that involve collaboration between Albany Medical College, The Graduate College of Union University, and Union College. Among these are Albany Medical College–The Graduate College of Union University–Union College Leadership in Medicine Program (which grants three degrees, BS, MS/MBA, MD, in eight or nine years), the Albany Medical College–Graduate College of Union University MS in Bioethics program, and the Clinical Leadership and Health Management MS program.

**THE MASTER OF SCIENCE IN BIOETHICS**

**Mission**

To provide quality master’s level education for professionals who are unable to participate in conventional graduate programs because of the demands of work or obstacles of distance.

**The MS in Bioethics**

This distance and campus-based MS in Bioethics is offered jointly by the Center for Bioethics and Clinical Leadership, The Graduate College and by the Center for Medical Ethics, Albany Medical College. It provides advanced bioethics and clinical education for doctors, healthcare administrators, lawyers, nurses, pharmacists, philosophers, researchers and

students enrolled in professional and graduate degree programs. The hybrid format of short on-campus summer sessions and distance learning courses has been specially designed to meet the needs of working healthcare professionals. There are twelve required courses in the program: an intensive Summer Seminar in Health and Human Values; four required courses; three practica; a two-course thesis; and two elective courses.

### Course Waiver Policy

Up to three courses or practica may be waived by the admissions committee. To secure a waiver, the student must complete a "Course Waiver" form and submit all applicable transcripts and other relevant documentation. A separate form must be completed for each waiver requested.

### Job Placement Statistics for 2001 and 2002

The bioethics program is new and has not graduated the first class as of this time.

### Course Schedule (listed in recommended order)

MED 246. Proseminar in Health and Human Values  
Summer Session (two weeks in August)

MED 281. Health Care Policy  
Fall, Distance Learning

MED 274. Biomedical Ethics  
Winter, Distance Learning (or Spring, Evenings, Union)

MED 202. Clinical Ethics  
Spring, Distance Learning

MED 301. Practicum I in Clinical Ethics  
Summer Session I, On-site (various venues)

MED 205. Reproductive Ethics  
Summer Session II, Distance Learning (Elective)

MED 284. Bioethics and the Law  
Fall, Distance Learning

MED 206. Research Ethics: Scientific Integrity  
Winter, Distance Learning (Elective)

MED 207. Empirical Research Methods in Bioethics  
Spring, Distance Learning (Elective)

MED 302. On-line Clinical Practicum  
Fall, Distance Learning

MED 391. Masters Project I  
Winter, Distance Learning

MED 392. Masters Project II  
Spring, Distance Learning

MED 399. Capstone Clinical Ethics  
Summer Session I, AMC and Union-on-campus

### THE MASTER OF SCIENCE CLINICAL LEADERSHIP IN HEALTH MANAGEMENT AND FIVE-YEAR PHARMACY DOCTORATE AND MASTER OF SCIENCE CLINICAL LEADERSHIP IN HEALTH MANAGEMENT

The Master of Science Clinical Leadership in Health Management program is a full-time, twelve-month, program. Students start coursework in mid-June. This curriculum focuses on helping future physicians acquire management skills that will differentiate them in the medical school application process and, ultimately help them succeed in the "business" of medicine. To broaden their exposure to science and build on completed undergraduate coursework, students may optionally take up to four advanced science courses offered through Union College and Albany Medical College.

The Pharmacy Doctorate and Master of Science Clinical Leadership in Health Management program is limited to students from Albany College of Pharmacy (ACP). The program is designed to give future pharmacists an understanding of the complex business environment in which they will ultimately practice. The program is typically completed on a part-time basis over three years. Students start coursework in the fall of their third year at ACP.

### Requirements for the MS in Clinical Leadership in Health Management

The MS Clinical Leadership in Health Management degree is designed for future clinicians who wish to better understand the health care industry and the environment in which it exists or who aspire to clinically-related leadership roles. There are twelve required courses in the program. Students in the Pharmacy Doctorate/MS Clinical Leadership in Health Management Program automatically waive three of these courses (MED 253, HSS 256, and STA 201). Additionally, one GMI course (GMI 210) can substitute for an ACP elective. Courses, including optional science courses for future physicians indicated by an asterisk (\*), are listed below:

#### First Summer Term (starts mid-June)

- GMI 210: Financial Accounting
- BIO 46: Intro to the Neurosciences

#### Second Summer Term (starts late-July)

- GMI 212: Financial Analysis and Decision Making

#### Fall Term

- MED 200: Introduction to Health Systems
- MED 271: Clinical Leadership Practicum
- An Approved Statistics Course
- Advanced Science Course\*

#### Winter Term

- MED 201: Health Systems Management
- MED 280: Health Policy and Information Systems
- HSS 256: Group Practice Management
- Advanced Science Course\*

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**Spring Term**

- PHL 287: Biomedical Ethics
- MED 253: Economies of Health
- HSS 217: Health Care Finance
- HSS 274: Legal Aspects of Health Care
- Advanced Science Course\*

**Course Waiver Policy**

Students may waive up to three of the following courses without replacement based on comparable undergraduate or graduate course work (completed within the last five years, with a grade of a "B-" or better): GMI 210, GMI 212, STA 201, MED 253, or MED 200.

To secure a waiver, the student must complete the required course waiver form and submit all applicable transcripts and any other documentation requested by the professor. A separate form must be completed for each waiver requested.

## Courses of Instruction

### Key to Terminology

- Time of course offering:  
D (Day) LA (Late Afternoon) E (Evening)
- \* = Advanced MBA or MBA-HSA Course
- \*\* = Course descriptions appear in Union College's Catalog
- Prerequisite Discussion and Terminology:  
"Pre" = Prerequisite. Student must have finished this course prior to beginning the listed course.  
"Rec" = Recommended. It is recommended (but not required) that this course be completed prior to the course listed.

If "prerequisites" have not been fulfilled, then written permission forms, signed by the instructor or Dean, must accompany the registration form.

MBA students must take 80% of all core courses, including GMI 201/202 and GMI 206, prior to taking any advanced course.

With the exception of GMI 270, MBA students must take all core courses in each subject category prior to taking any advanced course in that category. Health students must take HSS 200 and HSS 201 before taking any advanced course.

Additional prerequisite requirements are listed below.

## The School of Education Courses

### EDS 200A. Field Observations (Middle School)

40 hours, observing classes and meeting with secondary school teachers in the discipline for which they seek certification. Five days are required at the middle school level. Specific observation activities outline the expected outcomes of the experiences as well as information regarding observational techniques and procedures. Typical experiences involve in-depth observation of one teacher and additional observations of other teachers and classes to see a range of grade/ability levels. Observers are asked to consider physical environment, classroom climate, learners and learning styles, the curriculum, and teacher planning/preparation. Students are also encouraged to become familiar with instructional materials and resources.

### EDS 200B. Continuation of EDS 200A. Field Observations (High School)

40 hours, observing classes and meeting with secondary school teachers in the discipline for which they seek certification. Five days are required at the middle school level. Specific observation activities outline the expected outcomes of the experiences as well as information regarding observational techniques and procedures. Typical experiences involve in-depth observation of one teacher and additional

observations of other teachers and classes to see a range of grade/ability levels. Observers are asked to consider physical environment, classroom climate, learners and learning styles, the curriculum, and teacher planning/preparation. Students are also encouraged to become familiar with instructional materials and resources.

### EDS 200C. Continuation of EDS 200A and 200B. Field Observations (Internship School)

40 hours, observing classes and meeting with secondary school teachers in the discipline for which they seek certification. Five days are required at the middle school level. Specific observation activities outline the expected outcomes of the experiences as well as information regarding observational techniques and procedures. Typical experiences involve in-depth observation of one teacher and additional observations of other teachers and classes to see a range of grade/ability levels. Observers are asked to consider physical environment, classroom climate, learners and learning styles, the curriculum, and teacher planning/preparation. Students are also encouraged to become familiar with instructional materials and resources.

### EGL 210. Writing and Teaching: A Process Approach *Winter; C. Reynolds, Wojcik*

This writing workshop includes the discussion and application of current theory in composition. Students will read and discuss critical issues in rhetoric and composition, will apply theory to classroom teaching situations in a variety of disciplines, and will participate in small writing groups to critique their own and classmates' personal writing.

### EDS 211. Curriculum and Methods in Teaching English *Summer; Della Sala*

Curricular planning and instruction for the teaching of English at the secondary school level. The course will include an analysis of secondary language arts curricula including New York State Frameworks for language arts, instructional techniques and strategies, designing and locating instructional materials, planning, implementing, and evaluating lessons and units. Only matriculated MAT students may enroll in this course.

### EDS 212. Curriculum and Methods in Teaching Mathematics *Summer; Kavanaugh*

Curricular planning and instruction for the teaching of mathematics at the secondary school level. The course will include an analysis of classic and current secondary mathematics curricula including New York State Frameworks for mathematics, instructional techniques and strategies, designing and locating instructional materials, planning, implementing, and evaluating lessons and units. Only matriculated MAT students may enroll in this course.

**EDS 213. Curriculum and Methods in Teaching Languages***Summer; Remaley*

Curricular planning and instruction for the teaching of modern and classical languages at the secondary school level. The course will include an analysis of secondary language curricula including New York State Frameworks for languages; instructional techniques; the teaching of speaking, listening, reading, and writing; designing and locating instructional materials; planning, implementing, and evaluating lessons and units. Only matriculated MAT students may enroll in this course.

**EDS 214. Curriculum and Methods in Teaching Sciences***Summer; Bauhofer*

Curricular planning and instruction for the teaching of science at the secondary school level. The course will include an analysis of secondary science curricula including New York State Frameworks for sciences; instructional techniques and strategies for teaching scientific concepts; laboratory methods and safety, designing and locating instructional materials; planning, implementing, and evaluating lessons and units. Only matriculated MAT students may enroll in this course.

**EDS 215. Curriculum and Methods in Teaching Social Sciences***Summer; Reynolds*

Curricular planning and instruction for the teaching of social sciences at the secondary school level. The course will include an analysis of secondary social studies curricula including the New York State Frameworks for social studies; models and techniques for teaching and integrating the various social sciences; designing and locating instructional materials; planning, implementing, and evaluating lessons and units. Only matriculated MAT students may enroll in this course.

**EDS 216. Curriculum and Methods in Teaching Technology***Summer; Venezio*

Designed for those with a technology or engineering background, this course will help prepare technology educators to promote students' learning by the use of multiple instructional models. The course builds teacher skills in lesson planning, content organization, and hard and software evaluation and use. New York State Standards for technology and evolving approaches to integration of technology in the teaching/learning process will also be explored. Only matriculated MAT students may enroll in this course.

**EDS 240. Psychology of Teaching***Summer; Allen, Blom, Hall*

Theories of learning and memory applied to instruction; models and research on teaching in secondary schools. This course will include a laboratory component with micro-teaching experiences and will be taken in the summer preceding the teaching internship. Only matriculated MAT students may enroll in this course. (Co-requisite: EDS 240 Lab)

**EDS 240L. Microteaching Laboratory***Summer; Keeley, Lehnert, Merriman, Minbiole*

Students prepare and present several 5- to 30-minute lessons using a variety of instructional models. Lessons are video-taped and critiqued by peer-coaches and laboratory faculty. This laboratory must be taken concurrently with EDS 240 and a course in Curriculum Methods in Teaching (EDS 211-215). Only matriculated MAT students may enroll in this course.

**EDS 241. Essential Reading Literacy***Summer; Allen, Blom, Hall*

An examination of reading approaches, both aesthetic and efferent; covers text features, vocabulary building, and strategies for meaning-making to support students' reading in the academic discipline content areas. Open to matriculated MAT students only

**EDS 244. Literacy for the Content Classroom***Winter; C. Reynolds, Wojcik*

The theory and instructional approaches which support students' acquisition of content knowledge through writing. Builds upon the reading essentials of EDS 241 to help teachers use writing processes and varied assignments and strategies for specific content learning objectives; writing to learn as well as display writing. Includes instructional planning elements such as types of assignments, writing frequency and pacing, feedback, grading, and reflective analysis of writing products. Open to matriculated MAT students only.

**EDS 250A. Special Needs Seminar: Drug, Alcohol, Child Abuse***Fall; Hobday, Kelley, Kennedy, Maloney*

This seminar is required of all MAT candidates and is to be taken concurrently with their internship. This course explores major aspects of special needs populations in schools including State mandates; laws dealing with the handicapped; gifted and talented students; the instruction required for teachers in drug, alcohol, and child abuse; and projects to increase teachers' competence in working with special needs populations. Only matriculated MAT students engaged in an internship may enroll in this course.

**EDS 250B. Seminar in Instruction and Evaluation***Winter; Allen, Blom, Hall*

This seminar is required of all MAT candidates and is to be taken concurrently with their internship. Topics include: application of instructional theory and research, reflective teaching and self-evaluation, traditional and alternate/performance assessments. Each student will produce a professional portfolio and a teaching video-tape in this course. Only matriculated MAT students may enroll in this course.

**EDS 250C. Seminar in Instruction and Evaluation***Spring; Blom, Hall*

This seminar is required of all MAT candidates and is to be taken concurrently with their internship. Topics include: application of instructional theory and research, reflective teaching and self-evaluation, exposure to major school reform movements/proposals, and the relationship of new teachers to the reform movement. Only matriculated MAT students may enroll in this course.

**EDS 251, 252, 253. Teaching Internship (No Fee)***Fall, Winter, Spring; Allen*

Graduate interns teach a minimum of two courses in a local secondary school under the direction of an experienced school mentor and a college supervisor. Students meet several times a semester on campus in addition to their teaching responsibilities. Only matriculated MAT students may be enrolled in an internship.

**EDS 270. Growing Up in America: Issues of Diversity***Fall, Spring; Hanifan*

Childhood and coming of age will be examined through the works of a diverse group of American writers. The class will read and respond to biographies, autobiographies, fiction, and personal essays that grapple with building, personal, cultural, or social identities. Discussions will include such issues as the role of education for immigrants and disadvantaged populations, racism, affirmative action, bilingual instruction, and cultural diversity.

**EDS 280. MAT/MS For Teachers Project***Winter; Hanifan, Kennedy*

Individual and group projects relating to the classroom teaching of a particular discipline. Typical projects are: systematic applications of an instructional model of a major segment of curriculum in a teaching subject area; classroom action research; addressing curricular or instructional questions/issues within one's teaching subject area.

**EDS 290. Independent Study in Educational Studies****EDS 298. EDS 299. Research and Thesis in the Discipline***Fall, Winter***EDS 300. Status Continuation (\$100)**

Graduate students who are degree candidates and are working on their thesis must pay a continuation fee for any term in which they are not formally enrolled in any other course counting toward the completion of their degree.

**COURSES OF INSTRUCTION IN COMPUTER EDUCATION****CST 265. Introduction to Computers in the Classroom***Fall; Wilkinson*

This core course is required of all students specializing in computers who have not had a similar course in their previous study. It is strongly recommended for all students in any education program who have had little or no exposure and/or knowledge of computers, computer systems, and their basic applications: word processing, data bases, and spread sheets. Emphasis will be placed on what computers do, how they can be used, an understanding of the various parts of the hardware, loading programs, running programs, the primary and secondary storage capabilities and their functions. All students will become familiar with word processing, spreadsheets, databases, and their applications. A basic introduction to e-mail, the Internet, and some of their basic uses in the classroom will also be included along with an elementary explanation of programming through the use of Quick Basic or another introductory programming language.

**CST 270. Computers in the Language Arts Classroom***Fall; Reynolds*

Investigates the potential of microcomputer technology to improve reading, writing, study, communication, and second language skills. During the first five weeks, many tools, techniques, and materials will be presented through demonstrations, readings, lectures, and lab sections. Class members will further explore one or more of these areas and develop an implementation plan during the second portion of the course. Students should have an acquaintance with computers but do not need to be programmers. Some Logo or Carol the Robot is helpful.

**CST 271. Computers in the Math and Science Classroom***Spring; Wilkinson*

Investigates the potential of new technology for improving the teaching of math and science. Special attention is given to the advanced uses of spreadsheet and database software in the secondary curriculum. Course discussions will emphasize the educational applications of computer technology rather than development of software. Advanced use of e-mail, the Internet and World Wide Web will be taught as well.

**CST 278. Programming in C++ for the Classroom***Winter; Staff (Not offered in 2002-2003)*

Since the Fall of 1999 all secondary Advanced Placement courses in computer science use C++ as the programming language. This course serves as an introduction to C++ as a programming language along with some of its classroom applications.

# School of Engineering and Computer Science Courses

## COMPUTER SCIENCE

To ensure that students meet appropriate prerequisites for all courses, all graduate students are required to have a plan of study on file that has been approved by the graduate advisor.

## NON-CREDIT COMPUTER SCIENCE COURSES

### CSc Pre1. Topics in Computer Logic and Mathematics

*Spring; Postow.*

Introductory logic, set theory, and Boolean algebra; number systems, computer organization, and elementary combinational and sequential circuits; data representation, propositional calculus. Prerequisites: Calculus and programming experience. (no-credit)

### CSc Pre2. Structured Programming and Computer Organization

*Fall; Staff*

Object-oriented programming and design; principles of computer organization. Algorithms will be implemented in Java and assembly language. No prerequisites. (no-credit)

### CSc Pre3. Data Structures

*Winter, Spring; Fernandes*

Basic concepts of data organization and abstraction, software design, stacks, queues, trees, and their implementation with linked structures. Sorting and searching techniques. Programming in Java. Students must register for a laboratory section. Prerequisite: CSc Pre2. (no-credit)

### CSc 299. Master of Science Graduate Seminar in Computer Science

*Winter, Spring; Staff*

This required, non-credit Seminar provides a capstone experience for graduate Computer Science candidates. Candidates select a topic for independent research during the Fall term. The candidate submits a final written report and presents his/her research during a 60-minute seminar session the following Winter or Spring term. The seminar presentation schedule is posted in the fall. Seminar sessions are scheduled every two to three weeks throughout the Winter and Spring terms. Each candidate presents his/her research once, but is required to attend all seminar sessions. Every attempt will be made to schedule the seminar sessions to accommodate the candidate's work schedule. The candidate receives a pass/fail grade which appears on the official transcript. This is a no-fee course. This course is normally taken during the final year of the candidate's program. Prerequisite: approval of graduate advisor. (no credit)

## CREDIT-BEARING COMPUTER SCIENCES COURSES

### CSc 210. Operating Systems

*Spring; Cass*

Batch, interactive, real-time, and distributed operating systems; multiprogramming, multiprocessing, multiplexing, multi-tasking; concurrent programming; elementary queuing theory; memory management; resource allocation, sharing and protection. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: CSc Pre1 and CSc Pre3.

### CSc 211. Advanced Programming Techniques

*Fall, Winter; Cass*

Fundamental algorithms used in a variety of applications. Includes algorithms on list processing, string processing, geometric algorithms, and graph algorithms. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: CSc Pre3 and CSc Pre1.

### CSc 212. Theory of Computing

*Fall; Hannay*

A discussion of the fundamental ideas and models underlying computing—properties of formal languages, finite automata, regular expressions, pushdown automata, context-free languages, Turing machines, and undecidability. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: CSc Pre3 and CSc Pre1.

### CSc 213. Programming Languages

*Winter; Hemmendinger*

An introduction to issues in programming language design and implementation. Major programming language paradigms: functional, logic, and object-oriented, and their use. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: CSc Pre3 and CSc Pre1. Recommended: CSc 211.

### CSc 214. Computer Graphics

*Winter; Staff*

Algorithms for handling two-dimensional and three-dimensional objects. Interactive graphics hardware and systems. X windows, engineering workstations. Offered alternate years. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: CSc Pre3 and Math 15 (Calculus III: Differential Vector Calculus and Matrix Theory)\*\* or its equivalent.

**CSc 215. Introduction to Databases***Fall; Fernandes*

Introduction to data models and database design. Coverage of network, hierarchical, and relational architectures with emphasis on the latter. Study of relational algebra, entity-relationship modeling, and data normalization. Study of fourth generation query languages including SQL. Introduction to centralized, distributed, federated, and mediated systems. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: CSc Pre3 (Data Structures).

**CSc 216 Software Engineering***Spring; Almstead*

Strategies for the specification, design, production, testing, and support of computer programs; software development models; programming team structures; documentation and maintenance. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: CSc 211.

**CSc 231. Computer Language Translators***Not offered 2003-2004*

The modules of a compiler and their functions. Lexical processor, syntax analyzer. Symbol table access methods, scanning arithmetic expressions, error recovery, code generation. Offered alternate years. Prerequisite: CSc 212.

**CSc 233. Advance Topics in Software Engineering***Spring; Cass*

Seminar on topics in software engineering covering selected modern approaches to requirements engineering, software design, and verification of software systems. Prerequisites: CSc 216 or permission of instructor.

**CSc 236. Computer Network Protocols****(Cross-listed as EER 236)***Spring; Spinelli*

Design, analysis, and operation of communication protocols for computer networks; the Internet, TCP/IP, addressing, switching, routing, congestion control, application protocols. Prerequisites: EER 18 (Introduction to Digital Computers)\*\* or equivalent programming ability.

**CSc 237. Comparative Computer Architecture***Not offered 2003-2004*

Study of computer architectures, with an emphasis on RISC processors, performance metrics, datapath and control, pipelines, cache design, and parallel instruction execution. Offered alternate years. Prerequisites: CSc 210 and either EER 18 (Introduction to Digital Computers)\*\* or equivalent or CSc Pre1.

**CSc 238. Advanced Topics in Database Systems***Not offered 2003-2004*

Physical data organization and its application to database management. Study of file layouts, indexing, and query optimization techniques. Advanced database topics will be studied including concurrency control, transaction management, data recovery, and security. Offered alternate years. Prerequisite: CSc 215.

**CSc 242. Analysis and Design of Computer Algorithms***Winter; Postow*

The analysis of time and space requirements of algorithms; the design of efficient algorithms using techniques such as divide and conquer, and dynamic programming; efficient algorithms for graph problems, matrix multiplication, fast Fourier transforms, polynomial multiplication, pattern matching; introduction to complexity theory. Offered alternate years. Prerequisite: CSc 211.

**CSc 244. Artificial Intelligence***Winter; Fernandes*

Fundamental concepts used in creating "intelligent" computer systems; semantic representation, logical deduction, natural language processing, and game playing; expert systems, knowledge-based systems, and elementary robotics. Offered alternate years. Prerequisite: CSc 211.

**CSc 248. Concurrent Programming***Not offered 2003-2004*

Survey of synchronization and communication in concurrent programs; introduction to concurrent programming languages and systems such as Java and MPI; computation in distributed and multi-processor systems. Offered alternate years. Prerequisite: CSc 211. Recommended: CSc 210.

**CSc 250. Advanced Programming Language Topics***Fall, Hemmendinger*

Advanced issues in programming languages design; descriptions of syntax and semantics, types, binding time, run-time systems. Projects will include implementations of small programming-language interpreters. Offered alternate years. Prerequisites: CSc 211 and CSc 213.

**CSc 283. Selected Topics in Computer Science***Not offered 2003-04*

Prerequisite: Permission of the instructor.

**CSc 290-293. Independent Study***Fall, Winter, Spring; Staff*

Prerequisite: At least two CSc courses numbered between 230 and 289.

**CSc 294-295. Two-Term Programming Project***Fall, Winter, Spring; Staff*

Prerequisite: At least two CSc courses numbered between 230 and 289.

### **CSc 296-297. Research and Thesis**

*Fall, Winter, Spring; Staff*

Prerequisite: At least two CSc courses numbered between 230 and 289.

## **ELECTRICAL ENGINEERING**

### **NON-CREDIT ELECTRICAL ENGINEERING COURSES**

#### **EER 299. Master of Science Graduate Project in Electrical Engineering**

*Winter, Spring; Staff*

This non-credit seminar project provides a capstone experience for graduate electrical engineering candidates not completing a thesis or independent study (i.e. all course work). The candidate and faculty advisor agree on project scope and evaluation process. The candidate receives a pass/fail grade which appears on the official transcript. This is a no-fee course.

### **CREDIT-BEARING ELECTRICAL ENGINEERING COURSES**

#### **EER 202. Advanced Circuit Analysis**

*Fall,; Fatic*

General network theory, graph topology. Topological methods applied to loop, node, node-pair, mixed variable, and state equations. Linear, nonreciprocal, and active networks. Prerequisite: EER 60 (Discrete Systems)\*\* or equivalent.

#### **EER 210. Semiconductor Device Theory**

*Not offered 2003-2004*

In-depth examination of the physical operation of basic semiconductor devices such as diodes, bipolar transistors, junction and metal-oxide-semiconductor field effect transistors. Determination of internal parameters that contribute to device performance. Prerequisite: EER 110 (Electronic Devices)\*\* or equivalent or permission of the instructor.

#### **EER 212. Application of Integrated Circuits**

*Not offered in 2003-04*

Electronic processing of signals; properties of linear and hybrid integrated circuits; design of linear, nonlinear and hybrid electronic systems, active filter networks. Design projects required. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: EER 63 (Analysis and Design of Electronic Circuits)\*\* , EER 66 (Control Systems)\*\* or equivalents, or permission of instructor.

#### **EER 218. Digital Design**

*Fall, Winter; Traver*

The design of digital hardware systems at the module level using modern approaches. Datapath and control unit design, hardware description languages, minimization, pipeline. Laboratory exercise and a design project are required. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate

students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: EER 18 (Introduction to Digital Computers)\*\* or equivalents.

#### **EER 220. State Space Analysis**

*Winter, Fatic*

Formulations of state equations, Matrices and determinants. Main concepts of linear algebra. Eigenvalues and Eigenvectors. Solutions of state equations by EV-EVR methods. Prerequisites: EER 40 (Circuits and Systems)\*\* , EER 60 (Discrete Systems)\*\* or equivalents.

#### **EER 221. Modern System Theory**

*Spring; Staff*

Continuation of EER 220. Functions of matrices; Cayley-Hamilton's theory. Time-varying systems, controllability and observability. Nonlinear systems and Lyapunov's stability. Prerequisites: EER 66 (Control Systems)\*\* , EER 220\*\* or equivalents.

#### **EER 224. Random Processes**

*Not offered 2003-2004*

Review of discrete probability, random processes. Markov chains and Queuing Theory. Applications to communication systems, and computer networks. Prerequisite: Some probability knowledge desirable.

#### **EER 225. Non-Linear Optimization**

*Not offered 2003-2004*

Extremization of objective functions (cost, performance, etc.) subject to constraints in the form of equalities and inequalities. Method of Lagrangian Multipliers. Kuhn Tucker conditions. Gradient search algorithm. Penalty functions. Direct methods of variational calculus and their application to approximate solutions of problems in electric circuit theory. Economics of electric power networks. Prerequisite: Undergraduate math and linear algebra.

#### **EER 226. Optimal Control Systems**

*Not offered 2003-2004*

Introduction to the theory and applications of optimal control. Development of Bellman's dynamic programming, variational methods and Pontryagin's maximum principle. Applications to the synthesis of optimal regulators and trackers. Solution of control problems with minimum time, energy or fuel consumption. Prerequisites: Background in control theory and better than average mathematical ability. EER 220 helpful, but not necessary.

#### **EER 228. Computer Based Control Systems**

*Not offered 2003-2004*

Sampling and reconstruction of analog signals, sampled data, z-transform, the computer as a control element, state-space representation of digital control systems, quantization effects, controllability; observability, stability. Prerequisite: EER 66 (Control Systems)\* or equivalent.

**EER 229. Neural Networks***Spring; Staff*

Topics include the biological basic of artificial neural networks, neuron models and architectures, backpropagation, associative and competitive learning. Weekly computer laboratories and a final project required. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: Linear Algebra and Differential Equations, CSc Pre3 (Data Structures)\* for CS students.

**EER 230. Fuzzy Logic***Not offered in 2003-04*

Topics include fuzzy sets and relations, membership functions, defuzzification, classical logic and fuzzy logic, fuzzy rule-based systems, nonlinear simulation, decision-making, pattern recognition and control systems. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: Calculus and Linear Algebra, CSc Pre3 (Data Structures) for computer science students.

**EER 231. Electronic Devices***Not offered in 2003-04*

Terminal characteristics and theory of electronic devices; band theory, photo and electronic effects, PN junctions; bipolar and field effect transistors, discrete and integrated electronics. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: EER 48 (Introduction to Semiconductor Devices and Circuits)\*\* or equivalent.

**EER 233. Wireless Communication Circuits***Not offered in 2003-04*

Communication circuits, including coupling networks, electrical noise, high-frequency amplifiers, mixers, phaselock loops, high efficiency and broadband amplifiers, modulators and demodulators, pulse modulation techniques. Three lab hours each week. Design projects required. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: EER 50 (Analog Communications)\*\*, EE 63 (Analysis and Design of Electronic Circuits)\*\*, or equivalents, or permission of the instructor.

**EER 236. Computer Network Protocols  
(Cross-listed as CSc 236)***Spring; Spinelli*

Design, analysis, and operation of communication protocols for computer networks; the Internet, TCP/IP, addressing, switching, routing, congestion control, application protocols. Prerequisites: EER 18 (Introduction to Digital Computers)\*\*, or equivalent programming ability.

**EER 237. Comparative Computer Architecture***Not offered 2003-04*

Study of computer architectures, with an emphasis on RISC processors, performance metrics, datapath and control, pipelines, cache design, and parallel instruction execution. Offered alternate years. Prerequisites: CSc 135 (Operating Systems)\*\* and either EER 18 (Introduction to Digital Computers)\*\* or CSc Pre1 (Topics in Computer Logic and Mathematics) or equivalents.

**EER 241. Energy Conversion***Fall, Fatic*

Theory of electromechanical energy conversion; characteristics of transformers and DC induction, and synchronous machines. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: ESc 25 (Electric Circuits)\*\* or equivalent.

**EER 242. Power Electronics***Not offered in 2003-04*

Rectifying devices and rectifier circuits: device characteristics, waveforms, harmonic content filtering. Controlled rectifiers (thyristors, triacs): device characteristics, single-phase and multiphase systems. Snubber circuits and device limitations. DC-DC converters: design, application, topologies. Energy storage element selection and design: capacitors and inductors. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: EER 40 (Circuits and Systems)\*\*, EER 48 (Introduction to Semiconductor Devices and Circuits)\*\* or equivalents.

**EER 243. Introduction to Antenna Theory***Spring; Chang*

Propagation of electromagnetic waves, antenna parameters, arrays, wire antennas, aperture antennas, receiving antennas. Prerequisites: EER 143 (Introduction to Electromagnetic Engineering I)\*\* or equivalent.

**EER 244. Digital Communications***Not offered 2003-2004*

Elements of a digital communication system, digital source coding, error correction, introduction to information theory, channel models, signaling waveforms, optimum reception and detection. Prerequisites: EER 50 (Analog Communications)\*\* , EER 51 (Probability and Digital Communications)\*\* or equivalents.

**EER 246. Digital Signal Processing***Not offered 2003-2004*

Discrete sequences, sampling, z-transform, discrete and fast-Fourier transforms, discrete filter realizations, filter design based on analog, Butterworth, Chebyshev, Elliptic low pass filters, windowing and quantization effects. Prerequisite: EER 60 (Discrete Systems)\*\* or equivalent.

**EER 247. Data Communications and Networks***Fall; Spinelli*

An introduction to protocols, communication hardware, networks, error detection and handling, and software. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: EER 18 (Introduction to Digital Computers)\* or CSc Pre1 (Topics in Computer Logic and Mathematics), or equivalents. A knowledge of statistics is helpful.

**EER 248. Digital Circuits***Summer 03, Winter; Hassib*

Special circuitry of digital systems; transistors as switches, logic gate types (RTL, DTL, TPL, ECL, MOS, CMOS, etc.), digital ICs semiconductor memories. Design projects required. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: EER 18 (Introduction to Digital Computers)\*\* , EER 48 (Introduction to Semiconductor Devices and Circuits)\*\* , or equivalents, or permission of the instructor.

**EER 250. Opto Electronics***Spring; Catravas*

Wave propagation in a homogeneous medium, guidance conditions and mode determination of dielectric waveguides, radiation modes, prism coupling, evanescent field coupling, integrated optic guides, graded index materials, mode coupling, loss and attenuation mechanisms. Prerequisite: EER 163 (Fundamentals of Wireless Electronics)\*\* or equivalent.

**EER 252. Microprocessors and Microcomputers: Architecture, Programming, and Applications***Spring; Staff*

Hardware and architecture with emphasis on Motorola 68HC11; programming in assembly and higher-level languages, microcomputer applications, and interfacing. Design projects required. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: Knowledge of computer programming and EER 18 (Introduction to Digital Computers)\*\* or equivalent.

**EER 254. VLSI System Design***Fall; Traver*

Design of very large scale integrated systems including structured design, stick diagrams, delay time estimation. Design from logic to physical levels; CAD tools for layout and simulation. Design projects required. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: EER 18 (Introduction to Digital Computers)\*\* and EER 48 (Introduction to Semi-conductor Devices and Circuits)\*\* or equivalents.

**EER 256. Detection, Estimation and Filtering***Not offered 2003-2004*

Decision criteria, estimation of their parameters, Wiener and Kalman filters. Prerequisites: EER 50 (Analog Communications)\*\* and some knowledge of probability or EER 51 (Probability and Digital Communications)\*\* or equivalents.

**EER 260. Power System Analysis I***Not offered 2003-04*

Power and energy in AC circuits. Single-phase, three-phase and polyphase circuits in balanced and unbalanced regimes. Measurement of three-phase power. Determination of three-phase sequence. Single-line diagrams. Per-unit method of representation and computations. Transformers and synchronous machines in power systems. Parameters of transmission lines. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: ESc 25 (Electric Circuits)\*\* or equivalent.

**EER 261. Power System Analysis II***Not offered 2003-04*

Wave-propagation in transmission lines. Analysis of power networks, load-flow solutions and control. Three-phase faults and symmetrical components. Power system protection. Stability of power systems. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: ESc 25 (Electric Circuits)\*\* or equivalent.

\*This course is listed in the Union College Undergraduate Catalog

**EER 263. Fundamentals of Wireless Electronics***Fall; Chang*

Sinusoidal waves, transmission line theory, two-port networks, scattering matrix, matchip networks, signal flow graphs, power gain, stability, microwave transfer circuit design. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisite: EER 48 (Introduction to Semiconductor Devices and Circuits)\*\* or equivalent.

**EER 281, 282, 283. Special Topics in Electrical Engineering.**

Topics chosen from the current literature according to faculty and student interest. Possible topics include new developments in the major areas of electrical engineering such as electromagnetic fields, communications, controls, circuits, power, devices, electronics, and computer design. Topics may include but not be limited to image processing, machine vision, speech synthesis, integrated optics, antenna systems, adaptive filtering, variational methods, stochastic processes, optical communications, space and satellite communications, superconducting alternators, numerical methods, fault tolerant design, and computer networks. Each of these special topics courses has a variable content addressing specific current areas of interest to students. They will be offered whenever the need arises.

**EER 290. Independent Study****EER 296-297. Research and Thesis***Fall, Winter, Spring***EER 300. Status Continuation****MECHANICAL ENGINEERING****NON-CREDIT MECHANICAL ENGINEERING COURSES****MER 299. Master of Science Graduate Project in Mechanical Engineering***Winter, Spring; Staff*

This non-credit Seminar project provides a capstone experience for graduate mechanical engineering candidates not completing a thesis or independent study (i.e. all course work). The candidate and faculty advisor agree on project scope and evaluation process. The candidate receives a pass/fail grade which appears on the official transcript. This is a no-fee course.

**CREDIT-BEARING MECHANICAL ENGINEERING COURSES****MER 200. Elasticity***Winter; Staff*

The behavior of substances which possess the property of recovering their size and shape when forces producing deformation are removed. Review of stress and strain; study of two-dimensional problems in rectangular, polar, and curvilinear coordinates; introduction to three-dimensional problems; torsion and bending. Prerequisites: Math 17 (Calculus IV: Integral Vector Calculus)\*\*, Math 19 (Topics in Analysis)\*\*, Math 31 (Linear Algebra and Differential Equations)\*\*, MER 43 (Advanced Mechanics)\*\* or equivalents.

**MER 201. Transport Phenomena***Spring; Staff*

The fundamentals of momentum, energy, and mass transfer and their analogous transport mechanisms. One-dimensional transport, transport properties, transport with internal generation, transfer coefficients, convective and turbulent transport. Prerequisites: Math 31 (Linear Algebra and Differential Equations)\*\*, MER 50 (Heat Transfer Analysis and Design)\*\*, or equivalents.

**MER 202. Engineering Analysis***Fall; Staff*

Topics in applied mathematics needed to analyze and model engineering problems by constructing mathematical models for a physical situation and the reduction of the ensuing mathematical problems to numerical procedures. Matrices, linear algebra, vector and tensor calculus, partial differential equations, calculus of variations, finite element and difference techniques, Fourier series and integrals. Prerequisites: Math 17 (Calculus IV: Integral Vector Calculus)\*\*, Math 19 (Topics in Analysis)\*\*, Math 31 (Linear Algebra and Differential Equations)\*\*, or equivalents.

**MER 206. Mechanical Behavior of Materials***Not offered 2003-04*

Strain relationships in elastic and plastic behavior. Metallurgical fundamentals of plastic deformation. Dislocation theory. Materials testing. Creep and metal fatigue. Prerequisites: MER 200, MER 202 or equivalents.

**MER 207. Design for Manufacturing***Not offered 2003-04*

Relationships among mechanical design considerations, material properties and selection, and manufacturing techniques are developed to enhance manufacturing productivity and quality. Prerequisites: MER 45 (Dynamics and Kinematics)\*\*, MER 202 or equivalent.

**MER 208. Fracture Mechanics***Not offered 2003-04*

Modern theory of fracture in design. Subjects treated include occurrence of fracture, fracture toughness, fracture resistance, and fatigue. Offered alternate years. Prerequisites: MER 200, MER 202 or equivalent.

**MER 209. Current Approach to Fatigue in Design**

*Not offered 2003-04*

Current approach to the mechanisms of fatigue nucleation, crack growth, and fracture; high and low cycle fatigue; temperature effects; predictive equations for design in pressure vessels. Prerequisites: MER 200, MER 202 or equivalent.

**MER 210. Advanced Dynamics**

*Not offered 2003-04*

Analytical dynamics with engineering applications to particles and rigid bodies. Topics include three-dimensional kinematics and dynamics, Lagrangian dynamics and an introduction to robotics. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Offered alternate years. Prerequisites: MER 43 (Advanced Mechanics)\*\* , Esc 20 (Rigid Body Mechanics)\*\* or equivalent.

**MER 212. Vibrations of Discrete Systems**

*Fall; Staff*

Response of single and multi-degree-of-freedom systems to harmonic, periodic and impulsive excitation. Fourier series and transforms; ideal impulse and impulse response; convolution in the time and frequency domains; matrix and modal methods; system eigenvalues and vectors; impulse testing with a spectrum analyzer. Prerequisites: MER 45 (Dynamics and Kinematics)\*\* , MER 202 or equivalent.

**MER 215. Processing and Selection of Engineering Materials**

*Not offered 2003-04*

A comprehensive examination of processing technologies for engineering materials, and the effects of selected processing routes and materials to meet and satisfy design and applications criteria. Offered alternate years. Prerequisites: Esc 22 (Mechanics II: Materials Science)\*\* or equivalent.

**MER 216. Finite Element Methods in Engineering**

*Spring; Staff*

Introduction to the use of finite element methods in various engineering applications. Prerequisites: ME 200, ME 202, or equivalent.

**MER 225. Engineering Optimization**

*Not offered 2003-04*

Introduction to development and application of mathematical and numerical methods used to analyze engineering problems including mathematical model building, unconstrained optimization, linear programming, constrained optimization, transformation and linear programming. Prerequisites: ME 202 or equivalent.

**MER 232. Composites**

*Winter; Staff*

A comprehensive introduction to composite materials and motivation for their use in modern applications. Topics include selection and availability of composite materials, manufacturing processes, useable theoretical concepts, testing and characterization of composites, and strength theories. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: Esc 22 (Materials Science)\*\* , ESC 23 (Strength of Materials)\*\* , or equivalent.

**MER 234. Dynamics of a Viscous Fluid**

*Fall; Staff*

Analysis of Laminar and turbulent flow fields. Approximate solutions of the Navier-Stokes equations according to boundary layer theory. Prerequisites: ME 33 (Fluid Mechanics)\*\* , Math 19 (Topics in Analysis)\*\* , or equivalent.

**MER 236. Compressible Fluid Flow**

*Not offered 2003-04*

Analysis of internal and external compressible flow fields. Supersonic airfoil analysis according to shock-expansion theory. Prerequisites: ME 201, ME 202, or equivalent.

**MER 237 Combustion Fundamentals**

*Spring; Staff*

The study of the chemical and physical processes in combustion. Analysis of thermochemistry and fuel oxidation, premixed and diffusion flame phenomena, combustion of condensed phases, detonation, combustion in practical systems, and combustion generated air pollution. This course is cross-listed in the Union College catalog as a 100-level undergraduate course. GCUU graduate students will be expected to complete additional course work beyond the undergraduates in this class. Prerequisites: MER 201, MER 202, or equivalent.

**MER 238. Fluid Dynamics of Turbomachinery**

*Not offered 2003-04*

Analysis of the energy exchange between a continuously-flowing fluid and a turbomachinery rotor. Study of the design and operating principles of axial and radial-flow turbines, compressors, and pumps. Prerequisites: MER 201, MER 202, or equivalent.

**MER 240. Thermodynamic Analysis**

*Not offered 2003-04*

Consideration of various particulate and continuum bases for structuring thermodynamic principles and their application to the solution of current and prospective engineering problems. Prerequisites: ME 201, MER 202, or equivalent.

**MER 250. Conduction Heat Transfer***Not offered 2003-04*

Study of the equations for steady state and transient heat conduction using analytical and numerical techniques. Prerequisites: ME 201, MER 202, or equivalent.

**MER 252. Convection Heat Transfer***Offered summer 03*

Analysis of laminar and turbulent heat transfer processes. Approximate solutions of the energy equation according to boundary layer theory. Prerequisites: ME 201, MER 202, or equivalent.

**MER 254 Flow and Heat Transfer in Multiphase Systems***Not offered 2003-04*

Analytical and empirical methods for evaluation of flow characteristics, particularly in liquid vapor systems and boiling and condensing of heat transfer. Prerequisites: ME 201, MER 202, or equivalent.

**MER 260 Nuclear Engineering and Technology***Winter; Staff*

Nuclear reactions and radiation; basic concepts and terminology used in reactor theory; radiation shielding; heat generation and transfer in nuclear reactors; study of reactor design variables with reference to existing designs.

**MER 290-291. Independent Study***Fall, Winter, Spring; Staff***MER 292A. Masters Project***Fall, Winter, Spring; Staff*

The preparation and writing of an extensive report on a topic of interest between the student and a department faculty member. A single course presented over two terms; a grade will be given for two terms of work only. Enrollment recommended no earlier than the last year of study. See MER 292b.

**MER 292B. Masters Project***Fall, Winter, Spring; Staff*

Continuation from MER 292A. Completed writing of the report and its oral presentation. Students must register for ME 292B even though they have previously registered for MER 292A. Open only to part-time graduate students.

**MER 296-297. Research and Thesis***(As arranged by department).***MER 309. Advanced Topics in Mechanics****MER 339. Advanced Topics in Fluid Dynamics**

## School of Management Courses

**CROSS-LISTED COURSES WITH UNION COLLEGE****ECO 225. Efficient Management of Technology\****Winter D; Schmidt*

Economic models of the firm; production and cost functions; concepts of efficiency and efficiency measurement; factors affecting efficiency; empirical applications to specific industries. Prerequisites: ECO 41 and ECO 43, or permission of instructor.

**ECO 244. International Economics\****Spring D; Motahar*

Foreign trade and international finance, protectionism, international migration of capital and labor, political economy of trade policy, strategic trade policy, international coordination of macroeconomic policies. Familiarity with fundamental concepts of microeconomics, macroeconomics, and regression analysis is expected. If uncertain about the adequacy of prior course work, the instructor should be consulted prior to registration. Prerequisites: ECO 41, ECO 42, and ECO 43, or permission of instructor.

**ECO 263. Seminar in International Finance***Fall D; Dvorak*

Topics in foreign economic policy and international finance. Exchange rates and international trade, currency crisis, monetary integration, global macro-economic institutions. Prerequisites: ECO 41 and 42.

**PHL 287. Seminar in Biomedical Ethics***Spring E; Pedroni*

A philosophical examination of moral problems in biomedicine, in particular those relating to physicians and patients, researchers and subjects, birth and death.

**MBA COURSES****GMI 200. Managing Ethically in a Global Environment***Fall D, E, Winter E, Spring E, Summer E; Manna*

This course examines issues of team functioning, ethics, and managing differences all in an increasingly global business environment. Students work individually and in groups to improve written and verbal communication skills.

**GMI 201 (Half Course). Mathematics of Management***Fall D, Winter E; Bowman*

This course focuses on mathematics useful in modeling management processes. Fundamental concepts of differential and integral calculus and their applications to management are addressed. Students must register separately for GMI 201 and GMI 202.

**GMI 202 (Half Course). Introduction to Probability***Fall D, Winter E; Bowman*

This course covers marginal, joint and conditional probability; random variables, expected value and variance; selected

probability distributions and their uses in management; and sampling distributions and the Central Limit Theorem. Students must register separately for GMI 201 and GMI 202. Prerequisite: GMI 201.

### **GMI 206. Statistical Models for Management**

*Winter E, Spring E; Schmee, Staff*

This course emphasizes statistical approaches (confidence intervals, hypothesis testing, regression analysis, chi-square tables) that support managerial decision-making. Examples of such decisions include determining the best of several suppliers or appropriate salary levels based on education and required skill. Examples from quality management, such as capability analysis and control charting will also be included. Emphasis will be placed on problem statement formation, translation of problem statements into quantitative terms, and finding appropriate data to reach supportable conclusions. Analysis will be performed using statistical and other software. Prerequisites: GMI 201, GMI 202 or a qualified course in probability or statistics.

### **GMI 210. Financial Accounting**

*Fall D, E, Winter E, Spring E, Summer E; Arnold and Neidermeyer*

A study of the accounting cycle, including preparation and analysis of income statement and balance sheets, price level problems, ratio analysis, and funds flow-cash flow; a critical study of generally-accepted accounting principles.

### **GMI 212. Managerial Accounting and Finance**

*Fall E, Winter D, E, Spring E, Summer E; Neidermeyer*

An introduction to the tools and techniques of financial analysis and decision-making. Topics covered include financial statement analysis, cost classification and behavior, cost-volume-profit analysis, incremental cost analysis, time value of money, capital budgeting, and financial planning. Spreadsheet programs are used in this course. Prerequisite: GMI 210.

### **GMI 216. Security Analysis\***

*TBA; Staff*

An introduction to the institutional structure and practice of the securities industry, and an analysis of key features and valuation techniques for stocks, bonds, convertibles, options, futures, commodities, and mutual funds.

### **GMI 217. Advanced Corporate Finance\***

*Fall E, Spring E; Feng*

This course covers advanced topics in corporate financial management. The analytical skills necessary to evaluate complex financial problems are developed through case studies. Topics covered include: advanced capital budgeting, agency theory, option theory and applications, measuring and hedging financial risk, merger, and acquisition analysis, corporate financial analysis and planning models, and short-term financial management.

### **GMI 220. Principles of Economics**

*Fall E, Winter LA; Lambrinos*

This course covers the basic microeconomic model of price determination; the impact of market structure on price and output decisions by firms; the role of the public sector in an economy; the basic macroeconomic model of national income determination; the impact of fiscal and monetary policies on employment levels, price stability and economic growth; and international economic relationships.

### **GMI 221. Managerial Economics\***

*Winter E; Staff*

The course applies principles of micro-economic theory to managerial decision-making. Micro topics include demand theory, estimation and forecasting, production and cost theory, market structure, forecasting with econometric, time series and exponential smoothing models. Other topics include the role of government in decision-making, risk analysis, and pricing practice.

### **GMI 225. Marketing Management and Strategy**

*Fall E, Winter E, Spring E, Summer E; Barth*

This course presents readings and case studies in strategic market planning, a discussion of the product life cycle, marketing mix, product policy, pricing strategies, channels of distribution, promotion, international marketing, and marketing organization with special emphasis on long-term implications.

### **GMI 226. Marketing Research Techniques\***

*TBA; Carlson*

The objective of this course is to provide comprehensive exposure to marketing research methods. The course is designed for the manager with ultimate responsibility for identifying the scope of and implementing particular market research activities. The course explores the application of scientific investigation to the identification and solution of marketing problems.

### **GMI 227. Industrial Marketing\***

*Winter E; Barth*

This course examines the process of product development from the stage of market identification through rollout of the new product. Subjects considered include: market research techniques, using primary and secondary data, idea generation, designing for quality, marketing strategy and launch. The primary focus will be on products to service the industrial or business market, but techniques from consumer marketing will be incorporated.

### **GMI 229. Money, Markets and Banking\***

*Fall E; Ashman*

The course covers the nature and functions of money and finance in the economy. Commercial and central banking, monetary theory, and monetary policy are also considered. Recommended: GMI 217.

**GMI 231. Operations Management***Fall E, Winter D, Spring E; Bowman*

This course covers Six Sigma quality concepts and tools, capacity planning, facility location, and inventory management, with an emphasis on supply chain design and management. Management science tools are used throughout.

**GMI 232. Quality Systems Management\****Fall E; Schmee*

The course looks at quality improvement approaches in the context of overall organizational objectives. The course discusses the contents and impact of important government and industry standards such as ISO 9000. The course covers Six Sigma including the Measure-Analyze-Improve-Control model (MAIC) and Design for Six Sigma (DFSS). It discusses extensions to benchmarking and quality functional deployment and offers advanced tools such as systems reliability and maintainability, and life data analysis.

**GMI 235. Project Management and Design of Experiments\****TBA; Staff*

This course covers two separate topics: project management and design of experiments. Project management considers the fundamentals for successfully managing individual or multiple projects. Topics covered include planning, scheduling, budgeting, resource leveling, monitoring, and control. Development of mathematical software, administrative, and human management skills necessary for increasing productivity and successfully completing projects on time and within budget are also addressed. Design of experiments addresses topics like underspecified and overspecified models, experimental design (including complete and incomplete block designs), factorial designs, fractional factorial designs, and response surface designs, classical analysis of variance and its relationship to regression analysis, simultaneous inference, randomization and practical constraints, random effect and mixed models, and nested and split plot data arrangements.

**GMI 241. Systems Analysis and Simulation\****Winter E; Bowman*

In this course students build and utilize computer simulation models to analyze a wide range of systems. Applications include restaurants, doctors' offices, customer call centers, and many others. Models are built using specialized simulation software as well as Microsoft Excel. Prerequisite: GMI 206.

**GMI 245. Management for Information Systems\****Winter E; Staff*

The course considers the use of management information systems within the organization, specifically addressing what an information system is, the underlying technologies, and how current and future computing and telecommunications technologies will contribute to the daily operation and competitiveness of the organization. Particular emphasis is placed on use of information systems to gain competitive advantage.

**GMI 250. Competing by Design\****Spring E; Belasen*

Design often signals a shift in strategic emphasis and patterns of organizational performance. Design can also be used to shape an organization's tone or operating style. Dramatic and lasting restructuring or reengineering plans often fail without the mindset of change architects who share the new strategic vision and corporate values. The ultimate goal of design is to use organizational structures, systems, and processes creatively as a sustainable source of competitive advantage. This course focuses on examining how successful corporations leverage competitive advantages through restructuring and external alliances. Students will apply theoretical knowledge and conceptual models to analyze organizational structures, diagnose organizational design, and evaluate a range of design options and implementation strategies available for transitioning organizations. Topics include corporate downsizing, strategic control systems, horizontal structures, outsourcing, partnerships, virtual forms, and global design.

**GMI 251. Managing People and Teams in Organizations***Fall E, Winter LA, Spring E, Summer E; Nydegger*

This course approaches management issues from the "human" side. By relying on text materials related to basic theory and research in management, and by integrating activities and hands-on learning opportunities, students have a broad range of techniques that equip them to function as effective managers in modern organizations. Particular emphasis is given to skills and activities associated with Total Quality Management.

**GMI 252. High Performance Leadership: A Competency Approach\****Fall E; Belasen*

This course emphasizes cognitive skills and experiential/practicum learning applied to ongoing leadership and organizational problems. Students learn about leadership roles and competencies essential for building and supporting organizational capabilities and business strategies in global markets. The course also enables students to learn a method to diagnose their strengths and weaknesses in leadership capacities and measure their proficiencies against benchmarked models of high performance leadership.

**GMI 253. Organizational Development and Transformation\****Fall E; Nydegger*

This course considers the theory and practice of planned organizational change. Students are exposed to a variety of intervention techniques applicable in a wide range of organizational settings. Lectures are complemented with participatory exercises and interactive discussions.

**GMI 257. Human Resources Management\****Fall E; Paludi*

An introduction to the theory and practice of human resource management, this course examines the economic, political, legal, and managerial aspects of the recruitment and selection, retrenchment, performance evaluation, compensation, motivation, job design, organizational change, and labor relations functions. The focus of the course includes profit, non-profit, and governmental organizations with particular emphasis on health care delivery firms.

**GMI 260. Executive Decision Processes in Global Environments\****Summer E; Belason*

Along with information technology, international management is the major challenge facing organizations in the hypercompetitive global marketplace. Companies that once served a specific geographic area or serviced a specific need have learned to compete with anybody, anywhere, anytime. Needing to diversify in order to compete effectively, an increasing number of multinational companies are finding it essential to anticipate changes and innovate continually to become world-class organizations. Global management requires visionary leaders and strategic thinkers who are driven by a customer focus and continuous improvement, supported by a fluid virtual organization and sustained by creative human capital and extensive information technology. These leaders must also recognize the existence of cognitive barriers to decision-making and how to overcome decision traps and make better choices for their multinational companies. Using Internet-based search engines, cases, and small group projects, students will have hands-on experiences and acquire the skills necessary to become successful decision makers for their multinational companies.

**GMI 261. International Finance\****Winter E; Staff*

An analysis of international financial markets and the special problems and opportunities associated with the financial management of multinational firms. The international monetary and banking system, balance of payments, and economic parity relationships are also examined. Foreign exchange risk management, international financing activities, multinational capital budgeting, political risk, international taxation issues and diversity of financial reporting are considered. Recommended: ECO 244.

**GMI 262. International Business and Competitive Theory\****Spring E; Chudzik*

This course examines international business management as influenced by the important economic, political and cultural environment within which businesses must conduct international trade and investment. The problems and issues confronting international managers are evaluated related to a firm's strategy, organizational structure, manufacturing, material management, marketing, R&D, human resources

and finance. Competitive strategies are examined that have been successful in leading international companies. Case studies are used extensively to illustrate the relevance of these topics in the practice of international business.

**GMI 263. e-Commerce\****Winter E; Chudzik*

This course provides an exposure to important concepts and major issues of e-commerce. Several case studies of the leading companies in Internet business will be analyzed.

This course aims: a) to evaluate the new economies of information and the strategies for new and existing businesses on the web; b) to study the aspects of framing a market opportunity on the web; c) to understand the seven major business models on the web—online retailers, online content providers, Internet access providers, online market makers, online portals, online brokers, and application service providers; d) to provide an overview of the network infrastructure and web technologies; e) to study the marketing opportunities on the web and what is an effective web site; f) to review the global impact of e-commerce and an insight into the legal and security issues; g) to understand managing risk in e-business and to understand the critical success factors; and h) to examine the last two years of e-commerce and to look at what worked and what did not work on the web and to look at the future of e-commerce.

**GMI 264. Entrepreneurship***Summer E; Sinopoli, Schwartz*

*Course held off campus, 8 Airport Park Blvd, Latham, NY (<http://www.shggroup.com.contactus.htm>) for directions.*

The primary objective of this course is to develop an awareness of the process of new venture creation, whether it is an intrapreneurial or entrepreneurial event. The skills, knowledge and attitudes important for creating new ventures, and the complex tasks faced by individuals who start and manage new and growing businesses as well as corporate ventures and franchises will be addressed. The course is designed to provide a broad overview of management, and financial issues. We will pay particular attention to: entrepreneurial decision-making, techniques entrepreneurs and investors use for evaluating and testing the feasibility of business opportunities, understanding the impact of market and industry forces on start up, performance and survival of new ventures, financing a business opportunity, etc.

**GMI 265. International Marketing Management\****Spring E; Staff*

This course examines development of international marketing strategies, from determining objectives and evaluating international market opportunities through coordinating strategies in world markets. Particular emphasis is placed on application of marketing principles in the multinational environment.

**GMI 270. Legal Principles of Business***Fall E; Winter E; Suprunowicz, Valle*

The objectives of the course are to enable the business manager to identify situations with legal implications and to interact effectively with professional legal counsel. Particular areas of the law examined during the course are contracts, sales, negotiable instruments, negligence, product liability, secured transactions, and ethical considerations. Not open to JD/MBA students.

**GMI 282. Lean Production Management\****Spring E; Bowman*

This course covers just-in-time and lean production concepts and tools, process technology, facility layout, design for manufacturing, production scheduling, designing and managing global supply chains. In-class exercises and software tools are used to allow students to explore these topics in an interactive manner.

**GMI 283. Management Internship***No fee; Fall, Winter, Spring, Summer***GMI 290, 291. Independent Study in Accounting***Written permission of the instructor and MBA Dean is required.***GMI 292, 293. Independent Study in Finance/Economics***Written permission of the instructor and MBA Dean is required.***GMI 294, 295. Independent Study in Management Systems***Written permission of the instructor and MBA Dean is required.***GMI 310. Advanced Topics in Domestic and International Financial Accounting\****Spring E; Arnold*

Examination of financial statement reporting practices for selected advanced business activities including income recognition of complex business transactions, business financing decisions, mergers/acquisitions, international subsidiaries and international business transactions and related hedges. Prerequisite: GMI 210.

**GMI 311. Personal Financial Planning and International Wealth Management in a Global Setting***Fall E; Neidermeyer*

This two-part course first presents an examination of personal financial planning in a global environment encompassing topics such as personal budgeting, insurance coverage, investment planning, managing credit, retirement planning and estate planning. The course then extends the topics to related domestic and international tax issues of income tax considerations for individuals, corporations and partnerships. Knowledge of the current business environment (tracked through the *Wall Street Journal*, *Business Week*, online at CNNFN.com, etc.) will be expected.

**GMI 319. Investments\****Winter E; Ashman*

This course provides an in-depth analysis of modern investment analysis and portfolio management techniques. Current theory, empirical evidence, and institutional practices are considered. Topics covered include portfolio theory and asset pricing models, market efficiency, fixed-income portfolio management and immunization, equity valuation models, the valuation of options, futures and other derivative securities, portfolio management and performance evaluation, and international diversification. Recommended: GMI 217.

**GMI 381. Strategic Management and Leadership (MBA Capstone)\****Winter E, Spring E; Chudzik and Schmee*

The goal of this course is to integrate all of the MBA course work to prepare the students to address the full scope of business they will face as a leaders in the business world. This is done by having student teams work with real start-up companies to develop a complete business plan for the company. The plans are developed in phases over the term with the teams working closely with their companies and culminating in a presentation of the plan to a simulated investor panel made up of the company CEOs. Case studies are used to illustrate effective strategies and leadership. Students must have three or fewer courses left to complete the degree requirements after taking GMI 381.

**HEALTH SYSTEMS MBA COURSES****HSS 200. Introduction to Health Systems***Winter E; Strosberg*

This course examines the determinants of health, illness, and medical care utilization, institutional arrangements and settings for the delivery of acute and chronic care, the doctor-patient relationship, resource allocation and financing, and measuring and evaluating system performance.

**HSS 201. Health Systems Management***Spring E; Nydegger*

This course examines managerial roles and processes within health service organizations—organization design, managerial epidemiology, governance, total quality management, human resource management, labor relations, and ethics. Prerequisite: HSS 200.

**HSS 217. Health Care Finance\****Spring E, Summer E; Ashman*

This course covers financial management in a regulated health care environment. Topics include cost-finding and third-party reimbursement, contemporary issues in health care financing, sources of capital, capital budgeting, financial planning and analysis, cost accounting, and managed care issues.

**HSS 220. Health Economics\****Winter E; Lambrinos*

This course is intended for students entering the health field and investigates economic approaches to problems and solutions. Students obtain an understanding of how economics contributes to public and private decision-making in health care, and learn to properly interpret economic research results and apply them to work performed by health planners and administrators. Recommended: GMI 210, GMI 212.

**HSS 225. Health Systems Marketing and Managerial Epidemiology\****Fall E; Manna and Stephens*

This course covers two main topical areas. The first builds on GMI 225 (Marketing Management and Strategy) focusing specifically on the unique challenges and approaches associated with health care marketing. Consumer behavior, the development of the marketing mix, product policy, business-to-business marketing, and market strategy appropriate to specific situations of various health care institutions are addressed. The second focus is on understanding and applying basic epidemiological methodologies to the health care management arena.

**HSS 250. Structural Dynamics in Health Care Systems***Fall E; Strosberg*

Application of organization theory to health care organizations and systems for the purpose of improving performance. Topics include: organizational structure and design, coordination and control, power and politics, organizational culture, organizational ethics, organizational change.

**HSS 256. Group Practice Administration: Seminar and Practicum\****Winter E; Kleinbauer*

The objective of this course is to introduce students to the organization and management of private group practice through seminar and practical experience. It is intended that this course will prepare students for employment in private group practices and/or other ambulatory care organizations.

**HSS 258. Issues and Management of Long-term Care\****TBA; Staff*

This course examines the organization and management of nursing facilities, retirement communities, assisted living facilities, and organizations for other populations requiring long-term specialty treatment. Emphasis is placed on the personal and professional skills necessary to provide a range of services and quality care within these dynamic environments.

**HSS 274. Legal Aspects of Health Care\****Spring E; Staff*

This course is designed to familiarize students with basic legal issues involved in managing health care systems. Antitrust, consent, labor law, malpractice, professional rights and other problems are explored using actual and hypothetical case studies. Not open to JD/MBA students.

**HSS 280. Health Policy and Information Systems\****Winter E; Manna and Smith*

This course covers two main topics. The first (focusing on public policy formulation and implementation) is designed to provide an understanding of the political and regulatory environment of health care organizations. The second focuses on the role of information systems in the management and operation of health services organizations and how data derived from these systems can be utilized to assess and improve the health of defined populations.

**HSR 283. Health Residency Internship***No fee; Summer***HSS 290-295. Independent Study in Health Systems.**

Students pursue programs of independent study in a particular area of health systems under the supervision of a faculty member. Written permission of the instructor and MBA Dean is required.

**HSS 381. Strategic Issues for Health Care Organizations\****Spring E; Manna and Smith*

This course is designed to integrate the concepts and skills associated with managerial problem-solving learned throughout the MBA in Health Systems Administration program. Students analyze case studies addressing the strategic realignment of health service organizations in today's turbulent environment. A variety of expert practitioners present their views on this topic. Students must have three or fewer courses left to complete after taking HSS 381.

**STATISTICS****STA 201. Introduction to Probability and Statistics***Winter D; Bowman*

This course studies the fundamentals of applied probability, most important distributions, acceptance sampling, confidence intervals, point estimation, and tests of hypotheses.

**STA 290-295. Independent Study in Statistics***Written permission of the instructor and MBA director is required.*

## Center for Bioethics and Clinical Leadership Courses

### MS IN BIOETHICS COURSES

#### **MED 246. Proseminar in Health and Human Values**

*Summer (First two weeks of August), On-site, D, Albany Medical College and Union College; Baker, Greenlaw, Lederer, McCullough, Shelton, Veatch*

An intensive two-week introduction to current topics in clinical ethics and bioethics, taught seminar style at Albany Medical College and Union College. This overview of current issues in bioethics humanities involves four special proseminars, case conferences and ethics rounds. There will also be extensive training in the computer skills (demonstrations, workshops) essential to mastering distance learning. Must be taken in the first fifteen months of enrollment.

#### **MED 281. Health Care Policy**

*Fall Distance Learning; Strosberg*

This course provides an understanding of the public policy-making process and the political and regulatory environment in which health care organizations function. It also provides an understanding of managerial processes, politics, and structure of the health care organizations where ethical policies and practices are implemented and carried out on an ongoing basis. Policies for consideration include resource allocation, end-of-life decision-making, accountability and performance measurement, and conflict-of-interest.

#### **MED 274. Biomedical Ethics**

*Winter Distance Learning; Baker*

An advanced historically based introduction to bioethics and clinical ethics focusing on such formalizations of medical morality as the Hippocratic Oath, the AMA codes, the Belmont Report and Beauchamp and Childress Principles, and the idea of casuistry. Major cases in bioethics will also be reviewed and the evolution of the core concepts and infrastructure of medical ethics and bioethics will be examined.

#### **MED 202. Clinical Ethics**

*Spring, Distance Learning; Shelton*

This course deals with the practical applications of clinical ethics, including clinical ethics consulting and its recording and documentation, the work of ethics committees and IRBs, and other practical ethics of clinical ethics.

#### **MED 301. Practicum I in Clinical Ethics**

*Summer, On-site, Various locations*

A supervised practical experience in clinical ethics designed to teach skills in clinical ethics consultation. Prerequisite: MED 202

#### **MED 205. Reproductive Ethics**

*Summer, Distance Learning; Steinbock*

An investigation of the ethical and legal problems associated with new reproductive technologies and genetics. Taught by distance learning. Elective course.

#### **MED 284. Bioethics and the Law**

*Spring, Distance Learning; Pratt*

This course is designed to familiarize students with major legal issues and legal concepts relevant to bioethics.

#### **MED 206. Research Ethics-Scientific Integrity**

*Winter, Distance Learning; Kaplan*

A course in research ethics including a discussion of the IRB process. Elective course.

#### **MED 207. Empirical Research Methods in Bioethics**

*Spring, Distance Learning; Jacoby*

A course in empirical research methodology designed to teach how to conduct empirical research in the field, and how to analyze the empirical bioethics literature. Elective course.

#### **MED 302. On-Line Clinical Practicum**

*Fall, Distance Learning*

A supervised practical experience in clinical ethics designed to teach skills of clinical ethics consultation. Supervision by on-site mentors and on-line faculty.

#### **MED 391 & MED 392. Masters Project**

*Winter and Spring, Distance Learning*

The masters project in bioethics or clinical ethics, will involve two terms of research culminating in a written document addressing some aspect of clinical ethics or bioethical policy, such as a proposal to revise or reform practices at a medical institution or managed care organization, or a proposal to change bioethical policy. Strongly recommended: MED 207.

#### **MED 399. Capstone Clinical Ethics**

*Summer, On-site, Albany Medical College and Union College*

Capstone practicum in which students demonstrate their mastery of clinical ethics consultation.

### MS IN CLINICAL LEADERSHIP AND HEALTH MANAGEMENT COURSES

#### **PHL 287. Biomedical Ethics**

*Spring E; Staff*

An advanced historically based introduction to bioethics and clinical ethics focusing on such formalizations of medical morality as the Hippocratic Oath, the AMA codes, the Belmont Report and Beauchamp and Childress Principles, and the idea of casuistry. Major cases in bioethics will also be reviewed and the evolution of the core concepts and infrastructure of medical ethics and bioethics will be examined.

### **MED 200. Introduction to Health Systems**

*Fall D; Weiner*

This course examines the determinants of health, illness, and medical care utilization, institutional arrangements and settings for the delivery of acute and chronic care, the doctor-patient relationship, resource allocation, and the measuring and evaluating system performance.

### **MED 271. Clinical Leadership Practicum**

*Fall D; Lehrman*

Students will work in the field with a preceptor in a clinical leadership role. Students may be placed in a variety of health care settings including: hospitals, physician offices, health maintenance organizations, etc. Classes meet every other week to discuss students' field experiences and selected readings.

### **MED 280. Health Policy and Information Systems**

*Winter E; Manna and Smith*

This course covers two main topics. The first (focusing on public policy formulation and implementation) is designed to provide an understanding of the political and regulatory environment of health care organizations. The second focuses on the role of information systems in the management and operation of health services organizations and how data derived from these systems can be utilized to assess and improve the health of defined populations.

### **MED 253. Economics of Health**

*Spring D; Lambrinos*

Examination of demand and supply for medical personnel; analysis of hospital cost, inflation, and health insurance. Discussion of issues in cost benefit analysis of public health and regulation of health care markets.

### **OPTIONAL ADVANCED SCIENCE COURSES**

*(See Union College Undergraduate Catalog for descriptions)*

- BIO 46. Introduction to the Neurosciences**
- BIO 130. Animal Physiology**
- BIO 180. Biochemistry**
- BIO 154. Developmental Biology**
- BIO 170. Endocrinology**
- BIO 160. Histology**
- BIO 136. Mechanisms of Cell Regulation**
- BIO 25. Molecular Biology**
- BIO 140. Molecular Genetics**
- BIO 165. Neural Circuits and Behavior**
- CHM 30. Organic Chemistry**
- CHM 150. Physical Chemistry**

### **BOARD OF TRUSTEES**

***The Board and Officers of the Board to be elected at first Board meeting in October 2003.***

### **ADMINISTRATION**

**Susan Lehrman**, President; BA 1972, Oregon State University; MPH 1980, PhD 1993, University of California, Berkeley

**Lloyd B. Tredwell**, Vice President for Administration and Student Services; BS 1967, MS 1973, University of the State of New York, Cortland

**Patrick F. Allen**, Dean of the School of Education; BA 1963, University of California; MA 1967, PhD 1974, Indiana University

**Melvin W. Chudzik**, Dean of the School of Management; BSEE 1957, University of Buffalo; MS 1970, Long Island University

**Robert J. Kozik**, Dean of the School Engineering and Computer Science, BSCE 1966, University of Massachusetts, MSCE 1968, Kansas State University

**Robert B. Baker**, Director of the Center for Bioethics and Clinical Leadership, Professor of Bioethics; BA 1959, City College of New York; PhD 1967, University of Minnesota

## Degrees and Certificate Offered

<b>SCHOOL OF EDUCATION</b>	<b>Degree</b>	<b>HEGIS Code</b>
Adolescence Education 7-12 with specialization	MAT	0803
Adolescence Education 7-12: Life Science	MS	0499
Adolescence Education 7-12: Math and Tech	MS	1799
Adolescence Education 7-12: Physical Science	MS	1901
Core Certification: Adolescence 7-12	Adv. Cert	0803
<b>SCHOOL OF ENGINEERING</b>		
Computer Science	MS	0701
Electrical Engineering	MS	0909
Mechanical Engineering	MS	0910
<b>SCHOOL OF MANAGEMENT</b>		
Business Administration	MBA	0506
Law and Business Administration (with Albany Law School)	MBA	0506
Health Systems Administration	MBA	1202
Law and Health Systems Administration (with Albany Law School)	MBA	1202
Health Systems Administration	Adv. Cert	1202
Financial Management	Adv. Cert.	0504
<b>CENTER FOR BIOETHICS AND CLINICAL LEADERSHIP</b>		
Bioethics	MS	0499
Bioethics (distance learning)	MS	0499
Clinical Leadership in Health Management	MS	1202
Clinical Leadership in Health Management/Pharmacy BS (with Albany College of Pharmacy)	MS	1202
Clinical Leadership in Health Management/Pharmacy Doctorate (with Albany College of Pharmacy)	MS	1202
Eight-year Leadership in Medicine– Health Management (with Union College and Albany Medical College)	MS	1202
Eight-year Leadership in Medicine– Health Systems Administration (with Union College and Albany Medical College)	MBA	1202



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